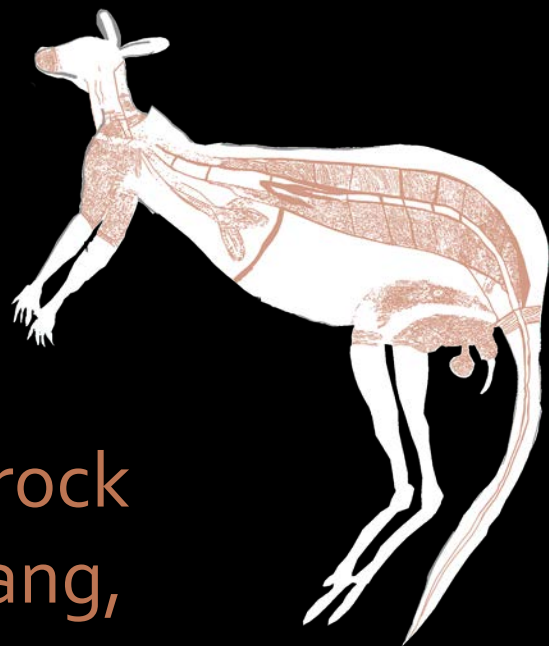


Art of the Ancestors

Spatial and temporal
patterning in the ceiling rock
art of Nawarla Gabarnmang,
Arnhem Land, Australia



Robert Gunn

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Cover: Macropod interpretation from Panel B1, Nawarla Gabarnmang
Nawarla Gabarnmang shelter interior from the east



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This volume is dedicated to the memory of
Margaret Katherine (1948-2018)
and
all my other Jawoyn/Mayali colleagues and friends now 'finish-up'

WARNING

This book contains images of Aboriginal people now deceased and, although approval has been sanctioned by the relevant communities, the images may cause distress to some people.

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Note on Figures: Due to the large size of some of the Harris Matrices discussed in Chapter 8 it has been difficult to reproduce them legibly. Therefore the relevant images are also available online at tinyurl.com/9781789690705-onlinecontent

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Additional Credits

The photograph of Margaret and the accompanying quote at the beginning of Chapters 1 and 6 are from the documentary 'First Footprints' (Contact Films 2013; Martin Butler and Bentley Dean, directors and producers) used with permission. Those with myself in consultation on p.959 were taken by Ray Whear. Other quotes from Margaret at the beginning of Chapters 1, 7 and 8 taken from an ABC Stateline interview recorded by Emma Masters and broadcast on the 2nd October 2009;

<http://www.abc.net.au/stateline/nt/content/2006/s2703655.htm>

Robert Lee's comment at the beginning of Chapter 2 is taken from *Jawoyn plants and animals* (Wijnjorrotj et al. 2005: 7).



They [archaeologists] are magic people to look through the stone and the dirt but, to me, my grandparents they are here.

Margaret Katherine 2012

(Photograph: First Footprints 2013)



1. INTRODUCTION

I call out to the spirit of my grandfather and nanna.
I know that their spirits are here and they protect the painting.
Margaret Katherine 2009



For those who get keenly involved, recording rock art is a passion. It is also a privilege to work with and learn, first hand, about the art and places of another culture; another way of seeing the world. For the past 40 years, as a freelance consultant, I have been following my passion: the documenting and management of rock art sites across Australia. The majority of these sites were recorded purely as archaeological features, although I have also been fortunate to visit many sites in the company of Aboriginal men and women who hold knowledge of the sites and their functions within traditional Aboriginal society. Very few of these people have produced rock art themselves, but most having either witnessed relatives doing so or learnt the cultural context of the art and the sites from their elders. Some of the art sites we visited are breath-takingly spectacular, others just small alcoves with one or two faded motifs. Irrespective of their size and content, all of these sites hold significance to the local elders, often primarily as a record of a way of life that they see as passing. In some areas, the Traditional Owner groups are now using their rock art as an artefact of their past, to develop a revitalised culture. Archaeologists are generally seen as allies in this process who promote the value of cultural places, but in some cases, they are seen as adversaries who come from a dominant and absorbing colonial culture, not really understanding or appreciating Aboriginal ways of life. For most Australian Aboriginal groups today, the position of rock art is changing, being caught between several sometimes competing issues. These can be summarized as:

- a need for traditional measures for the protection of cultural sites (often requiring the total exclusion of outsiders);
- the application of Western methods of site protection, incorporating the assistance of archaeologists, conservators and other related professionals; and
- the development of community-run economic tourism ventures.

In 2005, within this melee of expectations, I was invited by the Jawoyn Association Aboriginal Corporation to undertake an assessment of the rock art on their extensive 50,000 km² lands in south-western Arnhem Land (Gunn and Whear

2007). The Jawoyn Association, based at Katherine in the Northern Territory, is a representative body that assists the management of a number of small residential communities within what are now known as the Jawoyn Lands (see www.jawoyn.org). One of the important findings of this 2005 assessment was how little of the Jawoyn Lands had actually been surveyed for rock art and/or other Aboriginal sites (Gunn 2005a). Periodically over the next seven years, as part of the Jawoyn Rock Art and Cultural Heritage Programme (JRAHP; see Chapter 3) with the assistance of knowledgeable Aboriginal elders, Leigh Douglas (my wife and assistant photographer) and I undertook systematic site recording across the Jawoyn Lands (Figure 1.1). It was during one these surveys of the central Arnhem Land plateau that the large and spectacularly decorated site of Nawarla Gabarnmang was located and its initial recording undertaken (see Chapter 6). As a consequence of this find, Leigh and I began to work more closely with the late Margaret Katherine, the then senior Traditional Owner of Nawarla Gabarnmang. Margaret was a Jawoyn elder and respected storyteller within the community, and she enthusiastically encouraged our continued work at sites within her traditional Buyhmi clan estate (Figure 1.2; see Chapter 3).

Nawarla Gabarnmang is one of more than a thousand rock art sites Leigh and I recorded during the JRAHP surveys. It is by far the most impressive rock art site we visited, because of both its exceptional physical formation and its outstandingly dense concentration of superimposed motifs. During the initial site recording in 2006, the standardised JRAHP recording methods that I had devised and was being used at the time, failed to do justice to the complexity and quality of this outstanding gallery of Jawoyn heritage.

The site had been assessed as of great social and spiritual significance by Jawoyn elders soon after its rediscovery in 2006. Within four years, its high archaeological value was acknowledged by rock art authorities and professional archaeologists from both Australia and France, who began excavations there in 2010. My work with the Jawoyn Association led, in 2012, to the opportunity of undertaking a PhD with Monash University to develop an appropriate recording method for the artwork of Nawarla



Figure 1.1: Location of Nawarla Gabarnmang and Jawoyn Lands



Figure 1.2: My initial meeting with Margaret Katherine, Barunga, March 2005
From left to right: Peter Bolgay (Mayali elder), Ray Whear (Jawoyn Association), Nikabini Dalak (Jawoyn elder) and Margaret Katherine (Jawoyn elder and Traditional Owner of Nawarla Gabarnmang).

Gabarnmang. This research was undertaken as part of the joint Monash University-Jawoyn Association 'Connecting Country' project, whose aims were to study the archaeology of Nawarla Gabarnmang and other nearby sites on Jawoyn Lands (e.g. David et al. 2011).

Aim

To adequately record the complexity of the rock art at Nawarla Gabarnmang, a new method of recording was developed that allowed all of the motifs visible within the site to be more precisely defined and their

temporal relationships more fully determined than is the current practice in Australia. This method requires that a graphic record be produced to permit systematic interpretations of each and every individual motif (cf. Gunn et al. 2011). Examining the ceiling artwork at the large and complex art site of Nawarla Gabarnmang, state of the art techniques were used to map temporal changes in the art repertoire. Many motif types not represented in the existing typologies and chronologies of Arnhem Land rock art were identified and analysed to formulate a more encompassing and accurate motif sequence. The results then provided a better understanding of rock art history for the broader western Arnhem Land region.

Rock art documentation

The rock art of indigenous peoples across the world has intrigued Western researchers and the public alike for well over a century. Initially seen as curiosities by visiting travellers, the earliest known recording of rock art anywhere in the world was by Han Fei in China around 300 BC, with the earliest in Europe being in AD 1458, and in Australia in AD 1788 (Bahn 1998: 1-29). An interest in the history of rock art grew exponentially following the academic recognition in 1902 of the great antiquity and high artistic merit of European cave art (Breuil 1952: 15; Lawson 2012: 50-53).

Systematic rock art recording began in the early 19th Century with the work of Carl Brunius, but his was an example that few followed at that time (Bahn 1998: 54-55). Although amateur archaeologists had reported several instances of what they believed to be Palaeolithic rock art in European caves during the latter part of the 1800s, these were rejected as forgeries by the academic community, as at the time it was considered that Palaeolithic people did not have the mental capacity to produce work of high artistic standards (Lawson 2012: 49-62). With mounting irrefutable evidence, the Palaeolithic origin of these artworks was eventually acknowledged at the turn of the 20th century, prompting a surge in cave exploration and the recording of further rock art sites. Along with this flowering of rock art recording there was also a desire to interpret the art. Why had the art been produced, and how old was it? European Palaeolithic cave art had no living ethnography; however, archaeologists sought answers from cultures that retained knowledge of the role of rock art within their own cultures (Layton 2000). Geographically distant places and cultures far from Europe, particularly that of Australian Aboriginal peoples, were seen as archetypes of Europe's own deep antiquity. For many Western researchers then, the ethnography of indigenous peoples who continued to make rock art was seen as contributing to an understanding of European cave art. The ethnography of rock art, and the rock art itself, were not studied to understand indigenous histories in their own right. The

little anthropology of rock art done in Australia at that time, particularly Spencer and Gillen's pioneering work with the Arrernte of central Australia in the 1890s, was therefore one of the important resources contributing to the understanding of European Palaeolithic cave art (Pfeiffer 1982; Sieveking 1979; Ucko and Rosenfeld 1967).

Within Australia, following Spencer and Gillen's revelatory *The Native Tribes of Central Australia* (1899), the academic documentation of Aboriginal peoples' interpretations of their own rock art continued spasmodically although, for the most part, it was tangential to the study of other anthropological issues. Amongst these studies, however, there were some notable anthropological exceptions (e.g. Arndt 1962a, 1962b; Crawford 1968; Elkin 1930, 1952; Love 1930; Maddock 1970; Mountford 1937, 1965, 1968). From the 1960s onwards, archaeology began drawing heavily on ethnoarchaeological studies to interpret stone artefacts and settlement patterns (e.g. Binford 1972; Gould 1980; Hayden 1979; Meehan and Jones 1988). In contrast, specific rock art studies, which until the 1970s had largely been undertaken by individuals documenting regional rock art areas (particularly, Davidson 1936; McCarthy 1941-56, 1959, 1960, 1976, 1983; Trezise 1971; Wright 1968), began moving towards a more rigorous application of analytical methods, studying rock art images as artefacts (e.g. Clegg 1977, 1979a; Maynard 1976; Officer 1984, 1991a; Smith 1983). Another major influence on the understanding of rock art at this time was Nancy Munn's studies of the Walbiri graphic system. She highlighted the multivalence of many of the symbols: an image could have more than one meaning, with the meaning differing according to the social context in which it was being used (e.g. Munn 1962, 1973).

Internationally, the 1970s saw scholars successfully combine both anthropological and ethnographic approaches within their archaeological studies to reveal a greater depth of interpretation and appreciation (e.g. Vinnicombe 1976 and Lewis-Williams 1981 in South Africa). While studies using both ethnographic and quantitative methods have continued in Australia (e.g. Brady and Bradley 2014; David et al. 1994; Frost et al. 1992; Gunn 1987a, 2004, 2011a; Harney et al. 2009; Merlan 1989; Morwood and Hobbs 1992; Mulvaney 1996; Smith 1994; Taçon 1989a; Tasire and Davidson 2015), following the first Australian conference on Archaeometry in 1982 (Ambrose and Duerden 1982) the depth of archaeological analysis of rock art has greatly increased through the application of Archaeometric methods (the physical or chemical measurement and quantification of archaeologically derived material; Jones 1982; and see later examples related to rock art in Bednarik 2007; Cole and Watchman 1992; Delannoy et al. 2013; Goodall et al. 2009; Huntley 2015; Roberts et al. 2015; Watchman 1990; Watchman et al. 1995).

The 1960s and 1970s saw favourable changes in the Australian public and political climate towards Aboriginal people, with amendments to the Commonwealth Electoral Act 1962 granting them the rights to enrol to vote, the recognition of rights to traditional lands through the *Aboriginal Land Rights (Northern Territory) Act 1976*, and acknowledgement of the significance of sacred sites through *The Aboriginal lands and Sacred Sites Bill (NT) 1977* and the later *Northern Territory Aboriginal Sacred Sites Act 1989* (see Aboriginal Areas Protection Authority n.d.). With these changes, Aboriginal people became increasingly vocal regarding the direction of academic research into their own cultures (Ah Kit 1995; Langford 1983; Wallace and Wallace 1977: see Chapter 5). Today, rock art is acknowledged by academics and Aboriginal peoples and in many places by governments, as being of special significance to Aboriginal people, while also being an irreplaceable resource for enquiry into and education about Australia's heritage (e.g. May 2008). Consequently, the approval and/or involvement of the respective Aboriginal people in research into Aboriginal culture has become an integral part of an ethical approach required of members of the Australian archaeological and rock art associations, and most Australian universities. Aboriginal rock art has now progressed from that of a curio to being acknowledged as an integral part of a living culture.

Making a record

Most rock art researchers today begin their recordings with a pro-forma site form (often electronic, in a tick-box or simple descriptor format). These are primarily a database and management tool documenting: site location shelter or rock panel size and orientation; presence or absence of potential archaeological deposit and artefacts; a listing of images by style, technique or other particular regional attributes; and a note on their general condition and any management issues. The range of attributes of the artworks recorded will largely depend on the orientation of the research or management interests of the person or body that created the form, while the degree of accuracy in completing the form is largely dependent on the interest, expertise and experience of the recorder (Flood et al. 1989; Gunn 1995a, 1995b). These site recording forms are largely supported, to a greater or lesser degree, by photographic coverage. Such summary recordings, however, are not of concern here, as the main focus of my work was with detailed archaeological recording of rock art: its documentation, interpretation and analysis.

More detailed recordings of rock art were initially done painstakingly by freehand drawing onto paper or canvas, or as tracing onto semi-transparent rice-paper, which was then redrawn for publication.

These records, usually produced under less than ideal conditions, often incorporated omissions, distortions, or purely subjective readings that were then replicated in subsequent studies and publications (Bahn and Vertut 1988: 44; Bednarik 2007: 55-56). One of the first, finest and most influential of the recorders documenting and publishing European cave art was Henri Breuil (1877-1961). Using pencil and pastels he quickly set a particularly high standard for freehand copying, although these tended to be 'in the spirit of the original' (Lawson 2012: 65) and disregarded what he considered to be insignificant fragments (Daubisse et al. n.d.: 8). Freehand copying is still a common practice, being an invaluable preliminary method for objectively seeing the artwork. However, the ready availability of transparent plastics and permanent-marker felt-nibbed pens in the 1970s made tracing the preferred technique for archival purposes (Clegg 1983: 102-104). In a variation of this technique, in which felt pens allowed only a limited number of standard colours to be used, archaeologist and artist Patricia Vinnicombe used polythene and watercolour tempera mixed with detergent as a fixative (SARADA 2015a). Due to the potential damaging impacts on the underlying artwork, laying sheets of any sort over artwork for tracing or rubbing is no longer an approved recording method due to the potential impacts on the underlying artwork. Exceptions are made by some experienced researchers; for instance, for petroglyphs (engravings, peckings, etc.) on rock that is known to be particularly stable (Bednarik 2007: 57; IFRAO 2000). Another once common practice, the chalking/painting of petroglyphs to highlight them for tracing and/or photography, is now also condemned due to the adverse reaction of the chalk/paint with the bedrock (Bednarik 2007: 57). Similarly, despite over a century of practice (Lawson 2012: 56-59), the production of plaster, latex, or other form of cast of petroglyphs is no longer condoned (note Anon. 1980: 16) and with the advent of 3D photogrammetry, laser scanning and digital modelling (see below), is no longer necessary.

In Europe, photography was used to record cave wall markings well before the marks were accepted by academia as Palaeolithic rock art. For example, in 1875 archaeologist Emile Riviere recruited the professional photographer Charles Durand, who with 150 candles and a six hour exposure, photographed Palaeolithic engravings at La Vache, France (Lawson 2012: 53-59). Anthropologists were also quick to adopt photography to record ceremonies, people, domestic activities, places and artefacts, including rock art (e.g. Spencer and Gillen 1899; Figure 1.3). In addition to their ethnographic information, these early photographs now provide an invaluable record with which to assess the deterioration of the sites and their artwork over time.

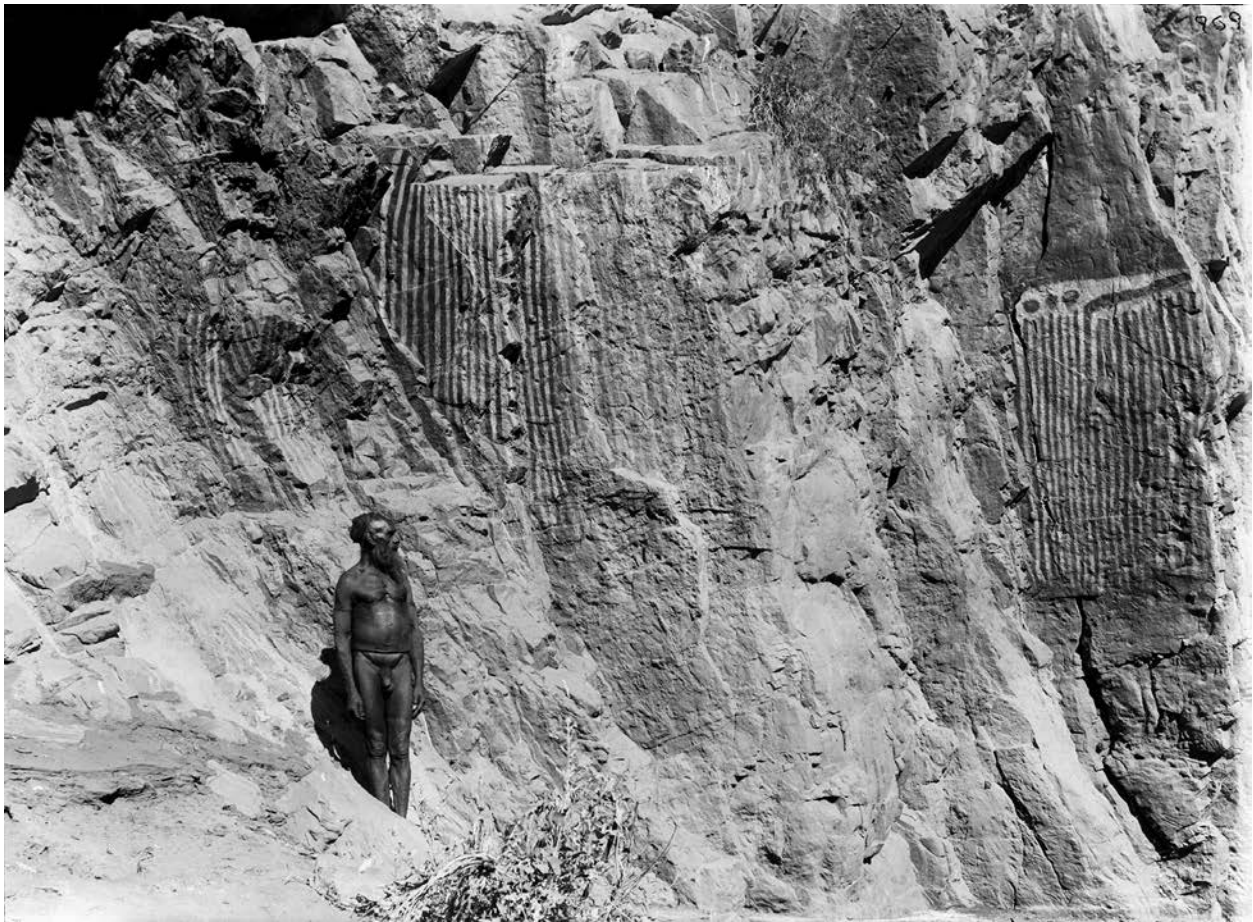


Figure 1.3: Drawing of Utnerrengatye caterpillar on rocks at Emily Gap, Northern Territory, Australia, 1896.
Photographer: Sir Walter Baldwin Spencer. Courtesy of Museum Victoria

For rock art researchers today, photography has replaced manual tracing as a preferred method of recording, as it can be done both faster and without involving any direct contact with the art (Loendorf 2001; McCarthy 1972). Photography also has the advantage of allowing for the use of different types of filters, varying lighting sources (e.g. flash, infra-red, and ultra-violet) or lighting angles (e.g. raking light: Edwards 1972; Webster 1966). The development of digital cameras allows a greater number of photographs to be taken and viewed rapidly, while eliminating the cost and transport of sensitive film and bulky equipment. Digital cameras have the added capability of including various camera-loaded colourspace filters that allow the enhanced images to be viewed in the field (see Chapter 5).

While photographs have long been incorporated directly into books, papers or reports, they can also be used as a base for tracing. Photo-tracing has been undertaken in a number of ways over the past 50 years (e.g. Brandl 1973: 71), but most is now done on computers using digital photographs and various graphics programmes that permit a far greater degree of close observation and tracing accuracy (Gunn et al. 2010, 2014; Le Quellec et al. 2015). Being produced

away from the site, however, these tracings should be subsequently verified in the field wherever possible.

One recorder, artist and designer, Harald Pager (see Pager 1971), combined tracing and photography in a unique manner:

Using 6 × 6cm or 6 × 9cm black and white film, he photographed the rock surface in sections of approximately one square metre. Then life-size black and white prints were made. He took these back to Ndedema Gorge and, working on an easel propped up in front of the paintings, he coloured in the images with oil paints. Some of the faintest paintings had to be outlined in pencil first. In most instances it was necessary to heighten the colour of the originals. Care was taken to record all flakes and damage to the paintings; the rate of deterioration can thus be estimated. The second stage was to assemble the photographs. Wherever possible, Pager cut the photographs along natural cracks and steps in the rock face and then glued pieces together to form a life size mosaic. The presentation of the actual rock is one of the invaluable features of the collection (SARADA 2015b).

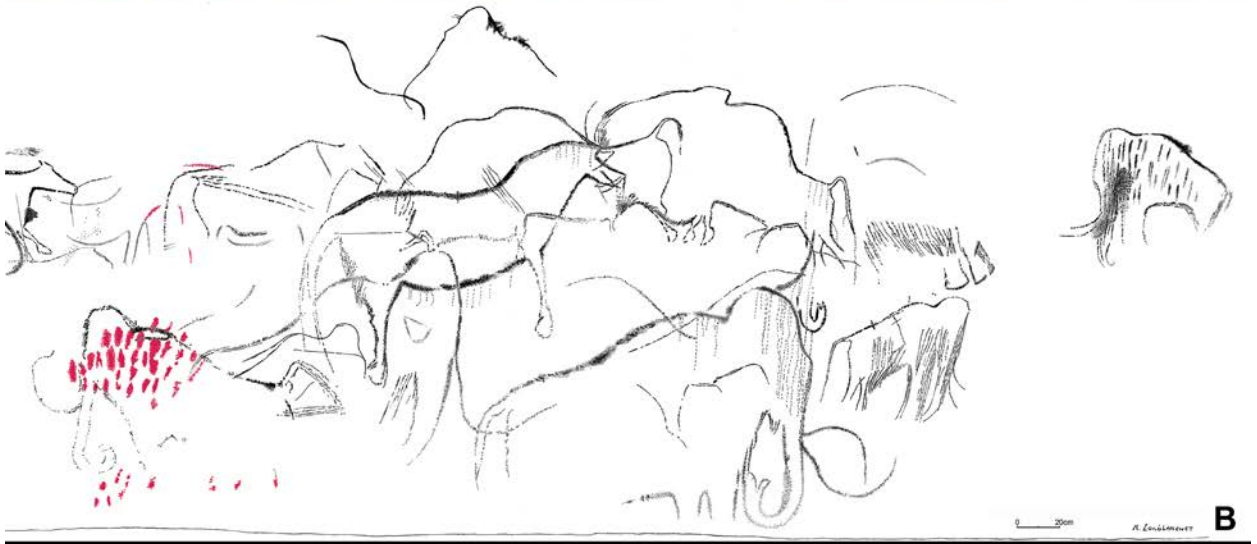


Figure 1.4: Lorblanchet's recording of the art at Peche Merle, France
A: Photograph of the panel B: Tracing (1978) C: Photogrammetric plot (1985)
Images courtesy of Michel Lorblanchet

Other innovations have been the use of stereophotography to allow three dimensional viewing of the art and its rock surface support (Clegg 1979b), and plots of the art on contoured plans of the three dimensional surface through either theodolite readings or photogrammetry (Figure 1.4) (Chandler et al. 2005; Clouten 1974; Lorblanchet 1981, 2010: 64-65). More recently, digital laser scanning has been employed as a basis to create either virtual or full-scale reproductions of panels, or replicas of whole sites, with the artwork positioned in its correct three-dimensional space and context (Brown et al. 2001; Delannoy et al. 2017; Gonzalez-Aguilera 2011; Gunn et al. 2011; Lerma et al. 2014; Mark and Billo 2011; Ogleby 1995; Robinson et al. 2015).

In Australia, little use has been made of film (celluloid, video or digital) as a tool in the recording of rock art, although Herzog's full-length film 'Cave of Forgotten Dreams' on the cave and art at Chauvet Cave, France, shows the potential of the medium (Herzog 2010). Recently, the rock art of Nawarla Gabarnmang featured in a four-part documentary series on Australian Aboriginal archaeology, 'First Footprints', produced by the ABC and aired in 2013. Otherwise, film footage has been used in television news items to highlight unusual discoveries or problems in Australian rock art, such as the campaign to stop industrial development on the Burrup Peninsula, Western Australia (see Bednarik 2006).

In Europe, individual cave and shelter sites have been continually or repeatedly studied and re-recorded by generations of researchers using new methods as they became available (Figure 1.4; and see Bahn and Vertut 1988: 43-52). Of the estimated 125,000 rock art sites in

Australia (Taçon et al. 2008: 195), probably only 300 or so (c.0.2%) have been graphically recorded to today's highest standards, and possibly only a half a dozen or so of these 300 sites have been professionally re-recorded as methods have improved (e.g. Roberts et al. 2014). Further, fewer still have been adequately published, with most detailed recordings being restricted to the pages of theses (e.g. Morwood 1979), or public and private 'grey' reports that have limited access (e.g. Navin Officer 2006). In this context, one exceptional site is the large art shelter of Billimina (previously Glenisla shelter) in the Grampians, Western Victoria, which was one of the first Australian rock art sites to be extensively studied (Coutts and Lorblanchet 1982). The first account of the site was published in 1897 and it was periodically studied or reviewed for the next hundred years (Table 1.1).

Lorblanchet's tracing of the Billimina art panel in southern Australia (Figure 1.5) in 1974 brought a new standard of recording to Australia, and twenty-five years after its publication it was still considered by Clark et al. (1999: 29) to be 'one of the most definitive recordings in Australian rock art'. This evaluation still stands today, even though Lorblanchet's published account presents only black and white photographs and illustrations. Six earlier published art site recordings, however, stand out for their quality: McCarthy's recording of a large gallery in the Hawkesbury region, eastern NSW (McCarthy 1961a; but see Harper 2016), a petroglyph site near Port Hedland (McCarthy 1962), and his later recording of the major sites in the Cobar region of central NSW (McCarthy 1976); Mountford's recording of the art at Uluru that used transparent overlays to depict superimposition (Mountford 1965);

Table 1.1: Summary of rock art studies of the Billimina shelter

Date	Summary	Reference
1866	Site located	Adam 1950
1894	Description with freehand drawing of select motifs	Kenyon 1912
1896	Description with freehand drawing of the art panel	Mathew 1897
1929	Partial tracing	Barret 1929
1929	Painted clay model of the shelter	Blake 1968
1950	Colour photographs, partial copying, assessment of Mathew's published illustration, and floor excavation	Adam 1950
1967	Detailed tracing	Tugby and Tugby 1980
1968	Assessment of Mathew's published illustration	Clarke et al. 1999
1973	Assessment of Mathew's published illustration	Clarke et al. 1999
1974	Conservation assessment including select photographs of the art	Lorblanchet 1975
1975-77	Detailed tracing and major floor excavation	Coutts and Lorblanchet 1982
1980	Freehand recording; assessment of Lorblanchet's tracing	Gunn 1981
1998	Assessment of Lorblanchet's recording	Clarke et al. 1999
1998	Digital 3D model of the shelter	Clarke et al. 1999



Figure 1.5: Section of Lorblanchet's 1975 detailed recording of the Billimina art panel, Victoria
Image courtesy of Michel Lorblanchet

Sim's recording of a shelter in the MacDonald River catchment near Sydney (Sim 1969); and the tracing of select sites in the Laura region of Queensland (Trezise 1971). Although admirable for their time, none of these have the same degree of detail presented in Lorblanchet's 1974 recording; however, both Trezise 1971 and McCarthy 1976 were published as well-illustrated monographs.

Projects that combined excavation with detailed rock art recording also occurred in Central Queensland

(Morwood 1979, 1980, 1981; Rosenfeld et al. 1981), Northern Territory (e.g. David et al. 1990, 1994, 1995; Flood and David 1994) and later in the Sydney region (e.g. McDonald 2008), although those artworks were not published in the same detail as that provided by Lorblanchet at Billimina (Coutts and Lorblanchet 1982).

Most rock art publications in Australia since the 1980s have continued to focus on regional surveys that highlight select sites (e.g. Chaloupka 1982, 1993; Coles and Hunter 2010; Mulvaney 2015; Walsh 1981, 2000)

rather than focusing on the select sites in detail. A notable exception to this trend was the recording of three sites in the Sydney Basin by Clegg (1971), used in a study of motivation and meaning (rather than as records in their own right).

In contrast, detailed site recordings have generally been the province of the grey literature of management and consulting, the contents of which are generally unknown and often of restricted access (e.g. Gunn 2009; Officer 1991b, 2000). This paucity of published comprehensive recordings contrasts with the situation in Europe, where major sites have been the subject of entire monographs that provide detailed recordings, analyses and discussions of the site and its art (e.g. Aujoulat 2005; Bégouën 2009; Clottes 2003). While the vastly greater number of art sites in Australia may explain this situation, the detailed recording and publication of major sites remains an ongoing concern.

Many rock art recordings within Australia have been, and continue to be, aimed at management concerns: where the site is, what condition it is in, what conservation or management measures are required (Gillespie 1983a; Gunn 1999; Long 1999; Navin Officer 2006; Sullivan 1984; Ward and Ward 1995;). Nevertheless, the purpose of detailed rock art recording in any region, site complex or site in Australia falls into one or more categories:

- to document the artwork as completely and objectively as possible, for either research or archival purposes;
- learn and communicate something of the persons, societies or cultures that produced the art, and to facilitate an appreciation of the art today. To do this, the rock art must, to a greater or lesser degree, be interpreted by or for the viewer; or
- enable appropriate and on-going management of the site, its conservation and interpretation.

The first of these three categories is a formal archival (archaeological) process, and it can be, or include, an ongoing interactive social practice with the Traditional Owners. This record can range from the minimal requirements for management, to the specific requirements of a particular research project (e.g. Gunn 1995a, 1995b; Loendorf 2001). It is essential to understand from the outset that there is no such thing as *the* 'complete' recording of an art site (Bahn and Vertut 1988: 52; Rosenfeld 1977). Recording techniques will continue to improve over time and the objectives and requirements of recording will also change as different research questions are addressed. Furthermore, in Australia it is essential that:

- permission to undertake recording is received from the Traditional Owners or the responsible Aboriginal or Torres Strait Islander group(s) (custodians);

- Custodians are fully informed of the implications of the recording work and its proposed outcomes, prior to giving consent for the works; and
- Custodians (or their representatives) are invited to be actively involved in the fieldwork wherever possible.

The second category, interpretation of rock art, might use a range of suitable theoretical approaches that assist in answering questions posed. Ethnographic records or direct enquiry from custodians may be essential for understanding interpretations, either from the ethnographic past or from contemporary meanings or uses. An understanding of what and how an image is portrayed, along with its broader cultural context, can be expected to enrich the viewer with a greater appreciation of the rock art, both as a cultural product and an aesthetic work. The viewer can learn to *read* the visual images they are engaged with (cf. D'Alleva 2005:39). In addition, better recordings enable better interpretation of the site and its art. This is a task that is always on-going.

Finally, a record of the site and its art provides a baseline from which any changes in the fabric of the site and of the art can be monitored: through on-going cultural (insider) use, outsider visitor impacts, or natural deterioration. Clearly, the better the record, the more reliable the monitoring can be and the more appropriate the management strategy that can be implemented.

Rock art appreciation

Rock art, in addition to being an archaeological artefact, is an *art form* in the sense that it is a visual product conveying cultural meanings to an audience. As with other artworks, it can be seen to have three intertwined themes of appreciation: *sensuous*, *expressive*, and *technical* (Copland 2009: 7-15). It cannot be assumed, however, that all viewers will experience the same appreciation when viewing the same artwork.

The first theme of appreciation, *sensuality*, involves a direct appeal to the senses (visual, oral, tactile, etc.) proffered by the work. This requires a measure of thoughtfulness and perseverance from the viewer or listener, absorbing the work through the senses. In rock art this includes such aspects as how the colour, through contrast or harmony, is used within the work and its surroundings, and how the pigment interacts with the texture and three dimensional form of the rock surface to leave a visual impression of its texture or consistency. While good documentation can highlight sensuous aspects, a full appreciation of these characteristics can only be achieved when viewing the artwork *in situ*.

The *expressive* theme of appreciation, the most abstract of the themes, involves recognising the sensation(s) the artwork generates in the viewer. Talking specifically about

music, but with wider applicability to all forms of art, composer and conductor Aaron Copland believed that all music contains meanings behind the notes, but meanings that cannot be adequately expressed in words (Copland 2009: 9). This view contrasts with that of Stravinsky who claimed that music was an object with no meaning other than its musical existence; it has no referent other than itself, art for art's sake, a view that applies to much 19th and 20th Century visual fine art (Burnham 1973: 176-182;

Lucie-Smith 1969; Meyer 1972). As Morphy (1998) and others have shown, the notion of art for art's sake for the most part does not apply to traditional Australian Aboriginal art, as the art is produced in reference to a range of external meanings (referents) beyond the existence of the image itself. This is one of the dilemmas of viewing Aboriginal art: knowing the meaning(s) behind an image provides a base from which we can define our reaction to it (cf. Copland 2009: 10).

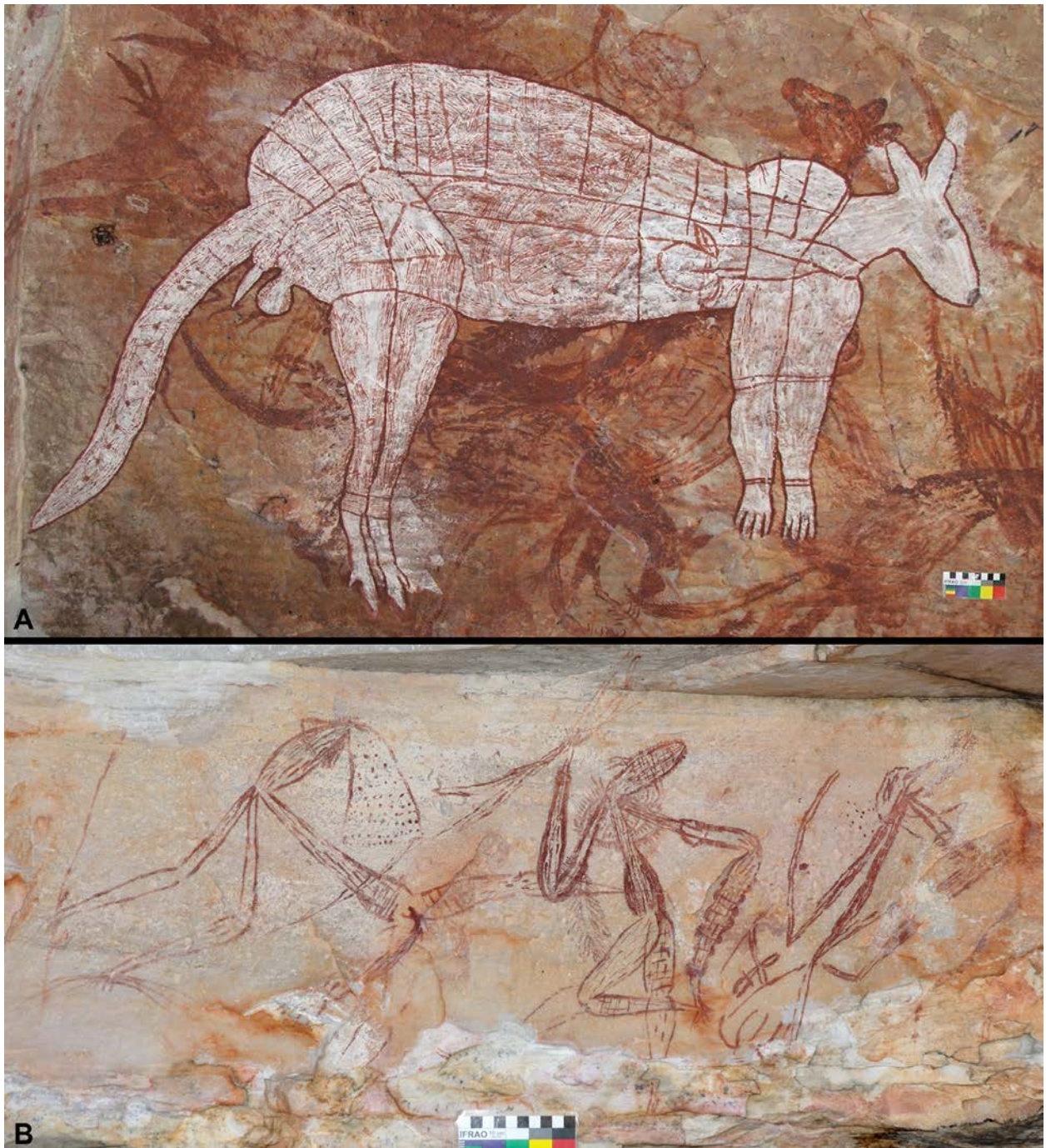


Figure 1.6: Two different forms of visual expression in Jawoyn rock art
 A: Polychrome macropod with X-ray features (Jawoyn site A058-01)
 B: Monochrome Dynamic style figures (Jawoyn site A082-L)

Within Aboriginal society, art images often contain layers of meaning (multivalence), which are revealed successively, according to a person's social standing (Stanner 1989: 100-101; Taylor 1996: 224-241). Consequently, any information (story) given by an inducted Aboriginal person to outsiders (whether researchers or tour operators from a different culture) will depend on the Aboriginal person's perceptions of the inquirer's integrity and trustworthiness, the context and place in which the question is asked, and the knowledge of the Aboriginal person speaking. The full range of meanings of any Aboriginal rock art image, therefore, can never be appreciated by an outsider, a person who is not a part of the community and culture from which the artist came, and/or who is not of the same social standing. Even given a social and ethnographic context (for example such as provided by Taylor 1996 and Morphy 1998 for bark painting; Layton 1992 and Blundell and Woolagoodja 2005 for rock art), to outsiders, the emotional significance of a work of art cannot be *felt* in the same way as it can to an insider. This is not to dismiss the sensations felt by an outsider, but to stress that the experience is different, coming from within a different mindset, to that of an insider. Every work of art generates an emotional impact in each and every spectator, whether positive or negative. By its wide appeal to the general public, rock art can be seen to generate an emotional impact on contemporary viewers, although the reasons and preferences may vary greatly between individuals. For example, in the wide suite of Jawoyn rock art, the visual impact of a large complex polychrome 'X-ray' macropod is of a different order to that generated

by small linear monochrome 'Dynamic' figures, regardless of the viewer's culture, purely because the visual complexities of the styles will be read differently (Figure 1.6).

The *technical* theme of appreciation (what Copland terms the *musical plane*) is the manner in which the art motif is presented and developed (Copland 2009: 14). In rock art, this is the context in which the motif occurs, such as singly or in association; in a discrete nook or open wall; within a communal living shelter or a restricted place connected to a religious ritual. In order to explore the technical theme then, it is necessary to view rock art from a purely 'objective' (scientific, historical or social) perspective.

While remaining cognisant of the first two themes, this study focused on an exploration of the technical theme: an archaeological appreciation of the rock art of Nawarla Gabarnmang. As Jawoyn rock art is essentially figurative and sometimes even approaches naturalism in its representations, it has a ready referential basis for the outsider to access. That is, it contains the recognisable shapes of animals and anthropomorphic figures (regardless of the motivations of the artist at the time of creation). The technical theme involves the identification of repeated threads (such as colours, motifs or compositions) running through time and across the various art panels at Nawarla Gabarnmang. In the final chapters, a small number of examples will illustrate the relationships between specific images and Jawoyn mythology as mentioned by contemporary members of the Jawoyn community.



Unnamed creek on the Arnhem Land plateau



2. JAWOYN LANDS: PHYSICAL ENVIRONMENT



Our cultural traditions are embedded in our lands.
Robert Lee 2005

The nature of the physical environment can influence and limit the range of human activities that can be conducted at a place, and also the degree to which any archaeological material at that place, including rock art, will be preserved. The influence of the physical environment on the art at Nwarla Gabarnmang is therefore be discussed at length in this chapter.

Jawoyn Lands

The Jawoyn Lands today comprise an oval-shaped area, some 260 × 190 km to the north-west of Katherine, Northern Territory (Figure 1.1). These lands incorporate the permanent waters of the mid- and upper-reaches of the Katherine River, including Nitmiluk (Katherine Gorge) National Park and the southern section of Kakadu National Park, as well as those of the upper South Alligator, Mary, Fergusson, King, Waterhouse and Mainoru Rivers. Each of these rivers originates on the Arnhem Land plateau. Physiographically, the Jawoyn Lands are dominated by the south-western corner of the Arnhem Land plateau, a rugged and

rocky sandstone landform extensively dissected by deep gorges, outwash valleys and plains (Figure 2.1). Rockshelters within this landform contain rock art that is largely consistent with the forms found around the northern and western sides of the plateau and within Kakadu National Park to the immediate north-west (Chaloupka 1993; Edwards 1979a).

Geology and geomorphology

The survival of rock art is dependent on two principle factors: the nature of the bedrock, and its exposure to surface and sub-surface water. The geology and geomorphology tells us that the rock shelters present on the Arnhem Land plateau today are fundamentally the same as when humans first stepped into them 50,000 or so years ago. It is necessary, therefore, to have a brief understand the nature of these two factors.

The Arnhem Land plateau forms the north-western component of the Palaeoproterozoic Eon (2,500 to 541 million years ago) basin sedimentary rocks of the



Figure 2.1: The western margin of the Arnhem Land Plateau

Arnhem Shelf of the McArthur Basin. The relatively undeformed plateau is characterised by quartz sandstone and interbedded volcanic units (Ferenczi and Sweet 2005: 2). These sediments consist of sharply dissected and horizontally-bedded Proterozoic quartz sandstone units of the Katherine River Group (including the Upper Katherine River Group and the Kombolgie Subgroup) and Kurrundie Sandstone (Ferenczi and Sweet 2005: 2; Nott 1993) – the orthoquartzites of Hughes and Watchman (1983) discussed below. This is a very stable rock cemented by silica, however, in areas silicification has casehardened and stabilised most exposed surfaces (Needham 1992). The Kombolgie Subgroup, which is particularly relevant to Nawarla Gabarnmang, dates to around 1800 Ma (million years) ago and comprises five sandstones strata and two volcanic members (Sweet, Brakel and Carson 1999).

For the past 500,000 years, it appears that the plateau has been eroding at a rate of 3-5 mm per hundred years, and this is mostly confined to the weaknesses along the structural lines rather than the flat-lying surfaces (Nott and Roberts 1996: 886-887). This weathering has not been at a constant rate, but rather episodic during periods of greatly enhanced erosion. Previous erosional events were essentially limited to the mid-Cretaceous, although the relief of the plateau surface has not reduced noticeably over the past 100 Ma (Nott and Roberts 1996: 887). The adjacent lowlands, in contrast, are weathering eight to ten times faster than that of the plateau.

Around one-third of the land surface of the Arnhem Land plateau consists of bare rock exposures (Christian and Aldrick 1977: 16). Personal field observations

suggest that the rock expanses decrease in size and frequency toward the south and east; rock exposures in the Jawoyn plateau lands largely occur above the western escarpment and follow major drainage lines of the central plateau area (Figure 2.1). Between these outcrops, extensive sand sheets have developed which have stabilised and now support extensive savannah woodlands (see below).

The sandstone of the plateau is criss-crossed by numerous fault and joint lines (Figure 2.2). These have been subjected to severe solutional weathering as both subsurface and surface processes, producing deep gorges along the major drainage lines, with a maze of seasonal tributaries along the shallow joint lines (Young et al. 2009: 142-143, 190-193), giving an orthogonal or rectangular drainage pattern (Twidale and Campbell 2005: 192). Most of the waterways tend to be shallow, and even the paths of the larger rivers are shallow and often flowing directly over bedrock (Galloway 1976: 56). Within the erosion lines, the deeper gorges often contain large boulders and rock debris that have caught waterborne sands; this has permitted the development of moist sandy soils and, in these protected environments, allowed rainforest pockets to form. Between these erosion lines, the bedrock has weathered into remnant block outcrops with flat surfaces, essentially rectangular or triangular in shape (Figure 2.3). While these individual blocks vary in area, few exceed a maximum length of one kilometre, ranging from pavements up to 1.0×0.5 km in area, to rock-stack or boulder clusters of less than 300 m in diameter (Figure 2.4). Consequently, the cliff lines available for rock shelter development rarely

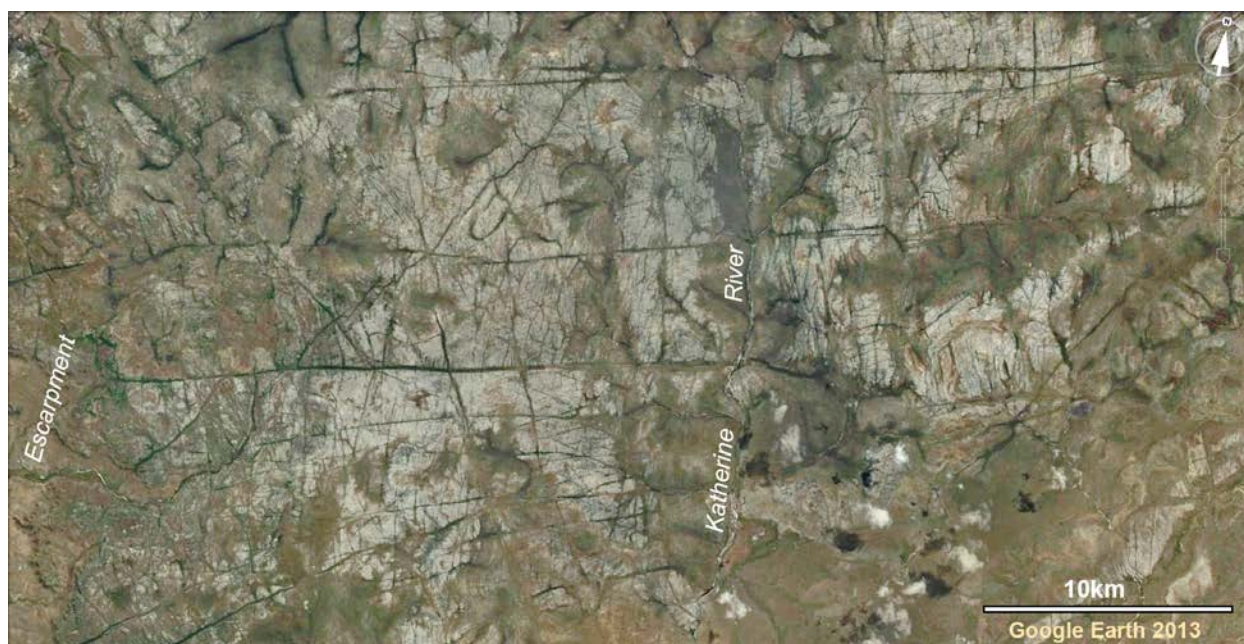


Figure 2.2: The regular pattern of fault and joint lines that criss-cross the Arnhem Land plateau (base photograph from Google Earth)



Figure 2.3: A rocky section of the plateau highlighting the limited extent of the individual bedrock blocks and ridgelines

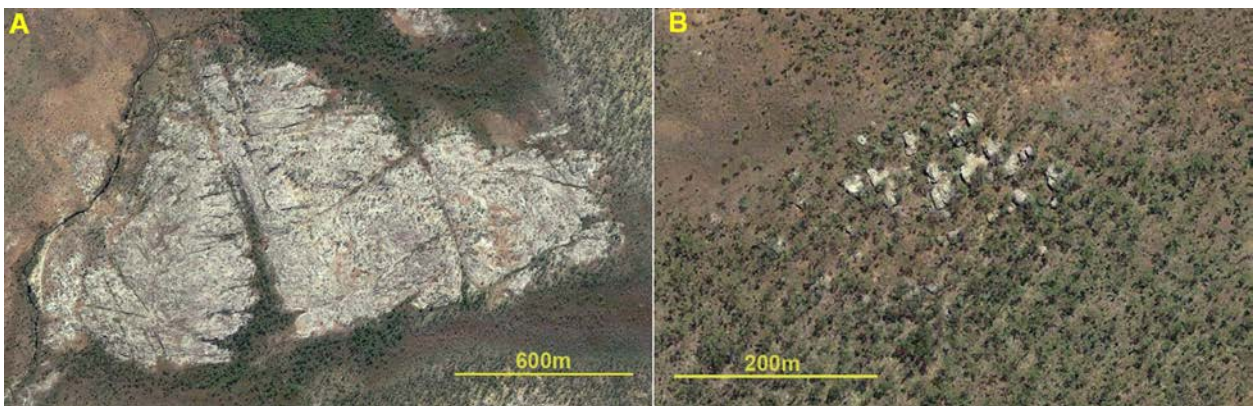


Figure 2.4: Rock outcrop forms on the Arnhem Land Plateau
A: broad pavements B: small stack cluster (base photographs from Google Earth)

exceed 500 m in length, with each line being distinct and clearly separated from others by rock joint fissures or broad sand sheets. For this reason, rock shelters on the plateau tend to naturally fall into discrete clusters limited by the spatial extent of the rock outcrop or cliff line (see below).

Cliff retreat within and around the plateau is due to erosion of the underlying sediments and subsequent collapse of the cliff faces (Galloway 1976: 60; Young and Young 1988: 14-20). These failures are primarily due to inherent stresses on the overlying rock, and other forces such as earthquakes or exceptional rainfall (Harp and Jibson 2002; Mills 1981; Twidale and Bourne 2011).

Each collapse produces fresh cliffs and boulders, as well as remnant rock stacks (Figure 2.5). Minor differences in the composition of the various sandstone layers have further facilitated differential weathering and sculpting of the remnant rock caps, stacks, boulders and outcrops. The caps are the remnant surfaces of an older landform and are low (mostly around 6 m high) with broad flat-topped caps due to the horizontal nature of the sandstone beds, except for those areas that have weathered into 'lost city' pillar clusters (Young and Young 2009: 143). Cliff retreat is prominent mostly around the plateau margins and it is within the areas of sculptured-layer retreat that rock shelters are more commonly found (Figure 2.6).



Figure 2.5: Plateau sandstone erosion
 B and C: cliff collapse and resultant scree boulders/blocks F: fault line gully J: joint line fractures
 L: layer retreat P: cap S: stacks

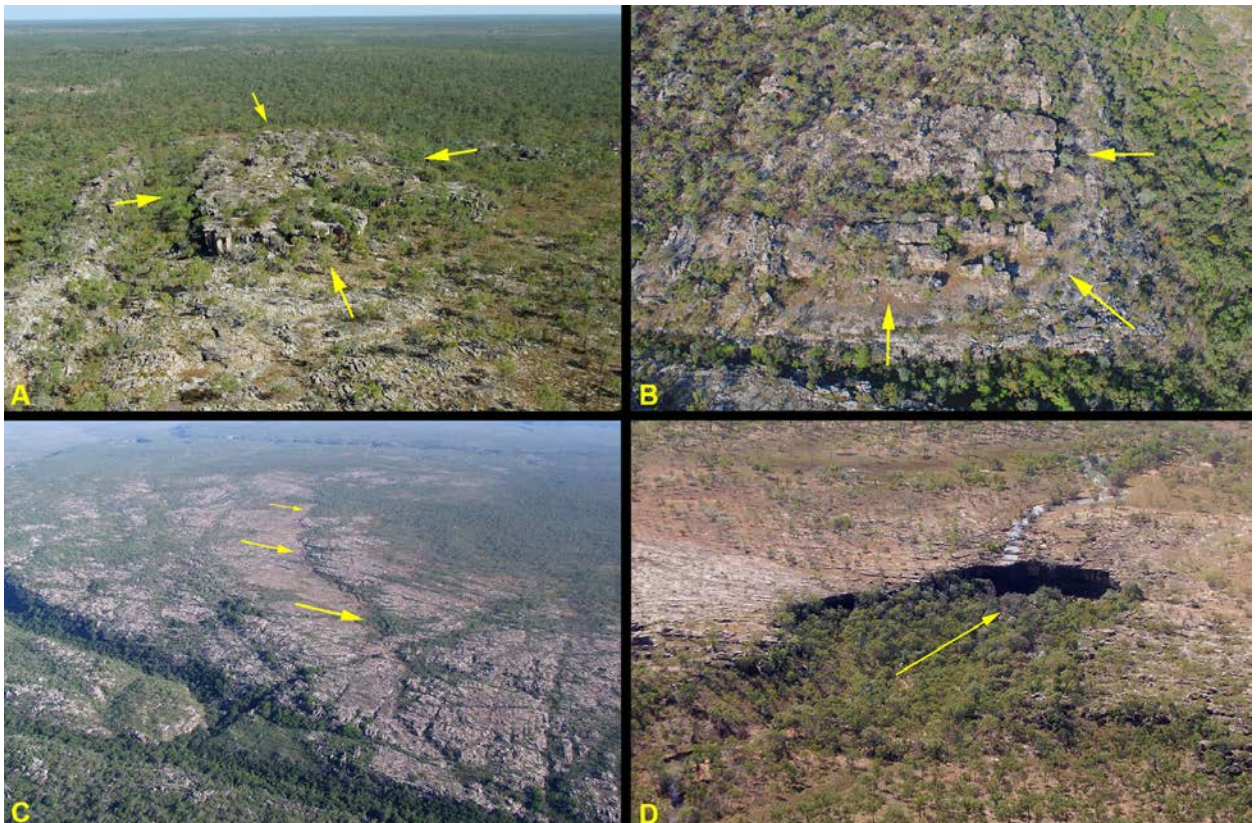


Figure 2.6: Variations of retreating layer erosion in which rock shelters occur
 A and B: restricting C: linear D: embayment (horseshoe)

On the broad scale, shelter development occurred during a period of the Tertiary when the climate was significantly wetter than during the subsequent Quaternary period (Jones and Johnson 1985a: 174; Smith 1978; Young et al. 2009: 99-100, 220-223). It is generally accepted that scarp processes, which include the development of shelters that undercut cliff faces, are intimately connected to periods of climate oscillations, although it is also conceded that it is possible that episodic events of exceptionally heavy rainfall during dry phases may replicate these conditions (Nott and Roberts 1996; Oberlander 1989: 68; pers. obs., Grampians National Park, 2010). Progression of the scarp produces rock fall (boulders) which, over time at the geological scale, break down through erosion or are buried by the build-up of the surrounding soil; hence, their presence or absence is seen as an indicator of the stability of the overbearing cliff line (Matmon et al. 2005: 805). These collapses are usually caused by the undercutting of the wall foot, and triggered by tectonic activity, lightning or extreme rainfall events (Matmon et al. 2005: 805). Although of low frequency, even at a geological time scale, such collapses are the primary cause of landscape evolution (Stock and Uhrehammer 2010: 941). The lack of such tectonic activity over the past 120 Ma (Nott 1995), and hence the notion of the plateau's general stability, is supported by the rarity of scree boulders seen below the escarpments in Jawoyn Lands.

After a time, the precipitation of mobile silica from within the rock creates a protective skin on and within the newer surface that inhibits further shelter growth (Watchman 1991, 1992), unless or until it is fractured or broken by earth movements, internal water pressure or other physical processes; in this case the shelter will continue to enlarge until the rate of growth is again matched by the rate of deposition, at which point the new surface will again become protected and growth curtailed (Mabbutt 1977: 34-36).

While rock shelters on the plateau have resulted from a variety of weathering processes and acquire a range of forms (see below), they are most commonly associated with either progressive 'layer retreat' around the margins of the plateau caps (Figure 2.6A and 2.6B), linear developments along the dipping bedding plains across plateau caps (Figure 2.6C), or within cliff line embayments (Figure 2.6D) (Young et al. 2009). The latter is a localised ovoid embayment often associated with waterfalls, although amphitheatre or horseshoe canyons are formed by groundwater sapping beneath the sandstone, rather than being cut back by surface water erosion (Young et al. 2009: 83-87). Shelters formed in such amphitheatres tend to be damp, as they are exit points for subsurface moisture. Only two large

amphitheatres, both of which have shelters with rock art, have been recorded on the Jawoyn Lands of the plateau and both are still actively eroding.

Areas of layer retreat essentially ceased development during the late-Tertiary, 2.6 to 23.0 million years ago (Galloway 1976: 54; see also Sullivan and Hughes 1983; Twidale and Campbell 2005: 169). The plateau escarpment is currently thought to be receding at around 5 mm per thousand years (Russell-Smith et al. 1995: 120), although the escarpment around Jim Jim Falls to the north-east of Jawoyn Lands has retreated some 25 km during the Cainozoic and remains an active region of retreat today (Galloway 1976: 55; Russell-Smith et al. 1995: 148). The height of the plateau has lowered less than 100 m over the past 100 million years (Nott and Roberts 1996: 884). Hence, the majority of rock features within Jawoyn Lands, including the rock shelters, stabilised more than two million years ago, well preceding human occupation of the region.

Rock shelter development

All of the art shelters recorded on the plateau are within the fine-grained, or medium- to coarse-grained quartz sandstones of the Kombolgie Subgroup. Of the 95 rock shelter complexes recorded during the JRAHP, 55 (58%, including Nawarla Gabarnmang) occur within the Marlgowa Sandstone unit of the Kombolgie Subgroup (Table 2.1). The Marlgowa Sandstone is a fine- to very coarse-grained and pebbly quartz sandstone in which medium-grained sandstone dominates (Sweet et al. 1999), and is one of the mid-sandstone strata of the Kombolgie Subgroup (Ferenczi and Sweet 2005: 6 and 43). The other quartz sandstones of the plateau tend to have similar grain-size ranges but also include varying amounts of pebbles, either scattered or in layers within the sandstone, that provide a less coherent surface for artwork production. Low-angle cross-bedding is common and minor dolerite sills, possibly suitable for stone artefact manufacture, occur throughout the region.

The upper layers of the Kombolgie Formation sandstones are derived from shallow marine deposits, as the thinner bedding and abundant ripples on flat bedding surfaces are consistent with deposition under a wave-dominated regime in low-energy conditions. The association of shallow-marine sand and windblown sand indicates a wave-dominated shoreline, with beaches backed by Aeolian dune sand. In contrast, the lower layers of the Kombolgie Formation were formed from braided fluvial sands deposited by sheet-flooding over sandy flood plains.

Table 2.1: Lithology of Jawoyn art shelter locations on the Arnhem Land plateau

Group	Subgroup	Unit	Description	No. of locations	%
Katherine River	Kombolgie	Marlgowa Sandstone	quartz sandstone	55	58
Katherine River	Kombolgie	Gumarrirnbang Sandstone	quartz sandstone	16	17
Katherine River	Kombolgie	Mamadawerre Sandstone	quartz sandstone	13	14
Katherine River	Kombolgie	Gundi Sandstone	sandstone	6	6
Katherine River	Kombolgie	Cottee Formation	arenite	4	4
Mt Rigg	-	Bone Ck	quartz sandstone	1	1
Total				95	100

The various sandstone units within the Kombolgie Formation are composed of bedding planes of varying degrees of cementation and, as a result, these units weather at different rates. The hundreds of rock shelters on and around the Arnhem Land plateau have largely developed through erosion of more susceptible, often less-well cemented ('softer') sandstone layers from beneath more resistant layers. These rock shelters also provide the greatest evidence of Aboriginal occupation and use of the plateau: particularly rock art, which is present in the vast majority of shelters.

Rock shelter development occurs through the movement of internal moisture that dissolves the sandstone matrix (primarily silica). Unlike most other sandstone regions in Australia, the strongly layered narrow beds of these sandstones tend to prevent the development of niche caverns common elsewhere (cf. Dragovich 1981; Hughes 1978; Viles 2005). Rather, caverns on the plateau tend to develop horizontally, breaking down into fine particles, slabs or blocks, depending on the thickness of the bedding (cf. Mills 1981). Shelter initiation appears to have been a subterranean process whereby a concentration of sub-surface moisture is captured in bedding sandwiched between two better-cemented layers, dissolving the matrix of the intermediary layer and initiating a cavern (Twidale 1980: 80, 83; Bremer 2010). The cavern retreat is halted by a lessening of the intensive subterranean weathering following the down-wearing of the surrounding etch plain. At some later period, the rocks are exposed as an overhang and the cavern is then subject to either stabilising or further enlarging processes.

As mentioned above, most shelters here were formed from the erosion of an underlying susceptible rock layer. Shelter form is therefore largely the result of a progressive process; with the final today form being determined by the amount of post-exposure erosion (Figure 2.7).

While many rock caverns or alcoves have developed from a mixture of erosional processes, one process is usually dominate and it is this that is used in classifying

the *shelter form*. Twelve different shelter forms have been identified within the area of the JRAHP:

- *Undercut*: Undercut shelters are those that are relatively long, compared with their depth and height; they have a smooth, essentially horizontal ceiling, and an irregularly textured rear wall (Figure 2.8).
- *Stepped*: In alcoves within thinly laminated sandstone, over time the height of the cavern increases by disintegration of the outer edges of the ceiling layers, and a *stepped* ceiling forms, producing a series of narrow, hanging, wall panels (Figure 2.9). The formation process is much the same as that of cliff erosion but on a smaller scale (e.g. Matmon et al. 2005; Oberlander 1989; Stock and Uhrhammer 2010; Yang and Yan 2009). Depending on the size of the lamellar fragments falling from the ceiling, the stepping can be either thin (mostly 0.01-0.50 m) or thick (mostly 0.5-1.0 m). The former tends to break off in smaller pieces, producing an inclined but irregularly stepped rear wall.
- *Mushroom*: Where a stepped wall proceeds around a block or stack it produces the typical *mushroom* or pedastalled rock, with the overhang surrounding a central core or stem (Figure 2.10).
- *Slab* (Figure 2.11): Where the overlying layers of an eroded layer are thick (c. 0.5-1.0 m), the sandstone breaks as a large slab and a characteristic *slab* alcove is produced. Such shelters have a horizontal ceiling, a near-vertical, smooth and coherent rear wall, and a rock-slab covered floor. The height and depth of a slab shelter is largely a function of the thickness and coherence of the collapsed sandstone layer forming the slab.
- *Sheared* (Figure 2.12): Where the horizontal layers are very thick or massive (c.>1 m thick), the ceiling of the initial undercut layer collapses due to inherent stresses, structural flaws or fabric imperfections, and may sheer through the outcrop, usually along a joint line, to produce a new *uncapped* face that offers little in protection

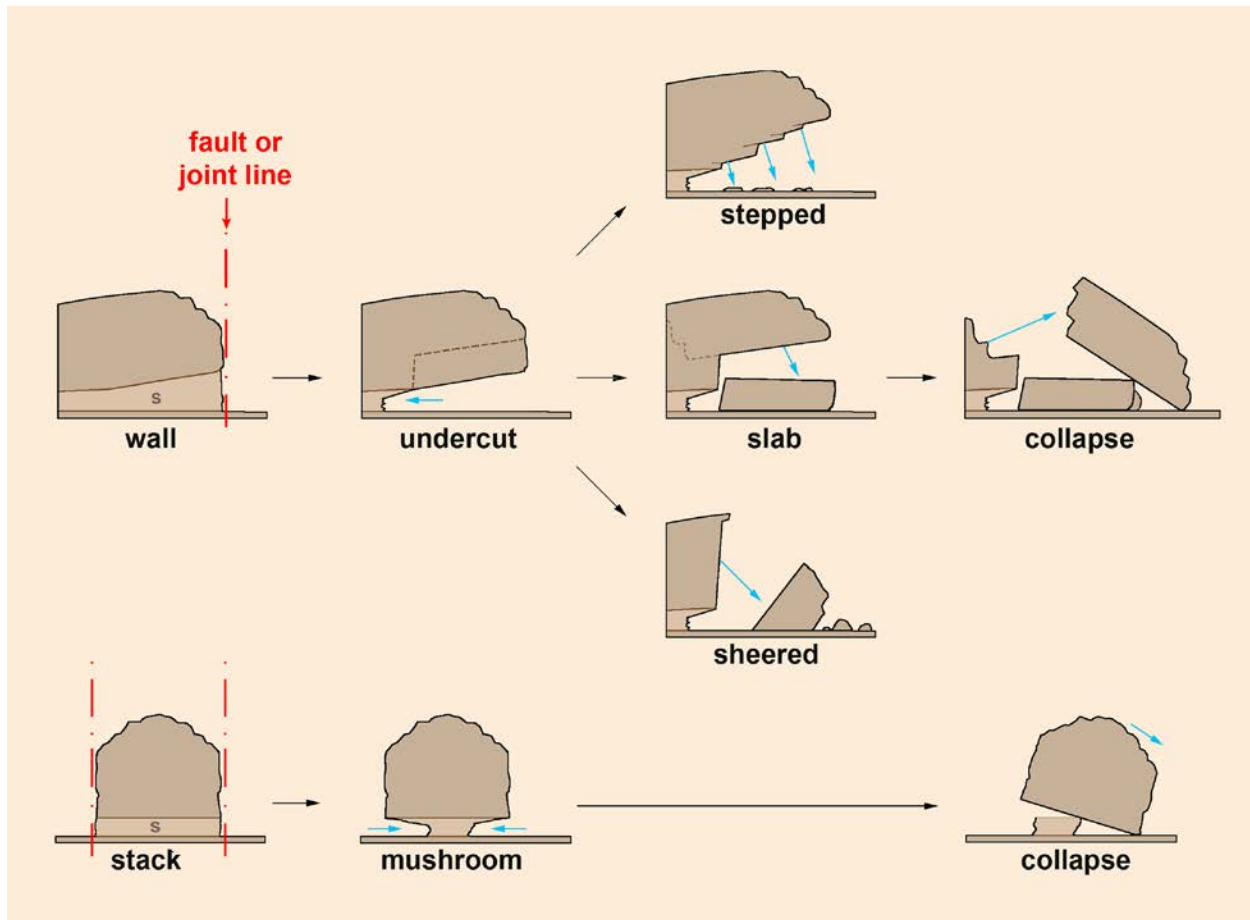


Figure 2.7: A model of the progressive development of shelter forms

for any artwork (Young et al. 2009: 51ff) (Figure 2.12A). Alternatively, where an overhanging cap survives, a *capped* face is formed that affords a measure of protection to any artwork on the wall below (Figure 2.12B).

- **Boulders (and blocks)** (Figures 2.5 and 2.13): Boulders are large rock slabs or floaters produced through cliff failure, that have slid or tumbled down the talus; when they come to rest, given a favourable inclination they can create a protected rock shelter on their underside (Stock and Uhrehammer 2010: 944). In instances where the rock piece has not moved but sits at the base of the cliff, it is termed a *block*. No rock art has yet been recorded within a block shelter.
- **Pillar** (Figure 2.14): A distinctive form of shelter at several localities across the plateau is derived from sandstone-karst formations. *Karst* formations were initiated in a (phantomisation) that expanded and partially merged, creating caverns with remnant pillar formations (cf. Aubrecht et al. 2008; Delannoy et al. 2017; Jennings 1983; Wray 1997a, 1997b). The largest and most dramatic of the Arnhem Land examples is the exceptional shelter of Nawarla Gabarnmang (Figure 2.14A; Delannoy et al. 2013;

Geneste et al. 2010). Due to the eroding out of the softer layers, the bedding plane of these shelter ceilings is usually flat and near horizontal. In most instances, however, the pillars are separated by less than a metre and the available ceiling areas are small. At Nawarla Gabarnmang, manual removal of some pillars has provided extensive ceiling panels that were then well utilised for artwork production (Delannoy et al. 2017).

- **Wall** (Figure 2.15): Wall shelters consist of near-vertical rock faces around the margins of the Arnhem Land plateau or residual outcrops on top of the plateau. Most are inherently stable and usually highly silicified. The walls were formed as subterranean features that were subsequently exposed by the erosion of soils from the joint or fault lines rather than by cliff collapse. Unlike most other rock shelters, these are well suited for the production of large-scale artworks that afford a visually dramatic presence, however, while notable around the north-western margins of the plateau (cf. the major art shelter of Yuwenjgayay, Leichhardt Gallery, to the north-west: Chaloupka et al. 1985; Rivett 1983), they are uncommon on Jawoyn Lands.

- *Cliff* (Figure 2.16): here used to describe eroded and irregular (rocky) faces formed by vertical collapse along a fault or joint within the sandstone. They are most commonly found within gorges along major waterways (Young et al. 2009: 192-193). Unlike *walls*, that tend to overhang, cliffs crests tend to be rounded. While the bedrock is inherently stable, the exposed faces are prone to active erosion and/or destruction by tectonic or exceptionally large flooding events.
- *Cave* (Figure 2.17A): formed as subterranean karst formations through the enlarging of a single solution tube; these are similar to the more common limestone tunnel caves (Young et al. 2009: 167-170). Unlike the latter, however, the sandstone caves so far recorded are of limited depth (<10 m).
- *Window* (Figure 2.17B): formed by the breaching of a narrow sandstone wall (cf. Young et al. 2009: 100ff). The window formations are not true arches, but rather openings through a rock

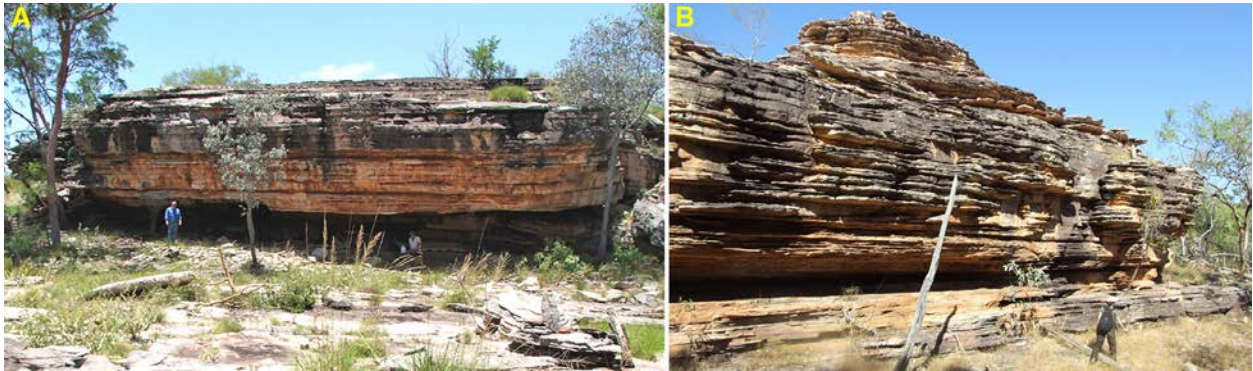


Figure 2.8: Shelter forms: undercut



Figure 2.9: Shelter forms: stepped



Figure 2.10: Shelter forms: mushroom

wall, usually with a broad mass on one side and a smaller pillar mass on the other. No true arches have been located in the Jawoyn Lands of the plateau, although they do occur further afield; and

- *Fallen* (Figure 2.18): Fallen slabs, like blocks, are the result of tectonic activity with overhanging slabs snapping and falling back against their parent mass. The potential art surfaces are on the underside of the fallen slab.



Figure 2.11: Shelter forms: collapse



Figure 2.12: Shelter forms: sheered
A: Uncapped wall B: capped wall



Figure 2.13: Shelter forms: boulder

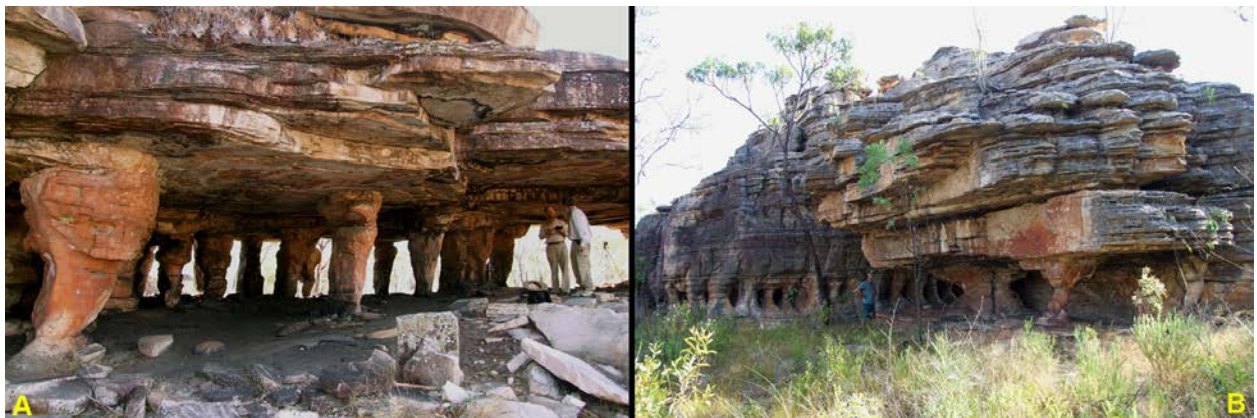


Figure 2.14: Shelter forms: pillar
Photograph B: Leigh Douglas



Figure 2.15: Shelter forms: wall
Photograph B: Leigh Douglas



Figure 2.16: Shelter forms: cliff

The archaeological potential or limitations of the different shelter forms, for both human occupation and the production and preservation of rock art, varies considerably. For example, slab, boulder, fallen slabs,

and sheered rock face shelters have the potential to provide maximum ages for the formation of the rock surfaces through cosmogenic dating, and hence they have the potential to provide maximum ages for the



Figure 2.17: Shelter forms: cave (A) and window (B)
Photograph B: Leigh Douglas



Figure 2.18: Shelter forms: slab
Photographs: Leigh Douglas

creation of any rock art they bear. In contrast, windows, caves, cliffs and uncapped rock walls in Arnhem Land generally provide very poor environments for rock art preservation (due to wind-accelerated moisture movement, moisture retention, rock fall and exposed weathering) (cf. Rosenfeld 1988). While these aspects of rock art dating and preservation will not be dealt with in detail in this study, they do have implications for Nawarla Gabarnmang (see Chapter 4 below).

With regard to shelter development, Watchman (2004) found oxalate crusts over petroglyphs in a rock shelter 80 km west of Nawarla Gabarnmang in Kakadu National Park to be >8000 years old, suggesting that the ‘processes leading to crust formation probably started in the late-Pleistocene or early Holocene when climatic conditions changed from cool and dry to warm and wet’ (Watchman 1991; see also Kershaw 1986 and discussion of climate below).

Higher rainfall periods than present occurred during the late-Pleistocene (c. 22,000–18,000 BP) and the early- to mid- Holocene (c.12,000–5000 BP) (Nott and

Price 1994; Reeves et al. 2013: 10; see discussion of palaeoclimate below). These wetter phases resulted in severe episodic erosion of the surface soils on the plateau (Nott and Roberts 1996), creating peak levels of moisture penetrating between and weakening joint lines and bedding planes (cf. Twidale and Campbell 2005). Such conditions are likely to have caused an increased frequency of cliff failure and block collapse from the sandstone outcrops. Excavations of rock shelters on the plateau and its perimeter to the north, however, indicate that these shelters have remained relatively stable for at least 50,000 years (cf. Geneste et al. 2010; Roberts et al. 1993; Roberts et al. 1994; see Chapter 4 for a discussion of Aboriginal occupation of the area).

The Warton Sandstone Formation of the Kimberley Group in the Kimberley region of Western Australia, which houses much of the Kimberley’s rock art, is very similar in age and composition to the Kombolgie sandstone, suggesting a similar depositional event. The two regions also have similarities in their early art, which is suggestive of a cultural connection between

these two areas (Lewis 1997). Findings related to rock stability and shelter development within the Warton Sandstone therefore have direct implications for these processes on the Kombolgie Sandstone. Optically stimulated luminescence (OSL) dating of wasp nests on the Warton Sandstone indicates that rock shelter surfaces have been stable for more than 30,000 years (Ross et al. 2016; Yoshida et al. 2003). Hence, the major periods of cliff failure and block collapse probably occurred prior to known human occupation of the region and >85,000 years ago, and more likely during the early Pleistocene (up to c.1.5 Ma) when, for prolonged periods, rainfall was up to 2.5 times that of the present day and temperatures 1–3°C higher (cf. Nanson et al. 1992; Sniderman et al. 2009).

As some areas of the Arnhem Land escarpment are continuing to retreat today (Russell-Smith et al. 1995: 148), it is probable that minor local examples of cliff failure have continued periodically throughout the Pleistocene and Holocene.

A count of shelter forms was undertaken from a random sample of 36 of the 82 site complexes recorded across the plateau (Table 2.2; Figure 2.19). The tallies indicate that stepped and slab forms are the most common, together accounting for over half of all decorated shelters. Undercut forms also occur in high numbers. Together these three forms account for 74% of the sample. The frequency of shelter forms by site complex (Table 2.2) indicates that stepped, slab and undercut forms are widespread, each occurring in more than three-quarters of complexes. Although less common than these three forms, capped wall and fallen block forms are also relatively common in number and distribution, but the other forms are

less numerous and each occurs in less than 15% of complexes. No mushroom or cliff forms were recorded from the sample but both have been recorded from the plateau (Jawoyn site data base). From personal observation, the number of pillar form shelters in Table 2.2 is probably an over-representation, as only three complexes with pillar forms have been located to date and all three are included within this sample. While others may exist, their overall numbers are likely to be very small. In contrast, most other forms are known to be widely represented across the plateau.

Rock shelter clusters and archaeological site complexes

Erosion of the plateau landscape, as discussed above, is concentrated in particularly susceptible places such as bedrock margins and erosional gullies (cf. Edwards 1979a: x, 46, 59). These landscape features, however, are limited in extent by the fractured nature of the Kombolgie sandstones. The longest are up to two kilometres in length, although the vast majority are less than 200 m long and the rock shelters they contain are, therefore, similarly restricted in their distribution. Consequently, the rock shelters and the rock art sites they house can be seen to occur in discrete and discontinuous clusters across the landscape (as suggested by Figure 2.19), and it is these clusters that form the basis of an archaeological *site complex*. As with site complexes elsewhere, such as in Central Australia (Gunn 1997), other (non-rock art) cultural sites (such as campsites, burials, quarries, stone arrangements, as well as natural features with mythological significance) are commonly found in the immediate proximity of rock shelters within Jawoyn Lands (Gunn, Douglas and Whear 2012; Gunn and Whear 2007; Gunn, Whear and Douglas 2010, 2012a).

Table 2.2: Rock shelter form frequencies

Shelter form	No. of shelters	% shelters	No. of complexes	% complexes
Stepped	186	29	28	78
Slab	169	27	31	86
Undercut	114	18	32	89
Capped wall	68	12	23	64
Fallen block	35	5	14	39
Pillar	25	4	3	8
Boulder	19	3	4	11
Wall	6	1	5	14
Uncapped wall	4	<1	3	8
Cave	3	<1	2	6
Window	2	<1	1	3
Mushroom	0		0	
Cliff	0		0	
(n)	(631)	(98)	(36)	

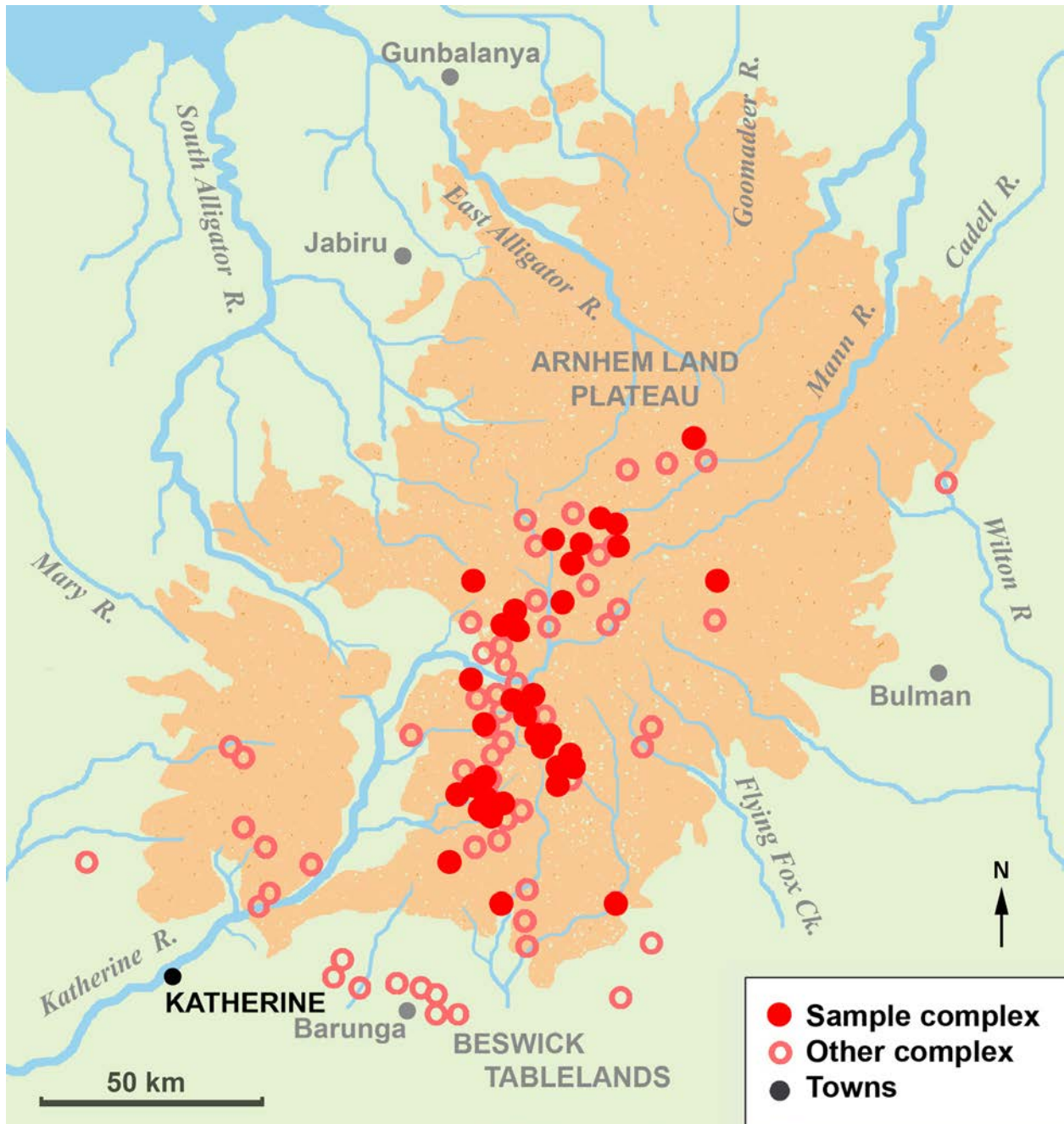


Figure 2.19: Distribution of site complexes sampled for shelter forms

The distance between these site complexes can vary greatly, from c.100 m to several kilometres. The defining feature of a site complex has been repeatedly found to be the geomorphological limit of the erosion event, which is usually the length of the rock bench in which the shelters occur. There are a small number of exceptions to this, one of which is the complex around Nawarla Gabarnmang that is discussed in detail in Chapter 6.

Within site complexes with rock art, very few shelters indeed lack any signs of artwork. Furthermore, on the plateau, very few archaeological site complexes have been found on the open wooded flats or along creek or

river banks, places that do not contain rock shelters. Hence, the number of art sites per complex is taken as an approximation of the number of available rock shelters.

From the 82 site complexes recorded on the plateau, the number of rock shelters range from one to 77 per site complex, with a mean of 12 and a median of 9 sites/site complex. Sixty-eight (82%) site complexes have fewer than 20 rock shelters.

The longest row of shelters yet recorded occurs along two kilometres frontage of an ephemeral creek at the Midway site complex, located towards the centre of

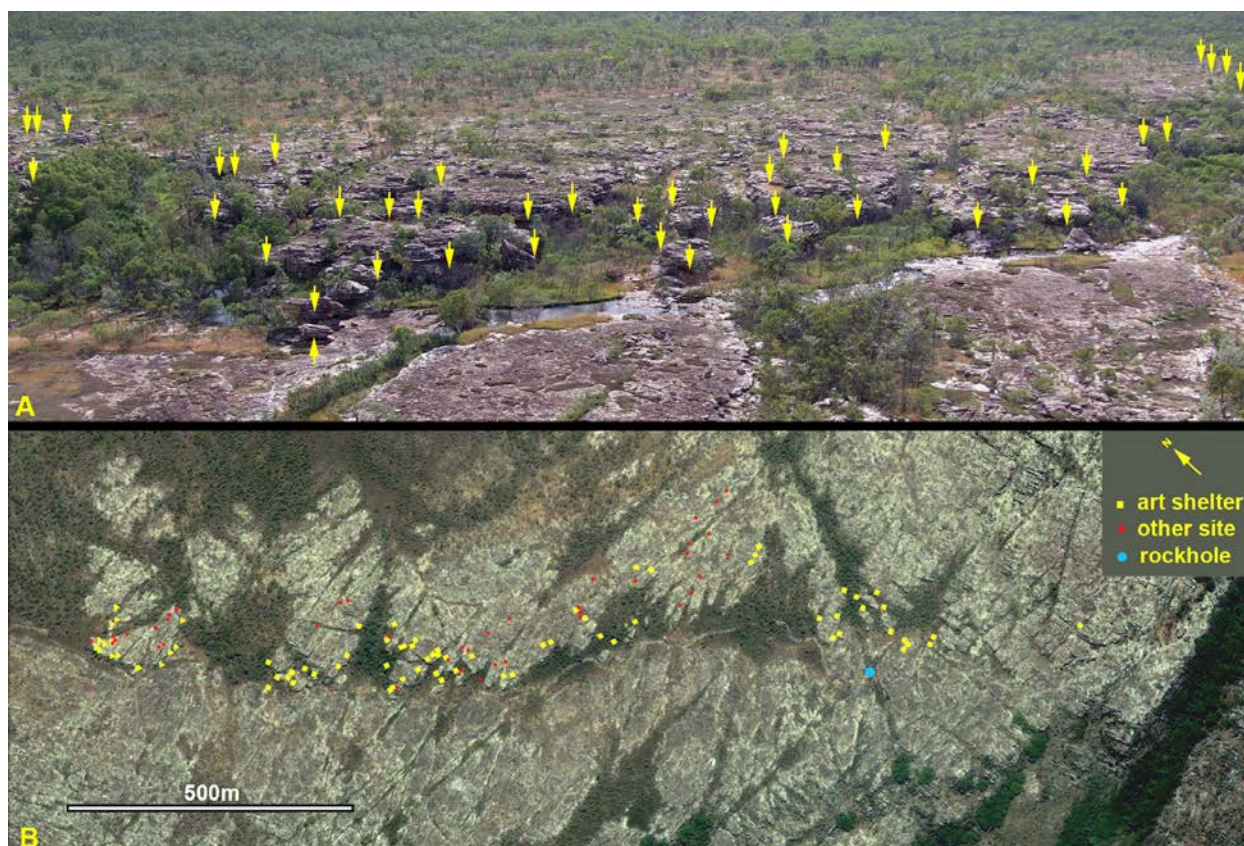


Figure 2.20: Detail of the Midway site complex
 A: Complex from the west showing sites (arrowed) across several 'headland' formations
 B: Plan of site distributions (base photograph from Google Earth)

the sample (Figures 2.20 and 2.6C). Different headland-like rock outcrops along the creek were recorded on separate occasions, and the Midway site complex was initially seen to consist of four discrete site complexes (clusters of art shelters). When these art shelters were subsequently plotted onto a master plan along with other site types it was evident that the distribution of sites was continuous, but with concentrated nodes, along the full length of the elevated rock outcrop.

A more typical example of a site complex is that of ARN-0116, where a low cliff line runs along the northern side of an outcrop while the southern margin grades into the surrounding sandy soils (Figures 2.21 and 2.22).

Climate

Today, Jawoyn Lands lie within the tropical monsoonal climate zone of northern Australia, with a well-defined wet season (November to April), and a contrasting dry season (May to October). The climate varies slightly across the plateau, being marginally cooler and drier in the south. From locations where readings are available, average annual rainfall around the margins of the plateau ranges from 1560 mm at Jabiru, 100 km to the north of Nawayla Gabarnmang, 1297 mm at El Sherana (80 km to the west), and 979 mm at Katherine

(160 km to the south-west) (Bureau of Meteorology 2013a, 2013b; McAlpine 1976: 36). Rainfall is seasonal, highly reliable and varies little seasonally and from place to place (Figure 2.23A; McAlpine 1976: 39). River flows parallel the rainfall, peaking from January to March, with little or no flow by the end of the dry season (Galloway 1976: 52). The importance of the arrival of the refreshing and rejuvenating wet season rains was clearly acknowledged by all Aboriginal people of northern Australia through the mythological character of Namarrkan, the lightning man, who was responsible for the bringing of the rains (Chaloupka 1993: 56-59).

Cyclones pass through the region on average twice every ten years, bringing torrential rainstorms and highly destructive winds (Russell-Smith et al. 1995: 94). Usually, winds tend to be mild north-westerlies over the wet season and south-easterlies during the dry, with an average mid-afternoon (3pm) wind speed of around ten kilometres per hour for all months of the year (ANPWS 1980: 44-45; Bureau of Meteorology 2013a, 2013b; McAlpine 1976: 36).

Temperatures are generally warm to hot (Figure 2.23B), with the highest average maximum temperature ranging from 32°C in Jabiru (June) and 30°C in Katherine



Figure 2.21: Site distribution within the ARN-0116 site complex (base photograph from Google Earth)



Figure 2.22: View of the ARN-0116 northern cliff face (rock wall)
Photograph: Leigh Douglas

(June) in the dry season, to 38°C in Jabiru (October) and 38°C in Katherine (November) in the wet season. The lowest average dry season minimum temperatures occur in July, ranging from 19°C in Jabiru to 13°C in Katherine. Average wet season minimum temperatures occur in February and range from 25°C in Jabiru to 24°C in Katherine (Bureau of Meteorology 2013a, 2013b). From personal experience in 2009 and 2010, however, occasionally night-time temperatures can drop below 5°C on the Arnhem Land plateau. These data suggest that the area is highly unlikely to be subject to the dramatic temperature extremes experienced in areas of central and southern Australia, which can have a

significant impact on rock art preservation (Clarke 1978: 56; Edwards 1979a: 161).

Humidity varies monthly (Jabiru: 85% in February to 25% in September; Katherine 81% in February to 25% in August) and also decreases notably through the day from 9am to 3pm (Bureau of Meteorology 2013a, 2013b). Although rock shelters can mollify the impact of environmental extremes, diurnal variations in humidity have an adverse impact on rock art preservation, particularly with white pigments: these are more prone to water absorption and evaporation, with a corresponding swelling and shrinking that

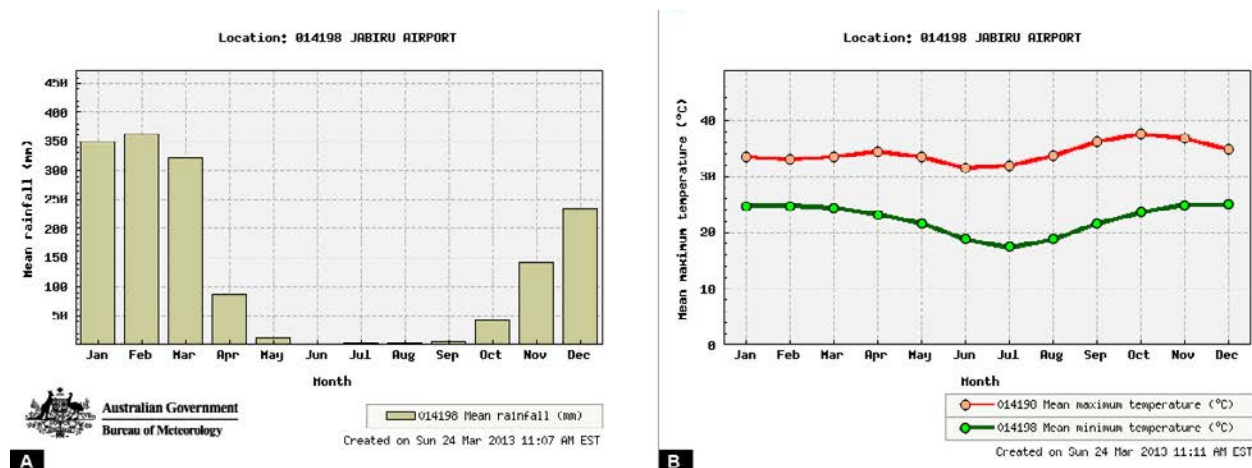


Figure 2.23: Average annual rainfall and temperature plots for Jabiru (derived from Bureau of Meteorology 2013a)

causes interlayer failure and the flaking of pigments (Clarke 1978: 61). Such flaking can also be due to a range of water-induced factors including cryptogammic growth (Hughes and Watchman 1983: 50-51).

Soils

Where not bare rock, the sandstone of the plateau is generally covered by coarse shallow sandy soils derived from the weathering of the sandstone (Aldrick 1976a: 82). Beneath a light sand veneer, these soils are richly organic. The lack of stone and gravel is attributed to the high weathering rate of the rock matrix within the soil, which mostly has a moderately acidic pH of around 5.5 to 6.0 (Aldrick 1976b: 146-147). Between the rocky areas, soils can be very deep and either moderately water repellent (supporting *Allosyncarpia* sp. forests) or form drainage flats that function as aquifers (tending to support dense stands of sedges) (Aldrick 1976a: 82).

Vegetation

The prevailing sparse savannah woodland on the plateau is eucalypt-dominated, with a characteristic understorey of numerous leguminous and myrtaceous shrubs, and at ground level extensive spinifex and wiry grasses (Ferenczi and Sweet 2005: 2). Following Russell-Smith (1995a: 134-135), two vegetation classes clearly dominate Jawoyn Lands of the plateau:

- *Eucalypt woodland 1*, dominated by stringybark (*Eucalyptus tetradonta*), in association with Woollybutt (*E. miniata*), and *Corymbia ferruginea*, with a range of other species (including cypress pine *Callitris intratropica*) over tall grasses (*Heteropogon* and *Sorghum* spp.).
- *Low open eucalypt woodland* (Bloodwood - *E. dichromophloia*, and *E. miniata*) of the rocky areas of the plateau, dominated by low shrubby

communities with scattered trees over spinifex; in areas the vegetation is primarily a low sandstone heath with a diversity of shrubs and herbaceous species, with sporadic dense thickets of tall *Acacia* spp., along with legumes and annuals, including many ephemeral wet season species (Brock 2007: 11; Story 1976: 100-101).

The region also contains a range of other less represented vegetation classes:

- *Eucalypt woodland 2* (*E. tetradonta*, *E. miniata*, *E. bleeseri*), over tall grasses (notably *Sorghum* spp.);
- *Eucalypt woodland 3* (*E. miniata*, *E. tetradonta*) over sparse shrub layer and tall grasses (notably *Sorghum* spp.);
- *Eucalypt woodland 4* (*E. tectifica*, *E. latifolia*) over spinifex grassland;
- *Low open eucalypt woodland* (*E. phoenicea*) with a mixed species sparse shrub layer over hummock grassland (dominated by curly spinifex, *Plectrachne pungens*); and
- *Escarpment rainforest* (*Allosyncarpia ternata*) within the two major gorges breaking out on the western side of the plateau (Russell-Smith 1991; Russell-Smith et al. 1995a). These pockets are a source of permanent water and have a range of sedges and ground ferns around their outer perimeter (Brock 2007: 30).

Wijnjorrotj et al. (2005) list the various plants and animals used by the Jawoyn, however, they are not listed by botanical regions and so it is not possible to quantify the relative value of the plateau environments compared with the Jawoyn Lands of the southern uplands from Bulman to Katherine and Pine Creek. From my own reading of the landscape the latter areas was considered far more productive in terms of variety and quantity although, on the plateau, swamps and

creek margins contain a good range of useful plants and are an attraction for a wide variety of game. A Jawoyn perspective on these landscapes is given in Chapter 3.

In addition to plant and animal resource distribution, another concern for the Jawoyn today is the threat of bushfires at the end of the dry season. Sparked by lightning and fuelled by dead grasses the heat from these fires can cause exposed rock to exfoliate, destroying any rock art on its surface (Gunn 2011b). Traditionally the Jawoyn, and all other Aboriginal groups throughout Arnhem Land and most of Australia, used the management strategy of patchwork burning to limit severe and damaging fires and also to promote a more open landscape (Gammage 2012; Latz 1996; Russell-Smith 1995b). With the removal of the Jawoyn from the plateau this managing strategy was suspended and is only now being patchily reinstated.

Fauna

Studies within Kakadu National Park and the neighbouring Jawoyn Lands, found that the region's fauna is among the most diverse in Australia (Press et al. 1995a: 167). These fauna include 64 mammal species, 289 birds, 126 reptiles (two crocodile, nine turtle, 39 snake and 76 lizard species), 25 amphibians (frog species), 55 fish (40 freshwater fish and another 15 species that inhabit both fresh and salt water) and over 4500 species of insects (from an incomplete coverage). Many of these, such as the estuarine crocodile (*Crocodylus johnstoni*), and the three sea-turtles do not occur on the plateau, and there is a distinctive geographical division of many taxa between the escarpment and the plateau (Press et al. 1995a: 169). No specific species lists or counts for the Jawoyn plateau lands are available (cf. Wijnorrotj et al. 2005), although full lists for the fauna of Kakadu National Park are given in Press et al. 1995.

Across Kakadu National Park many fauna are endemic to specific habitats (Woinarski and Braithwaite 1993), with the greatest diversity and abundance of mammals occurring within the rocky uplands (Woinarski et al. 1992: 12-13). Similarly, a distinctive reptilian fauna was identified from this area (as distinct from the lowland wet areas) (Woinarski and Gambold 1992: 120). Woinarski and Braithwaite (1993) found a high similarity in vertebrate species between all sandstone habitats, and that habitats of the *Eucalypt woodland 1* and *E. woodland 3* (above) contained similar compositions of mammals, frogs, reptiles and woody plants (Woinarski and Braithwaite 1993: 358-360). From the mammal surveys, echidna and possum are restricted to the rocky habitats, while bandicoots are only found elsewhere within the Park (Woinarski et al. 1992: 12). Macropods are restricted to wallabies and euro, as neither of the large macropod species (red and

grey kangaroo) generally tend to occur in this part of northern Australia.

Birds on the plateau are generally dominated by smaller taxa such as honeyeaters and wrens (Press et al. 1995a: 177-178), with the most conspicuous of the larger birds being the black and whistling kites and the red-tailed black-cockatoo (pers. obs. 2005-2012). However, given the mobility of birds between habitats within and beyond the park, most inland species can be expected to occur on the plateau at various times. Emu, predominant as large images in the rock art, are also present, but not numerous, on the plateau.

The upper reaches of the major rivers provide dry season retreats for many fish species, with mass movements downstream at the beginning of the wet season to recolonise lowland creeks and billabongs (Press et al. 1995a: 199).

While the fauna of temperate areas of Australia has been severely devastated following European invasion, that of the tropics and the Arnhem Land plateau has survived relatively intact over the last 200 years (Woinarski et al. 1992: 233), although the recent invasion of the feral and poisonous cane toad has had an impact on toad predator species numbers (Shine 2010).

Palaeoenvironment and landscape evolution in western Arnhem Land

The climate and the vegetation regimes described above, apply only to the past millennium. Prior to this there were major changes ranging from high aridity in the late-Pleistocene (much of the period 80,000–12000 BP), to warmer and wetter in the early- to mid-Holocene (12,000–8,000 BP, with c.1.5 times present levels of precipitation), followed by a sharp drop in rainfall to around present levels in the mid- to late-Holocene (8,000–1,000 BP), and then a period of high variability within the last millennium, perhaps around 500 years ago (Allen and Barton 1989: 5-12; Bourke et al. 2007; Kershaw 1986; Reeves et al. 2013; Schulmeister 1999). However, very high discharge events could have occurred under both warm/wet and cool/dry phases of climate (Kershaw and van der Kaars 2012: 247; and see discussion below).

Paralleling these climatic changes were variations in sea level around the continent. During the Last Glacial Maximum (LGM; c.20,000 years ago) the closest sea shore to the plateau was some 300 km to the north. Following a 130 m rise in the sea level from 18,000 to 6,000 years ago (Lambeck and Nakada 1990: 169; Reeves et al. 2013: 5), the sea moved slowly inland, flooding over the continental shelf, to its current position around 60 km north of the plateau. This encroachment would have led to an increase in surface evaporation and a

corresponding increase in precipitation (cf. Kershaw and van der Kaars 2012: 246), causing a dramatic change to the landscape and food resources between the plateau and the sea (Allen and Barton 1989: 100-107; Brockwell et al. 1995: 55). While this probably did not greatly affect the landscape or resources of the plateau itself, it would have provided the people living there with access to a substantially different range of resources through either direct movement or trade. The changes began with the gradual flooding of the Alligator River valleys and the formation of estuarine conditions around 7,000 years ago (Allen and Barton 1989: 10-12, 102). This transformed a previously arid inland environment of low open woodland to one of extensive mangrove swamps and riparian forest (Allen and Barton 1989: 104).

From 4,500 years ago, sediments washed down from the plateau started to build up at the mouths of the rivers and across the sand plains, so that from c.3000 years ago freshwater swamps and billabongs were created alongside tidal rivers and floodplains. From around 1,500 years ago, sand levees restricted the spread of saltwater over the plains and limited the mangroves to the river mouths. Consequently, on the black soil plains, freshwater swamps became more widespread and seasonal grasslands developed that became prime areas for seasonal waterfowl such as the magpie goose. These wetlands then became a prime focus for exploitation by the Aboriginal people living on the plains (Allen and Barton 1989: 105).

The sandsheets on the Alligator River plains were derived from the sandy soils of the plateau around 25,000 years ago and again around 2,500 years ago (Hope et al. 1985: 238-239). As the plateau sandstones are very stable, however, these probably derived from material built up over many millennia (Hope et al. 1985: 238-239). Given the large size of sandsheets abutting the escarpment, it is anticipated that a massive volume of sand would have had to be stripped from the gorges and fault lines leading from the plateau (Hope et al. 1985: 240). Consequently, it is likely that prior to these erosional events, the plateau soils would have been more substantial and carried a heavier vegetation cover (Hope et al. 1985: 240), providing a period of more abundant floral and faunal resources. Also, as mentioned above, while these periods of increased rainfall and runoff were unlikely to have been principal periods of rock fall events, they may have induced the creation of some of the more recent rock shelters.

Paralleling the changes in climate, there have also been changes in vegetation regimes, with a significant decrease in the range of rainforest taxa and a corresponding increase in sclerophyll taxa between c.40,000 and 25,000 years ago (Kershaw 1986; see also Byrne et al. 2011: 1646). Initially thought to be the

result of Aboriginal firing, these changes are now seen to be related to climate changes (Mooney et al. 2011). Given the variability of the climate over much of the Holocene (especially between 8,000 and 2,000 years ago; Kershaw 1986; Mooney et al. 2011: 29; Wanner et al. 2008), other less dramatic and more episodic changes are likely to have affected vegetation communities across the plateau. From around AD 1800 there was a substantial rise in the frequency of burning across Australia, including the tropical north (Mooney et al. 2011: 37). Rather than being due to the influence of European incursions, Mooney et al. suggest that these episodic changes were a response to a world-wide 'post-industrial increase in atmospheric CO₂ concentration' (2011: 37; see also Wanner et al. 2008). Further, recent changes in burning during the early to late dry season, since the depopulation of the plateau after AD 1942 have caused severe damage to fire-sensitive monsoon rainforest, cypress pine and heath communities (Russell-Smith 1995b: 225). Hence, the existing vegetation and its distribution are likely to be under-representative of the taxonomic variety available to Aboriginal populations 200 years ago (Russell-Smith 1995b: 221-222).

The full faunal record over the past 60,000 years is also largely unknown. The various changes in climate and vegetation, as well as the presence of humans, can be expected to have significantly impacted faunal distributions over that time; this includes the extinction of many of the megafauna around 45,000 years ago (Roberts and Brook 2010). The rock art around Nawarla Gabarnmang contains images of what appear to represent several species not now present on the mainland (e.g. thylacines [*Thylacinus cynocephalus*; Figure 2.24], Tasmanian devils [*Sarcophilus harrisii*; Brandl 1972; Callaby and Lewis 1977: Figure 2.25], and, more contestably, megafauna that have been extinct since the Pleistocene, such as *Zaglossus*, *Palorchestes* and *Genyornis newtoni* (Figure 2.26) (Chaloupka 1993: 96-101; Gunn et al. 2011; Murray and Chaloupka 1984). At two other sites on the plateau there are poorly preserved depictions of a notably short-faced macropod (possibly *Sthenurus gilli*, Figure 2.27) and a bull-headed quadruped (possibly *Thylacoleo carnifex*, Figure 2.28). Whether or not these apparent depictions of extinct fauna represent a true record or coincidental similarity, however, remains inconclusive (cf. Chalmin et al. 2017; Cobden et al. 2017). For example, the recent dating of the creation of the rock face on which the possible *Genyornis newtoni* is painted has shown the exposed surface to be only around 13,000 years old (Barker et al. 2017). Consequently, the painted image must be less than 13,000 years old. As the most recent estimate for the extinction of the bird is 24,000 years ago, with most palaeontologists preferring 45,000 years ago (Roberts et al. 2001), then this is unlikely to represent *Genyornis newtoni*; unless of course the bird survived in a relic



Figure 2.24: Probable representation of a thylacine (*Thylacinus cynocephalus*)



Figure 2.25: Probable representation of a Tasmanian Devil (*Sarcophilus harrisii*)



Figure 2.26: Possible representation of the extinct megafauna *Genyornis newtoni*



Figure 2.27: Repainted possible representation of the extinct megafauna *Sthenurus gilli*



Figure 2.28: Possible representation of the extinct megafauna *Thylacoleo carnifex*

population until far more recently – a conclusion that is difficult to accept on present palaeontological data.

The thylacine, which is well represented in the rock art of the Arnhem Land plateau, is generally held to have become extinct on the mainland prior to 3000 years ago, probably concurrent with the arrival of the dingo and the intensification of human settlement around 3500 BP (Letnic et al. 2012; Mattias et al. 2011). The problem

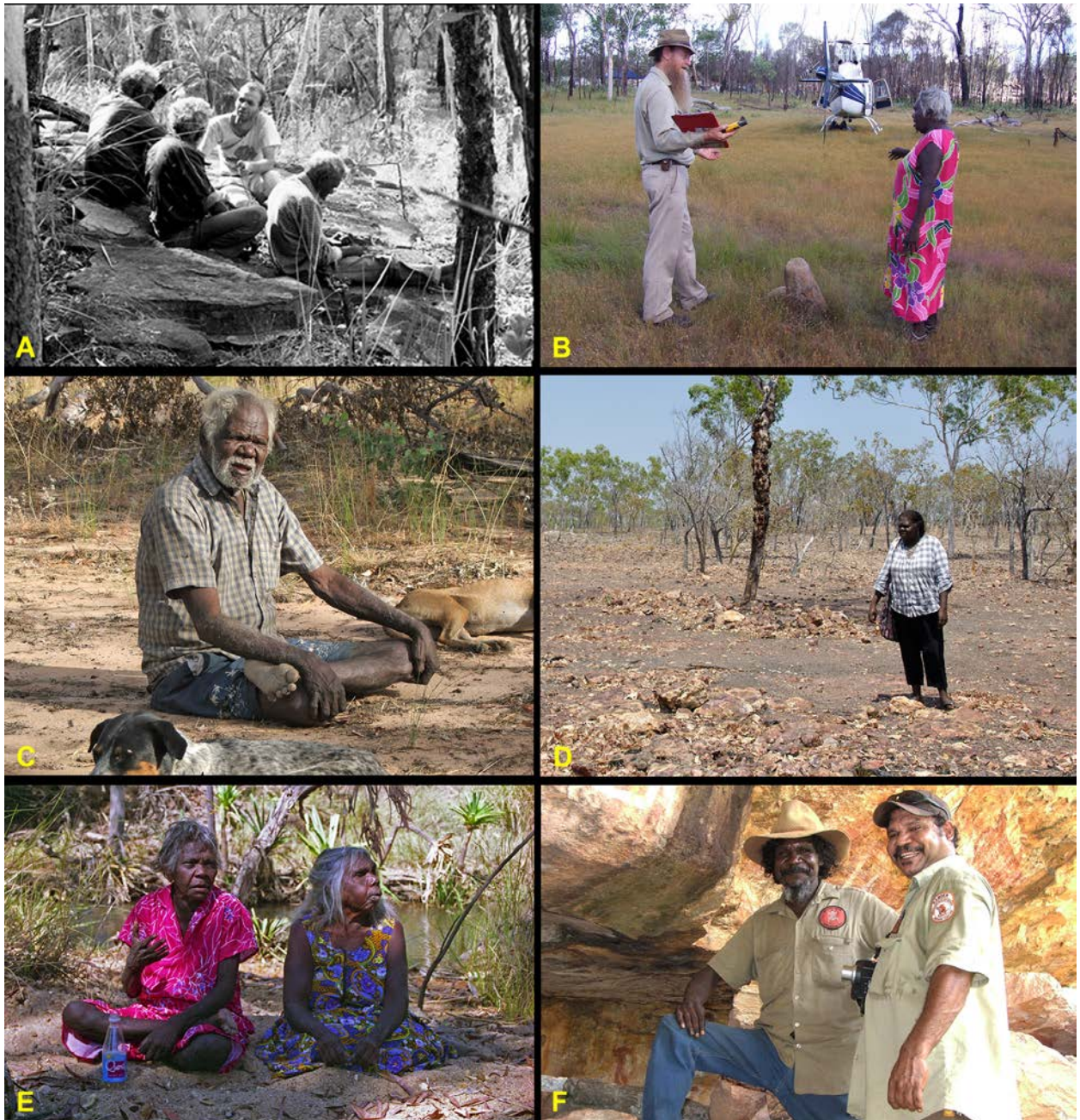
of the reliability of animal identification (especially that of the thylacine) is discussed further below, as it is important in forming a chronology of the rock art at Nawarla Gabarnmang (see Chapter 9).

Summary

The Jawoyn Lands contain a broad range of physical environments within a warm and mostly well-watered region. The Arnhem Land plateau, in which Nawarla

Gabarnmang lies, although subject to restricted water reserves over the late dry season, provides an ample range of natural resources for food, shelter and utilitarian artefacts. The wide distribution and wealth of rock shelters across the plateau provides the setting for the ready production of rock art and

the development of a range of rock art traditions over time and across space. Nawarla Gabarnmang sits at the centre of the plateau near the northern limit of Jawoyn Lands and, with its extensive and well protected ceilings, is well placed to show a sample of these various traditions.



A: Peter Jatbula*, Nipper Brown* and Sandy Barrawei* with anthropologist David Cooper 1989
 B: Margaret Katherine* with the author C: Bardayal Nadjamerrek* D: Sybil Ranch*
 E: Sarah Flora* and Phyllis Wiynjorrotj* F: Peter Bolgay* and Phillip Ranyu
 (*= since deceased)



3. JAWOYN PEOPLE, CULTURE AND COUNTRY



Twenty-nine years ago, I was introduced to Jawoyn culture through the Jawoyn senior Traditional Owner's difficult battle with mining companies for the preservation of the mythologically and ritually significant site of Coronation Hill (Cooper 1987, 1992a; Gunn 1987a, 1987b, 1987c, 1989a). The battle was won by the Jawoyn at considerable cost to the health of the elders, but the site is now protected within Stage 3 of Kakadu National Park. Through this involvement, the senior people shared with me the intimate connection between their culture, their land, and their rock art. My connection with the Jawoyn and their rock art has continued intermittently to the present day (see Chapter 4 for details).

The Jawoyn today include a mix of several previously neighbouring, culturally connected groups, to form what has become known as the Jawoyn Nation (Bauman 2006; Gibson 1999). At the time of European contact the Jawoyn were a single group of Aboriginal people living to the east of Katherine in the Northern Territory. They were united by a common language, culture and land association. This chapter provides an overview of what it means to be 'Jawoyn' in the 21st Century, through reference to the social construction of Jawoyn Country (now generally termed 'the Jawoyn Lands', as much of their land is held by them as Land Trusts).

Jawoyn society

Jawoyn (previously spelt Djuaun: Tindale 1974) is one of some 200 Aboriginal languages and 600 dialects that once thrived across the Australian continent (Blake 1981: 5-6). Today, however, Jawoyn is no longer spoken as a primary language (note Merlan and Jacq 2005). People are recognised as Jawoyn through one or both parents to with an affiliation to Jawoyn country, or through another connectedness to, or knowledge of, Jawoyn Lands (Jawoyn Association n.d.). Immediately prior to the disruption of their traditional lifestyle with the coming of European settlement in the 1870s, the Jawoyn consisted of 43 distinct clans, each with its own claims to specific areas of land (Merlan 1998). A clan (*mowurrwurr* or *dawaro*) was a group of people affiliated through connection to the principle male line (patrilineal descent) (Merlan 1998: 79-80). Each clan was tied to a particular place in the landscape (their estate) through association with one or more

focal Dreaming (totemic) places related to a particular Dreaming Being (Smith 2004: 3-10; and see Berndt and Berndt 1970: 53-60; Lewis and Rose 1988). This gave individuals their 'socio-territorial identity' (Merlan 1998: 80). Clan territories were not assessed by boundaries or borders, but rather by the location of a, typically centrally-located, focal site. These foci were intimately associated to a particular Dreaming story and Dreaming Being, from which the estate will often derive its name (Merlan 1998: 79-80). In addition, the territoriality of a clan was not immutable but rather negotiable through, and at, a number of levels (Merlan 1998: 79, 209-223). The spread of these Jawoyn clans across the landscape determined the extent of traditional Jawoyn country. Clans at the periphery of the Jawoyn country often had more to do in a practical sense with clans of neighbouring peoples (Mayali, Ngalkbon, Wardaman, etc.) than with Jawoyn people from the more central Jawoyn clans (Merlan 1998: 81; see also Stanner 1965).

Smith (1994: 75-79; 2004: 3-10) identified six significant social subdivisions operating within the community settlement at Barunga: moiety, sub-moiety, subsection (skin group), clan, gender and age. The two moiety divisions, Yirritja and Duwa, have particular relevance in relation to ceremonial performances and land ownership through the concept of site owners and site managers, with each being the opposite moiety of the other (Elkin 1972: 10; Elkin 1979: 121-124; also for Jawoyn and related groups see Maddock 1970: 449; Merlan and Jacq 2005: 4). In 1988, the Jawoyn Land Claim hearing determined that, legally, there was no longer any:

way of knowing precisely the principles of land tenure and social organisation which may have prevailed amongst the Jawoyn in the past (Kearney 1988: 26).

I consider that this primary evidence does not reveal any clear and consistent pattern of traditional ownership below the level of the Jawoyn as a whole. Mowurrwurr are clearly associated with sites, Dreamings and persons ... but the associations do not converge in any systematic way ... [as there was no] ... coincidence of Dreamings between the mowurrwurr ... and the sites with which it is affiliated (Kearney 1988: 30).

Kearney further concluded that while:

There are strong indications in the Aboriginal evidence that in the past, and particularly in the northern part of the claim area, particular mowurrwurr were linked to particular areas [area 4; now within Kakadu National Park]. I agree ... that ... this evidence is indicative of some regionalisation in the past which is still acknowledged but is only a memory (Kearney 1988: 30).

The [Jawoyn] claimants' evidence also shows that individuals and sometimes families have a particular interest in specific areas, or attachment to them. However, the claimants consistently and unswervingly referred to the wider Jawoyn group when identifying the focus of responsibility for sites and the land ... In the result, I consider that the Aboriginal evidence does not establish that traditional land ownership among the Jawoyn lies today (or lay in the past) with the mowurrwurr, either singly or in clusters. To the contrary, the claimants' evidence supports the conclusion, which I draw, that traditional ownership is conceived as being vested in the local descent group consisting of 'all the Jawoyn' (Kearney 1988: 30).

As a consequence of this legal determination under the *Land Rights Act* 1972, rather than ownership of land being held by the various clans, the land is vested in various land trusts held by the Jawoyn Association Aboriginal Corporation (from here-on abbreviated to 'Jawoyn Association'). This change in land management has removed much of the individual family control over their traditional estates, being now determined by a board of elected members (see www.Jawoyn.org).

Allied with the moiety groups is the allocation of totemic species, with most species of fauna and flora, and other natural phenomena, belonging to one group or the other. A few species, however, can belong to both moieties (Maddock 1970: 457). Smith gives the example of short-necked turtles and saltwater crocodiles (with short snouts) being Duwa, and long-necked turtle and freshwater crocodiles (with long snouts) being Yirritja (Smith 1994: 76). By virtue of their affiliation with particular physical or spiritual qualities, both moieties have particular colour and size associations that are manifest in the decoration of ceremonial paraphernalia and body painting, bark painting and rock art: Yirritja = yellow and white (light colours) and long/tall; Duwa = red and black (dark colours) and short (Smith 1994: 75). These formal differences have potential implications for the archaeological interpretation of Jawoyn rock art.

The Jawoyn people today are an heterogeneous mix of several previously neighbouring language groups that

were grouped together, and away from their traditional clan estates, by the Australian Government following the bombing of Katherine township by the Japanese on 22nd March 1942 (Katherine Museum 2012). The only fatality of this attack was an Aboriginal man, Kodjalwal ('Dodger Brumby') (Katherine Museum 2012). These language groups mostly come from around the southern margin of the plateau, from Katherine to Bulman, and include Jawoyn, Mangarayi, Mora, Mayali, Ngalkbon and Rembarrnga speakers (Horton 1994; Merlan 1998; Smith 1994: 40). While individuals acknowledge their particular language group and land association, most also consider themselves Jawoyn (in the context of the Jawoyn Nation).

The primary languages spoken today are Mayali and Ngalkbon as, despite the prominence of the Jawoyn group, there are now no fluent speakers of the Jawoyn language. When dealing with non-Jawoyn people, the main language used is a creole-English. As a consequence of this territorial disruption, the Jawoyn Lands (see Figure 2.1), either through extinction or amalgamation, are now tended by just 17 clans, with the number of adult Jawoyn members being close to 600. Most of these people now live either in Katherine or within outlying Aboriginal communities such as Manyallaluk, Werenbun, Barunga and Wugularr that lie around the southern periphery of the plateau (Jawoyn Association n.d.).

In 1985 the Jawoyn Association was formed to represent the Jawoyn Traditional Owners, to bring the Jawoyn people together as one nation, and to develop economic independence. In 1989 the Jawoyn Association, through the Land Claim process under the Aboriginal Land Rights (Northern Territory) Act 1976, won joint management of Nitmiluk (Katherine Gorge) National Park, which incorporates a large section of outlying plateau formation adjacent to Katherine. In 1995 they won a similar agreement for Stage 3 of Kakadu National Park, which incorporates 'Bulajang', a large basin within the plateau dominated by the secret/sacred apocalyptic Dreaming Being known as *Bula* (Figure 3.1).

The Jawoyn continue to be socially and legally responsible under ceremonial lore to 'look after' their land, its resources and sites of significance. Under the *Nitmiluk (Katherine Gorge) National Park Act 1989* the rights of traditional Aboriginal owners of the National Park were and continue to be protected (Parks and Wildlife Commission Northern Territory 2002: 8). As part of the Arnhem Land Plateau, the park contains numerous cultural sites, including many rock art sites. Some 420 sites have been recorded here to date, but many more are known to exist. Unfortunately, records for these sites held at the National Park are very scant due to a loss of data during the 1998 Katherine flood (Parks and Wildlife Commission Northern Territory 2002: 37). Re-

recording of 30 of these sites was undertaken as part of the JRAHP (see below).

After successfully arguing in 1991 for the protection from mining of their traditional areas and sensitive cultural sites in the Gimbat (Stage 3) area of Kakadu National Park, the Jawoyn people regained those lands in 1995 by way of a lease agreement through the Gunlom Aboriginal Land Trust. This lease included 'special provision about managing and protecting sacred sites, particularly 'Sickness Country' [Bulajang] ... and control of Aboriginal cultural material' (Director of National Parks 2007: 28). Surveys of Bulajang have recorded numerous sites of significance including 171 rock art sites (Gunn 1992a; see Chapter 4, Previous Investigations, below).

Subsequent to these successful land claims, other traditional lands have been purchased by the

Association for the Jawoyn people (Jawoyn Association n.d.), some of which have been included within the survey area of the Jawoyn Rock Art and Heritage Project discussed below. Nawarla Gabarnmang, the major focus of this study, is within the lands of the Buyhmi clan, of which the late Margaret Katherine was the senior Traditional Owner. The Buyhmi clan occupied an area from the upper Mann River, south to Snowdrop Creek (Figure 3.2).

Jawoyn religion

Many of the major motifs in Jawoyn rock art are intimately connected with their religious beliefs (Arndt 1962; Gunn 1992a; Maddock 1970). Throughout most of Australia, traditional Aboriginal life and society was similarly comprehensively connected with religion: the concept of the Dreaming and associated beliefs, myths and rituals (Berndt and Berndt 1970,

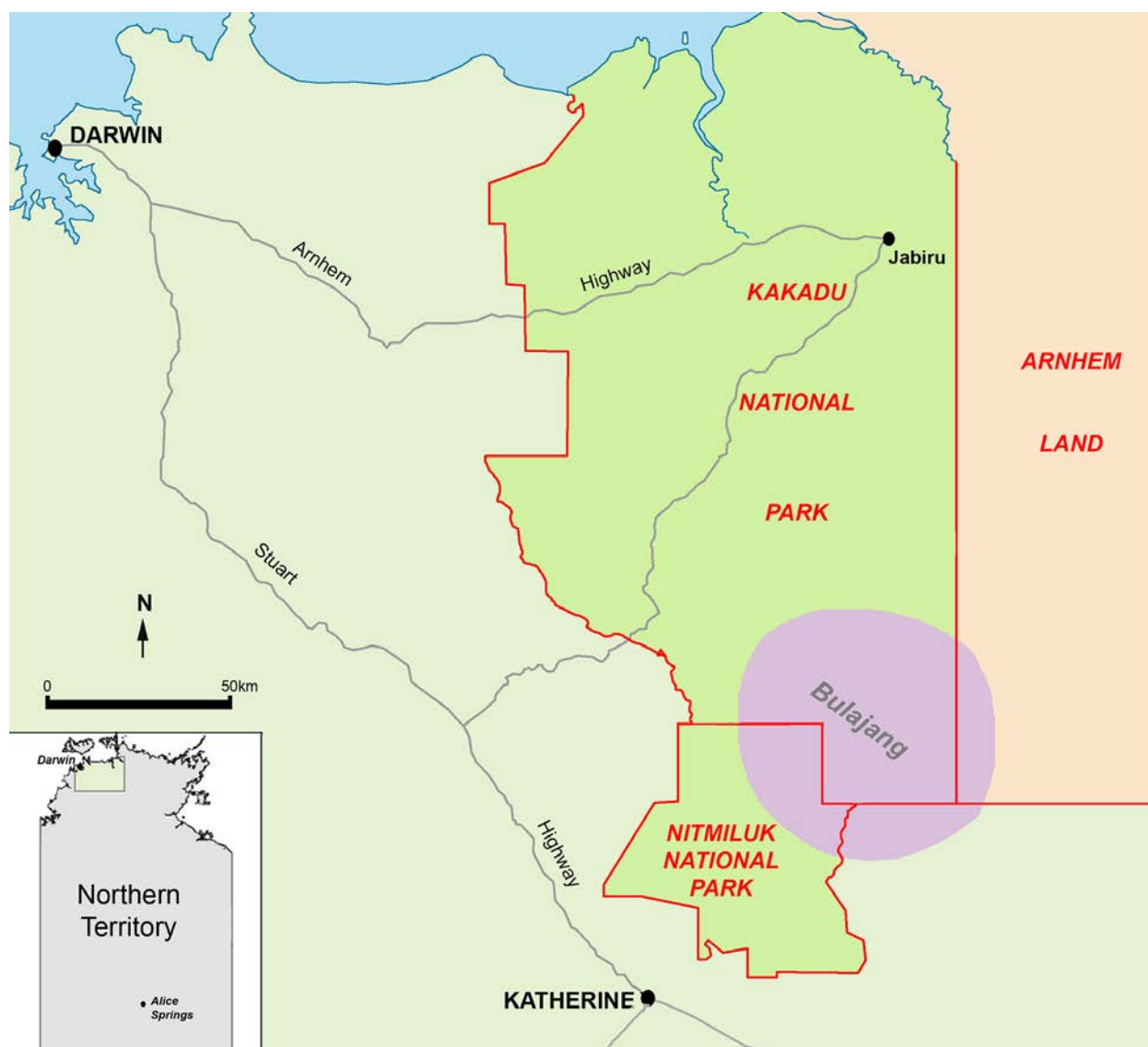


Figure 3.1: Location of Nitmiluk and Kakadu National Parks and Bulajang



Figure 3.2: Approximate location of the Buyhmi clan estate

1977: 287-292; Elkin 1979: 220-261; Maddock 1974; Stanner 1953, 1966). To the Jawoyn, this timeless and ongoing period is known as *ngan-Jarang-ngay* or *Jarang*. The Dreaming is a complex concept of a prior and continuing parallel world, created and inhabited by Dreaming Beings (characters in either human form or as animals with human characteristics; Lewis and Rose 1988: 46-50; Stanner 1953). While being 'super-human', creating many of the physical features of the natural landscape, the Dreaming Beings also have all of the strengths and weaknesses of human beings. The myths relating to the Dreaming describe the travels and exploits of the Dreaming Beings along the

way. They detail both the creation stories and stories incorporating inappropriate social behaviours and their consequences. For example, the Dreaming track of the Kunapipi Dreaming Beings travelled through 35 tribal groups across Arnhem Land, including that of the Jawoyn (Berndt and Berndt 1977: 243). The Dreaming Beings also are responsible for the association of a particular entity, event or condition, with a particular place, and hence the creation of totems (Stanner 1962: 223-232). Rituals pertaining to these myths permit human beings to 'become' Dreaming Beings and 'enter' the Dreaming to facilitate the continuation and promulgation of species on earth.

The Dreaming takes particular forms and incorporates a wide variety of rituals and myths in different regions of the continent. It contains common threads that permit the various forms to be identified as a variant of a characteristic 'Australian' Aboriginal religion (Berndt and Berndt 1977: 251-255; Charlesworth 1984; Eliade 1973; Stanner 1966). Particular among these is the (almost) pan-Australian concept of the Rainbow Snake (often simply referred to as 'Rainbow'), which was the principle character in many creation stories and male initiation and revelatory rituals across the continent.

The Rainbow Being, or Rainbow Snake, is known in Jawoyn as Bolung, while the groups around the northern end of the plateau know this Being as either *Ngalyod* or *Almudj*. In common with other areas of Australia, the Rainbow Being has both male and female aspects, but primarily embodies a creative fecundity, forming much of the landscape and originating humans on earth (Berndt and Berndt 1970: 117-118). The male aspect of Bolung, however, also encapsulates a potentially destructive nemesis. Bolung inhabits deep waterholes, and as a result these places are invariably seen as dangerous places; however, in particular circumstances some have been known to become safe through the destruction or removal of Bolung by non-Aboriginal people (Merlan 1998: 48-51, 96).

The various totemic rituals, all overlapping with social/land relationships, constitute another framework for personal identity and involvement in relation to birth, life, death and later reincarnation (Berndt and Berndt 1977: 287; Elkin 1979: 79-80). The myths and totems provide an interconnecting web linking place to place either within restricted local areas or across multiple regions. This web provides a commonality of cultural codes facilitating interactions between neighbouring groups, such as inter-group marriages and other social affiliations (Berndt and Berndt 1977: 243; Elkin 1979: 134-135). The notion of *ngan-Jarang-ngay* (Dreaming) is also fundamental for the Jawoyn, particularly in relation to place (Merlan 1998: 72-73; 2000). Ritual is a powerful way of directly interacting and maintaining contact with the Dreaming (Berndt and Berndt 1970: 115).

In the recent past, Jawoyn society was pervaded by six major rituals or cults:

- *Wuwarr* (Ubar), first stage male initiation;
- *Yaputurruwa* (Yabudurruwa), Yirritja second stage of male initiation;
- *Kunapipi*, Duwa second stage of male initiation and adolescent girls' initiation;
- *Marayin* (Maraian), a final stage male initiation ceremony for which there is both Duwa and Yirritja participation;
- *Lorrkkon*, a burial rite; and

- *Bula*, a male cult directed towards not disturbing an exceptional and localised Dreaming Being, Bula (also known as *Bulademo*).

Although nominated here as particular staged rituals, to a large extent the male initiation ceremonies also overlap (see also Berndt and Berndt 1970: 117-142). For example, particular aspects of the Yabudurruwa can be performed after a person's death contemporaneously with a performance of the Lorrkkon ritual (Elkin 1951: 292). These rituals were, and in some cases continue to be, of major social importance: their preparation taking many weeks, with the full performance lasting continuously for around a week (e.g. Berndt 1974: 1-7; Elkin 1972). The first four rituals (*Wuwarr*, *Yabudurruwa*, *Kunapipi*, and *Marayin*) are strongly associated with the mythology of Bolung. *Lorrkkon* is a burial and revelatory ritual with close parallels/associations to the *Wuwarr* (Berndt and Berndt 1970: 133-135).

In contrast, the *Bula* ritual is localised to a particular region of Jawoyn country although it is recognised throughout western Arnhem Land for its dangerous potential. *Bula* is a major Creation Being for the Jawoyn and 'the most important figure in our Dreaming' (Jawoyn Association n.d.). *Bula* came from the north with his two wives, hunting and transforming the land as he went. He went into the ground at a particular location but his essence then spread throughout *Bulajang* (Sickness country), an area along the western edge of the plateau (Figure 3.2). Should the land within *Bulajang* be disturbed and *Bula* 'woken', he will cause the apocalyptic destruction of the Aboriginal world. Aspects and characters of these initiation rituals, and also the *Lorrkkon* burial ceremony and *Bula* cult, are also recorded in Jawoyn rock art (e.g. Arndt 1962; Elkin 1952; Gunn 1992a), as are other characters and paraphernalia from subsidiary myths or smaller increase rites (see Chapter 4).

While records of the above-mentioned rituals relate primarily to the participation of a limited group of adult males and male initiates, a supportive role was actively performed by women (particularly close relatives of the initiates), including the provision of sacred foods (Berndt and Berndt 1970: 148). Very old women were often permitted to attend as observers (Berndt and Berndt 1970: 116). Whether or not there existed separate rituals that were the sole province of women has not been recorded for the Jawoyn, but they certainly do occur in other Aboriginal groups elsewhere in Australia (cf. Bell 1983).

It is stressed that, throughout much of Australia, religious cults are particularly mobile, transmitting rapidly from region to region, either replacing existing cults or fitting into prevailing kinship, territorial

and mythic structures (Berndt and Berndt 1970: 119-125; Elkin 1979: 259-260). Consequently, the cults documented during the 1940s and up to the 1960s almost certainly emerged sometime in the more recent end of the region's very deep history. These cults and rituals are therefore unlikely to have existed, especially in the form documented, when much of the older rock art within Jawoyn Lands was produced. Although each was different, all of these cults are grounded in common cosmological foundations based in Jawoyn notions of the Dreaming. They each offer a different aspect of a cosmological sub-text. Throughout Arnhem Land, the underlying theme appears to be that of the Bolung and the notion of travelling Dreaming Beings (Elkin 1979: 260).

While Bolung is referred to by Jawoyn people as being either male or female ('him' or 'she'), in most cases the term is taken to mean both male and female. In either form, Bolung is usually depicted in rock art, and also today in contemporary bark and canvas paintings, as a composite character, indicative of its multiple associations. Hence, Bolung can be depicted with the head of a kangaroo, emu or other non-worldly creature; the body of a snake or goanna; and the tail of a crocodile, fish or other animal. Flying fox are often depicted hanging from below its body and/or waterlilies growing along its back. In addition, it may have further minor attributes relating to a particular context (e.g. Munro 2010: 64-65, 125, and 139). Rock paintings of Bolung are not numerous, and the larger images are typically multi-coloured and indicative of very important sacred sites (e.g. Maddock 1970). Again, some of these sites have become de-sanctified in recent years through a lack of retention of the stories and songs by present day Traditional Owners and site managers (Sybil Ranch, Jawoyn elder, pers. comm., 2011). Bolung was also intimately associated with thylacines that the Jawoyn and northern neighbours call 'his' dog. Paintings of thylacines can represent this companion dog-like creature, or be symbolic for the Rainbow Being itself (Bardayal Nadjamerrek, pers. comm., 1989).

Another important Dreaming celebrated widely across the Arnhem Land plateau is that of the Sugarbag Dreaming (Wam; wild honey obtained from native beehives in tree hollows or rock crevices) (e.g. West 1995). Within Jawoyn country, three outstanding rock art sites celebrate the Sugarbag Dreaming and form an east-west line across the plateau (e.g. Gunn and Whear 2007). Unfortunately, the specific stories associated with these particular sites have been lost, although stories of Sugarbag, associated with other Jawoyn sites, are still told.

Other Dreaming Beings, often in their animal form, are known to occur in Jawoyn rock art. These include the Wuwarr 'macropods' *Gupu* and *Barrak*; *Garlkke*, the young

Rainbow; *Ngart*, the 'short-necked turtle' companion of Bula; the *Ngalenjelenje*, the wives of Bula; *Nabilil*, a 'crocodile' Creation Being; *Na-Gorrkko*, a male travelling Dreaming Being; *Luma Luma*, a female travelling Being; *Namarrkan*, the Lightning Man; *Na-derri*, a kangaroo-headed spirit figure (Arndt 1962; Chaloupka 1993; Gunn 1992a; Maddock 1970; Smith 2004). Many of the representations of the *Ngalenjelenje* take a specific form termed the 'Jawoyn Lady' (see below), however, not all Jawoyn Lady figures are representations of the *Ngalenjelenje*, as interpretation is largely dependent on context. Red, old-looking paintings of thin anthropomorphs are said to be representations of the Mimi spirits who live within the rocks of the plateau. These images are said to have been painted by the Mimi themselves and are not the work of humans.

Today, most Jawoyn would call themselves Christians, although the influences of older religious aspects are still revealed in some of their practices, particularly amongst the older generation.

Jawoyn land use

Water is a fundamental requirement for human occupation of any landscape, and the Arnhem Land plateau provided a secure reservoir that permitted its continued use over many thousands of years. The rocky surface of the plateau provides rapid rainfall runoff that feeds into ephemeral creeks and then into streams and the larger rivers. These waterways provide a network of reserves for potable water throughout the year (Figure 3.3).

The sandy areas between the rock outcrops, in contrast, provide more gentle seepage that drains into boggy swamps (Figure 3.4), which then may or may not develop into stream flow.

These bogs provide a reliable sub-surface water source often located well away from the main water arterials. Consequently, the plateau provided adequate water for permanent occupation, albeit somewhat restricted by the end of the dry season.

Several of the larger waterholes and rockholes are also considered to be dangerous places as they are homes of Bolung (Figure 3.5). At these reserves, activities such as fishing, hunting or bathing, are restricted or forbidden. In contrast, other deep waterholes along the waterways are favoured locations for camping (Leichhardt 1847: 6th November; and pers. obs.).

From the perspective of Jawoyn flora and fauna use at present and in the recent past, the most fruitful habitats on the plateau are the low open eucalypt woodland (*Eucalyptus dichromophloia*, *E. miniata*) that dominates the sandy soils between the rock outcrops,



Figure 3.3: Comparison of wet season and dry season creek flow
Photograph (left): Ray Whear



Figure 3.4: Plateau bog along ephemeral stream

and the escarpment rainforest (*Allosyncarpia ternata*) that occurs along streams in the protected sandstone gorges (see Chapter 2). These habitats contain a wide range of fruit and tuber foods, medicinal plants and other vegetals, with practical applications such

as fish poisons, wood for spear shafts, cordage and ornamentation (Bennett et al. 2009; Brock 2007: 28; Wiynjorrotj et al. 2005). Furthermore, the still-waters of the boggy aquifers, billabongs and river outwashes scattered across the plateau are sources of a variety of

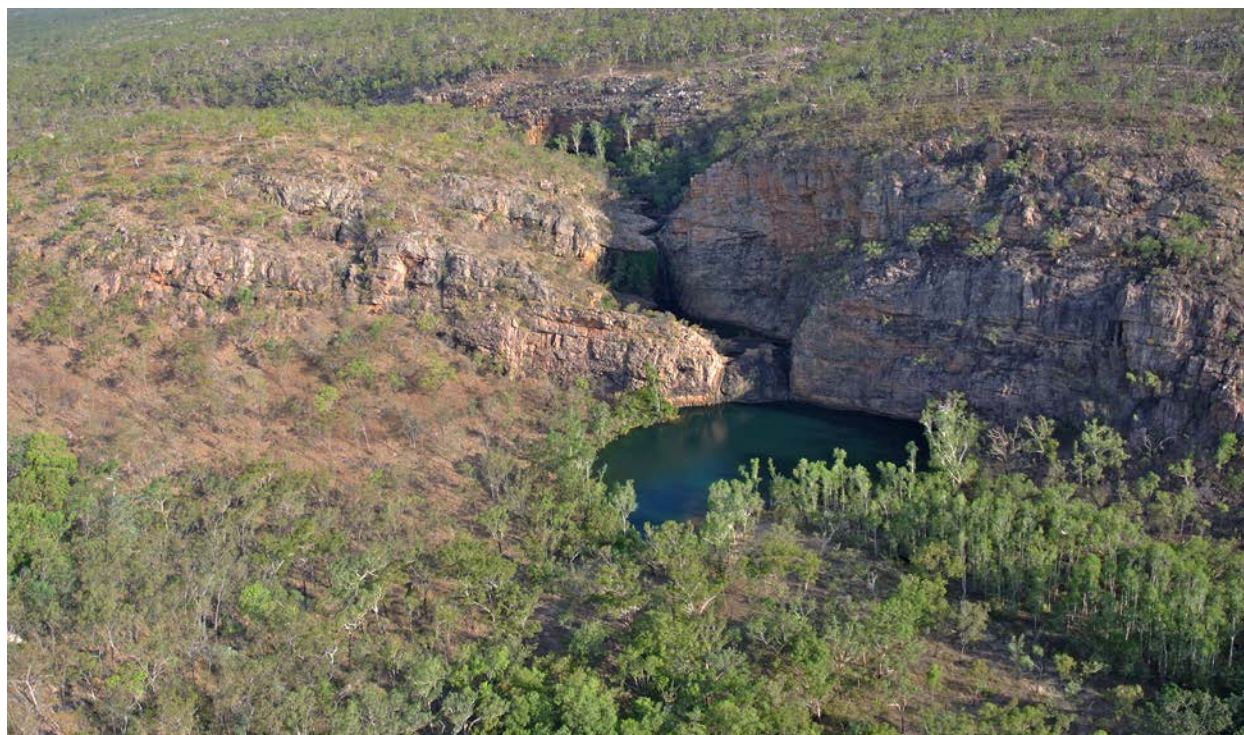


Figure 3.5: A Bolung waterhole on a tributary of the Katherine River

edible plants, including the important yam (cheeky or round yam, *Dioscorea bulbifera*; long yam, *D. transversa*) and waterlily (*Nymphaea macrosperma*, *N. violacea*) (Leichhardt 1847: 5th November; Wiynjorrotj et al. 2005: 55, 94). Yams and lilies are the major vegetal types represented in the rock art and both have associations with Bolung (e.g. Munro 2010: 60).

The plateau also contains a wide range of faunal species that were exploited by the Jawoyn for food and raw materials (such as sinew for string, bone for points and skins for bags: Wiynjorrotj et al. 2005: 121-200). As well as observing vegetable foods, Leichhardt (1847) noted the presence of large numbers of wild geese, white cockatoos and flying fox (on one evening alone shooting 67 for their food), as well as bustard, wallaby, goanna, and crocodile (particular taxa not given). All these plateau animals in addition to several species of python, turtle, possum, echidna, jabiru and emu were hunted by the Jawoyn (Peter Jatbula, pers. com. 1988). These were referred to colloquially and, in some cases, identification of particular species was unclear. For example the term possum can be used to refer to the rock ringtail possum, *Psuedocheirus dahlia*, the northern brushtail possum, *Trichosurus arnhemensis*, or at other times the northern quoll (*Dasyurus hallucatus*). The other major food type was fish, primarily the larger species such as barramundi (*Lates calcarifer*), saratoga (*Scleropages jardini*), bream (*Hephaestus fuliginosus*) and the two types of catfish (*Arius graffei*, *Tandanus tandanus*). All of these, along with a range of other fauna, including locally and

universally extinct species, occur in the rock art (cf. Chaloupka 1993).

The plateau, however, is not as rich in food resources as the lowland wetlands, although it does contain a wide variety of plant and animal foods for most of the year. Generally, these resources become less plentiful towards the end of the dry season (Wiynjorrotj et al. 2005: 12-13).

In addition to these organic resources, the plateau provides a range of other inanimate resources such as small boulders utilised in constructing stone arrangements, quartzite rock for stone tools and ochre deposits for pigment. These sources of raw materials were habitually very significant locations of mythological and at times ceremonial importance (cf. Arndt 1962; Taçon and Brockwell 1995). The abundant rock shelters across the plateau provide ready-made protection from inclement weather, primarily wet season rains or dry season heat. As with bark shelters, such rock shelters were invariably decorated with artwork and many rock shelters show extensive use over a prolonged period of time (e.g. David et al. 2011).

Impacts of European incursions

For several centuries prior to the European colonisation of Australia, sailors from Makassar came annually to the northern coast of Arnhem Land to collect and process trepang (MacKnight 1972, 1986; Mulvaney 1969). There is debate as to whether the Macassan exploitation of the

Arnhem Land coast started around AD 1720 (MacKnight 1986: 69) or, as more recently proposed, preceding AD 1577 (Taçon et al. 2010). The extent, if any, to which the inland Jawoyn groups would have had direct contact with Macassans, is unknown.

In 1838, the British established an outpost at Port Essington, c.240 km to the north of the plateau, following initial sea reconnaissance by Captain P.P. King in 1818 (Allen 2008; Edwards 1979: 4-14). Contact between the Jawoyn and Europeans, however, probably did not begin until explorer and naturalist Ludwig Leichhardt crossed the main body of the plateau from south-east to north-west in 1845 on his way to Port Essington (Leichhardt 1847). Leichhardt entered the plateau coming up from the south-east following the creek he named Flying Fox Creek, passed over the plateau watershed and dropped down to Snowdrop Creek (which he named after the bullock they killed there), following it south-west before turning away to the north-west. He crossed over the Katherine River (which he considered a smaller tributary of Snowdrop Creek), and continued north-west to the headwaters of what is now Gimbat Creek, before descending from the plateau near what is now Jim Jim Falls and continuing on to Port Essington (Figure 3.6). On his way up along Flying Fox Creek, Leichhardt noted that the valley was well inhabited (Leichhardt 1847: 1st November) as the party came across numerous Aboriginal camps:

The remains of fresh-water turtles were frequently noticed in the camps of the natives; and Mr Calvert had seen one depicted with red ochre on the rocks. It is probable that this animal forms a considerable part of the food of the natives. John Murphy reported that he had seen a hut of the natives constructed of sheets of stringy-bark and spacious enough to receive our whole party; the huts which I had observed were also very spacious, but covered with tea-tree bark. Smoke from the natives' fires was seen from the range in every direction, and their burnings invariably led us to creeks (Leichhardt 1847: 5th November).

However, about five miles farther, we found a small pool, at which natives had very recently encamped, and, three miles farther, two fine water-holes fringed with Pandanus (Leichhardt 1847: 6th November).

Leichhardt generally held a high regard for Aboriginal people, attempting to converse with them whenever the chance arose, and observant of their campsites and diet:

As we were travelling along, a native suddenly emerged from the banks of the creek, and, crossing our line of march, walked down to a Nymphaea

pond, where he seemed inclined to hide himself until we had passed. I cooeed to him; at which he looked up, but seemed to be at a loss what to do or say. I then dismounted, and made signs to shew my friendly disposition: then he began to call out, but, seeing that I motioned away my companions with the horses and bullocks, as I moved towards him, and that I held out presents to him, he became more assured of his safety, and allowed me to come near and put some brass buttons into his hand. I understood him to ask whether we were following the creek, and I answered 'Brrrrrr aroma aroma!!' pointing at the same time with a long sweep to the northward. As, however, we were equally unintelligible to each other, and he did not appear to be very communicative, I mounted my cream-coloured horse, and left him staring at me in silence until I was out of sight (Leichhardt 1847: 3rd November).

I gathered the large vinebean, with green blossoms, which had thick pods containing from one to five seeds. Its hard covering, by roasting, became very brittle; and I pounded the cotyledons, and boiled them for several hours. This softened them, and made a sort of porridge, which, at all events, was very satisfying. Judging by the appearance of large stones which were frequently found, in the camps of the natives, still covered with the mealy particles of some seed which had been pounded upon them, it would seem that the natives used the same bean; but I could not ascertain how they were able to soften them (Leichhardt 1847: 24th October).

On other occasions, however, the openness of Leichhardt's party was not returned:

The frequent smoke which rose from every part of the valley, shewed that it was well inhabited. Brown met two natives, with their gins and children, but they ran away as soon as they saw him. At sunset, a great number of them had collected near our camp, and set fire to the grass, which illumined the sky, as it spread in every direction. They tried to frighten us, by imitating a howling chorus of native dogs; but withdrew, when they saw it was of no avail; at all events, they left us undisturbed during the night—except by one of their dogs, which had been attracted probably by the scent of our flying-fox supper (Leichhardt 1847: 1st November)

Subsequent to Leichhardt's expedition, further breeching of the plateau by Europeans during the 1800s was limited. In 1862, engineer and explorer J. M. Stuart (then 46 years of age) led an expedition of 10 men (most around 20 years old) from Adelaide to Chalmers Bay, near present-day Darwin. From 27th June to 16th July, the party passed through the southern and



Figure 3.6: Approximate routes of early Europeans expeditions through Jawoyn Lands
 Routes plotted by the author from their respective Journals.
 The public domain photos derive from their respective web sources.

western portion of Jawoyn country. They travelled up along the Chambers-Waterhouse River, passing what is now *Wugularr*, over the plateau to Fanny Creek (which he named), north-west to Birdie Creek, west to the Katherine River, Mt Sow and Kekwick Springs, then north-west to the Mary River (all of which he also named), and then on to the coast at Chalmers Bay (Hardman 1865). Stuart was noticeably more wary of Aborigine people than was Leichhardt: 'They are not to be trusted: they will pretend the greatest friendship one moment and spear you the next' (Hardman 1865: 27th June).

On the 25th June, one of the Stuart's party (Kekwick) came upon a camp by a large waterhole and all but one of the group ran away in fright. The singular man was armed with spears and 'loaded with fish and bags filled with something to eat' and held up a green branch and called out as a greeting. The party then bade him goodbye and went on their way (Hardman 1865: 25th June).

In 1865, following the demise of the Port Essington settlement, J. M. McKinlay's expedition left from Adam Bay, north of the later site of Darwin, looking for a more suitable settlement site further to the east. After crossing the Adelaide River plains he had to abort the mission due to the wet season making the South Alligator and Magela Creek plains impassable. Rather than retrace his steps, he continued north to the coast, largely following Stuart's line and skirting the north-eastern margin of the plateau to the East Alligator River (Davis 1863). Although McKinlay did not enter Jawoyn Lands, doubtless his proximity would have been noticed and discussed by the Jawoyn.

Nearly twenty years later, in October 1883, David Lindsay, a government surveyor, was commissioned by the South Australian Government to assess the potential of eastern and central Arnhem Land for settlement. From near Katherine, he travelled down the Roper River to the coast, with a deviation to the upper reaches of the Wilton River, then up the eastern inland side of Arnhem Land to present day Ramingining, west to the Liverpool River and then southwest over the plateau to Katherine (Lindsay 1884). Lindsay was generally favourably disposed to Aboriginal people and attempted to make peaceful contact with those he met, giving them tobacco and small items (axe, fish hooks, line) in return for word lists and directions. At two encounters, however, one near the mouth of the Roper River and one at Blue Mud Bay, his party was attacked by about 100 armed warriors and Lindsay's party resorted to firearms to repel the assaults (Lindsay 1884: 13). He also mentions, and in some cases describes in detail, Aboriginal activities such as fishing methods and burning practices, as well as mentioning campsite, burial ground, and stone quarry locations. Many of

those he met could speak limited English and some of those who attacked them by the Roper mouth had wire points affixed to their spears. From his notes it is clear that the Roper valley and the area around Ramingining were well populated. Despite his acute observations elsewhere, however, Lindsay makes no mention of seeing any people or campsites when crossing over the plateau. It can be assumed from this lack of observations that the plateau was sparsely populated at the time. Whether this lack was due to the position of his route (which, to save his horses, deliberately avoided the areas of the densest rock shelter concentrations), the effects of depopulation through earlier disease epidemics, or the time of year (being the end of the dry season: October), is unknown. At his closest point, Lindsay's party would have passed within 10 kilometres of Nawarla Gabarnmang and the northern group of sites with contact paintings. Interestingly, the Aboriginal people Lindsay's party met near the Gulf of Carpentaria 'could speak a little English, were not afraid of us, but professed great fear of the horses and dogs' (Lindsay 1884: 5). On another occasion, after spearing three of the horses, they cut one open and removed its entrails (Lindsay 1884: 6). Clearly, the horses were an object of keen interest to the Aboriginal people at that time. Paintings of what appear to be horses occur at Nawarla Gabarnmang and at the nearby ARN-0087 site complex, and possibly refer to the Jawoyn observation of the horses of either Leichhardt or Lindsay (see Chapter 9).

Contact with other *mam* or *munanga* (interchangeable Jawoyn terms for non-Aboriginal people) intensified with the completion of the overland telegraph line and the establishment of a repeater station near the present town of Katherine. The period between 1870 and 1890 saw a rapid increase in the numbers of White Australians, western Europeans and Chinese entering the western and southern Jawoyn Lands as pastoral settlements became established and mineral exploration and mining began (Levitus 1995: 68-69, 74). The pastoral industry isolated traditional waterholes and food reserves, forcing local Aboriginal peoples to depend on cattle stations, mines or market-gardens for labour and gratuitous handouts for survival. These places of work became the foci of settlement for labourers and their families and, consequently, the development of fringe camps. The presence of drugs, alcohol and new diseases, however, proved catastrophic and the Aboriginal population in these areas dropped dramatically, with proposed reductions of more than 95% for the Alligator River region to the north and the Victoria River region to the west (Keen 1980 and Rose 1992, cited in Smith 1994: 46).

In 1913 commercial quantities of tin were located at Maranboy, 80 km east of Katherine, followed by the construction of a Government Battery to service the mines in 1916 (Smith 2004: 23). The police station

adjacent to the settlement became an initial point of contact for Aboriginal Health Care, as Aboriginal people were not admitted to the local Australian Inland Mission hospital at that time (Smith 2004: 23). As Smith points out, the settlement provided work for Aboriginal people across the region. It also presented the first extended contact between Jawoyn, *munanga*, and other non-Jawoyn Aboriginal people: all within an alien sedentary lifestyle that replaced hunting and gathering with handout flour and sugar (Smith 2004: 24-5).

A further factor in the undermining of Jawoyn traditional life was the establishment of 'Native Control Camps' during World War II (Merlan 1998: 5). These camps not only restricted people's movements over traditional country, but also forced prolonged contact with 'outside' groups that put a strain on traditional social relationships. A similar situation occurred for the Gunwinggu around the northern fringe of the plateau (Berndt and Berndt 1970: 6-7). Following World War II, these compounds were disbanded and, while a small number of Aboriginal people returned to their home country, most were relocated to Government settlements such as Barunga (previously known as Beswick and Bamyili) (Merlan 1998: 5; Parks and Wildlife Commission Northern Territory 2002: 15-17). Here, Jawoyn and non-Jawoyn lived side-by-side in permanent structures, and in a new social setting that lent itself to the breakdown of many traditional mores, such as the choice of marriage partners (Smith 1994: 86-87) and an increase in the influence of Christianity (Smith 1994: 73). Some traditional practices continued, such as the role of moiety divisions and the notions of site and ceremony owners (*gidjan*) and managers (*jungayi*) (Smith 1994: 81-82), while others, such as burial, evolved into a compromise incorporating elements of both religions (Smith 1994: 67).

In 1994, Smith concluded that:

Some rules have been bent, some perhaps forgotten, but most facets of contemporary [Jawoyn] social identities are clearly grounded traditional Aboriginal concepts ... it is clear that a distinctly Aboriginal world view has endured (1994: 88).

The persistence of Jawoyn Culture

In line with their slogan 'Sharing Country', the Jawoyn Association developed the Barunga Sports and Culture Festival, held annually at the town of Barunga, on Jawoyn Lands east of Katherine (Figure 3.7). This annual long-weekend festival is one of the largest of its kind in Australia, and actively encourages non-Aboriginal people to camp within the town and participate in cultural activities such as dancing ceremonies, collecting and cooking bush tucker, didgeridoo making and basket weaving, and listening to Dreaming stories. The sports

section is primarily a contest between Aboriginal groups and includes both traditional Aboriginal and Western sports (Jawoyn Association n.d.).

In 1988, the Jawoyn presented a document to the attending Australian Prime Minister, Robert 'Bob' Hawke, which has become known as the Barunga Statement. The Statement sought, among other things: self-determination for Aboriginal people; protection of, and control of, their access to cultural items and places; respect for and promotion of Aboriginal identity; a national system of land rights; and a call to negotiate with Aboriginal people a Treaty recognising prior ownership of traditional lands, continued occupation, and sovereignty of Australia (Australian Government n.d.).

Jawoyn Rock Art and Heritage Project (JRAHP)

The Jawoyn Association, in close conjunction with Traditional Owners, took an initiative to integrate research on their history and prehistory with their present-day cultural practices and education, through the development of the Jawoyn Rock Art and Heritage Project (JRAHP) (Gunn and Whear 2007a). This project was commenced by the Jawoyn Association in 2005 to assimilate a broad range of interrelated cultural programmes into a Community Cultural Heritage Database (CCHD). A major component of this was the standardised recording of rock art sites and images across Jawoyn Lands, where such rock art is abundant and, in many cases, of extremely high quality. Many of these sites, however, are in very remote areas and of extremely difficult access other than by helicopter. The rock art records derived from the programme are being incorporated within the CCHD, which is a GIS multi-faceted database that permits film and audio recordings, text and photographs, drawings and plans, as well as personal genealogies and land associations, to be linked to specific cultural sites and places via a computerised GIS system. The CCHD also tags places with tourism potential and contributes to the production of a multimedia educational resource for primary schools within Jawoyn Lands. In addition, the database is already being used by the Jawoyn Association to assess the management and conservation requirements of these sites.

In 2005, the Jawoyn Association required the services of a specialist independent consultant to document rock art sites and associated archaeological features throughout Jawoyn Lands. The author was recommended to the Association and then employed to undertake a preliminary survey with knowledgeable elders that same year. The survey found the rock art to be equal to the most spectacular recorded elsewhere in Australia (Gunn 2006a). It contains most of the reported styles from north-western Arnhem Land



Figure 3.7: Barunga festival 2015
Photograph courtesy of Jordan Ralph

(cf. Chaloupka 1993), as well as having both its own distinctive styles and others that have parallels with the Victoria River region to the west (Gunn and Whear 2007). Initially, the JRAHP aimed to record all rock art sites on Jawoyn Lands, but it quickly became apparent that such an endeavour was extremely optimistic, as the number of site complexes located rapidly numbered in the hundreds, and the total number of sites present on Jawoyn Lands was estimated to be in the tens of thousands. Further, the existing records for the 400-odd sites within Nitmiluk National Park that were made prior to 1998 were destroyed in the floods of that year (Parks and Wildlife Commission Northern Territory 2002: 37), thus requiring their re-recording. Hence, what could be achieved in the time available and with existing resources and funds was limited. At its conclusion in 2012, the JRAHP had recorded 124 site complexes, with 1478 constituent sites and 49,784 motifs, and supported by 24 unpublished reports and 16 published papers (see Chapter 4).

As the principle researcher of the JRAHP, I recommended the Jawoyn Association seek the assistance of an archaeologist highly specialised in excavation to assess and, if warranted, undertake excavation of archaeological sites in Jawoyn country. Consequently, Dr Bruno David, an eminently qualified excavation archaeologist at Monash University, was requested to undertake this task with Traditional Owners. Based

on his evaluation, Nawarla Gabarnmang was selected as the first site to be excavated. David subsequently assembled an international team of experienced researchers, including archaeologist Jean-Michel Geneste (Centre National de Prehistoire, France), geomorphologist Jean-Jacques Delannoy (University de Savoie, France), archaeologists Bryce Barker and Lara Lamb (University of Southern Queensland), and radiocarbon dating specialist Fiona Petchey (Waikato Radiocarbon Dating Laboratory, New Zealand). In 2010, Monash University signed a Memorandum of Understanding with the Jawoyn Association on behalf of the Traditional Owners to undertake at least five years of collaborative archaeological research on Jawoyn Lands: the '*Connecting Country: the Jawoyn Homelands Project*' (Monash University 2010). This project has shown the deposits of Nawarla Gabarnmang to be rich in archaeological materials, with occupation beginning more than 46,000 years ago (David et al. 2011; see Chapter 4 below). Ongoing research aims to further the dating of the earliest occupation of the site, as well as investigate the antiquity of artworks and the history of the site's occupation.

Summary

The various language groups that now make up the Jawoyn come from relatively dispersed groups of people, whose land-use was tied closely with the

regulated spatial patterning of clan estates, while retaining broader social connections across much of Arnhem Land. Today, however, the Jawoyn live in small communities in and around Katherine and several other smaller settlements across Jawoyn Lands. While adapting many of the trappings of western society and religion, many still retain strong attachments to their traditional culture. This heritage affords a basis for the interpretation of, at least, the most recent rock art on Jawoyn Lands and also provides an impetus to contemporary Jawoyn artists. As it has always done, Jawoyn culture continues to develop and incorporate

innovative concepts and practices through a variety of social processes. Through their slogan, 'Sharing Country', the Jawoyn are aiming for economic self-sufficiency primarily through tourism and the cultural market. The various cultural heritage projects developed by the Jawoyn Association are very much part of their vision for a future built on a strong sense of history and identity. The interpretations that the Jawoyn have for their rock art, and its implications for understanding the rock art of Nawarla Gabarnmang, is discussed in Chapter 10, after the archaeological analyses, to put a human perspective into Jawoyn art history.



Jean-Michel Geneste and Jean-Jacques Delannoy,
Nawarla Gabarnmang Square D excavations in progress, 2011



4. ARNHEM LAND ARCHAEOLOGY



Prior to presenting the recording of Nawarla Gabarnmang it is necessary to review the previous studies of the region's archaeology and rock art. Fortunately, there are numerous archaeological studies from western Arnhem Land that provide a comprehensive framework for the prehistory of the region. These studies fall into two groups: those that have looked at material culture and chronology through excavation and environmental changes; and those that have utilised the results the first group to propose a chronology for the various styles of rock art in the region. The excavations have focused on just a few sites to develop regional models, while the rock art studies have generated several conflicting models, mostly from the poorly documented study of numerous sites across the region. Consequently, a review of pertinent archaeological research is presented here to correctly set the archaeological context of Nawarla Gabarnmang. To establish the time frame of occupation of the region, archaeological excavation data and related rock art features are considered; followed by a review of the many rock art studies that have been undertaken in western Arnhem Land. These have considered various aspects of style, distribution, sequence, and chronology, hence are directly pertinent to the aims of interpreting the spatial patterns and temporal trends in the rock art of Nawarla Gabarnmang.

Aboriginal Archaeology in western Arnhem Land

Archaeological investigations in and around the Arnhem Land plateau can be divided into four regional groups: the north-western, western, plateau and southern. These four regions are discussed separately as each has important environmental differences and all have received vastly differing levels of investigation. The western, plateau and southern regions are all within the Jawoyn Lands, with Nawarla Gabarnmang central to the plateau region (Figure 4.1).

The north-western region

The north-western margin of the plateau and its outliers (shelters 1-19) have been the subject of significant archaeological projects that set the parameters for subsequent work on the plateau (Table 4.1; Figure 4.1).

The initial study was that by the American-Australian Scientific Expedition to Arnhem Land in 1948. During this

expedition, McCarthy and Seltzer excavated 12 shelters from two locations near Oenpelli, Argaluk and Unbalanja Hill, as well as undertaking surface collections from 'several' shelters and stone workshops in the vicinity (McCarthy and Seltzer 1960: 251-295). The archaeological deposits they excavated all consisted of shallow ashy soils that lacked any stratigraphy (Table 4.1).

McCarthy and Seltzer claimed that the rock shelters were used as rain shelters during the wet season, although the reason for this interpretation is not stated (possibly derived from local informants or existing literature, as it was an aspect already well-documented [e.g. Gray 1915: 26; Spencer 1928: 823-824; Tindale 1928: 35]). They also noted that nearby rock crevices were used for human bundle-burials (McCarthy and Seltzer 1960: 251). Their primary interest, however, was in recording stone tool types, recovering 33 European contact-period artefacts from excavations (McCarthy and Seltzer 1960: 274). These artefacts testify to the Aboriginal use of these shelters over the past 200 years.

While McCarthy and Seltzer did mention the occurrence of rock art within these shelters, they did not record it. They noted that the number of pigment pieces in the excavations was dominated by red ochre (97%), with yellow, pink and white each accounting for <1% (McCarthy and Seltzer 1960: 274) the being pieces mostly less than three inches (7.6 cm) in length (e.g. McCarthy and Seltzer 1960: 244). While the greatest array of painted shelters was on nearby Unbalanja Hill, 77% of the excavated ochre came from two shelters on Argaluk Hill (McCarthy and Seltzer 1960: 270, 274). Argaluk Hill 2 shelter provided 63% of all ochre recovered (including 62% of all red ochre and 80% of the other, minor colours). To account for the discrepancy between rock art and ochre quantities, they suggested the Argaluk Hill shelters may have been used for the decoration of perishable items such as spears, baskets, and bones of the dead, or body painting, rather than rock art. Their excavation results support the notion that the quantity of ochre in shelter deposits around the plateau cannot wholly be taken as an indicator of past rock art production, or vice versa (cf. Smith 2013: 98).

Carmel Schrire (previously Carmel White) carried out excavations within five shelters around the north-western margins of the plateau over two field seasons in 1964-1965 (Schrire 1982; White 1967a, 1967b, 1971;

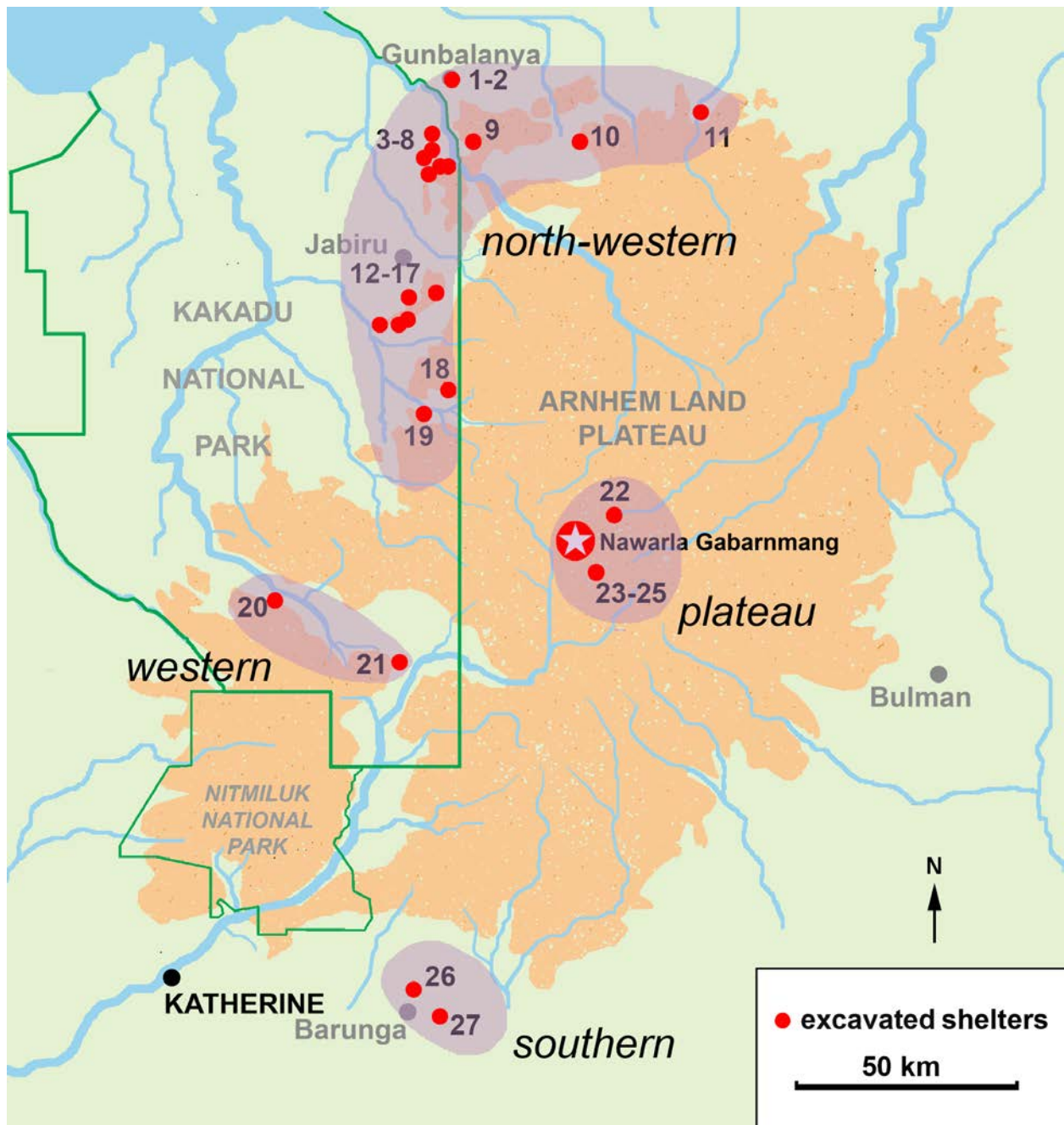


Figure 4.1: Location of excavated shelters (red) and regions (purple) mentioned in the text (see Table 4.1 for key to site numbers)

White and Peterson 1969). Three shelters were located on the plains west of the East Alligator River, and two within an escarpment valley of the plateau, 20 km east of the East Alligator River. In her PhD dissertation she provided the first evidence of Pleistocene occupation for the region (Schrire 1982: 118) and offered an initial outline of Arnhem Land prehistory (Kamminga and Allen 1973: 7). Essentially, she identified two distinct artefact assemblages:

- c.25,000 to 6000 BP: sandy deposits with scrapers, core scrapers, utilised flakes, ochre, grindstones and ground-edged axes.
- 6000 BP to present: midden deposits with points, small rectangular scraper-adzes, use-polished flakes, utilised flakes and ground-edged axes (Schrire 1982: 230-249).

Schrire also noted a dichotomy between the content of shelters on the plateau and those on the plain (Schrire 1982: 249). This was initially seen as indicating distinct plain and plateau populations (White 1967a, 1967b). Subsequently, White revised this model and suggested that the dichotomy was due to the seasonal movements between the two landscapes (dry season plains/wet season plateau) (White 1971; White and Peterson 1969:

Table 4.1: Excavated shelter sites on and around the Arnhem Land plateau

North-western plateau margin

Map No.	Site Name	Reference	Oldest date BP (uncalibrated)
1	Argaluk Hill	McCarthy and Seltzer 1960	-
2	Unbalanja Hill	McCarthy and Seltzer 1960	-
3	Nawamoyrn	Schrire 1982	21,450 ± 380
4	Malangangerr	Schrire 1982	24,800 ± 1000
5	Paribari	Schrire 1982	3120 ± 100
6	Feather Dreaming	Kamminga and Allen 1973	n.d.
7	Ngarradj Warde Djobkeng	Allen and Barton 1989	8690 ± 125
8	Malakunanja	Kamminga and Allen 1973	18,040 ± 300
9	Birriwilk	Shine et al. 2013	4413 ± 032
10	Jimeri I	Schrire 1982	10,790 ± 200
10	Jimeri II	Schrire 1982	6650 ± 500
11	Goomadeer	Jelinek 1979a	-
12	Yiboioig	Jones and Johnson 1985	1100 ± 080
13	Nangalawurr	Kamminga and Allen 1973	755 ± 100
14	Anbangbang I and II	Jones and Johnson 1985b	5770 ± 100
15	Spirit Cave	Jones and Johnson 1985b	2490 ± 200
16	Nawulandja (burial cave)	Kamminga and Allen 1973	8630 ± 310
17	Nawulandja (blue painting)	Jones and Johnson 1985b	7900 ± 200
18	Balawuru	Kamminga and Allen 1973	5045 ± 125
19	Nauwalabila	Kamminga and Allen 1973	19,975 ± 365

Western plateau margin

20	El Sherana (unspecified)	Chaloupka (Jelinek 1979a:112)	n.d.
21	Sleisbeck (unspecified)	Golson (in Schrire 1982:230),	c.6600

Central plateau

*	Nawarla Gabarnmang (ARN-074)	David et al. 2011	41,680 ± 1532
22	Dalakngalarr (ARN-082/1)	James et al. 2017	4431 ± 25
23	Genyornis (ARN-124/3)	Barker et al. 2017	17,113 ± 83
24	Genyornis occupation (ARN-113/19)	Under analysis	n.a.
25	EXF3 (ARN-113/23)	David, Delannoy et al. 2017	22,235 ± 163

Southern plateau margin

26	Yimigronggrong (Droopney)	Wilson 2002	709 ± 28
27	Tangtangjal	Macintosh 1951 (in Gunn and Whear 2007b:24)	726 ± 36

62). Following Kamminga and Allen's (1973) excavations, Schrire further revised her interpretations, suggesting the differences between the plateau sites (with a high incidence of stone artefacts) and the plain sites (with a high incidence of shell artefacts) was a reflection of the frequency and availability of local resources (Schrire 1982: 250-251). Allen and Barton suggest that while Schrire's final model may be applicable to the past 3000

years, before that time 'it is unlikely that the social and ecological conditions ... [bore] much resemblance to any contemporary ethnographic situation' (Allen and Barton 1989: 119).

Like McCarthy and Seltzer before her, White paid scant attention to the artworks within the shelters she excavated, although she does mention that a rock-

fall at Jimeri II provided a maximum age for the wall paintings; this event was dated to between Levels 1b and III, dated to 4770 ± 150 BP and 6650 ± 150 BP respectively (Schrire 1982: 219). The paintings (not illustrated), were interpreted by a local Traditional Owner as representing a lizard (in white), and a *maruwa* figure (presumably a local form of spirit figure in fine-line red with coarse white line infill). Schrire considered 'it is reasonable to suggest they were painted by the makers of the points and rectangular scrapers' deposited within Level 1b (Schrire 1982: 196, 219). This indicated that the ceiling paintings were produced at sometime within the past 7000 years.

In 1969, a team of Czechoslovakian archaeologists and ethnographers under the leadership of Jan Jelinek conducted fieldwork at three locations

around the plateau: surface collections were made at four sites along the Wilton River, excavations were undertaken in a shelter at Goomadeer River, and rock art recording within what is now Kakadu National Park (Jelinek 1979a). No report has been published for the Goomadeer site excavation.

The Alligator Rivers Environmental Fact-Finding Study (Christian and Aldrick 1977; Fox et al. 1976, 1977) was instigated in 1972 by the Australian Government and mining industry. This was as a precursor to the development of open-cut mining following the identification of extensive deposits of high grade uranium reserves in the Alligator Rivers Uranium Field along the north-western margins of the plateau (McKay and Mieztis 2001: 13, 48-64; Figure 4.2 and 4.3).

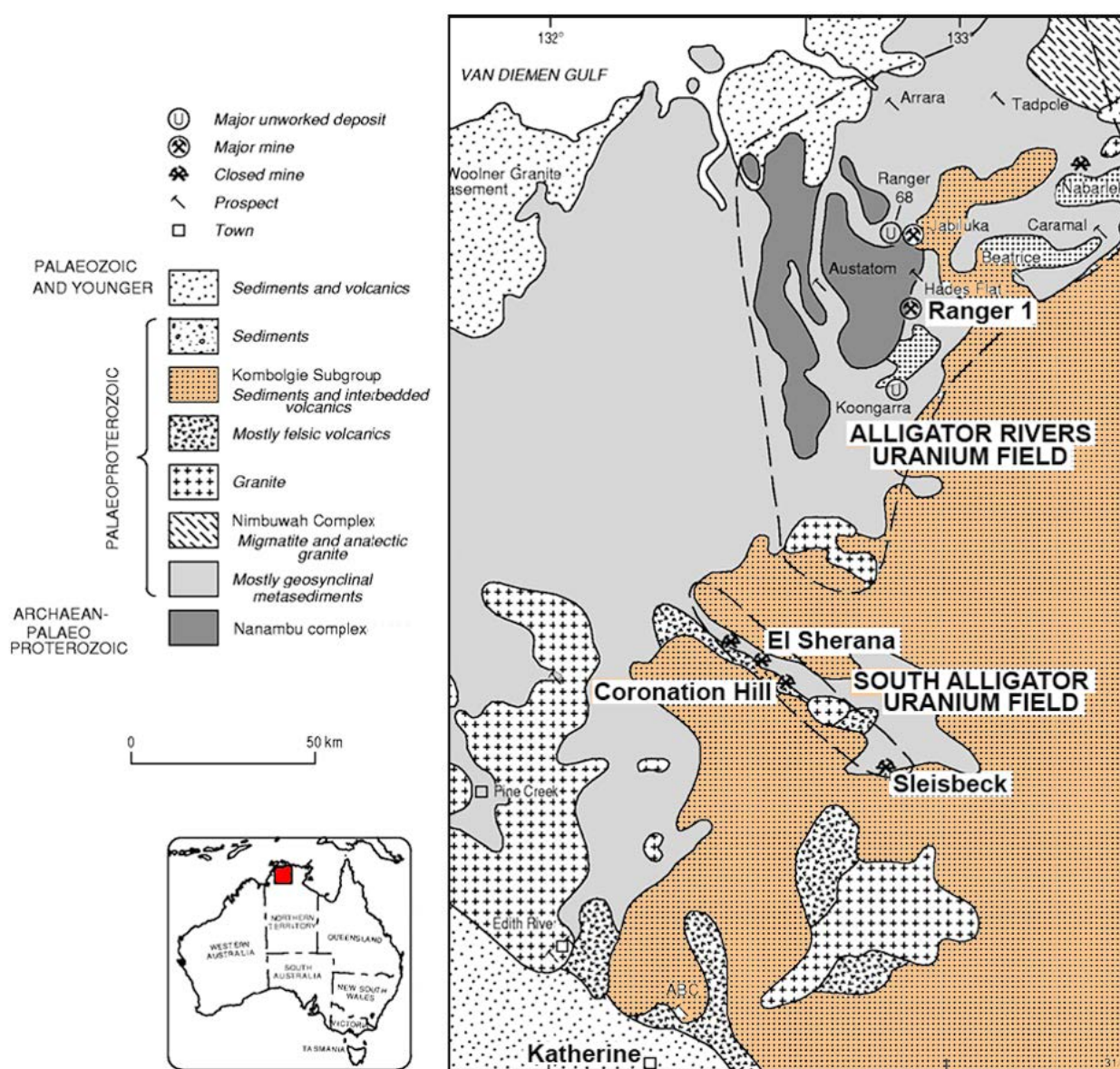


Figure 4.2: Uranium Fields around the northern and western margins of the Arnhem Land plateau (after McKay and Mieztis 2001: 49)



Figure 4.3: Raw uranium ore (pitchblende) from the Ranger deposit (1975)

Among other aspects, the Fact-Finding study undertook separate surveys of the archaeological and rock art resources around the north-western corner of the Arnhem Land plateau (Edwards 1974; Kamminga and Allen 1973). These surveys located 120 archaeological sites with high excavation potential and more than 380 rock art sites (Australian National Parks and Wildlife Service 1980: 173-174). Test excavations at eight sites within the study area confirmed the presence of stratified Pleistocene deposits (Kamminga and Allen 1973) and, as a result, more detailed excavations were undertaken by Allen at Narradj Warde Djobkeng in 1977. The report of this latter excavation was not written up until 1989 (Allen and Barton 1989) and benefited from a major archaeological project undertaken in the intervening years by the Australian National University (ANU) (see below).

Kakadu National Park was proclaimed in 1979 following negotiations with the Traditional Owners, who had successfully claimed much of the proposed Park area under the Land Rights Act in 1978 (Press and Lawrence 1995). The management plan for the Park noted the high scientific and Aboriginal significance of archaeological sites within the Park and identified a need for further study. Consequently, the Australian National University (ANU), Canberra, undertook research for the Australian National Parks and Wildlife Service in 1981, excavating rock shelter sites along the base of the plateau (Figure

4.4) and open sites on the wetland plains (Jones 1985a: v). The aims of this research project were to clarify artefact sequences and past changes in the ecological record, to provide a firm chronology for those changes (Jones 1985b: 17-19).

The recognition of the managerial rights of Traditional Owners by the Park Authority and the ANU research team saw the active involvement of local Aboriginal people in the project; their role as descendants of the people whose history was being investigated, as knowledgeable informants, and as the land's legal owners (Jones 1985b: 19). The ANU project confirmed the earlier findings of Kamminga and Allen (1973) establishing that five sites in the region demonstrate occupation extending back beyond 20,000–25,000 BP. For example, in one of these, Nauwalabila I, artefacts extended well below the lowest presence of charcoal (Jones 1985c: 305). Subsequent thermoluminescence dating of the sands at this site showed occupation to have begun within the period 60,000–53,000 years ago (Roberts et al. 1990; Roberts et al. 1994), with 'initiation of systematic occupation [occurring within] a top black-stained silt [dated] to cf. 2000 and 1000 years ago, and which continued to modern times' (Jones 1985c: 291).

More recently, Denis Shine excavated at several shelters east of the East Alligator River (Shine 2014). An initial report on the excavations at the Birriwilk shelter



Figure 4.4: Nourlangie Rock (1975) that houses the Anbangbang shelters excavated by the ANU team in 1981

suggested that use of the shelter began around 5000 years ago, with the main period of use being from 700 to 300 years ago (Shine et al. 2013: 72). Four pieces of glass occurred in the upper levels and the majority of ochre was recovered from the 700 to 300 year period (Shine et al. 2013: 73). The site has a large suite of rock art dominated by the centrally placed, large polychrome image of the female Dreaming Being, *Birriwilk* (Gunn 1992b; see below).

Daryl Wesley and Mirani Litster looked at the significance of glass and stone beads found in rock shelter excavations in the Wellington Ranges (Wesley and Litster 2015). The beads are considered to have come from trade with Macassans and Europeans. The earliest of these beads came from deposits with a mean age of cal AD 1462 (although they are cannot rule out vertical movement for this sample). Other dated beads occurred in much more recent deposits (c.AD 1800). These excavations have yet to be fully reported, however, a potentially early Macassan arrival in Australia around AD 1400 is discussed below.

Northern Jawoyn Lands – western region

The ‘western region’ of Jawoyn Lands is a small area within the upper catchment valley of the South Alligator River (shelters 20 and 21). In the early 1960s, Jack Golson undertook an excavation adjacent to the Slesbeck mine between the South Alligator and Katherine Rivers. The excavation has not been reported in any detail due to a mishap while exiting the area following the excavations (Ken Mulvaney, pers. com., 2016). Golson’s excavation recovered ground-edged axes and tula adzes (Mulvaney 1975: 193, 234), with an early industry occurring around 6600 BP (Schrire 1982: 230). Mulvaney (1975:

184-189), reporting his own excavations at Kintore Cave and Ingaladdi (with an upper horizon dated to less than 3000 BP containing points and tulas, and a lower horizon of cores and scrapers dating to more than 5000 BP), mentions that Golson ‘obtained similar results in a shelter at Katherine’ (Mulvaney 1975: 89). Given the few excavations in that region at the time and the close association of the three archaeologists, it is likely that the shelter Mulvaney refers to is the same shelter mentioned by Schrire.

As part of his 1969 fieldwork report mentioned above, Jelinek (1989: 434) reported that Chaloupka undertook an excavation at El Sherana by the South Alligator River in 1968, at the larger of two shelters ‘some 2 miles from the old El Sherano (*sic*) mine’ (Figure 4.2; Jelinek 1979a: 112-114). The deposit was 30 cm deep and consisted of a single layer, containing a range of stone artefacts: trimmed points (11%), side-scrapers (10%), other scrapers (7%) and burins (9%) (Valoch 1979: 152). Jelinek (1979a: 114) reports that the rock shelter was the bigger of the two adjacent shelters and that the wall was decorated with ‘recent’ X-ray style paintings. Subsequently, Jelinek (1989: 434) designated the two shelters as El Sherano [*sic*] Gallery I and Gallery II but does not mention which was excavated. On the basis of shelter measurements taken by Gunn (1987a: 99), in a report also containing illustrations of the art of both shelters, it appears that the site excavated by Chaloupka was Jelinek’s Gallery II. At that time, the site was known locally as ‘Christmas Creek’ (the adjacent creek name) and was so frequently visited by mine workers from El Sherana and Slesbeck and intrepid tourist groups (Brandl n.d.), that an area surrounding the site was declared a Reserve (for preservation and protection as a place of historic interest) under the Crown Lands

Act of the Northern Territory (Brandl 1972b; Chaloupka 1980b). Following consultation with Traditional Owners by the (then) Aboriginal Sacred Sites Authority in 1987, the site, known to the Jawoyn as Narlenji-lenji, was registered as part of the Upper South Alligator Bula Complex Sacred Site, and public access restricted (Cooper 1987; Gunn 1987b. See further discussion of the Jawoyn concerns for this region below).

Northern Jawoyn Lands – plateau region

The northern Jawoyn Lands include the greater half of the land on top of the Arnhem Land plateau (shelters 22-25; Figure 4.1). In 2009, charcoal recovered from an eroding hearth within the ARN-0079 Jawoyn site complex (Gunn and Douglas 2009). The site (ARN-0079/4) was an open campsite on the banks of a permanent creek consisting of a light surface scatter of stone artefacts and several sub-surface hearths partially exposed by water erosion (Figure 4.5). Charcoal was recovered from between the exposed hearth-stones, providing an AMS radiocarbon date of 3671 ± 36 BP (Wk 25687). This date calibrates to 4141–3869 cal BP (95.4% probability) in Calib Rev 6.1.0 using Intcal09 (Reimer et al. 2009) (Table 4.2).

As part of the Jawoyn Rock Art and Cultural Heritage Project (see below) surface charcoal was collected from a number of relatively intact hearths exposed on shelter floors in order to investigate the most recent use of rock shelters across Jawoyn Lands (Figures 4.6 and 4.7; Gunn and Douglas 2009, 2010a, 2011). Such near-intact surface hearths are rare due to erosion and the damaging effects of large animals such as kangaroos, wallabies, water buffaloes and pigs. Radiocarbon dating of these charcoal samples (Table 4.3) indicate that shelters on the plateau continued to be used into the early European contact period, which is consistent with the historically known depopulation of the plateau during World War II (see Chapter 3). The dating pattern also suggests that these shelters were only used spasmodically; they were not places of continuous habitation or even annual visits.

In 2010, the ‘Connecting Country: the Jawoyn Homeland Project’, began excavations at Nawarla Gabarnmang (site ARN-074/1a; Figure 4.8), soon expanding to four other sites nearby.

The floor deposits at Nawarla Gabarnmang proven to be rich in archaeological materials, with occupation

Table 4.2: Charcoal radiocarbon date from site ARN-0079/4
(from Gunn and Douglas 2009)

Site	Lab. No.	Material	$\delta^{13}C\text{‰}$	% Modern	14C Age (years BP)	Calibrated Age BP (95.4% probability)
ARN-0079/4	Wk-25687	Charcoal	-25.0 ± 0.2	63.0 ± 0.3	3671 ± 36	3896-4091 (98.4%) 4129-4141 (01.6%)

Table 4.3: Radiocarbon dates from surface shelter hearths in Jawoyn Lands
(from ¹Gunn and Douglas 2010a and ²Gunn and Douglas 2011)

Site	Lab No.	Material	$\delta^{13}C\text{‰}$	% Modern	14C Age (years BP)	Calibrated Age BP (95.4% probability)
ARN-01151	Wk-30145	Surface charcoal	-25.4 ± 0.2	99.4 ± 0.3	51 ± 25	(-4)-(-2)* (02.7%) 32-74 (58.2%) 77-82 (00.8%) 97-108 (02.5%) 112-137 (14.8%) 224-255 (21.0%)
ARN-0055a1	Wk-30143	Surface charcoal	-25.5 ± 0.2	98.6 ± 0.2	115 ± 35	(-4)-(-1)* (00.8%) 11-150 (65.5%) 174-176 (00.3%) 186-271 (33.3%)
ARN-0055a1	Wk-30144	Surface charcoal	-24.1 ± 0.2	96.9 ± 0.2	254 ± 32	(-1)-10* (02.9%) 150-174 (17.3%) 177-185 (00.9%) 272-331 (55.6%) 358-430 (23.3%)
ARN-00672	Wk-31071	Surface charcoal	-25.3 ± 0.2	95.7 ± 0.4	352 ± 33	315-413 (55.5%) 418-495 (44.5%)
ARN-00872	Wk-31072	Surface charcoal	-26.1 ± 0.2	77.5 ± 0.4	2052 ± 38	1904-1907 (00.4%) 1924-2122 (99.6%)

Ranges marked with a * are suspect due to impingement on the end of the calibration data set (Waikato Radiocarbon dating Laboratory)



Figure 4.5: c.4000 year old hearth exposed at site ARN-0079/4
Photograph prior to recovery of the charcoal sample for radiocarbon dating

beginning some 50,000 years ago (David et al. 2011, unpublished manuscript), making this one of the oldest securely-dated occupation sites in Australia. The deposits also contained a fragment of a very early

ground-edged axe dated to $35,400 \pm 410$ cal BP (Geneste et al. 2010, 2012). A rock fragment bearing a partial black motif was also found in deposits dated between 28,400 and 26,900 cal BP (Figure 4.9; David et al. 2013).



Figure 4.6: <270 year old surface hearth at ARN-0055/a
Photographed prior to recovery of the charcoal sample for radiocarbon dating

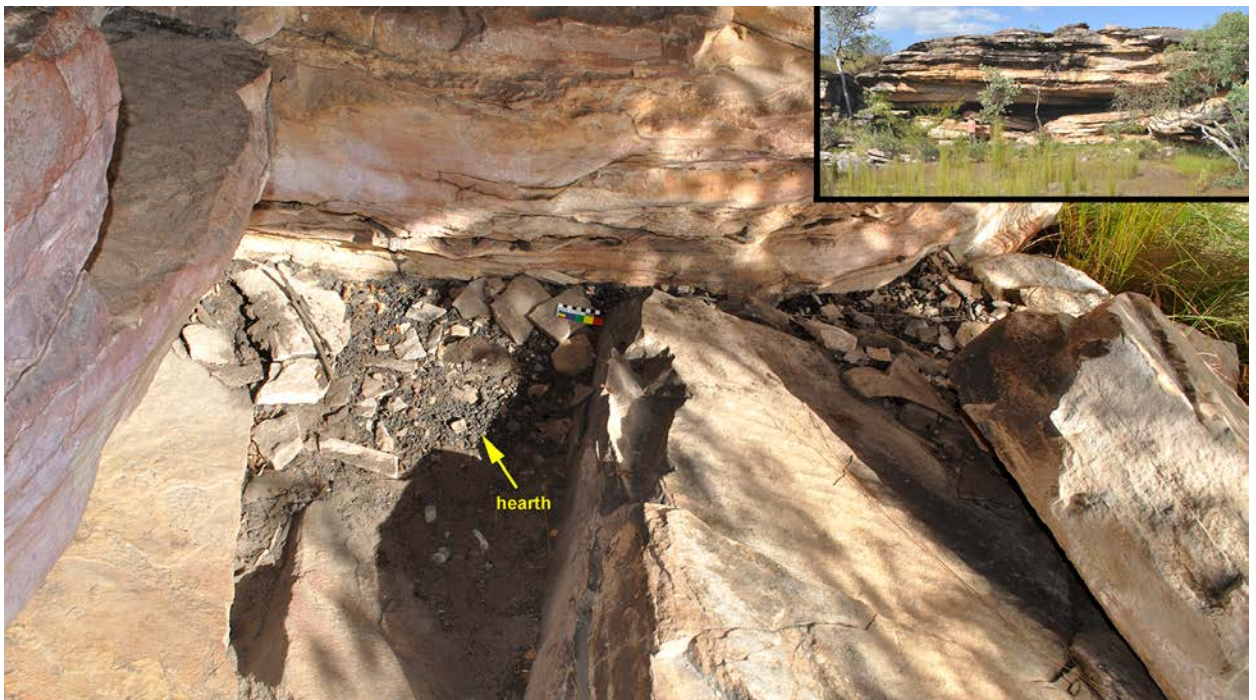


Figure 4.7: c.2000 year old surface hearth at site ARN-0087/10
Photographed prior to recovery of the charcoal sample for radiocarbon dating

Ongoing research is aiming to track the history of the site's occupation and explore the antiquity of its artworks (David et al. 2013; David, Gunn et al. 2017). It is also anticipated that understanding the unusual geomorphological development of the shelter with its

array of supporting pillars (see Figure 2.14) will assist in dating the formation of several of the ceiling rock art panels, providing maximum and/or minimum ages for some of the artworks this site contains (see Delannoy et al. 2013; Delannoy et al. 2017).

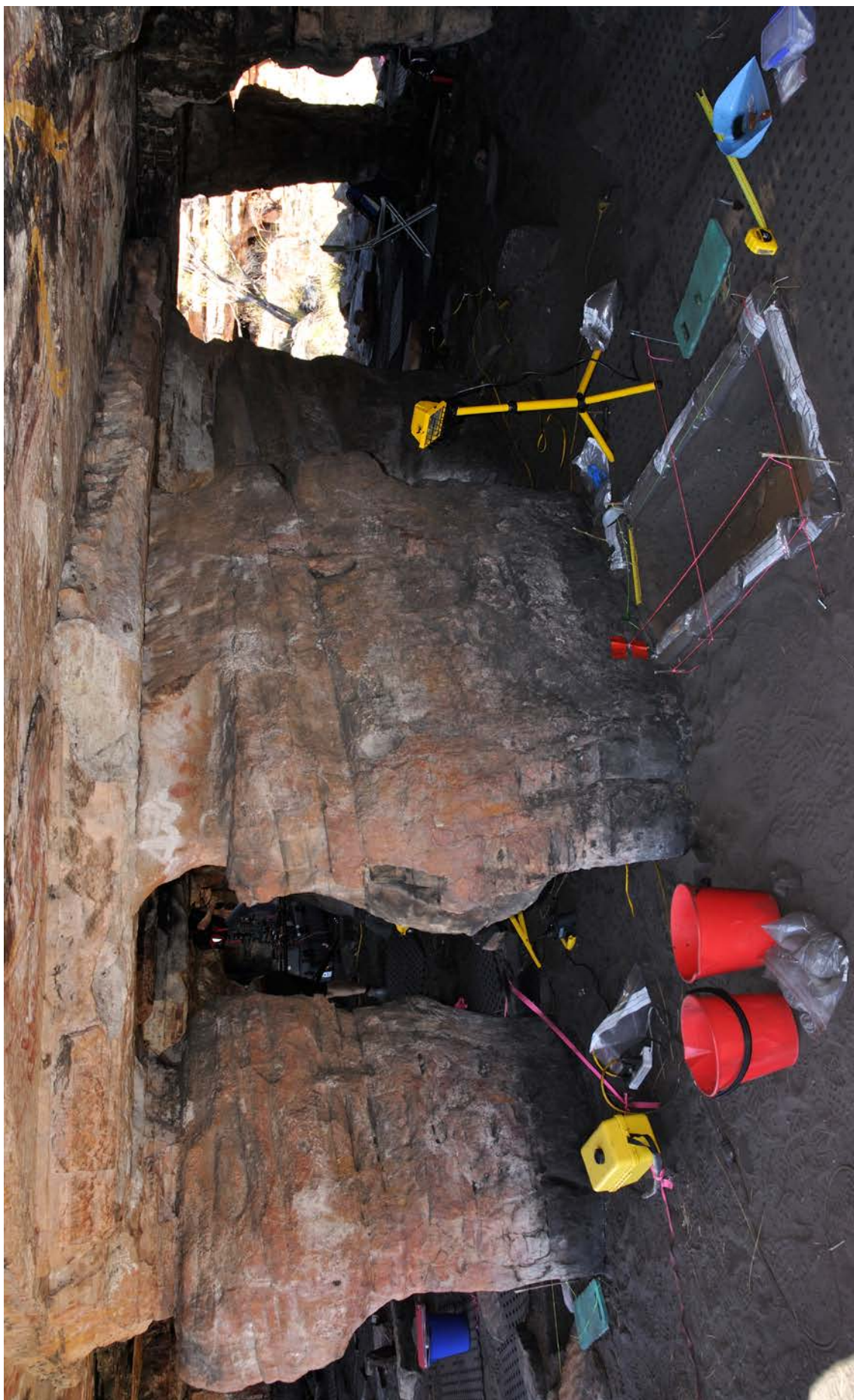


Figure 4.8: Nawarla Gabarnmang excavation Squares F, I, L and M, 2011

Elsewhere within the region of Nawarla Gabarnmang, excavations have been undertaken at ‘Dalakngalarr’ (site ARN-082/1; James et al. 2017), the ‘Exfoliation site EXF3’ (site ARN-113/23; David et al. 2017), the ‘Genyornis Occupation’ site (site ARN-113/19), and the ‘Genyornis’ site (site ARN-124/3; Barker et al. 2017) (see Figure 4.1).

Dalakngalarr is a small but well decorated shelter some 17 km northeast of Nawarla Gabarnmang (Figure 4.10). The site was excavated in an attempt to date both the period of occupation and the timing of the artwork’s production. The excavation revealed two broad phases of occupation:

- Phase 1, between 5220 cal BP and 1186 cal BP; and
- Phase 2, between 290 cal BP and the European-contact period.

The site has paintings with X-ray features in both the Jawoyn X-ray form and the Northern X-ray form. James and others concluded that paintings utilising the Northern X-ray form were limited to the more recent period of shelter use.

Excavations at site ‘Exfoliation site EXF3’ provided the oldest available radiocarbon ages that could be associated with identifiable rock paintings in Arnhem Land, and revealed a non-basal date of 26,075–26,994 cal BP for cultural deposits (David et al. 2017). The paintings were produced on a panel created when a section of the wall detached and fell into the deposit below. A buried piece of rock was found to conjoin onto the panel, allowing the collapse event to be radiocarbon-dated with charcoal recovered from near the buried rock (Figure 4.11). The detached piece fell around 13,000 years ago and a crayon of red ochre with evidence of use was recovered from the deposit positioned below the panel in a context dated to around 9400 years ago. This suggests that the first images on the panel, that included a row of red stick figures, were produced at this time. In a later period, other images were superimposed over these earlier ones; however, the time period between these two painting events is unknown.

Analysis of the excavated material from the archaeologically rich deposits at the ‘Genyornis Occupation’ site (site ARN-113/19; Figure 4.12) is ongoing. The recording of a painting that appears to depict the extinct *Genyornis newtoni* led to the possibility that the painting was possibly >45,000 years old (see Gunn et al. 2011 for full presentation). The prime aim of the archaeological and geomorphological studies at the Genyornis site (site ARN-124/3) was to attempt to determine the age of the formation of the panel (Figure 4.13 and hence deduce

a maximum age for the paintings (Figure 4.14). By dating specific sandstone layer fragments found in the deposit, it was determined that the panel bearing the Genyornis-like bird painting was formed around 13,800 years ago (Barker et al. 2017). Consequently, the painting could not have been produced during the time that *Genyornis newtoni* roamed the landscape more than 45,000 years ago, or up to 25,000 years ago as some have suggested. The Genyornis panel also contains 3MF hand stencils thought to be limited to a particular temporal period (Chaloupka 1993: 110), then the 3MF artistic tradition must post-date 13,800 years ago (see discussion below).

Overall, these excavations have demonstrated that Nawarla Gabarnmang was utilised over a time period similar to that of the plateau’s north-western perimeter and outlying plains (cf. Roberts et al. 1990, 1994). Consequently, its artwork has the potential to include items dating from the earliest time of occupation, some 50,000 years ago.

Southern Jawoyn Lands – the southern region

To the south of the plateau, rock shelters occur within the quartzose sandstones around the plateau margin, and also in gorges of the more friable sandstones of the Beswick Tablelands (shelters 26 and 27; Figure 4.15). Initial archaeological excavation within the southern

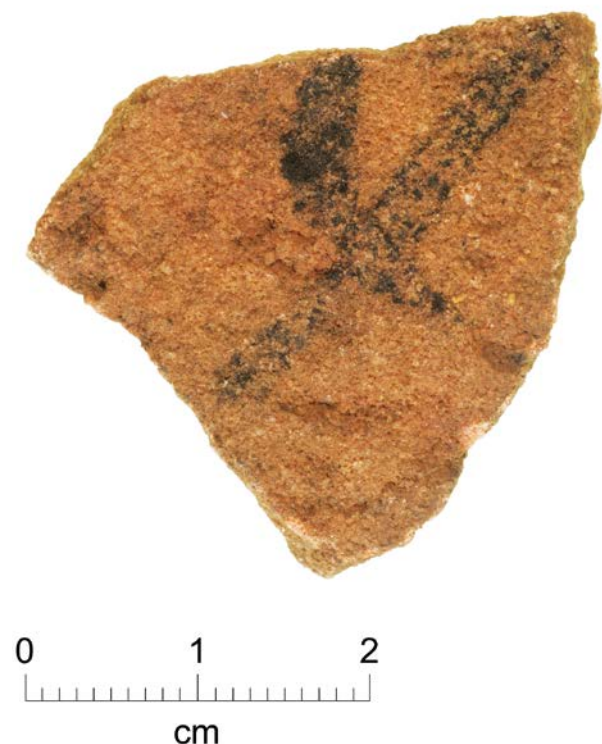


Figure 4.9: Rock fragment with rock art that fell from the ceiling around 28,000 years ago
Photograph courtesy of Bruno David



Figure 4.10: Dalakngalarr shelter (site ARN-082/1) from the west (above), and interior from the south (below) in 2009

region was undertaken in 1949 by N.W.G. Macintosh at Tangtangjal shelter (previously 'Tandandjal Cave'; Macintosh 1951; Figures 4.16 and 4.17). Macintosh was also the first to record rock art within the Southern region, both at Tangtangjal and at nearby Doria Gudaluk (also known as Torriya Kuta-luk; see below). Macintosh's work was carried out in conjunction with a Sydney University anthropological expedition led

by A.P. Elkin (1949-1950), to record aspects of Jawoyn culture in and around the government settlement at Beswick (Elkin 1951).

The excavation at Tangtangjal removed a substantial portion of the floor deposits, with a main trench 5.4 m long and two narrow cross-trenches (Macintosh 1951: 194-201). The deposits were shallow (c.0.5 m). The spit



Figure 4.11: EXF3 (site ARN-113/23) in 2009 prior to excavation
A: panel created by rock fall X: approx. location of later excavation



Figure 4.12: Genyornis Occupation shelter (site ARN-113/19) with 2012 excavation in progress

diagrams show two distinct cultural horizons clearly separated by a culturally sterile layer, which Macintosh interpreted as evidence of an hiatus in occupation

(Macintosh 1951: 187). Using charcoal collected and stored by Macintosh, Gunn and Whear (2007) obtained radiocarbon dates from the two layers: 300–429 cal BP



Figure 4.13: Assessment of the archaeology and geomorphology of the Genyornis site in 2012
E: Excavation squares E and B



Figure 4.14: The Genyornis site (ARN-124/3) showing the main panel (Panel A) formed by collapse of the rock around 13,800 years ago

and 568–728 cal BP respectively (Table 4.4). These dates conform closely to Macintosh’s prediction that neither horizon would be of any great antiquity (Macintosh 1951: 203). Macintosh’s prediction was based on the

content of the two stone artefact assemblages, both of which included a predominance of quartzite blades (McCarthy 1951; cf. Allen 1996; Allen and Barton 1989; Attenbrow et al. 1995; David 2002).

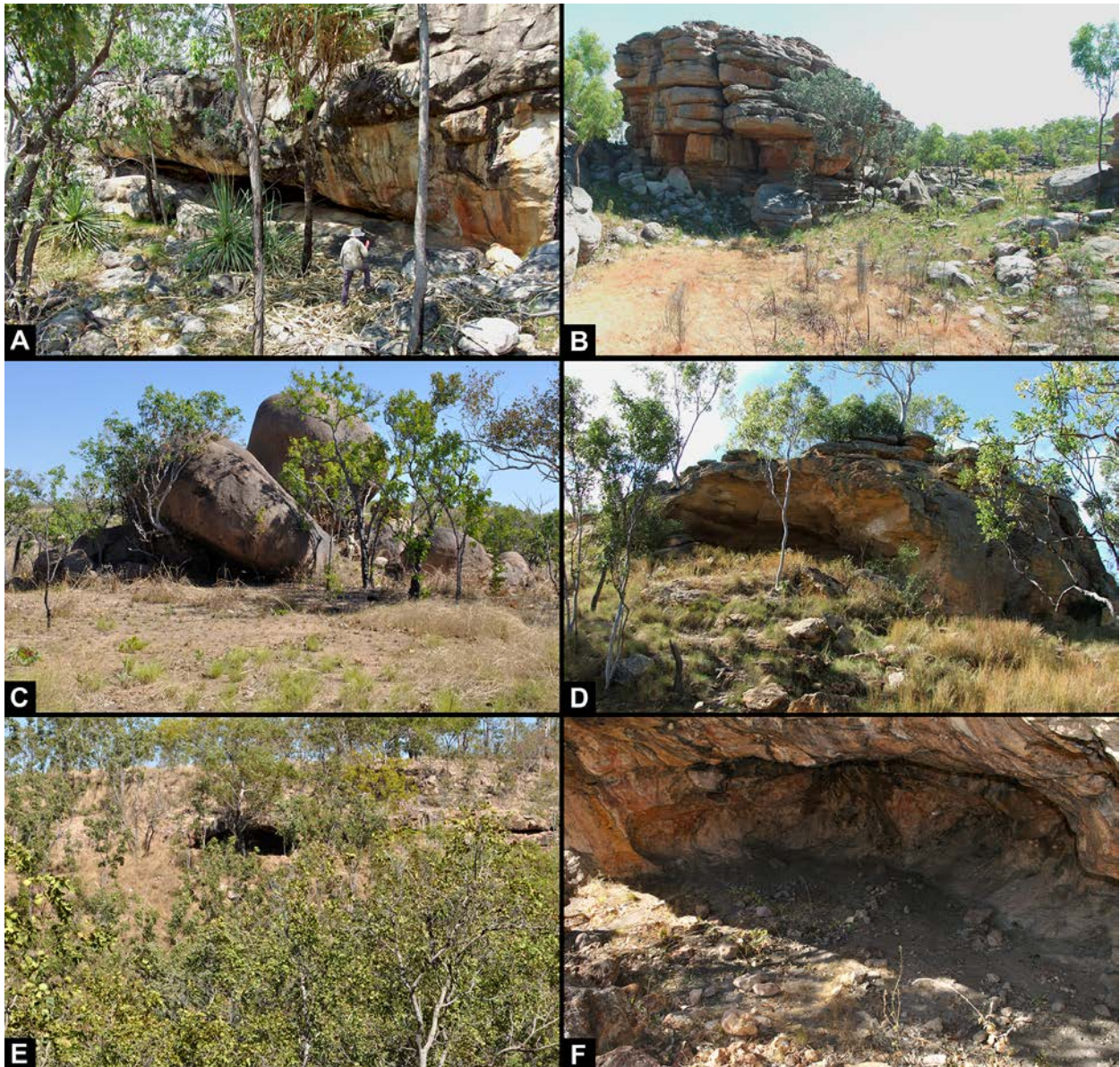


Figure 4.15: Representative rock shelters from the southern region
 A and B: quartzite C: granite D and E: friable sandstone
 F: Floor of friable sandstone shelter showing typical shallow deposit

Table 4.4: Tangtanjaj Cave radiocarbon determinations
 (from Gunn and Whear 2007b)

Layer	Lab No.	Material and depth	$\delta^{13}\text{C}\text{‰}$	% Modern	^{14}C Age (years BP)	Calibrated Age BP (95.4% probability)
2C	Wk-19888	Charcoal lens 40-100 mm	-26.0 ± 0.2	96.4 ± 0.4	293 ± 35	300-328 (31%) 359-368 (7%) 375-429 (63%)
4C+4D	Wk-19889	Charcoal 280-440 mm	-25.9 ± 0.2	91.4 ± 0.4	726 ± 36	568-583 (5%) 649-728 (95%)

In 1997 Claire Smith and Jane Balme from Flinders University, Adelaide, in collaboration with members of the Barunga and Wugularr Communities, undertook an excavation at Droopney Cave near Barunga, some 5 km west from Tangtanjaj shelter (Figure 4.18). This

site has been alternatively referred to by senior Jawoyn as Gorunggorung (Davidson 1981) or Yimigronggrong (Gunn and Douglas 2010a: 372-376). The excavation of this large shelter remains unpublished, but like Tangtanjaj Cave, Yimigronggrong has two sediment

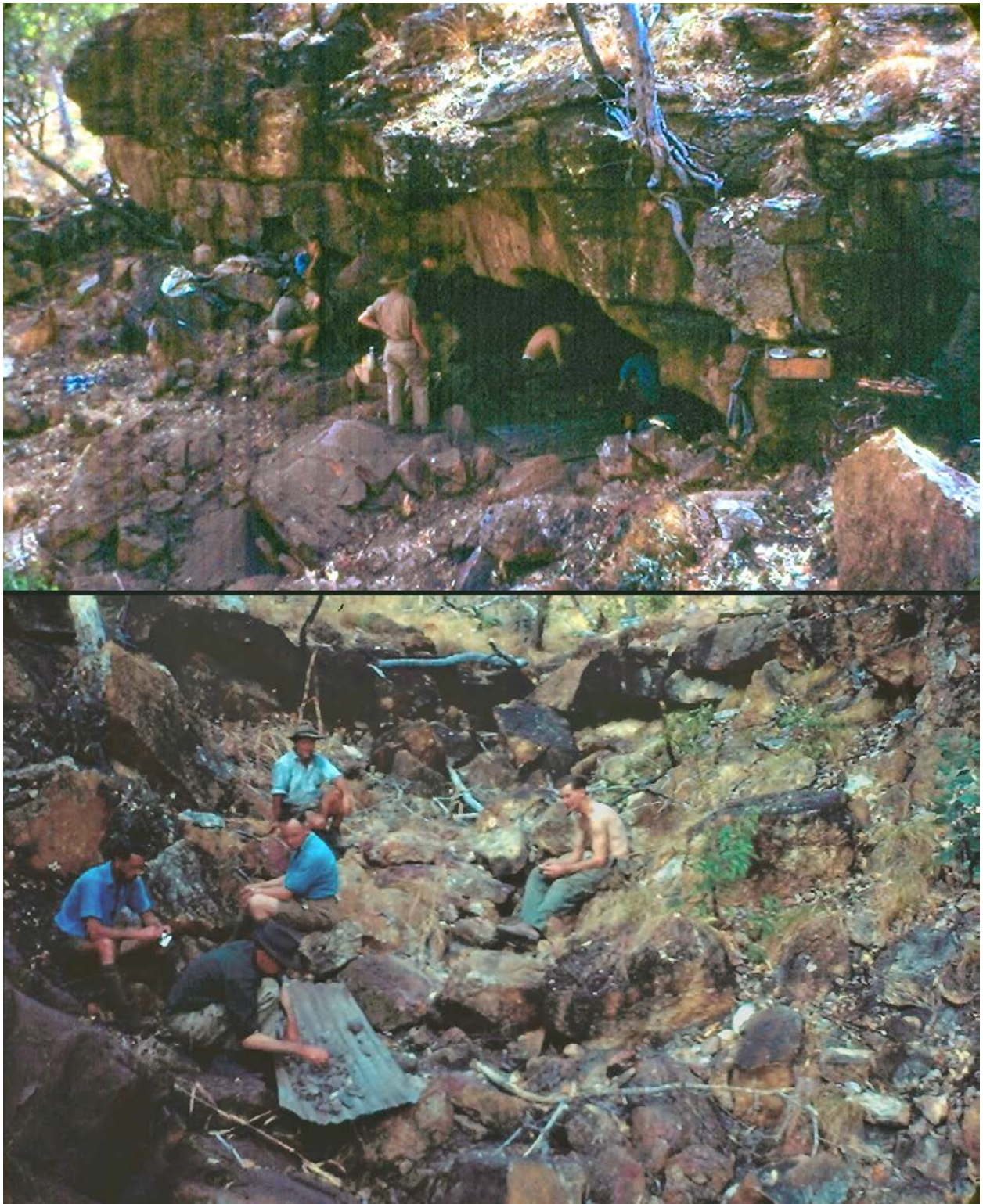


Figure 4.16: Macintosh and party excavating at Tangtangjal cave in 1949
 Photographs: J.H. Buffum. Courtesy of the Fisher Library, Sydney University

layers, the base of the upper layer dated to AD 1506–1618 and the lower layer to AD 1213–1268 (Wilson 2002: 19). Applying calibration corrections, these dates are 313–514 cal BP (100%) (upper layer), and 566–585 (10%), and 646–691 (90%) cal BP (lower layer).

Consequently, occupation of Tangtangjal and Yimigronggrong appears to have been largely contemporaneous (cf. Table 4.4). Unlike Tangtangjal, however, the larger Yimigronggrong assemblage contained comparatively few stone points (Wilson



Figure 4.17: Tangtangjal cave in 2006
Note outer and inner alcoves, and recent rockfall (yellow sediment on floor) from the ceiling.



Figure 4.18: The large Yimigronggrong shelter interior, 2007
A young Lucas Farrell as scale

2002: 59), suggestive of different (more general?) site functions.

The sandstone shelters in the Beswick Tablelands erode and collapse at a notably faster rate than those within the Kombolgie sandstone of the Arnhem Land plateau. Consequently, shelter floor sediments here are unlikely to have the same degree of age-depth as those in the better-cemented plateau shelters: an assumption corroborated by the basal dates from the two excavated shelters from the tablelands, with calibrated ages of around 700 years ago (Gunn and Whear 2007; Macintosh 1951; Wilson 2002; Table 4.1). The apparent lack of old shelters, and hence ancient deposits, is therefore likely to reflect geomorphological factors rather than a lack of any early occupation in the region. Occupation shelters have also been recorded within stable granite outcrops within this southern region, but none have yet been excavated.

The Rock Art of north-western Arnhem Land

The rock art of north-western Arnhem Land was known prior to the 20th Century (e.g. Stockdale 1891, referenced in Edwards 1979: 38) but its artistic, anthropological and archaeological values were not widely publicised until the 1950s. Baldwin Spencer, during his pioneering anthropological work at Oenpelli in 1911, first noted the presence of X-ray features in western Arnhem Land rock art:

So far as the animals are concerned, it is interesting to notice that the drawings are always more or less anatomical, that is, they represent not only the external form, but, to a certain extent, the internal structure (Spencer 1914: 433).

Spencer also noted that many of the other, more abstract motifs found in the rock art were similar to the body art of men during ceremonies (Spencer 1914: Figure 76). Although Aboriginal artworks on bark and paper from the region had been collected and exhibited since the 1850s (Thomas 2006), it was Spencer who first appreciated such works as 'art':

It was interesting to find that the natives themselves very clearly distinguished between the ability of different artists, and that my own non-expert opinion in regard to their relative merits coincided with their own (Spencer quoted in Thomas 2006: 6).

Some years later, Herbert Basedow, a member of the 1928 Mackay expedition to Arnhem Land, photographed a small number of rock art sites around the Mann River 120 km to the east of Oenpelli. He further commented on the nature of X-ray art in a series of reports for the *Brisbane Courier* newspaper (see Garde and Kohen-Raimondo 2004) and in a popular book on Aboriginal

culture (Basedow 1935: 236-238). These articles included a description of the technique of hand stencil production in Arnhem Land, pointing out and that they were recognised by Aboriginal people as the marks of particular individuals.

The 1950s to the 1980s saw a dramatic rise in the recording and understanding of the regions rock art, with:

- the 1948 American-Australian Scientific Expedition to Arnhem Land;
- the preliminary studies for the development of the Kakadu National Park in 1979; and
- the subsequent battle between mining interests and conservation groups over what was to become Stage 3 of the Park.

These studies led to the formulation of the first sequences and chronologies for the rock art of the greater Arnhem Land plateau. To elucidate this and subsequent development in the region's rock art research, the input of the major pertinent studies will be summarised.

The first extensive recording of western Arnhem Land rock art was undertaken by Charles Mountford, a leader of the joint American-Australian Scientific Expedition to Arnhem Land in 1948 (Mountford 1956: 109-264, 1960; Mountford and Specht 1958). Mountford, working for the South Australian Museum, had already done substantial work with Aboriginal people in Central Australia investigating both their myths and their art (e.g. Mountford 1928, 1937, 1939). The Arnhem Land expedition was based at Oenpelli, where he documented some 30 art sites at Unbalanja Hill (Inyaluk), Inagurdurwil (Figure 4.19; also known to custodians as Minjnyimirnjdawabu, Gunn 1992b), Cannon Hill (Namarr-Ganag- Ga) and Obiri (Ubirr). Following the expedition, Mountford was instrumental in promoting the region's rock art to academia, and also the general public through both popular print media and presentation talks (Mountford 1949, 1954; Thomas and Neale 2011). On reviewing Mountford's photographs of the Arnhem Land X-ray art, Fine Art critic Herbert Read concluded that they were analytical images rather than eidetic (representational) images and 'like so much of the Australian art, they are mnemonic charts rather than representational pictures' (Forward to Mountford 1954: 9).

Based on his well-illustrated recordings, Mountford (1956) divided the rock art of western Arnhem Land into three categories: 'polychrome X-ray' paintings, 'monochrome Mimi' paintings, and 'hand stencils and prints' (which included decorated hand stencils) (Table 4.5; Figure 4.20). He noted that X-ray paintings invariably overlaid Mimi figures, indicating that the



Figure 4.19: Inagurdurwil on the edge of the floodplains

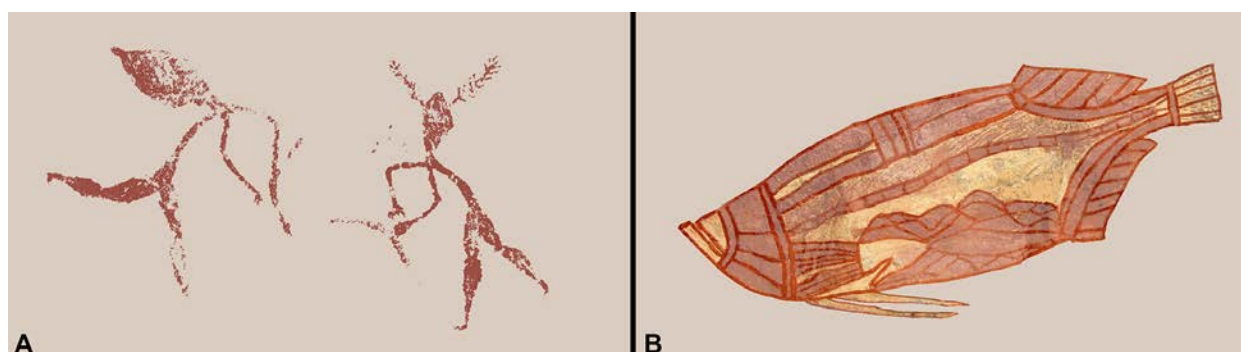
Table 4.5: Mountford's classification of western Arnhem Land rock art
(from Mountford 1956:112)

Art type	Colour	Subject	Representation	Placement	Artist
X-ray	Polychrome	Animals, birds, fish (rarely humans)	Static: profile view	Single figures with extensive over- painting	People, many alive within living memory
		Reptiles	Static: plan view		
Mimi	Monochrome (red), single line	Humans	Active: profile view	Often in composed groups; rarely superimposed	Mimi spirits
Stencils and prints	Monochrome	Hands and Objects	na	Singly or in groups	People
Decorated Stencils	Polychrome	Hand and hand+arm	na	Singly or in groups	People

X-ray form is the more recent (Mountford 1956: 262). Mountford considered that his study should be 'considered nothing more than a preliminary survey' with the expectation that further study would be forthcoming (Mountford 1956: 181). While Mountford's tripartite division of Arnhem Land rock art provided an initial sequence, his accompanying illustrations indicate the existence of numerous motif types that do not fit into any of his categories. For example, his three categories cannot incorporate solid-infilled

figures, multiple-line figures, red+white bichrome figures, or non-X-ray contact motifs (Mountford 1956: 121,153,158,148,162 and 179).

Some twenty years after Mountford's field work, anthropologist Eric Brandl, a patrol officer with the Northern Territory Welfare Branch in Arnhem Land before becoming a Senior Research Officer with the Department of Aboriginal Affairs, undertook extensive fieldwork recording rock art around the northern

Figure 4.20: Examples of Mountford's primary rock art divisions
A: monochrome Mimi art (site ARN-082/01) B: polychrome X-ray art (site ARN-029/10)

Arnhem Land plateau from 1958 until his untimely death in 1974. In the late 1960s, he concentrated this recording in the Cadell River crossing area, working closely with local Aboriginal artists and elders Mandarg (Marndarrk) and Jacky Bunggarnial and their families to document their interpretations of the art (Brandl 1973: 37; Jelinek 1989: 2). Brandl also assisted the Czechoslovakian expedition to Arnhem Land in 1969 (see below). He was the first to describe beeswax images as a form of rock art within archaeological circles, and suggested its potential for radiocarbon dating (Brandl 1968). Another patrol officer, E.C. Evans, had described beeswax art four years earlier in an in-house government magazine: 'small pieces of wild-bees wax were regularly spaced and placed in a continuous line to outline the figure or symbol' (Evans 1964: 18).

Brandl illustrated representations of fauna that he considered to have been extinct on the mainland for over 3000 years; the thylacine (Figure 4.21) and Tasmanian devil (Brandl 1972a, 1980). He concluded these depictions had to be of considerable antiquity (Brandl 1973: 2).

In his synthesis of western Arnhem Land rock art, Brandl (1973) refined Mountford's division of X-ray and Mimi art, subdividing each group, into what he termed periods. He divided Mimi art into two periods; 'Early Mimi' and 'Late Mimi' (Brandl 1973: 166-168, 171-178; Figure 4.22).

Brandl's Early Mimi art was characterised by:

- a uniform manner of representing anthropomorphic figures with a fine-line painting that permits the identification of worn or carried items;
- a predominance of compositions with anthropomorphs in forceful motion, with the individual figures graphically connected by a subtle overlapping of limbs or weapons;

- occasional associations with the Rainbow Snake, therianthropes and thylacines;
- the use of angled boomerangs and hand-thrown single-barbed spears;
- the wearing of 'ceremonial' paraphernalia such as exceptionally large head-dresses, armlets, and 'dancing' skirts;
- lack of sexual characteristics or internal (X-ray) features; and
- the vast majority having been painted with red pigment.

Despite his emphasis on the one particular type of anthropomorph (depicted in an exaggerated, dynamic, form of running), Brandl acknowledged that there are a number of contemporary variants for which additional typologies are required (Brandl 1973: 173). As an example he mentions, but does not illustrate, anthropomorphised yams (yam people) depicted along with a number of manifestations of the Rainbow Snake.

Brandl's Late Mimi art is distinguished from Early Mimi art by the use of a greater variety of styles in the depiction of anthropomorphs, an absence of the boomerang and the introduction of the spear-thrower, multi-pronged spear, and single-shaft spears with stone-blade points, along with the use of heavier painted lines (making it difficult to distinguish individual features). The Late Mimi art Brandl subdivided into two periods: LM I and LM II. The LM I has several of the characteristics of the Early Mimi art but lacks their forceful motion, naturalistic action, extensive compositions and prevalence of ceremonial regalia. The LM II figures are more rigid and placed side-by-side, with a static frontal perspective, giving the impression of singular individuals rather than group compositions. These figures also show internal body patterning that Brandl equated with X-ray features. Whether LM I and LM II were synchronous or sequential could not be determined.

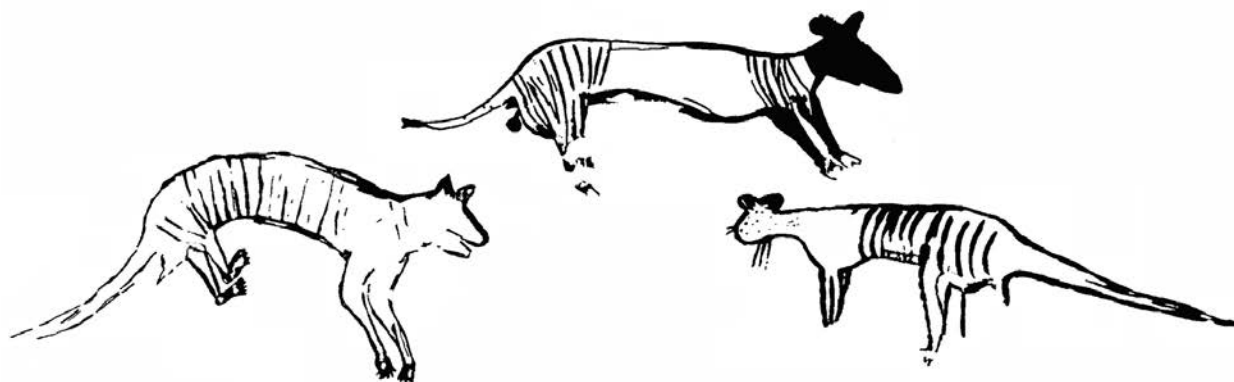


Figure 4.21: Quadrupeds considered by Brandl to represent extinct thylacines (after Brandl 1980: 27)

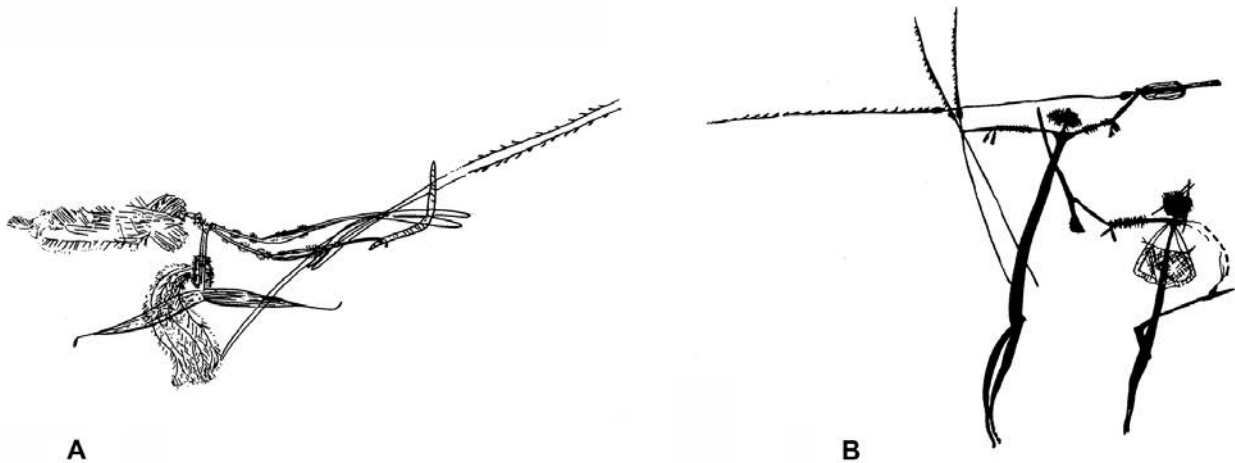


Figure 4.22: Brandl's Mimi phases

A: Early Mimi – boomerang, no spearthrower B: Late Mimi - spearthrower, no boomerangs
(after Brandl 1973:43 and 48)

The X-ray art of the subsequent style Brandl divided into four types: 0, I, II and III, which 'suppress exceptional features in order to achieve abstract generality' (Figure 4.23; Brandl 1973: 168-169). These are summarised as:

- Type 0 (incipient X-ray) are partial silhouettes with an unpainted space in the ventral area; soles of the feet are exposed (twisted perspective); lines are painted across articulating parts of the body; and, in the case of Europeans, clothing is superimposed over the body outline;
- Type I (simple X-ray) are outlined forms crossed by internal lines;
- Type II (standard X-ray) are outlined forms with recognisable internal organs; and
- Type III (complex X-ray) forms replace naturalism with a decorative stylisation.

Brandl mentions in passing that his Early Mimi art was preceded by crude paintings of animals (including large snakes) and large, monstrous human figures, all in silhouette, outline or patterned infill (Brandl 1973: 177). Also, and despite noting the apparent representations of extinct thylacines within the Mimi corpus, Brandl did not assign any age to the corpus other than noting that they pre-date X-ray art (Brandl 1972a: 29). In addition, he observed that the late X-ray paintings were overlain by roughly painted monochrome (mostly white) figures. Overall, Brandl emphasised that the changes from one style to another were not abrupt (contra McCarthy 1960: 389), but rather that the process of change was transitional (Brandl 1973: 178).

In a later paper, Brandl (1977) looked at the 'human stick figures in rock art', by attempting to analyse and

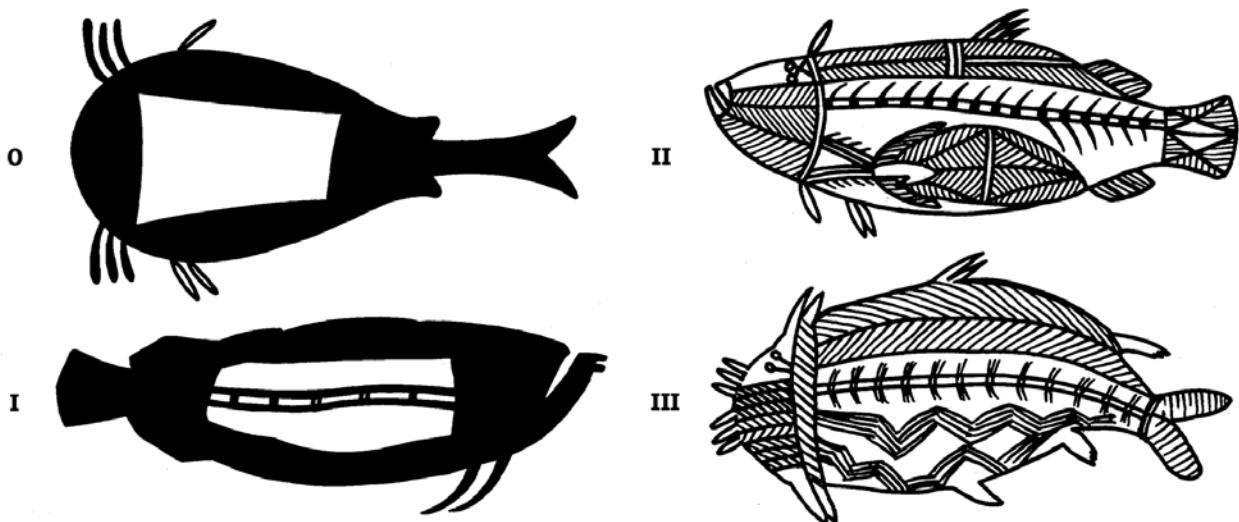


Figure 4.23: Brandl's four types of X-ray infill

0: incipient X-ray I: simple X-ray II: standard X-ray III: complex X-ray
(after Brandl 1973: 27)

define the style of the stick-figure schemata in western Arnhem Land rock art and their changing development over time. His definition, however, is too expansive to be useful as a style, as it includes all anthropomorphic figures with attenuated bodies, and gives numerous examples not constructed using a 'stick' framework of short straight lines (see Brandl 1977: 238-9).

In 1969 and 1973, Brandl was able to assist Jan Jelinek, then Director of the Moravian Museum in

Czechoslovakia, to undertake fieldwork in western Arnhem Land (Jelinek 1989: 3). Another Australian researcher to assist Jelinek was George Chaloupka (see below). Through Brandl's assistance, Jelinek was also able to work with Marndarrg and his family, to gain an Aboriginal perspective of the relationship between bark painting and recent rock art.

Jelinek's expedition circumnavigated the Arnhem Land plateau, visiting rock art sites near Bulman, Oenpelli,

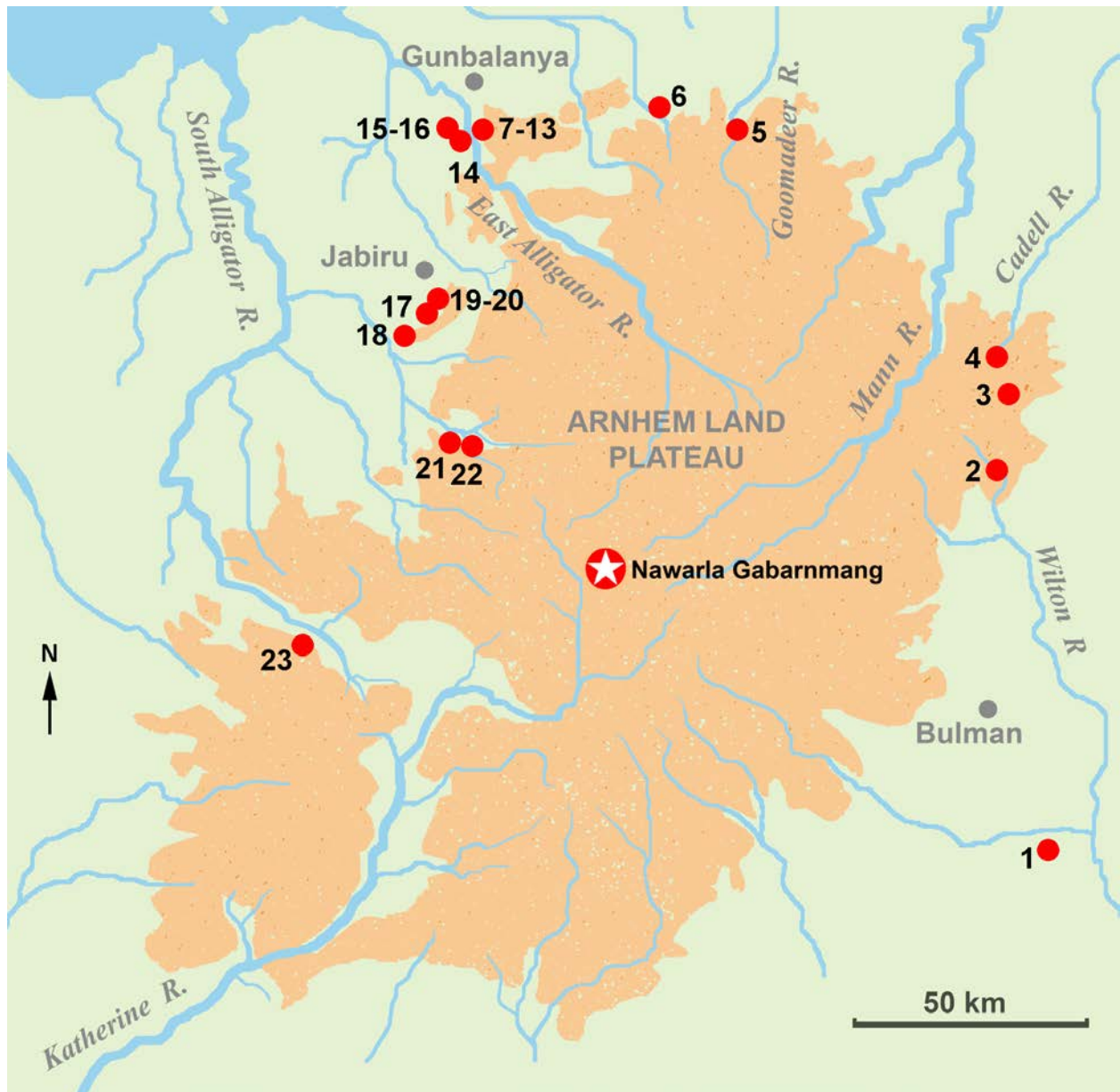


Figure 4.24: Location of art sites recorded by the 1969 Czech expedition

1 Bokolo 2 Yaimani 3 Bulman Gorge 4 Cadell River Crossing 5 Goomadeer River 6 Birraduk 7-13 Inyaluk, Ingurdurwil, Red Lily, Cahill's Crossing 14 Old Woman Dreaming 15-16 Obiri, Cannon Hill 17 Nangalore 18 Nourlangie 19-20 Mt Brockman 21 Djuwarr 22 Bala Ur 23 El Sherana.

(after Jelinek 1989:8. Note, however, that the location of site 3 is definitely incorrect as Bulman Gorge is c.40 km SW of where site 3 is located on the map. This suggests that site 2 is also incorrectly located as the expedition visited site 2 before site 3)



Figure 4.25: Bark shelter with painted panels on wall and ceiling, Bulman Gorge, 1969
Photographs courtesy the Archive of the Anthropos Institute, Moravian Museum

Jabiru and El Sherana (Figure 4.24). At Bulman Gorge they came across a bark shelter with painted bark panels on the wall and ceiling (Figure 4.25; Jelinek 1979b: 313-316). As Jelinek notes, although bark paintings are often mentioned in the literature as coming from such shelters (e.g. Spencer 2008: 107), no author had previously published a photograph of a painted bark shelter (cf. Edwards and Guerin 1969: 1).

Jelinek published his findings over a span of thirteen years (1976-1979 and 1989), with his last publication (1989), his major synthesis, benefitting from the publications of both Brandl and Chaloupka in the intervening years.

In his earlier work, Jelinek (1976) proposed ten categories of 'social meaning' for Arnhem Land rock art (Table 4.6). These meanings were not mutually exclusive, as any one motif could be classified according to more than one meaning. For example, mythological figures can be Secular, Mythological, Erotic or Aesthetic depending on the interpretative context (either by Aboriginal people or archaeologists).

Jelinek's categories of meaning are based on information derived directly from Aboriginal informants, supplemented by his extension of Aboriginal interpretations to other sites not visited with custodians, and hence devoid of Aboriginal

input. Jelinek's categories are, then, of little value to archaeology, as they are not systematically based on the formal characteristics of the motifs or symbolism of meaning.

The Aboriginal rock art of western Arnhem Land is, as Jelinek saw it, as 'complicated and versatile as European art' (Jelinek 1976: 87); he stressed that the psychological make-up of Aboriginal artists is no different, now or in previous epochs, from that of European artists.

Jelinek's early publications included detailed studies of art sites at Obiri (Ubirr) and Nangalore (Nanguluwurr) (Jelinek 1977, 1978a), from which he proposed an overall sequence for Arnhem Land rock art (Jelinek 1978b: 229-230):

- Hand stencils (the earliest group);
- Early Archaic paintings – human figures without tools or weapons, simple pictures of snakes and kangaroos with bodies infilled with short strokes;
- Archaic paintings – dynamic figures with spears and/or boomerangs (but without spearthrowers), compositions involving groups of people but no real scenes. Associated animals include thylacine, possum, echidna, snake, bird and kangaroo. Mostly in monochrome red, but small numbers with yellow or white decorative infill;
- Static, thin-lined human figures that are larger than the Archaic dynamic figures. Contemporary with them are groups of dynamic figures in dancing or fighting scenes; and
- White dynamic paintings contemporaneous with rigid X-ray paintings (the most recent group).

Table 4.6: Jelinek's ten 'meanings' of western Arnhem Land rock art
(after Jelinek 1976)

Social meaning or context	Attributes
Secular art	Animals, spirits, mythological or erotic figures
X-ray – burial art	Animals and spirits
Ritual galleries	Limited to a few polychrome paintings within a shelter: not exclusive of other types
Mythological figures	Most frequent type: Rainbow-Snake, etc.
Magical paintings	Deformed or dismembered figures
Stone workshop shelters	Mimi paintings (mythological)
Erotic or sexual paintings	Personal or mythological figures
Aesthetic paintings	Lack of over-painting of 'well-done' figures
Historic events	Compositions: groups of dancers, etc.
Signature marks (personal property)	Hand stencils and prints

The following year, 1979, Jelinek edited a special volume of the international journal *Anthropologie* (1979, volume XII, issue 2-3) dedicated to the Arnhem Land expedition. The volume, published in English, includes Jelinek's ethnographic notes on the Rembranga [Rembarnga] people of the Cadell River, and accounts of rock painting and the painted bark shelter at Bulman Gorge illustrated in Figure 4.25 (Jelinek 1979b; 1989: 38-41).

Ten years later, Jelinek (1989) published a 527 page, extensively illustrated, magnum opus on his western Arnhem Land rock art studies. Unfortunately, this expensive book is not readily available, its illustrations are mostly in black and white, and many of the illustrations are not discussed within the text. The book gives detailed recordings of 74 sites (mostly larger galleries) from 23 locations around the perimeter of the plateau (Figure 4.24). A number of these galleries had been previously recorded by Mountford (1956) and Edwards (1974) but Jelinek's published recordings provide far more detail. Rather than relying solely on his own study, Jelinek also drew on the works of other researchers (Brandl 1973, 1977, 1980; Chaloupka 1977,

Table 4.7: Jelinek's stylistic and regional sequence for western Arnhem Land rock art (after Jelinek 1989:479)

Style	Period/ age BP	Major identifying subjects	Regional variants
	Pre-estuarine	Red hand prints	
Early Archaic		Tachyglossus, thylacine, macropods, rock python, simplified human beings, animal-headed beings, dynamic human figures, possums, freshwater fish, birds, red stencils, boomerangs, spears, first spearthrowers. Rainbow Snake, geometric signs, anthropomorphic yams.	Deaf Adder Ck, Upper Cadell R., East Alligator R.
Late Archaic		Groups of human figures fighting and other scenes, frequent spearthrower, boomerang is absent, multipronged spear, flying fox, bird man.	Bokolo Upper Cadell R., Inagurdurwil, Above Red Lily Lagoon
Simple X-ray	Estuarine 9000-7000	Barramundi, saltwater crocodile, estuarine catfish, spear with stone point, lightning man, large figures, bird man, didgeridoo, sorcery paintings	Upper Cadell R., Bala Uru
Developed X-ray	Freshwater 1000-150	Human decorative X-ray figures, simplified human stick figures, goose spears, goose wing fan, European contact figures, boats, guns, steel axes	Best represented and earliest in age at East Alligator R. region
Expressive Monumental		[None given]. Contemporary with developed X-Ray	
White paintings		[None given]. Final period	

1982, 1984, 1985; Kamminga and Allen 1973; and Jones 1985a; White 1967b) published in the years since his own fieldwork (Jelinek 1989: 2, 6, 515). Despite these cited sources, the rock art sequence he proposed for western Arnhem Land differed from his own earlier sequence only by the addition of Chaloupka's proposed

period dates and, particularly, the recognition that his own sequence was not equally applicable to all regions of the plateau (Table 4.7). Jelinek's 1989 sequence, however, suffers the same problems as his 1976 version, in having no consistent or exclusive basis for his classification.



Figure 4.26: '3MF' hand stencil
Jawoyn site ARN-136/7b

Challenging Brandl (1973), Jelinek considered that Brandl's sub-division of X-ray art into four types was arbitrary, based on subjective and artificial groupings derived from combining local regional variants, preferring instead to have only two sub-divisions: 'Simple' and 'Developed' (Jelinek 1989: 477). He also mentions that most paintings were <100 cm in maximum length, with only a small number up to 200 cm; the largest were crocodiles and Rainbow Snakes that could be >500 cm in length, while the smallest were a group of minute human figures each only two centimetres tall (Jelinek 1989: 467).

Jelinek was the first researcher to report on dry pigment drawings, in red or yellow, as a distinct and regionally limited art technique (Jelinek 1989: 466). From his aesthetic perspective, he considered the representations of European contact period subjects to be the most 'primitive' (Jelinek 1989: 124). In contrast, he found the Early Archaic paintings to be of a particularly high standard and the product of skilful artists (Jelinek 1989: 472).



Figure 4.27: Jan Jelinek (left) and George Chaloupka (right)
in Arnhem Land in 1969
Photograph courtesy of David Frayer, Moravian Museum files

Jelinek also noted the similarity between the outline shape of '3MF' hand stencils (Figure 4.26) and the form of many painted macropod tracks. Unfortunately, this insight was not followed up by him, nor yet by any other researcher.

Had Jelinek's publications been more readily available in Australia at the time, his impact on Arnhem Land rock art studies may have been far greater than it has been. The overall sequence he presented was similar to that proposed by Chaloupka (see below), however, it is unclear whether it was he who influenced Chaloupka, or Chaloupka who provided Jelinek with the initial ideas (Figure 4.27). Both Brandl and Chaloupka accompanied the Czech expedition. While Jelinek's friendship with Chaloupka continued, his relationship with Brandl appears to have deteriorated either during or after the fieldtrip (Jelinek 1989: 3; Frayer 2005).

The most influential of all the rock art researchers in the region has been George Chaloupka, who began fieldwork in western Arnhem Land in 1956. After obtaining a position

at the Museum and Art Galleries of the Northern Territory (MAGNT), Darwin, he continued documenting rock art for the next 50 years (Figure 4.27). Chaloupka did not start publishing his research until the late 1970s. Through his position at the MAGNT he was able to publicise Arnhem Land rock art to the general public and influencing, if not directing, much academic thinking on Arnhem Land rock art. Chaloupka recorded thousands of sites for the MAGNT and produced a number of papers (Chaloupka 1977, 1978, 1979, 1982, 1983, 1984, 1985, 1989; Chaloupka et al. 1985; Chaloupka et al. 2000; and numerous unpublished reports written for the MAGNT). From 1977 to 1993, he gradually developed what is arguably the first comprehensive sequence for the rock art of western Arnhem Land (Chaloupka 1977, 1983, 1984, 1985), culminating in a well-illustrated publication that shows key examples of each of the phases of his sequence (Chaloupka 1993). This publication placed rock art firmly within the cultural and physical landscape of the region, giving particular attention to the depiction of mythological

characters in the rock art and their significance as told to him by Kapiirigi and other senior Aboriginal men from the region, with whom he worked closely (Chaloupka 1993: 40-75; see also Chaloupka et al. 1985). Chaloupka subdivided what previous researchers had called Mimi art into seven groups on the basis of style and technique, and the more recent art into five groups. The groups are defined primarily on the basis of three attributes; style (e.g. Dynamic figures, Yam figures), technique (e.g.

hand and object prints) and motif types (e.g. thylacine, saltwater crocodile, boats) (Table 4.8). He arranged these groups chronologically, arguing that their sequential ordering was derived from consistent patterns of superimposition (Chaloupka 1977). The full supporting data for such superimpositions, however, were never published, and hence little evidence for their patterning is available for independent assessment (see discussions below).

Table 4.8: Chaloupka's western Arnhem Land rock art chronology
(from Chaloupka 1993:89)

Period/Age	Phase	Style/technique	Identifying elements
PRE-ESTUARINE 50,000 years ago	pigment preparation		
		Object prints	Hand prints; Imprints of grass and other thrown objects
20,000 years ago	Naturalistic	Large naturalistic figures complex	Extinct megafauna; thylacine; Tasmanian devil; terrestrial animals; rock python; freshwater crocodile; human beings; earliest X-ray paintings
		Dynamic figures	Human figures in complex apparel; anthropomorphs; zoomorphs; terrestrial animals; freshwater fish; stencils, 3MF convention and boomerangs; one-piece spears; detailed compositions
	Stylisation	Post-dynamic figures	Human figures in headdresses, pubic aprons and bustles; macropods; lizards; fighting pick/hooked stick introduced
	Schematisation	simple figures with boomerangs	Human beings with headdresses, pubic aprons and bustles; conflict; fighting pick; possible spearthrower; single and multiple pronged barbed composite spears;
	Stylisation	Mountford figures	Human figures (many elongated); spearthrower
	Naturalistic symbolism	Yam figures	Anthropomorphised yams; Rainbow snake; phytomorphised animals; ibis; egret; short-necked turtle; flying fox; long-arm prawn; segmented circle symbol

ESTUARINE			
8000 years ago	Naturalistic	Early estuarine complex	Estuarine fish: barramundi, mullet, catfish; saltwater crocodile; variety of spearthrowers
4000 years ago		Beeswax designs	Human beings; anthropomorphs; non-figurative designs
	Intellectual realism and contemporaneous naturalism	X-ray complex	Lightning man; stone-tipped spear; X-ray paintings of animals and humans with detailed decorative features
FRESHWATER			
1500 years ago			Hooked-headed human beings; magpie geese; goose' spears; goose-wing 'fan'; water lilies; didgeridu;
			complex spearthrower
CONTACT			
300 years ago			Makassan and European subjects; decorated hands; introduced animals; sorcery paintings;
Ethnographic present		Casual paintings	

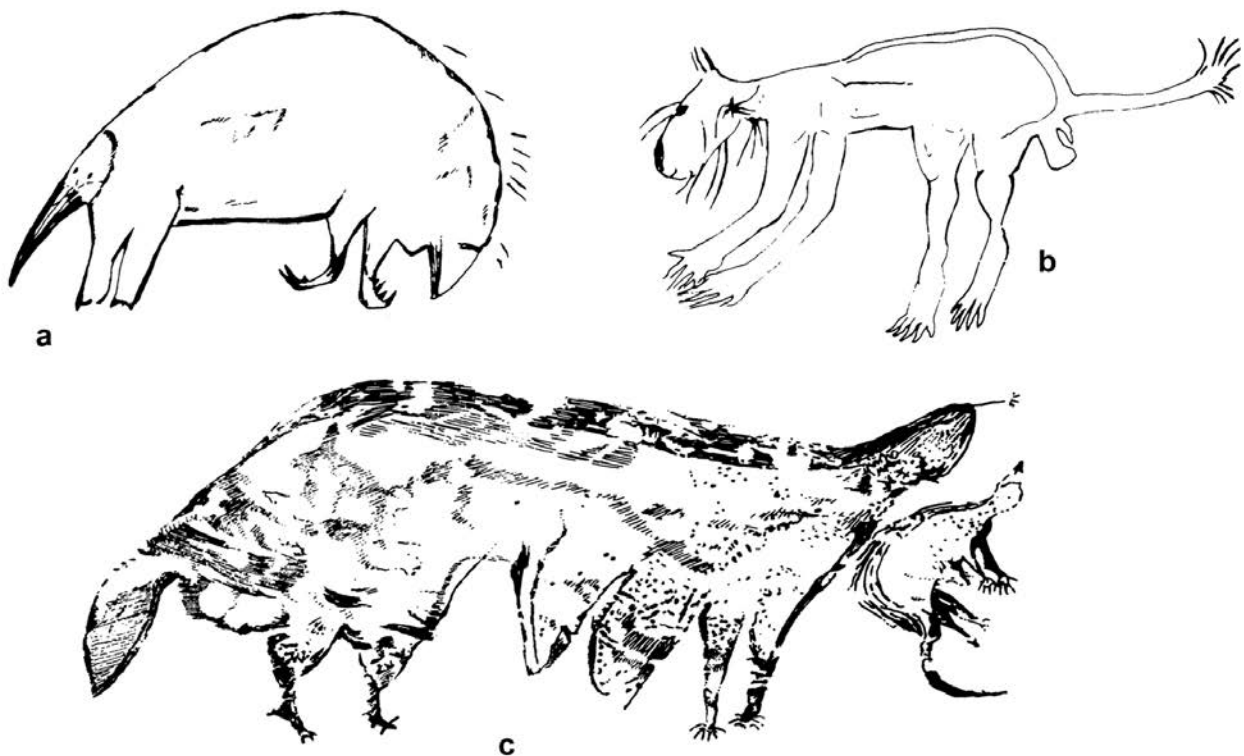


Figure 4.28: Chaloupka's proposed representations of extinct megafauna in Arnhem Land rock art
a: Zaglossus b: Thylacaleo c: Palorchestes
(after Murray and Chaloupka 1984)

To derive ages for each of the phases, Chaloupka argued that the phases correlated with distinctive Periods of gross environmental conditions and also with cultural phases in the archaeological record (following evidence presented, for example, by Kamminga and Allen 1973; Jones 1985a; Woodroffe *et al.* 1986). These broad Periods are:

- Pre-estuarine (from initial Aboriginal occupation c.50,000 years ago to 8000 years ago);
- Estuarine (8000 to 1500 BP);
- Freshwater (1500 to 300 years ago); and
- Contact (300 years ago to the 'ethnographic present').

Chaloupka equated Brandl's Mimi period with the environmental Pre-estuarine period (prior to 8000 years ago) identified by Quaternary researchers (e.g. Woodroffe *et al.* 1986), and the more recent art to the Estuarine period of the last 8000 years. On the basis of what he interpreted as representations of extinct megafauna (Figure 4.28; Murray and Chaloupka 1984), Chaloupka proposed that the oldest artworks are in excess of 20,000 years old (the age of megafaunal extinctions is now considered to be around 45,000 years ago; Roberts and Brook 2010).

While Chaloupka's stylistic groupings are mostly (but not entirely) accepted by many of his peers working on western Arnhem Land's rock art (e.g. Chippindale and Taçon 1998; Haskovec 1992a; see below), the groupings remained largely subjective. The styles he posited were never clearly defined, making it difficult for others to allocate individual images unambiguously to one style or another. Chaloupka's chronology also does not cater for the many extraneous motifs that do not fit his particular categories. Further, as Lewis (1988: 10) points out, Chaloupka's style names are not derived from a consistent basis, but from a range of different (and not always mutually exclusive) criteria. For example, 'Dynamic figures' are grouped due to a characteristic subject, while 'Early estuarine' relates to interpretation of aquatic species represented.

Taçon (1989a: 40-41) notes that the problem of possible co-existence of various styles was not sufficiently addressed by Chaloupka, highlighting a number of exceptions in the rock art sequence, such as the production of hand prints concurrent with X-ray art. An ongoing problem with the great age Chaloupka proposed for some of the art is that of accurately identifying extinct fauna from rock art images (see Bednarik 2013; Gunn *et al.* 2011; Lewis 1986; Murray and Chaloupka 1986).

In a later, short essay, Chaloupka (2010) recounts the production of two of the most recent rock paintings of Arnhem Land and provides their interpretations. In 2005, Bardayal Nadjamerrek, a senior ceremonial man with close ties to the Jawoyn, painted two white silhouette macropods in rockshelters: a small female black wallaroo (*djujerrre*) and, at another site, a large male wallaroo (*barrk*). According to Nadjamerrek, he painted the images for the education of his children (and others), and also as a self-memorial.

In 1972, at the same time as Brandl and Chaloupka were working in the region, Robert 'Bob' Edwards undertook an extensive survey around the north-west corner of the plateau as part of the Alligator Rivers Environmental Fact-finding Study (ARFFS; see Christian and Aldrich 1977). Edwards was an experienced rock art recorder who had worked with Mountford at the South Australian Museum (e.g. Edwards 1965). In his Arnhem Land survey, Edwards recorded over 300 rock art sites (Figure 4.29; Edwards 1974: 190), including the art at the Jawoyn site of *Gnartluk* (Sleisbeck) at the southern extent of his study area (see Edwards 1979: 117). Neither the location of this, nor any other Jawoyn site, is shown on his map. With the declaration of Kakadu National Park in 1979, most of the sites Edwards studied became incorporated into the Park and his report was published (Edwards 1979), receiving wide circulation due to a developing public interest in the features of the Park.

Edwards' demonstration of the high number and density of rock art sites in the Alligator Rivers region was one of his major contributions to Arnhem Land rock art studies, although he was also the first to illustrate the range of the region's petroglyphs: pecked tracks, cupules and abraded grooves (Edwards 1979: 125, 148). In addition, Edwards reported on the range and magnitude of conservation and management problems, as well as seeing the art's potential for domestic and international cultural tourism (Edwards 1979: 151-168, 169-185); he noted both a heightened public awareness of the prospect of uranium mining in excised areas within Kakadu National Park, and the potential for a consequent deleterious impact on nearby rock art sites with the development of a 'mining town' within the Park (Edwards 1979: iii, 165).

Initially working with Eric Brandl and then later on his own (Taçon 1989a: 44), Daryl Lewis recorded rock art primarily around the north-western perimeter of the Arnhem Land plateau (Lewis 1988: xii). The extent of his survey area is not given, although it included sites

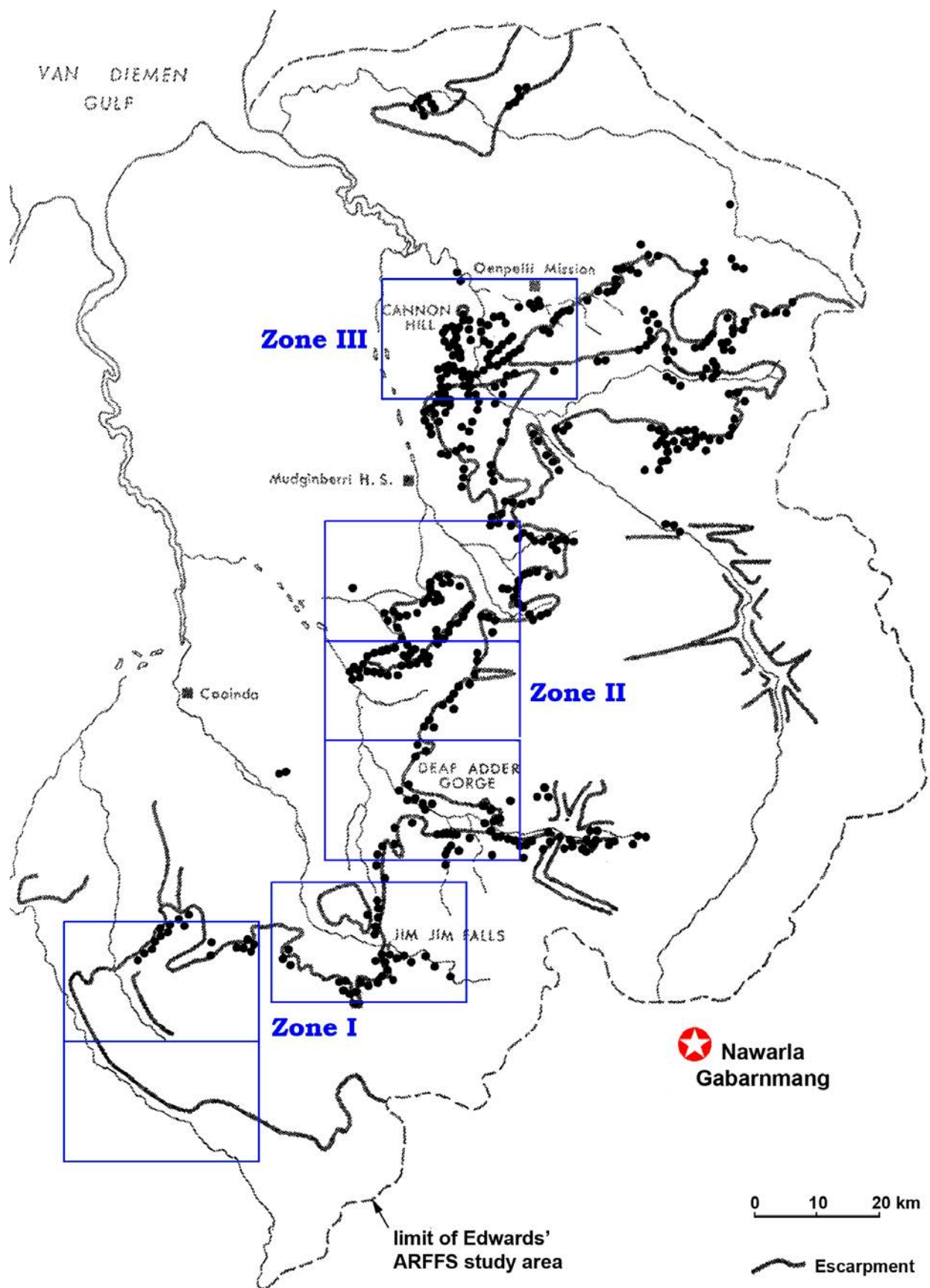


Figure 4.29: Map of rock art site locations recorded by Edwards (black dots), overlain by Taçon's study areas (red rectangles, Zones I-III)
(after Christian and Aldrich 1977: 67 and Taçon 1993: 113)

within Jawoyn Lands at Stag Creek (in southern Kakadu National Park) and Djauan (Jawoyn) Valley in Nitmiluk National Park. For his 1983 BA (hons) dissertation under rock art specialist Andre Rosenfeld at the Australian National University, Lewis aimed to establish an improved chronology for Arnhem Land rock art on the basis of interpreting differences in the material culture items depicted, seeing these as representing changes over time. Like Chaloupka, he attempted to systematically link these changes in the art with the archaeological and environmental evidence (Lewis 1988: ix; Table 4.9). His primary assumption is that 'different artefact assemblages can be temporally ordered' (Lewis 1988: 13). This idea was based on the hypothesis that different hunting implements correspond with different hunting methods and target species, and that the species varied as the environment itself changed over time. By differentiating different 'art periods' through changes in material culture in the art, he tried to avoid the problems that he perceived with Chaloupka's styles (Lewis 1988: 13, 44).

The four periods distinguished by Lewis (1988) are 'Boomerang', 'Hooked Stick', 'Broad Spearthrower' and 'Long Spearthrower' (Table 4.9, Figure 4.30). While the Boomerang period is represented across the plateau, the succeeding Hooked Stick period contains regional variations 'in perspective and style' (Lewis 1988: 105). Each of the regionally distinctive styles of Hooked Stick figures is distinguished 'by reference to established place names in the areas where the figures occur' (Lewis 1988: 43). Overall, Lewis's categories are

more systematically defined than those proposed by Chaloupka, although they also suffer from problems of definition. For example, Lewis's initial Boomerang period is defined by the presence of boomerangs in the art (Lewis 1988: 45). This, he claims, is followed by the Hooked Stick period that contains both hooked sticks and boomerangs in direct association on single figures (Lewis 1988: 47). While the introduction of the hooked stick may represent a chronological marker, the division is problematic in that, in this schema, a figure that is in reality from the Hooked Stick period but that only holds a boomerang would necessarily be regarded as part of the earlier Boomerang period figure (e.g. Figure 4.31). Similarly, there are single figures that he ascribes to the Boomerang period that do not hold boomerangs and which, therefore, appear to be relegated to the period on the basis of the likeness in the style of the figure (cf. Lewis 1988: 163); there are also ascribed Hooked Stick figures that do not hold any implements at all (cf. Lewis 1988: 262). The Boomerang and Hooked Stick period motifs are, as defined, not mutually exclusive and hence, while a general trend from the earlier to the later period may be apparent, the periods cannot be taken to represent rigid stylistic or temporal categories.

Archaeologist Ivan Haskovec worked as a field officer at Kakadu National Park in the 1980s–90s. During this time he published four papers relating to rock art within the Park (Haskovec 1992a, 1992b, 1993; Haskovec and Sullivan 1989). The most influential is the identification of the rock paintings of a single artist,

Table 4.9: Lewis's western Arnhem Land rock art chronology
(from Lewis 1988:105)

Period	Identifying elements	Distribution	Years BP (approx.)
BOOMERANG	Figures in monochrome red with ornate headdress, carrying boomerangs and/or spears only. Naturalistic perspective usually with allusion to movement. Stencils of hands and material culture items are common.	Pan plateau	Unknown (no megafauna) Minimum: 9000 years
HOOKED STICK	Figures with 'hooked sticks' as well as boomerangs and spears. Usually with simplified headdress. Rainbow snake complex appears throughout the plateau late in period and continues, with changes, until the present time.	Regional variation in perspective and style.	Minimum: 6000 years
BROAD SPEARTHROWER	Figures with short, broad or cylindrical spearthrowers and a great variety of spears. Varied perspective, style and colour.	In the northwest of the plateau, long-necked spearthrowers appear to be transitional between broad and long spearthrowers	Maximum: 6000 years Minimum: 1-2000 years
LONG SPEARTHROWER	Figures with long, narrow spearthrower. Varied perspectives, painting techniques and styles. Including fully developed X-ray art. Limited variety of spears		Maximum: 2000 years (probably <1000 years). Minimum: ethnographic present

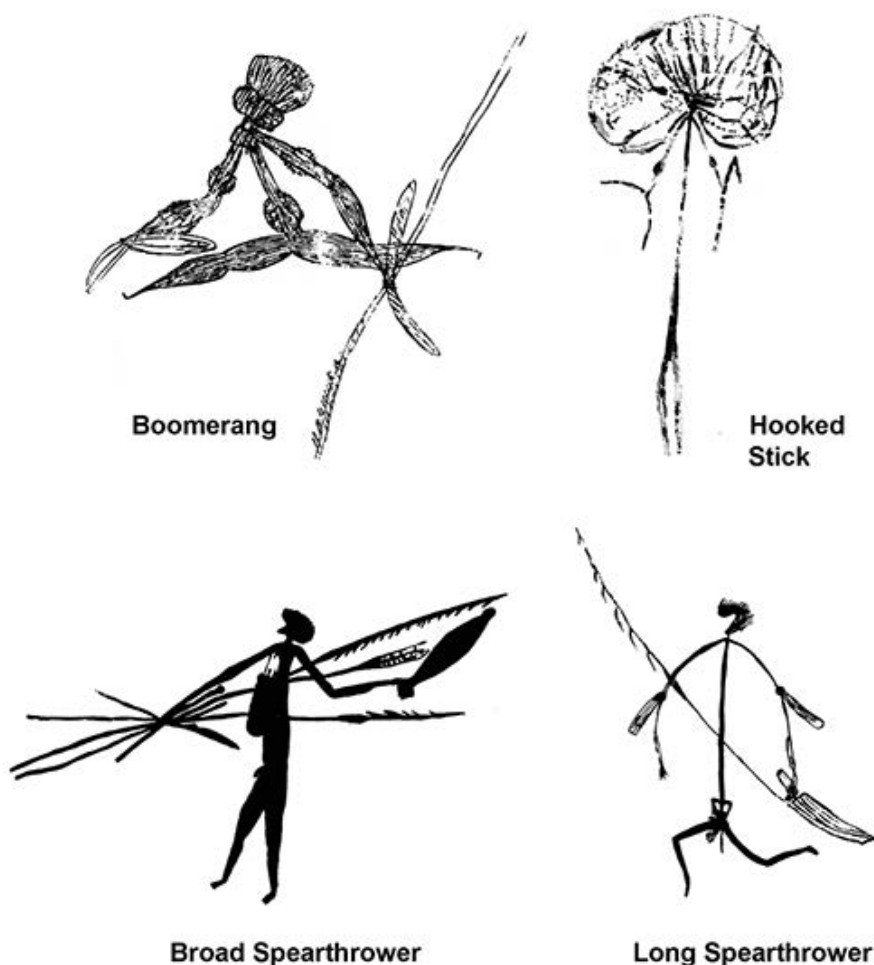


Figure 4.30: Examples of anthropomorphs from Lewis's four Periods of western Arnhem Land rock art (after Lewis 1988)



Figure 4.31: Composition of figures – some with hooked sticks and spears, others (black) with just boomerangs. (after Lewis 1988: 230)

Najombolmi (c.1895–1964), and their placement across the landscape (Haskovec and Sullivan 1989). Najombolmi was a Gundjeibmi-Mayali speaker of the Bardmardi clan. His clan estate is focused on Deaf Adder Gorge on the eastern border of the Park (see Figure 4.29). The 46 sites where Najombolmi's paintings have been identified occur at occupation shelters around the base of the escarpment within a limited area, some 50 × 20 km in extent. In most of these sites Najombolmi's paintings are the most recent and consist principally of polychrome female figures and fish (Figure 4.32). His art does not include motifs of European items of material culture. Haskovec and Sullivan (1989) concluded that the distribution of Najombolmi painting sites in close proximity to European settlements reflected those locations around which he spent the greater part of his time. They also suggested that a limited number of exceptional artists may have been responsible for the greater proportion of motifs within an art style. The style of static female figures depicted by Najombolmi (Figure 4.32 lower) is similar to a particular form of female figure, the 'Jawoyn lady', as it prominent in many sites on Jawoyn land to the south of Deaf Adder Gorge (Gunn 1992b) and in the interior of the plateau (pers. obs.).

Haskovec (1992a) also undertook the first comprehensive definition of a single rock art style from the Arnhem Land plateau, which he termed the 'Northern Running Figure' style. The style is distinguished by figures with a flowing body-line that impart a sense of movement (Figure 4.33). Its distribution is limited to the north-west corner of the plateau and does not occur within Jawoyn Lands.

Following a detailed analysis of the painted panels at Mt Gilruth, which had been a key location to Chaloupka in developing his western Arnhem Land stylistic sequence, Haskovec (1992b) could find no evidence to support Chaloupka's conclusion that the Large Naturalistic style pre-dated the Dynamic style (see Table 4.8). Instead, he proposed that the Large Naturalistic style post-dates both Chaloupka's Dynamic and Yam styles (Haskovec 1992b: 70). From this same study, he also reports a Dynamic style figure overlying a bichrome figure in an earlier and previously unidentified style. This earlier style he termed Archaic (1992b: 71) [although it should not to be confused with the Archaic style previously proposed by Jelinek (1978)].

In 1992, Haskovec proposed that there was a major change in the rock art of western Arnhem Land after the Post-Dynamic style, involving a transformation from relatively stable, long-term art styles to the

production of a number of heterogeneous styles. He inferred that this change occurred with rising sea-levels and the development of estuarine environments on the Kakadu plains around 8000 years ago, paralleling the arrival of new social groups into the area (Haskovec 1992b: 72, 1993: 199). The archaeological and rock art chronologies, however, are still insufficiently defined to test this proposition.

Coincident with these 1980s studies, Canadian Paul Taçon began working with senior Aboriginal people in the Kakadu region; a work that has continued to the present day, making him the most authoritative researcher of the region's rock art. For his PhD dissertation (Taçon 1989a), also undertaken under Andrea Rosenfeld at the Australian National University, he looked at the most recent forms of rock art, particularly X-ray paintings, from both archaeological and ethnographic perspectives within three geographic Zones around the north-western corner of the plateau (Figure 4.29). Drawing on his own work with senior traditional owners and previous anthropological work by Taylor (1988, 1989), Taçon documented five categories of rock art recognised by local Aboriginal people at the time (Table 4.10), and presented detailed interpretations of the six main (largest and most numerous) and five lesser fish species represented in Arnhem Land rock art (Taçon 1988, 1989a(I): 179-196, 1989a(II): 40-55; Figure 4.34). He also notes that a large number of other paintings of fish



Figure 4.32: A large composition painted by Najombolmi at Burrunguy (Nourlangie Rock), Kakadu National Park (photographed in 1988)



Figure 4.33: 'Northern Running Figure' style figure at Narradj Warde Djokkeng, (photographed in 1988)

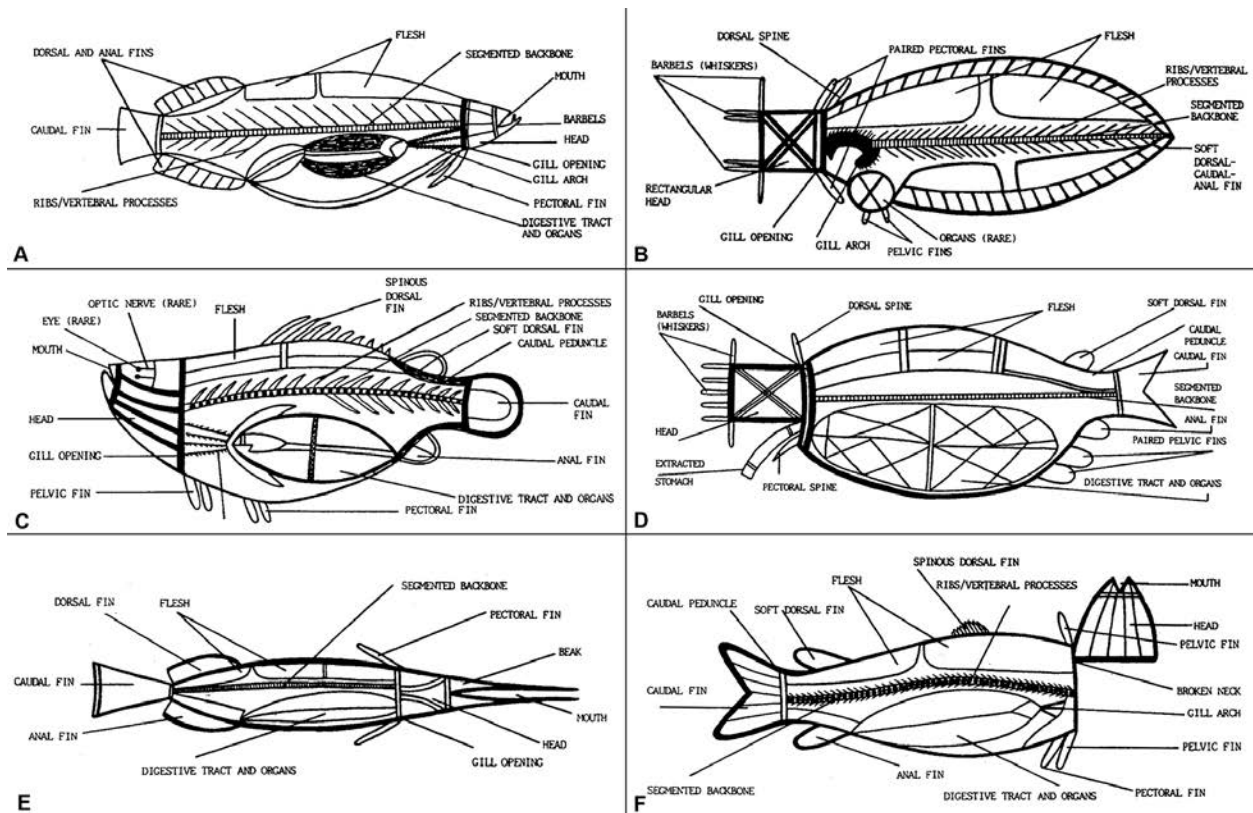
lack sufficient attributes to allow reliable identification of taxa. Overall, barramundi, saratoga and fork-tailed catfish are more likely to be portrayed with X-ray infill than with solid/stroke infill (Taçon 1989a(I): 197). This preference for the X-ray form is, however, less notable in the depiction of other fish species.

Regionally, the frequency of all fish paintings declines from north to south (his study Zones III and I respectively; Figure 4.29), paralleling the decreasing river volumes and wetlands areas (Taçon 1993; Russell-Smith et al. 1995: 96-97). Similarly,

the proportion of fish painted using X-ray infill decreases southwards, while that of X-ray human figures and macropods increases (Taçon 1993: 114). The barramundi, saratoga and fork-tailed catfish are valuable Aboriginal food items in all Zones during ethnographic times, but fish generally are of greater subsistence importance in the north. The representation of these species in the art of the northern Zone III, however, is more common than indicated by their natural occurrence (Taçon 1989a(I): 203; 1989b). Taçon also found that there are no correlations between species depicted and

Table 4.10: Classification of western Arnhem Land rock art as informed by local Aboriginal meanings (from Taçon 1989a(I):227-230, 1989c)

MAJOR CATEGORY	Origin	Comment
Powerful Sacred Beings	Ancestral Beings who put their own images on the rock	Form unspecified
Dreaming paintings	Human paintings but with some essence of the Dreaming	Recent X-ray, polychrome and solid/stroke infill motifs incorporating particular designs (unspecified)
MINOR CLASSES	Origin	Comment
Mimi	Mimi spirits	Lacking sacredness; meanings unknown but many animal species can be identified
Contact motifs, recent hand stencils, and stick figure paintings	Human	Set, profane meanings with a descriptive, historic or commemorative quality
Sorcery paintings	Human	Date to the contact period (reason unqualified)



A: Saratoga (<i>Scleropages jardini</i>)	B: Eel-tailed catfish (<i>Neosillurus</i> sp.)
C: Silver barramundi (<i>Lates calcarifer</i>)	D: Lesser salmon (forktailed) catfish (<i>Hexanemachthys leptaspis</i>)
E: Freshwater long-tom (garfish) (<i>Strongylura krefftii</i>)	F: Mullet (<i>Liza diadema</i> and <i>L. dussumieri</i>) (after Taçon 1988b:6-7)

Figure 4.34: Taçon's speciation of the six main fish species in Arnhem Land rock art

colours used, and that the colour combinations used in fish paintings are the same as those used in human figures and other animals (Taçon 1989a(I): 210). He presented no explanation as to how these categories could be identified archaeologically.

Taçon further elaborates on the close association of contemporary myths and rock art, and the responsibility of appropriate Aboriginal people to manage and look after rock art sites as well as other sites within their territory (Taçon 1989a(I): 231-274, cf. Australian National Parks and Wildlife Service 1980: 268). In this vein, Taçon suggested that the higher number and proportions of fish motifs in the art of the northern Zone III (Figure 4.29) can be largely explained by the beliefs of the northern Aboriginal peoples, where fish feature prominently in their local mythologies, and for whom fish act as important metaphysical symbols (Taçon 1989a(I): 205, 208; 1989b; 1993: 117).

Of particular relevance for the art of Nawarla Gabarnmang is Taçon's discussion of the significance

of the barramundi, which is an expression of Namarnkol, the Barramundi Dreaming Being, who created the East Alligator River and is another manifestation of the Rainbow Snake (Ngalyod) and, at other times, the Rainbow Woman – the major creation Beings for the Aboriginal people of the Kakadu-Oenpelli region (Gunn 1992b; Taçon 1989a(I): 275-3432). The cultural significance of the barramundi and other fish painted with X-ray infill is seen by Taçon to reside in the ability of the scales of live fish to reflect rainbow colours; an ability that is lost in death. Hence there is the equation of fish, of which the barramundi is the largest in the freshwater system, with 'rainowness' (in relation to the Rainbow Snake and its association with the Dreaming) and with life itself (Taçon 1989b). He does not explore this association of rainowness and X-ray infill in relation to human figures or macropods with the X-ray form.

In his extensive work, Taçon (1987, 1989a, 1992) has undertaken a substantial re-evaluation of the X-ray art form, including a significant ethnographic

account of its meaningfulness. He defines a painting as having X-ray features if it contains 'any internal anatomical features' (Taçon 1987: 43); X-ray paintings are sub-divided into two groups, Early and Recent, on the basis of observed differences in form, style, size, colour, placement and the nature of their superimpositioning (Taçon 1992: 203). These two groups are the same as Brandl's types 0-I and II-III (Figure 4.23), and are comparable to Chaloupka's Early and Complex (Descriptive and Decorative) types (Chaloupka 1984: 46; 1993: 104,162), as well as the Simple and Developed types of Jelinek (1989: 479). Whether or not an empty body cavity (Brandl's type 0; and within Taçon's Early group) can be accepted as a precursor of X-ray infill is a moot point as, contra the terms of Taçon's definition, an empty body cavity does not contain internal anatomical features (see also Chaloupka 1993: 104). An example given by Taçon (1987: 43) identifies a kangaroo-headed Being as an Early X-ray motif. This motif (Figure 35A) has an outlined body, a vertical centre-line and two horizontal cross-bars, which are interpreted by Taçon as representing the body cavity, backbone and rib-like division respectively. These design features, however, could also be interpreted as representing

external body paint, a method of simple infill if the artist lacked sufficient pigment or time to complete the body with a solid infill, or a stylistic form. Other examples from western Arnhem Land rock art and elsewhere show a variety of linear infill design patterns that are generally interpreted by rock art scholars as representing, for example, tortoise carapace designs (Figure 35B), thylacine hair stripes (Figure 35D) or feather patterns (Figure 35E). In addition, differentiating between a body outline and a body cavity is often very subjective (cf. Figures 35A and 35B). Taçon recognises this problem but, rather than offering a clarification, he expands the X-ray category by indicating that skeletal features occur in a wide range of early styles (Taçon 1987: 44-45), particularly a simplified alimentary canal (e.g. Figure 4.36); correctly noting that the depiction of internal anatomical features has been used as a pictorial form throughout much of the sequence and chronology of Arnhem Land rock art.

Taçon's greater contribution in this field is in recognising other changes that paralleled the development of Recent X-ray art from Early X-ray art. These included:

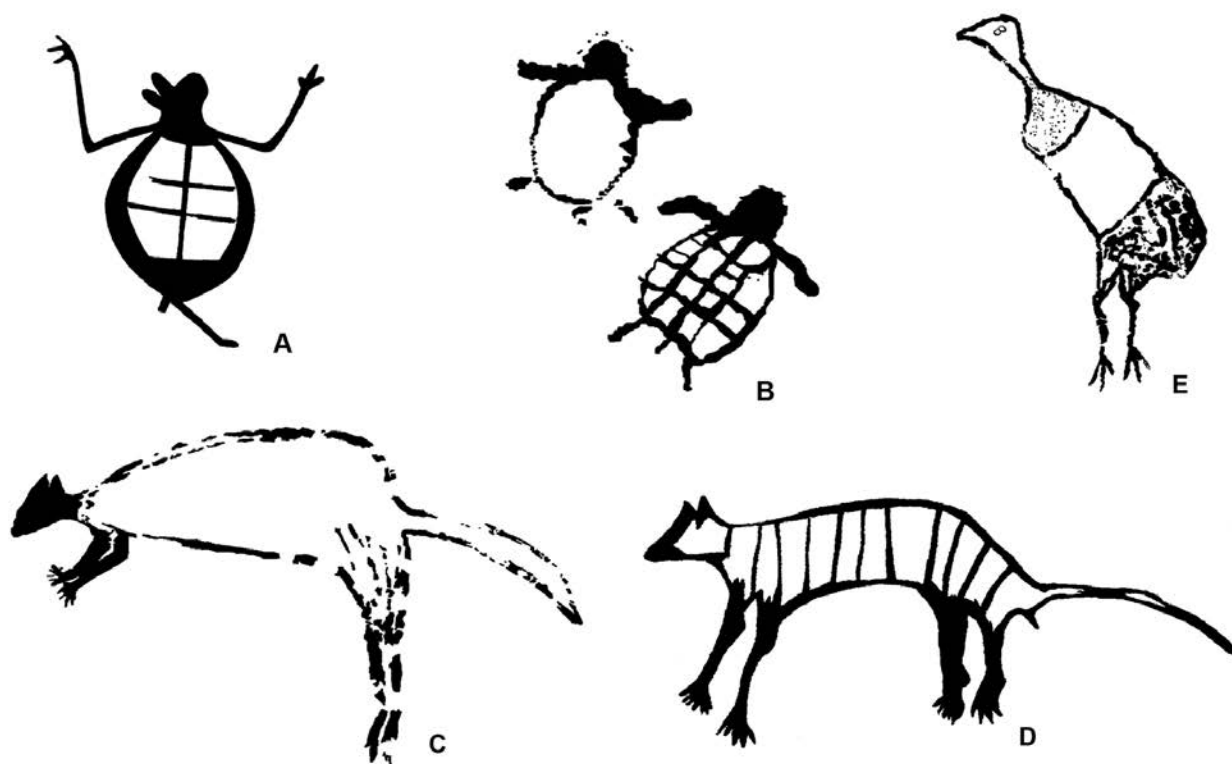


Figure 4.35: Various outlined and patterned infill animals

A: 'Early X-ray' flying fox (Taçon 1987:43) B: Turtles (Gunn and Mulvaney 2008:14)
C: Macropod (ARN-027/1 photo-tracing) D: Striped thylacine (Chaloupka 1993:96)
E: Banded bird (traced from Chaloupka 1993:155)

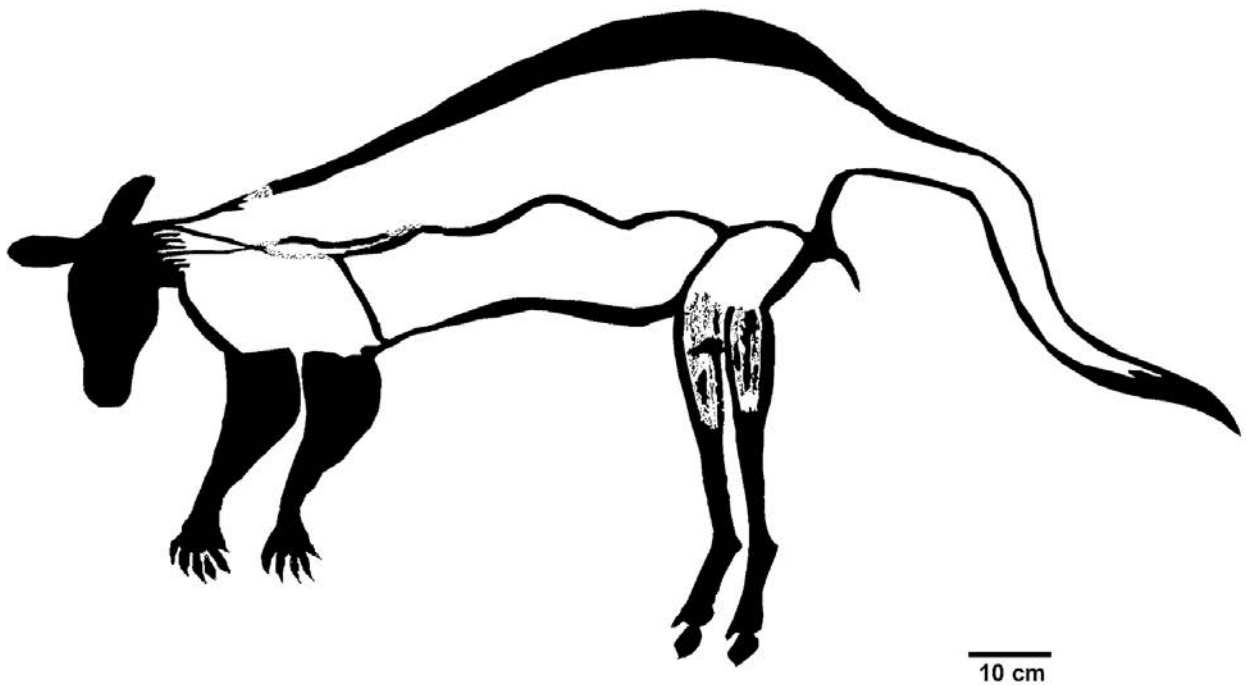


Figure 4.36: Large Naturalistic style macropod with simplified alimentary canal (site ARN-088/4)
This motif is superimposed by 'Simple Figures with Boomerangs' style figures and more recent white paintings (not illustrated).

- a substantial increase in the number of bichrome motifs (Taçon 1987: 46);
- the introduction of polychrome paintings (Taçon 1987: 46);
- an increase in design complexity (Taçon 1989a(I): 121-123); and
- a shift away from depicting land-based faunas to a concentration on aquatic species (Taçon 1989a(I): 121-123, 146, 149-150).

Although these changes are stronger in his northern areas (Zone III) and notably reduce progressively southward, it is evident to some degree in all areas. In line with Chaloupka's chronology discussed above, Taçon considers the change in the X-ray art to be coincident with the regional change to a freshwater environment around 3000–2000 years ago (Taçon 1987: 45). The current environment, however, only became fully established around 1500 years ago (Allen and Barton 1989: 105), leading to the possibility that the period of Recent X-ray art may relate to this later environmental period and therefore be no more than 1500 years old, and possibly flowering at some more recent time. A comparison of the Northern and Jawoyn X-ray forms is given below.

More recently, Taçon and others have been involved in a substantial project to study 'contact' art across Australia, with particular reference to western Arnhem Land (May et al. 2010, 2013a, 2013b; Taçon et al. 2010; Wesley et al. 2012; Wesley 2013). One result of their

study is the dating of beeswax overlying paintings interpreted as ships: a European tall ship and two Southeast Asian praus, one in white and one in yellow (Taçon et al. 2010).

The beeswax dating indicates that the European ship was most likely painted in the 1700s. Two beeswax pellets overlying the white prau are dated to 1644–1951 and 1647–1951 cal AD respectively (Taçon et al. 2010: 3), indicating that the painting was older than these ages, while the beeswax pellets overlying the yellow prau were dated to 1517–1791 and 1641–1951 cal AD respectively. These results are interpreted by Taçon et al. as indicating that 'a painting of a prau had a minimum age of AD 1664, and could be much older' (Taçon et al. 2010: 6).

Using a novel approach, Daryl Wesley (2013) examined the chronology of firearm types represented in western Arnhem Land rock art along with the social standing they signified for their Aboriginal owners from the mid-19th to early-20th Centuries. He highlighted that paintings of firearms largely represented a period of close cooperation between Europeans and the local Aboriginal people in the buffalo hide industry: a non-Aboriginal industry that relied heavily on Aboriginal input to survive. Over this time, rifles were highly prestigious artefacts for an Aboriginal man.

Paul Taçon also collaborated with the English archaeologist Christopher Chippindale, providing

several major contributions to the study of the region's rock art. They were the first researchers to use Harris matrices in rock art studies, here to unravel the succession of superimposed motifs from a detailed recording of two, widely separated art panels of 'old Arnhem Land pictures' (Chippindale and Taçon 1993). What is unusual about the presentation of their recording (Chippindale and Taçon 1993) is that the full details of the recordings are presented both visually, as comprehensive illustrations, and descriptively, as supporting text, to clarify the construction of the matrices. While largely supporting the sequence proposed by Chaloupka (see Table 4.8), they noted one particular anomaly on the art panel: a Yam-style snake occurring both over and under Large Naturalistic animals (Chippindale and Taçon 1993: 37, 51). Here Chippindale and Taçon clearly demonstrated the potential of using Harris matrices to test superimposition sequences (see also Chippindale et al. 2000a; Harris and Gunn 2017).

Developing out of this first study, Chippindale and Taçon looked at two thematic aspects of western Arnhem Land rock art. In one they interpret compositions of people or groups of people with spears as depicting fighting scenes or 'warrior art' (Taçon and Chippindale 1994). The notion of possible battle scenes in the early art of the region had been previously noted by both Lewis (1988) and Jelinek (1989), however Taçon and Chippindale (1994) extend this to propose that conflict occurred throughout the past 10,000 years of western Arnhem Land's history. Whether a small number of such possible 'fighting scenes' can be extrapolated to imply a warrior culture is debatable (see reviewers' comments, both positive and negative to the paper; particularly by Knauf 1994 and Rosenfeld 1994).

In another contribution, Chippindale et al. (2000b) applied the notion of shamanism and altered states of consciousness (ASC) to the Dynamic Figures style. They suggest that, while not present in every image, there are enough disparate indicators from ethnographic knowledge to assume that ASC was an influential factor in Dynamic Figure compositions. Again, however, if ASC was a factor in Dynamic Figures style production, then can the supposed battle scenes be taken to depict a situation of real, as opposed to imaginary, conflict as Taçon and Chippindale (1994) had earlier proposed (see above, and Welch below)?

Following their detailed study of two art panels at Mt Gilruth (Chippindale and Taçon 1993), which formed the basis for Chaloupka's sequence, Chippindale and Taçon concluded that Chaloupka's sequence was largely substantiated (Chippindale and Taçon 1998: 99). Like Haskovec (1992b; see above), however, they conclude that animal figures comparable with Chaloupka's Large Naturalistic style both predate and postdate the Dynamic Figure style and suggest that, rather

than a continuity of the style, there were two discrete occurrences of the depiction of large animal subjects (Chippindale and Taçon 1998: 102). They also found that Simple Figures and Yam Figures overlap (Chippindale and Taçon 1998: 105) and that 3MF hand stencils appear to precede the Dynamic Figure style (Chippindale and Taçon 1993: 38). Furthermore, they make no mention of Haskovec's Archaic style.

In 1998, Chippindale and Taçon proposed the use of a range of relative and absolute methods to 'date' western Arnhem Land rock art: style, subject, superimposition, weathering and direct dating. They suggest that, rather than using any single method for dating, more comprehensive results could be obtained by 'cabling' a number of different methods together. Building on previous, but poorly-established, chronological models and the results of more recent studies (while largely retaining Chaloupka's terminology), Chippindale and Taçon reduce the broad range of previous researchers' categories of western Arnhem Land rock art to three: New, Intermediate and Old (Table 4.11; Chippindale and Taçon 1998: 107). Each period has a number of particular styles or use particular techniques, although within each period, different styles can overlap and, hence, represent coexisting events (Chippindale and Taçon 1998: 105). The New period, including X-ray art, represents the period from the present day to c.6000 BP; the age of the Intermediary period is unknown, although one stylistic group is proposed to have occurred around 10,000 BP. The age of the Old period, with 'Panaramitee-like engravings and pigment in shelter deposits', is also unknown but an age of $\geq 30,000$ –50,000 BP is suggested for a component of the rock art of this early period (Chippindale and Taçon 1998: 107). They add that further refinement is required for most of their 'nature' categories, and that the ages of their 'old' and 'intermediate' periods remain speculative (Chippindale and Taçon 1998: 107). They also exclude hand prints and hand stencils as non-diagnostic for, with the exception of the distinctive '3MF' hand stencil that they equate with the Dynamic Figures paintings, these motifs are not limited to any particular chronological or stylistic phase. The sequence they propose (Table 4.11) is less prescriptive and acknowledges the unknown factors omitted from previously proposed sequences. Given the number of unresolved categories and unknown chronologies, however, their sequence remains a tentative, skeletal framework that requires a good deal more work before it is of practical use for western Arnhem Land rock art studies.

Chippindale and Taçon's 'Complete Figure Complex' category (Table 4.11) consists of X-ray, solid infill, and various forms of stick figure paintings, as well as stencils, prints and beeswax compositions (Taçon and Chippindale 1994: 218–219). The paintings in this phase utilise a 'range of subject matter [that] is large

Table 4.11: Chippindale and Taçon's rock art sequence and chronology for western Arnhem Land (after Chippindale and Taçon 1998:107)

Age	Nature	Years BP
OLD	Panaramitee-like petroglyphs	Unknown
INTERMEDIATE	Pigment in shelter deposits	≥30,000 - 50,000
	'Large Naturalistic' fauna rock paintings	unknown
	'Dynamic Figures' paintings + 3MF hand stencils	?10,000
	'Northern Running Figures' rock paintings	'Post Dynamic Figures' rock paintings unknown
NEW		'Simple Figures with boomerangs' + some large fauna rock paintings unknown
	'Simple Figures' + 'Yam Figures' + large human figures + some large fauna + 'Early X-ray' rock paintings	c.6000
	'Complete Figure Complex' rock paintings + some petroglyphs + beeswax figures	c.4000 - 3000 BP up to AD 1960s
	Rare rock paintings + Paintings on bark, canvas and paper	Present day

and diverse, and [with] new subjects ... continually being found when sites are re-located' (Taçon and Chippindale 1994: 218).

Consequently, this phase, like the bulk of their proposed chronology, remains general and requires further refinement. Further, they propose an age of between c.4000 BP and the AD 1960s for the 'Complete Figure Complex' that includes X-ray art, but also see this proposed age bracket as problematic. This age envelope is derived from similarities with the oldest dated beeswax images in western Arnhem Land (Nelson et al. 1995). Taçon (2000) elaborates this association further, suggesting that a peak in beeswax production over the past 1500 years (see Nelson below) paralleled the production of 'more detailed polychrome works' at a time when the large Magela floodplain wetlands became established (Taçon 2000: 97). This argument does not take into account the taphonomic effects of beeswax deterioration (Bednarik 2001), which suggests that the production of beeswax images may have begun long before surviving examples imply, or that the production rate in the past 1500 years may be no greater than at any time previously (and could theoretically even be the remnants of a period of decline). Interpretative models associating beeswax art, or Complete Figure Complex paintings, with changes in environments and increases in food productivity are not based on sound evidence and remain to be proven.

Although the potential of beeswax art for radiocarbon dating had been recognised by Brandl (Brandl 1968), the first large scale study was undertaken by Earl Nelson in the early 1990s. Nelson, a dating scientist from Simon Fraser University, Canada, directed a ground-breaking project that dated a widely dispersed sample of beeswax art from northern Australia (Nelson 2000; Nelson et al. 1995). While most of the samples were from sites within and around the Arnhem Land plateau (Figure 4.37), none were from within Jawoyn Lands. Their sample of 145 dates ranged from 4000 BP to Modern (Figure 4.38; Nelson et al.: 50-51). All but two of these samples (from the same motif) were <2000 years old.

The beeswax project noted the chronological relationships between the beeswax art and any underlying or overlying pigment art. Tabulation of the dates of the beeswax provided either a minimum or maximum age for the pigment art depending on whether the beeswax was superimposed over or under the pigment (Table 4.12). These data show that the maximum age for overlying pigment art ranged from <600 ± 60 BP to <1200 ± 60 BP. The minimum age for underlying pigment art ranged from Modern to >4040 ± 80. These ages indicated that both beeswax art and pigment art had been produced contemporaneously over this time, and that beeswax figures are on occasion 'rejuvenated or modified centuries after their original placement' on the shelter walls (Taçon et al. 2000: 91).



Figure 4.37: Sites studied in the beeswax art project
(after Chaloupka et al. 2000: 13)

Contra Taçon (2000: 97), however, the beeswax dating data and the superimpositioning sequences do not provide any confirmation for the stylistic sequences proposed by Chaloupka (1993) or Taçon (1987, 1989a); rather it suggests that in those sites with beeswax art, there has been a proliferation of monochrome paintings, particularly in white, over the past c.500 years. Of paintings underlying beeswax art dated to >600 BP, none are in white, the majority being in red. However, this may again simply indicate the more fugitive qualities of white pigment (cf. Clarke 1978: 61; Lambert 1989: 59); therefore such chronological conclusions need to be taken with caution.

As mentioned above, Taçon claimed that this beeswax art is 'primarily associated with the Freshwater period rock art of the past 1500 years and that it is no older

than the earliest X-ray images' (Taçon 2000: 97). On the basis of the oldest beeswax figure (a turtle with an outline body and internal axial line) having a form comparable with numerous painted early X-ray turtles in western Arnhem Land, Taçon further claims that the radiocarbon results add support to Chaloupka's chronological model. In addition, the dates provide 'a more precise age for the beginning of true X-ray art and associated motifs' (Taçon 2000: 97). As discussed above, whether or not an outline with interior axial line can be considered a form of X-ray art is debatable. As Bednarik (2001) notes, the time range of beeswax figures may simply reflect the taphonomic decay of beeswax and the disappearance of beeswax motifs to be sampled. Whichever the case, the pattern resulting from the dating project indicates that the majority of surviving beeswax art will conform to this pattern.

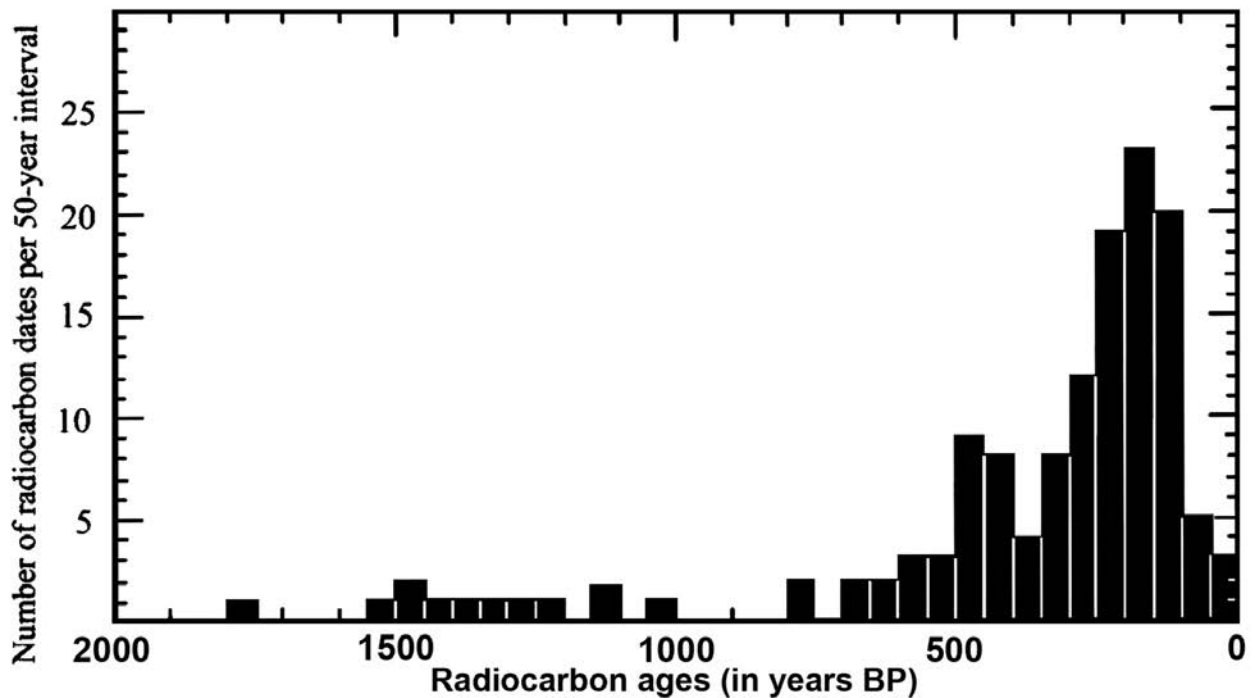


Figure 4.38: Nelson's radiocarbon ages plotted for frequency per 500 years
Excluding the two samples >2000 years old
(from Bednarik 2001: 94)

Table 4.12a: Maximum ages of pigment motifs based on beeswax radiocarbon dates
(after Nelson 2000; the motif sequence is reinterpreted here but with age provided by Nelson retained).

SEQUENCE (pigment over beeswax)	AGE OF OVERLYING	Nelson's SITE and	Laboratory Code
	FIGURE (BP)	SAMPLE No.	
White solid roo	<160 ± 60	Djarrng-68	CAMS-14029
Red fragment	<170 ± 60	Djarrng-19	CAMS-13981
Yellow fragment	<190 ± 80	Djarrng-20	CAMS-13982
Red and yellow paint	<240 ± 60	Djarrng-13	CAMS-14017
White solid fish	<240 ± 80	Moses' cave	CAMS-14000
Red stick figure spearing roo	<270 ± 70	Djarrng-49	CAMS-6620
White reptile	<290 ± 80	Gunbirdi III-36	CAMS-13998
Orange pigment over BW only	<310 ± 70	Djarrng-26	CAMS-6640
White solid fish	<340 ± 70	Gunbirdi I-16	CAMS-14001
White outline roo under/over BW?	<360 ± 50	Anbarndarr I-26	CAMS-29971
Red goanna	<370 ± 60	Gunbirdi III-29	CAMS-13099
Red goanna over red stick figure couple	<370 ± 60	Gunbirdi III-29	CAMS-13099
White outline figure	<410 ± 60	Djarrng-12	CAMS-14018
White paint and red line	<410 ± 60	Gunbirdi II-61	CAMS-13990
Red fragment	<450 ± 100	Gunbirdi III-26	CAMS-13996
Red linear human figure	<450 ± 80	Gunbirdi III-39	CAMS-13999
White solid fish (saratoga x2 and other) over red	<450 ± 80	Gunbirdi III-39	CAMS-13999
Red fragment	<470 ± 60	Gunbirdi III-25	CAMS-13995
Large solid white roo	<470 ± 80	Gunbirdi III-18	CAMS-13993
Solid white fish (archer fish and bream)	<510 ± 70	Gunbirdi III-27	CAMS-13997

White solid roo	<510 ± 70	Gunbirdi III-27	CAMS-13997
Yellow linear snakes	<510 ± 70	Gunbirdi III-27	CAMS-13997
Red fish?	<510 ± 70	Gunbirdi III-27	CAMS-13997
Red outline roo	<560 ± 60	Gunbirdi III-02	CAMS-13991
White striped roo	<560 ± 60	Gunbirdi III-02	CAMS-13991
Red stroke infill roo	<650 ± 60	Gunbirdi III-38	CAMS-8410
Red line (tuber?)	<650 ± 60	Gunbirdi III-38	CAMS-8410
White design fragment	<1110 ± 70	Gunbirdi III-11	CAMS-8402
White outline echidna	<1200 ± 60	Anbarndarr I-59	CAMS-29840

Table 4.12b: Minimum ages of pigment motifs based on beeswax radiocarbon dates
(data as for Table 4.12a)

SEQUENCE (pigment under beeswax)	AGE OF UNDERLYING	Nelson's SITE and	Laboratory Code
	FIGURE (BP)	SAMPLE No.	
Pale red solid goanna	>90 ± 50	Anbarndarr I-43	CAMS-29974
Red and white fragments	>90 ± 50	Bindu-08	CAMS-21776
Yellow line	>100 ± 110	Gunbirdi II-25	CAMS-14009
Red fragment	>100 ± 60	Bindu-10	CAMS-21777
Undescribed painting	>100 ± 60	Djarrng-38	CAMS-13980
Purple geometric design	>110 ± 60	Bindu-13	CAMS-21778
Yellow figure	>110 ± 60	Gunbirdi I-88	CAMS-13986
Red fragment	>1110 ± 70	Gunbirdi III-11	CAMS-8402
White+red fragment	>120 ± 60	Yarranggulnja-49	CAMS-21782
Red lines	>130 ± 60	Bindu-03	CAMS-29833
Yellow wash	>140 ± 60	Gunbirdi I-100	CAMS-14004
White stick figure	>140 ± 70	Djarrng-66	CAMS-13979
White hand stencil	>140 ± 70	Djarrng-66	CAMS-13979
Red fragment	>150 ± 70	Gunbirdi II-68	CAMS-14014
Yellow outline male figure (x-ray?)	>150 ± 70	Yarranggulnja-50	CAMS-21781
White+red fish under yellow figure	>150 ± 70	Yarranggulnja-50	CAMS-21781
White hand stencil under W+R fish	>150 ± 70	Yarranggulnja-50	CAMS-21781
Yellow wash	>160 ± 100	Djarrng-44	CAMS-6636
Yellow wash	>160 ± 40	Gunbirdi I-106	CAMS-6645
Yellow wash	>160 ± 50	Yarranggulnja-45	CAMS-21783
Red macropod	>170 ± 50	Gunbirdi II-75	CAMS-14015
Yellow figure	>170 ± 50	Gunbirdi II-75	CAMS-14015
Red stick figures	>170 ± 70	Gunbirdi I-115	CAMS-6641
?Large red female figure	>180 ± 60	Gunbirdi II-26	CAMS-14010
Thin red lines (drawing)	>200 ± 60	Gunbirdi I-20	CAMS-6650
Energetic figures	>200 ± 60	Gunbirdi I-20	CAMS-6650
Yellow fragment	>200 ± 70	Djarrng-42	CAMS-6637
White+yellow male figure	>210 ± 60	Djarrng-52	CAMS-6619
Dark pink stick figure	>210 ± 60	Djarrng-52	CAMS-6619
White+yellow animal (buffalo?) - anomolous	>220 ± 70	Djarrng-55	CAMS-7150
Red line	>240 ± 60	Yarranggulnja-11	CAMS-21780
"Old" red figure	>250 ± 60	Gunbirdi II-67	CAMS-14013

Dark red hand stencil	>250 ± 60	Gunbirdi II-67	CAMS-14013
Yellow paint	>270 ± 70	Djarrng-49	CAMS-6620
Red wash	>330 ± 50	Anbarndarr I-54	CAMS-29976
White+red outline roo	>340 ± 70	Gunbirdi I-16	CAMS-14001
White outline roo under/over BW?	>360 ± 50	Anbarndarr I-26	CAMS-29971
Red figure (arms up, conc.circle Hdress)	>410 ± 60	Gunbirdi I-35	CAMS-7156
Red elongated figure	>410 ± 60	Yarranggulnja-69	CAMS-29841
Red hand stencil	>430 ± 50	E1004-2	CAMS-30911
White+red roo	<440 ± 70	Gunbirdi I-21	CAMS-6649
Red wash	>450 ± 50	Anbarndarr I-16	CAMS-29969
White fragment	>470 ± 70	BW-3 (plateau)	CAMS-2299
Red fragment	>470 ± 70	BW-3 (plateau)	CAMS-2299
Red line	>480 ± 60	Gunbirdi III-06	CAMS-13992
Red saratoga	>510 ± 70	Gunbirdi III-27	CAMS-13997
Red human figure	>540 ± 70	Gunbirdi I-114	CAMS-7153
Red+yellow lines	>550 ± 60	Gunbirdi III-23	CAMS-8405
Red stick figure couple	<630 ± 60	Gunbirdi III-20	CAMS-13994
Red lines	>640 ± 50	Anbarndarr I-48	CAMS-29975
Red wash	>790 ± 50	Anbarndarr I-35	CAMS-29973
Red outline roo	>790 ± 60	Djarrng-64	CAMS-6616
Yellow stick figure	>790 ± 60	Djarrng-64	CAMS-6616
Yellow lines	<1110 ± 70	Gunbirdi III-11	CAMS-8402
Red fish?	<1110 ± 70	Gunbirdi III-11	CAMS-8402
Red roo	>1200 ± 60	Anbarndarr I-59	CAMS-29840
Red stick figure	>1250 ± 60	Anbarndarr II-17	CAMS-29838
Red wash	>1350 ± 40	Anbarndarr I-34	CAMS-29972
Red and yellow paint	>1440 ± 60	Anbarndarr II-15	CAMS-29837
Red echidna	>1780 ± 60	Anbarndarr I-07	CAMS-29839
Five layers of paint	>3820 ± 70	BW-5 (plateau)	CAMS-2301
Red roo	>4040 ± 80	BW-4 (plateau)	CAMS-2300
Red fragment	>4040 ± 80	BW-4 (plateau)	CAMS-2300
Mulberry animal	>4040 ± 80	BW-4 (plateau)	CAMS-2300

Following studies instigated by Dan Gillespie, Conservation officer, Kakadu National Park (Gillespie 1983b, 1983c), Phillip Hughes and Alan Watchman (1983) established that water damage was the main conservation problem in the Park and also that the degree of cementation of the parent rock had a direct bearing on the preservation state of any applied rock art. An implication of this finding is that when evaluating style or motif distributions, within a single site or over a wide region, variability in the shelter lithology must be considered in relation to rock art preservation. Watchman, a freelance geochemist, returned to Kakadu National Park following his success in obtaining maximum and/or minimum ages for pigments through dating micro-stratified oxalate crusts on decorated rock surfaces elsewhere in Australia (e.g. Watchman et al. 1997, 2000, 2010). Few of

these results date an observable motif, however, as the technique only samples cross-sections of the embedded pigment. In western Arnhem Land, Watchman found evidence that pigments on shelter walls were more than 8000 years old, arguing that these are traces of rock art now hidden by successive coatings of the oxalate crust (Watchman 1987: 40). Using the same technique, he obtained radiocarbon dates from oxalate crust (whewellite) overlying petroglyphs on a large boulder within the Fenceline 9 rock shelter (Watchman 2004). The site was previously recorded by Gunn and Mulvaney as Fenceline 12 (Gunn 1989a; Figures 4.39 and 4.40). This well-decorated boulder is unique in western Arnhem Land. The petroglyphs consist of cupules, macropod tracks and human hand and foot tracks. When originally pecked, the sampled macropod track had been positioned over an earlier cupule such that



Figure 4.39: Interior of the Fenceline 12 (Watchman's Fenceline 9) shelter showing the protected location of the pecked boulder (photographed in 1989)

the cupule became the heel depression of the track. Watchman's dating results indicate that the heel-cupule was produced prior to 6625 ± 100 BP (Watchman 2004: 193). No sample was taken of the toe portion of the track; however Watchman records that the oxalate coating over the toe was notably thinner and therefore younger than that in the heel-cupule. A 'rake' motif in an adjacent shelter was found to have been produced before 3425 ± 45 BP (Watchman 2004). As older dates on oxalate have been obtained from the Nourlangie area of Kakadu to the north, Watchman makes the assumption that oxalate crusts have been forming continuously in rock shelters in the Kakadu region for over 15,000 years (Watchman 2004: 194).

The pigment and/or rock art dated by Watchman appear to confirm the production of rock art in western Arnhem Land during the early part of the Holocene and, in some cases, possibly earlier. This is consistent with the presence of a use-worn ochre crayon in excavated shelter deposits dating to sometime between 48,000 and 67,000 years ago, following luminescence dates at Nauwalabila (Roberts et al. 1994: 557). Whether such crayons were used for the making of rock art is unknown (David et al. 2013).

Following the production of the first booklet on the rock art of Kakadu National Park (Welch 1982), a local rock art enthusiast, David Welch, became a notable

contributor in the interpretation of particular motifs or motif combinations in western Arnhem Land rock art (1992, 1997, 2004, 2012a). In particular, Welch contends that the depiction of the 'fighting pick' or 'hooked stick' (Figure 4.30) might not indicate weapons, and hence battle scenes, as suggested by Lewis (1998: 230), Chaloupka (1993: 217), and Taçon and Chippindale (1994), but rather depictions of 'ceremony or dance' (Welch 1997: 108). This interpretation argues against the development of warring conflicts such as proposed by Taçon and Chippindale (1994) for the beginning of their Intermediate Age (between 10,000 and 6000 BP).

Welch's idea for a ceremonial rather than a warring interpretation developed from a study comparing ethnographic photographs of ceremonial headdresses and other paraphernalia with the similar elements depicted in early Kimberley rock art (Welch 1996); an area with probable artistic links to Arnhem Land (Lewis 1984, 1997), and a feature that Welch expands in two subsequent papers (Welch 2007, 2012a).

Prior to working for the Jawoyn Association on the JRAHP in 2005 (see below), in 1987 I also worked in western Arnhem Land, undertaking rock art surveys in the proposed Stage 3 area of Kakadu National Park (*Bulajang*; location 8 in Figure 4.41) for the Aboriginal Sacred Sites Protection Authority (ASSPA, now the Aboriginal Areas Protection Authority). This was my



Figure 4.40: Detail of the 6600 year old peckings in the Fenceline 12 (Watchman's Fenceline 9) shelter, 1989

first consultancy in northern Australian rock art, although having worked in the area as a geological field assistant in the mid-1970s. Subsequent surveys were undertaken for the Northern Land Council in the northern portion of the Arnhem Land plateau (locations 1 to 7) and for the Jawoyn Association at Wuratljuk in the south-east (location 9). Bulajang and Wuratljuk are both areas within Jawoyn Lands and is discussed in the section on Jawoyn rock art below. The northern surveys were undertaken with Traditional Owners and knowledgeable elders to identify, document and prepare management recommendations for sites of particular significance to them prior to mineral exploration (Gunn 1988a, 1988b, 1989a, 1989b, 1990, 1992a).

These surveys reinforced the notion of Mimi-bim (Mimi paintings) and Bininj-bim (human paintings); respectively paintings that are related to the realm of the Mimi spirits and those that are associated with human concerns. In general, Bininj-bim are recognised by the custodians through the use of white, red or yellow pigments that look to them as being recent. Mimi-bim are mostly red and 'look' old. Bininj-bim are considered the more significant by custodians, especially those figures directly related to existent mythology. The surveys confirmed to me the Aboriginal view that rock art was intimately associated with place and to other aspects of mythology and social culture. Also each of the major art sites was invariably within a suite of smaller satellite sites (as is common in other parts of Australia). While many individual motifs are interpreted by custodians, it became clear that no one

style or form of representation was restricted to any particular character within the local mythology. For example, there is no consistent form for the depiction of Ngalyod (the northern name for the Rainbow or Rainbow Serpent/Snake who is the same character as the Jawoyn Bolung), despite the character being a major character throughout the region. Similarly, two apparently visually identical art images at different locations may represent two totally different characters: the mythological associations of a place determining the persona of the image, not the art style used. One exceptional character in this regard is Namarrkan, the lightning man, who invariably has the attributes of stone axes (either in hand or attached to other parts of his body, and encircled by a line representing lightning (see Chaloupka 1993: 56-59). However, the size, media, colour, shape of Namarrkan's body, and the style in which he is represented, can vary from image to image, even within the same site (e.g. Gunn and Whear 2008).

In 1991, with members of the Nayinggul family, I undertook a mapping programme to record the rock art sites within their traditional estate of Mikinj, along the East Alligator River (Gunn 1992b). The largest shelter we recorded is dominated by a large polychrome painting of the female Dreaming Being, Birriwilk, after whom the site is named (Figure 4.42). The shelter was one of those recently excavated by Denis Shine (Shine et al. 2013; see above). The image of Birriwilk is 2.25 m wide and painted as a red silhouette with yellow outline, with white and black eyes. The

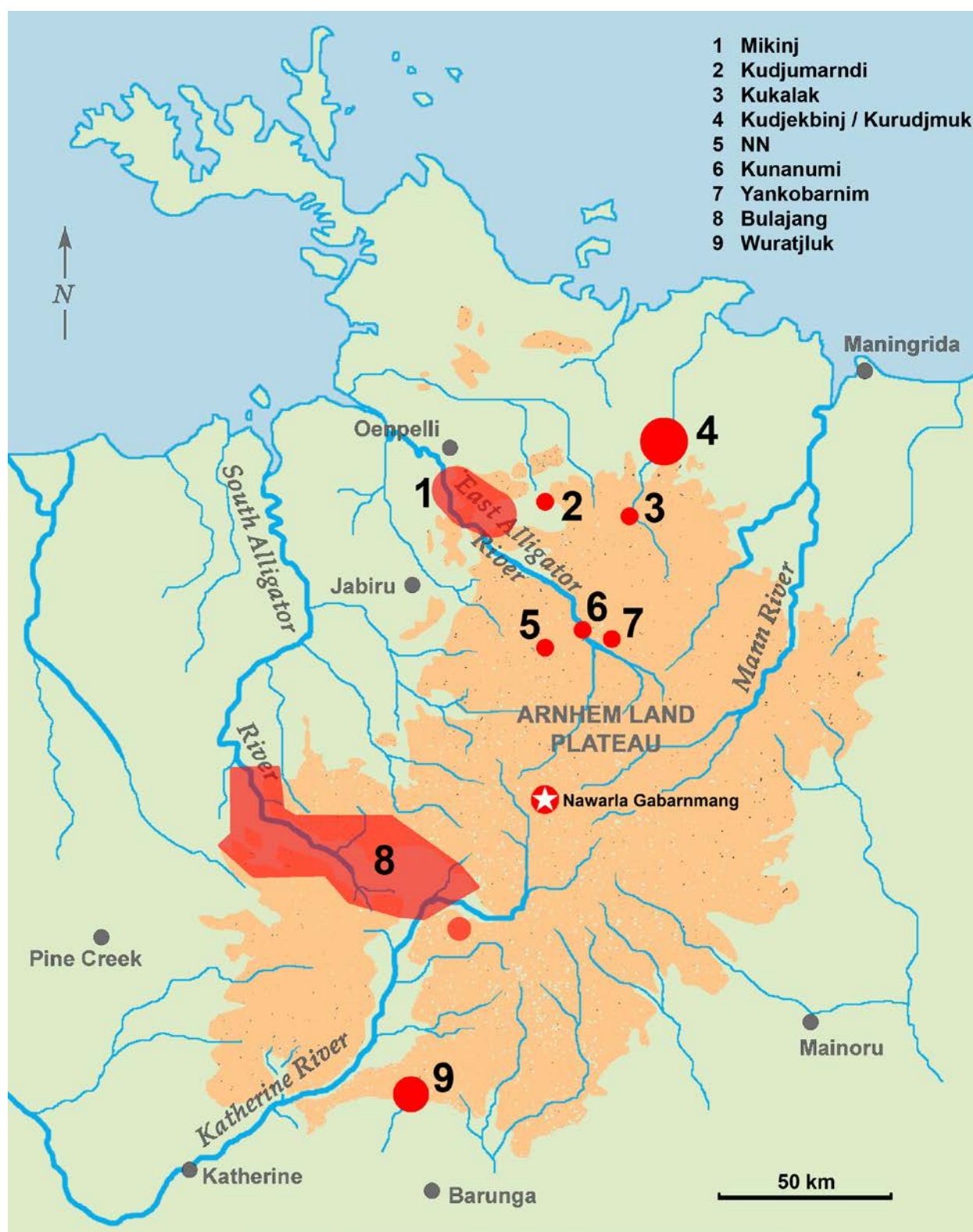


Figure 4.41: Arnhem Land rock art surveys undertaken by the author prior to 2005

valley in front of the shelter is the flood plain of Tin Camp Creek, with a large permanent waterhole (Figure 4.43) that is intimately connected to the mythology of the painting. On the opposite side of the valley, there is a related large painting, also in red and yellow,

that looks back to the Birriwilk site. Such large and prominent figures, in either red+yellow, white+red, or red+white, that occur along the western side of the Arnhem Land plateau are a feature of images of Dreaming Beings at their Dreaming sites (cf. Gunn



Figure 4.42: The image of Birriwilk and Njanjmah in the shelter at Mikinj



Figure 4.43: The flood plain below the Birriwilk shelter integral to her story. A second art shelter related by mythology is on the opposite side of the flooded valley

1992b). Motifs of this type had received little attention by previous recorders in this region, although their similarity to the large bichrome figures of Dreaming

Beings intimately linked to Bulajang (Arndt 1962), and large polychrome anthropomorphs to the west of Katherine (e.g. Davidson 1936) is readily apparent.

Western Arnhem Land

Taken together, the above studies have illustrated the range and complexity of interpretations of north-western Arnhem Land rock art. They also suggest a Pleistocene age for the older artwork. Despite many decades of work, however, our current understanding of the overall sequence, along with the relative and absolute ages of the styles, remains problematic. The models are largely based on the widespread but untested adoption of poorly or entirely undated speculations, or unconfirmed artistic phases. Furthermore, as Taçon points out, there are major regional variations in rock art styles across western Arnhem Land that have not been systematically reported and, hence, remain inadequate for our understandings of the totality of 'Arnhem Land's rock art'. Some of these issues are addressed further below as they have direct bearing on the interpretation of the chronology of the rock art at Nawarla Gabarnmang.

Jawoyn Rock Art

What distinguishes Jawoyn rock art from that of other peoples? Chaloupka (1984: 21, 1993: 170) first mentioned that the rock art within the Jawoyn Lands is different to that of their northern neighbours, noting that the northern Jawoyn clans utilise much finer line-work in their infill patterning, with lines around 1 mm thick, while that of their neighbours can be up to a centimetre in thickness. Taçon (1993) demonstrated a quantitative cline in rock art motif types and the X-ray form across the northern Jawoyn Lands to Oenpelli, and highlighted the greater use of white+red bichrome (white silhouettes with red outline and patterned infill) images by the Jawoyn: a trait very rarely found in the more northern rock art (Figures 4.44 and 4.45). In addition, where the Jawoyn employ more than two colours on a single motif it is usually in the addition of black highlights. On major Dreaming figures, decoration is by bold line-work and/or spray dots on the body of the image (Gunn 1992b).

Taçon (1993) established that the Jawoyn X-ray form places a greater emphasis on macropods and anthropomorphs, while having far fewer representations of fish than the northern people (Gagudju, Erre and Mangeridji). He also found that the X-ray art within the intervening lands of the Gundjeibmi people falls qualitatively between that of the northern and Jawoyn repertoires, indicating the differences from north to south are gradations of degree rather than of separation. Qualitatively, Taçon described Jawoyn X-ray form as being composed of

primarily red-and-white bichrome x-ray paintings, with some red-and-yellow, as well as solid red or solid white images. Some yellow solid infill figures can be found but they are much rarer. Depictions

of x-ray and solid/stroke infill macropods and humans predominate. Hand stencils are found but painted hand or hand-and arm stencils, typical of the areas to the north, are not. Small, delicate strokes are characteristic of outline and infill. Very small numbers of other forms, such as static stick figures, subjects and motifs are found at Jawoyn sites in comparison to those associated with other [northern] language groups (Taçon 1993: 115).

This contrasts with that of the people to the north-west of the Arnhem Land plateau, around the town of Oenpelli:

[The] Gagudju/Erre/Mangeridji sub-style is characterised by x-ray polychromes and a wider range of colour combinations. Red, purple and white are the predominant colours but yellow was also used for just over thirty percent of recent paintings. Fish are the most common x-ray and solid/stroke infill subject. Painted hand or hand-and-arm stencils, beeswax compositions and stick figures are frequent. There is an even distribution between x-ray, solid/stroke and stick figures in terms of frequency. This zone contains almost all the energetic stick figures located and they are one of the major characteristics of the sub-style. Recent hand prints are also found exclusively in this zone. Large, bold strokes for lines and infill are common but on occasion they are found in combination with more delicate hatching. Cross-hatching is more frequent in this zone and contact period subject matter is also more common.

The use of solid infill in a variety of colours on X-ray features or other internal patterning, such as that used on the polychrome fish at Nawarla Gabarnmang (Figure 4.46), is all but unknown in Jawoyn rock art.

Taçon attributed the quantitative change in the rock art of the Arnhem Land plateau to differences in environment (Jawoyn Lands being drier than lands to the north) and to religious affiliations (the Jawoyn affiliating more to groups to the south and west, than to the north) (Taçon 1993: 117).

A number of scholars have carried out research into Jawoyn rock art and culture. While not as numerous or extensive as the researchers of north-western Arnhem Land, these investigations have mostly worked closely with Jawoyn assistants to inform their archaeology; a matter that is discussed below.

The existence of rock art on Jawoyn Lands was first reported by Leichhardt in 1845: a depiction of a turtle in red ochre on rocks along Flying Fox Creek, near the southern edge of the Arnhem Land plateau (see Chapter 3 above). The first illustrated records of Jawoyn rock

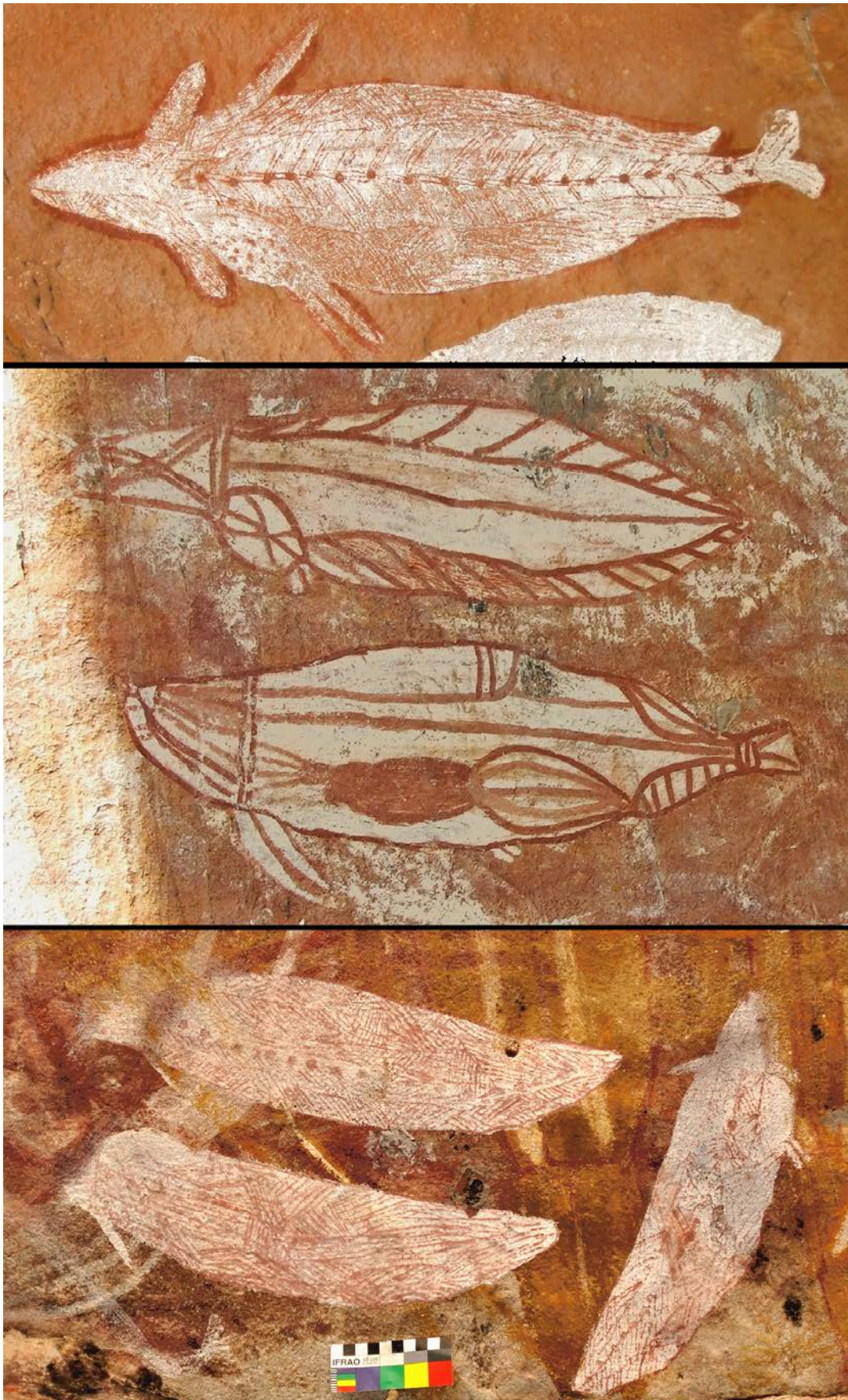


Figure 4.44: Examples of typical decorated fish in Jawoyn rock art
Sites ARN-091/5, ARN-081/1 and ARN-074/A



Figure 4.45: Examples of fine-line infill on fauna
Macropod (Site ARN-058/1) Emu (Site ARN-067/5)

art, however, were produced by physical anthropologist N.W.G. Macintosh (1951, 1952, 1977) and leading anthropologist A.P. Elkin (1952), during a Sydney

University expedition into southern Jawoyn Lands in 1949 (Figures 4.47 and 4.48). Elkin had previously stayed in the area in 1946, when he visited what was

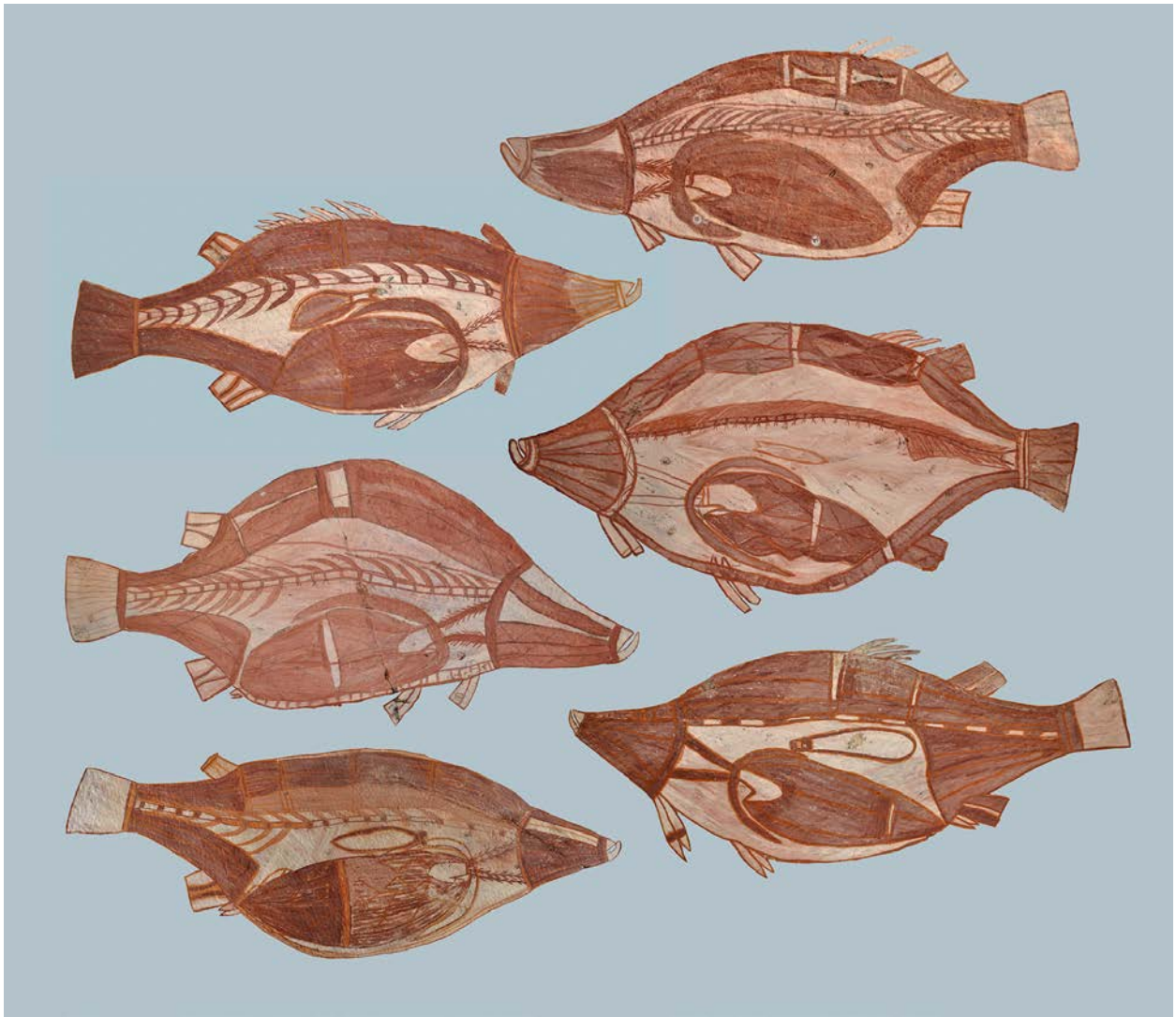


Figure 4.46: The Northern style polychrome X-ray barramundi at Nawarla Gabarnmang

then the King River settlement ('a few miles north of Maranboy' [Elkin 1951: 291]; most probably Charlie Tom Yards, King Valley Station, and now within the Jawoyn Lands). On this occasion, Elkin recorded information on the diffusion of the Kunapipi cult from the east (see Berndt 1951 for details of the cult), and watched a circumcision ceremony 'preceded by remarkable ballet dancing by Rembaranga men who were visiting' (Elkin 1951: 291). Elkin returned to the region in 1947 and 1948 to study the social structure, mythology and ritual of the Jawoyn and neighbouring tribal groups (Elkin 1951: 291). At the same time as the Berndts were conducting anthropological research around Oenpelli (e.g. Berndt 1951; Berndt and Berndt 1970), Elkin headed two Sydney University expeditions into Jawoyn Lands in 1949 and 1952. The main objective of these expeditions was to study Aboriginal rituals, using notes, film and sound recordings (Elkin 1951: 291). Aspects of linguistics, physical anthropology and archaeology of the Jawoyn were also documented during this fieldwork.

As part of Elkin's 1949, Macintosh investigated sites: Tangtangjal Cave and Doria Gudaluk. Tangtangjal Cave is a small shelter with 24 motifs and a shallow deposit rich in stone artefacts (see Gunn and Whear 2007b and Macintosh 1951). Macintosh's documentation included measured freehand drawings of the artworks (Figure 4.49), supplemented by written descriptions of individual motifs and his personal interpretations of the motifs (Macintosh 1951). The artwork at Tangtangjal Cave consisted of red or white monochromes, white silhouette with fine red outline and patterned infill, and white silhouette with bold red outline and patterned infill. Six white hand stencils were also recorded and measured.

Macintosh (1951: 191) notes that, even though some motifs have been repainted, the majority of the artwork was in a poor state of preservation. Re-recording this art nearly 60 years later (Gunn and Whear 2007b) it was clear that many of the paintings had suffered

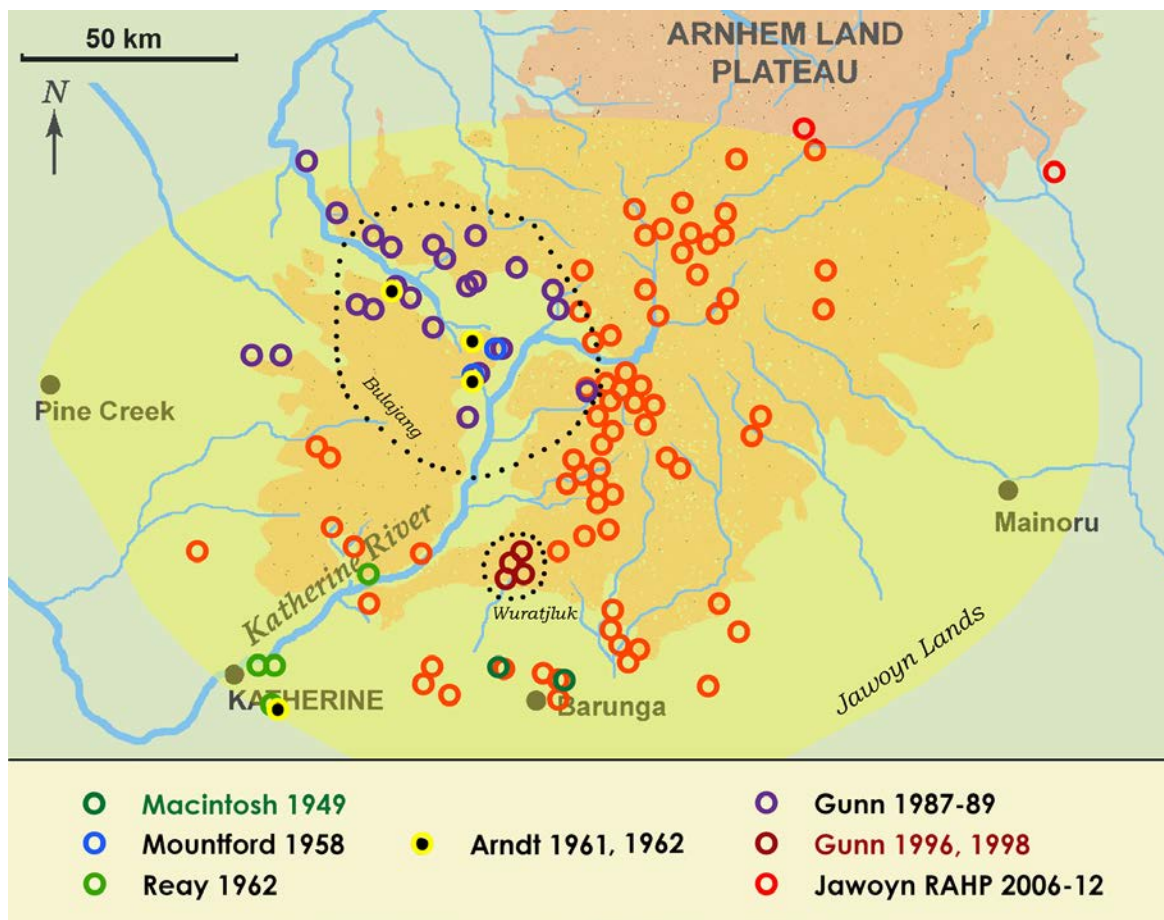


Figure 4.47: Location of rock art site complexes within Jawoyn Lands recorded by principal researchers

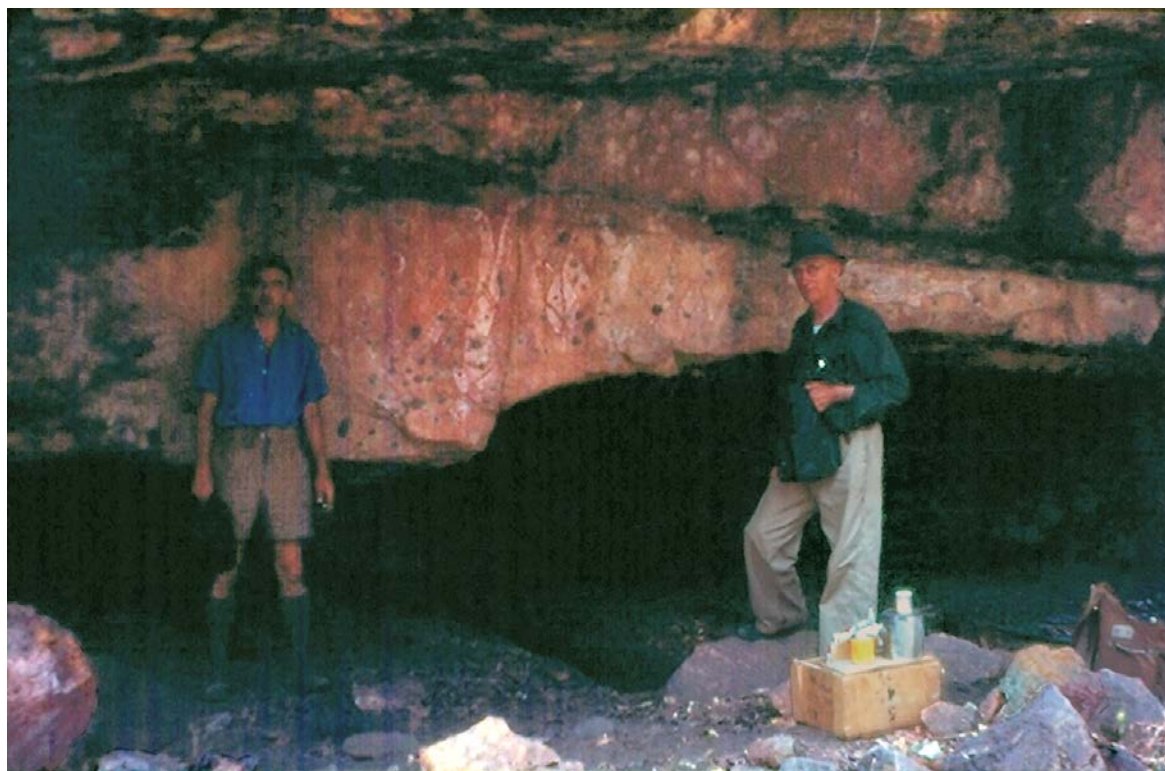


Figure 4.48: Macintosh and Elkin at Tangtangjal cave in 1949
Photograph: J.H. Buffum, courtesy of the Fisher Library, Sydney University

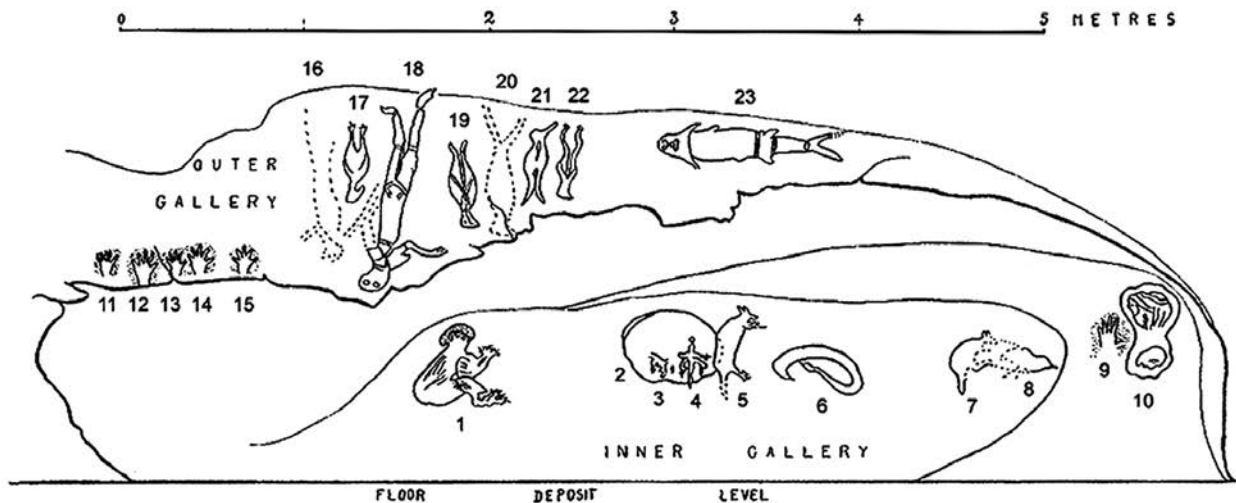


Figure 4.49: Macintosh's drawing of the Tangtanjial Cave artwork
(from Macintosh 1951: 183)

considerable further deterioration, suggesting that they were unlikely to have been of any great age when recorded by Macintosh.

On the subsequent 1952 fieldtrip, Macintosh recorded the art within nearby shelter of Doria Gudaluk with senior Jawoyn men (Macintosh 1952). The shelter is large by local standards (40 × 12 × 10 m) and contains 81 motifs with only a limited floor deposit due to its steep inclination out from the base of the rear wall. As at Tangtanjial Cave, the art at Doria Gudaluk consists of mostly red or white monochromes paintings, with a smaller number of larger motifs with white silhouettes (solid form) outlined and infilled with red patterning (white+red), or red silhouettes outlined and infilled with white patterning (red+white). Here, however, the paintings occurred in various stages of preservation, with some instances of superimposition being apparent (Macintosh 1952: 261). This differential weathering of the rock art, together with patterns of superimposition, suggested to Macintosh that these paintings were created over at least three different artistic phases (Macintosh 1952: 273). Re-recording the art at Doria Gudaluk in 2006, the artwork showed little change from when photographed by Macintosh, contra the smaller Tangtanjial Cave. However, our motif tally of 79 paintings, 31 hand stencils and 51 abraded motifs at Doria Gudaluk was considerably higher than that noted by Macintosh. The bichrome paintings with their use of heavy red outline (e.g. Figures 4.50 and 4.51) are in a style reminiscent to the Bula style in northern Jawoyn Lands (Gunn 1992b). This bulky style is rarely used in the more northern parts of the plateau (although a parallel can be drawn with the use of red silhouettes with thick yellow outline such as at Birriwilk; Figure 4.42 above).

Macintosh was told that the shelter is a women's site used for women's ceremonies (Macintosh 1952: 272), and that

small bark and cloth bundles stored in the shelter had been placed there by women. Also, anyone who painted there, men or women, had to pay not only the site's owner but also the senior man from the opposite moiety (Macintosh 1952: 259), as the latter acts as a manager for the site to ensure no inappropriate activities occur there (cf. Berndt and Berndt 1977: 44; Elkin 1972: 2-3). Many of the paintings referred to sexual activities, while others related to local Dreaming stories. Macintosh was also told that a natural pocket in the wall of the shelter is the inside of a woman (vagina/ uterus), demonstrating that the shelter's particular geomorphic form is important to understanding its significance (Macintosh 1952: 270).

On his return visit to Beswick in 1952, Elkin showed Macintosh's drawings of the artwork at Doria Gudaluk and Tangtanjial to Lamderod, a senior Jawoyn man, and Laiwaonga, a knowledgeable Ngalkbon man, each of whom offered interpretations of the artwork (Elkin 1952). The men were heavily involved with the major local religious cults (the Kunapipi, Lorrkkon, Mindarini, Yabudurruwa and Marayin), and they interpreted the paintings in light of these sacred beliefs and practices (Elkin 1952: 250-251; cf. Elkin 1972). On the basis of these interpretations proffered, Elkin grouped the paintings into four classes (Elkin 1952: 247-249):

- animals and plants (although no reason for the painting of this type of motif was proffered by custodians);
- hands (hand stencils associated with mortuary practices);
- spirit figures: *malindji* (disincarnate spirits of deceased people whose burial rites had not been successfully completed); *wulbarawar* (non-human or *mimi* spirits); and
- ritual and mythological figures (such as the Rainbow Snake).



Figure 4.50: White+red *malinji* figure at Tangtangjal Cave, 2007
(from Macintosh's 1951 figure 1)



Figure 4.51: White+red *malinji* spirit and monochrome figures at Doria Gudaluk, 2007

The Doria Gudaluk and Tangtangjal art sites are both identified by custodians as Dreaming sites (female rock wallaby and brolga respectively). Given the numerical

predominance of hands and spirit figures at both sites, Elkin concluded that most of the rock art relates to mortuary rituals and a concern for people to be 'remembered'



Figure 4.52: Bulajang in the upper reaches of the South Alligator and Katherine Rivers

after their deaths. Elkin linked these associations with the spread of the Marayin cult from the east and north during the years immediately following World War II. At that time, the Jawoyn were relocated several times by colonial authorities and brought into close contact with tribes from the east and north (Elkin 1952: 254-255). Elkin also speculated that the earlier paintings at both sites were not painted by Jawoyn artists but, more probably, by Ngalgpun (*sic*) or Rembarrnga people who were more involved with the Marayin cult. If correct, this would suggest that the most recent paintings were produced c.1945-1950. In light of the interpretations collected by Elkin (1952), Macintosh subsequently re-assessed his own interpretations to show the difficulties of reading rock art without knowledgeable informants (Macintosh 1977; but see Merlan 1989: 21-23 for comments on the validity of Macintosh's re-evaluations). Also, from the differences in motif interpretations presented by Macintosh (1952), it appears that, oddly, he was not privy to the Lamderod information and, also, that Elkin did not later discuss this with him (Macintosh 1977: 191).

In 1954, Mountford recorded two Jawoyn rock art shelters near Sleisbeck on the western side of the Arnhem Land plateau (Figure 4.2; Mountford 1958). He noted that only white and red pigments were used, assuming (incorrectly) that an absence of yellow and black was due to a scarcity of these pigment colours. He compared the art at Sleisbeck with that at Oenpelli (which he had recorded in 1948), recognizing that the X-ray form was simpler and less frequent at Sleisbeck, and long-bodied and distorted figures more common (Mountford 1958: 154). No Aboriginal interpretations of the site or its artwork were collected.

The close association between rock art and the Jawoyn Lands was recognized by Walter 'Wally' Arndt, an agricultural research officer in Katherine, when documenting what he termed the Nargorkun-Narlinji cult from senior Jawoyn and other elders in the early 1950s (Arndt 1962, 1966, n.d.). Following a near-fatal epidemic at the new Sleisbeck mining site (Figure 4.2), the Aboriginal mine workers saw the epidemic as a result of mining activities near important sites linked to the cult. Arndt then visited the sites with the assistance of members of the mining staff in 1955 (including the sites recorded by Mountford). Back in Katherine, Arndt discussed the art and mythology with Jawoyn people through the aid of projected transparency photographs (Arndt 1962: 299). He was told that the Nargorkun-Narlinji cult was geographically limited to a region in the upper reaches of the Katherine River known as 'Sickness Country' or '*Bulla.luk*'. This region is now known as *Bulajang*, although it is still colloquially referred to as 'Sickness Country' due to the potential dangers of transgressing the restrictions of the cult (Figures 4.47 and 4.52). The cult Arndt recorded is now known to have focused on the apocalyptic Dreaming Being, Bula or Bulademo, not Nargorkun (Nagorrgho) as he believed (Cooper 1992; see below). [Images of Bula are not given in this publication due to their restricted nature].

From Aboriginal information, Arndt lists various other Dreaming Beings represented in the artworks and their relationships to Bula (Arndt 1962: 309-316). The most important information Arndt learnt is that Sickness Country is the place of Bula - the maker of the world and its people; the giver of the laws of sexual behaviour and marriage and the rules on how to look

after the elderly and infirm (Arndt n.d.). The Narlenji-lenji sisters are his helpers and are endowed with the desirable qualities of young women. Nargorkun went into the ground where he rests but, if disturbed, he will 'rise up and make rocks burn, splitting the ground open and covering the countryside with ashes' (Arndt n.d.). The high significance of Sickness Country to Aboriginal people throughout the broader western Arnhem Land region is clearly demonstrated and further elaborated in the results of studies 25 years later (see below).

The main sites Arndt documented are within a single complex, now known as *Gnartluk*, which formed the focus of the Bula cult (Arndt 1962). The sites consisted of a waterhole, a stone-lined path and a rock shelter, each linked by the cult mythology and its related ritual. The art shelter is an integral part of an annual Sickness ceremony undertaken by adult men, and a 'training place' for initiates. Here, the principal motifs are representations of Bula: large, white silhouette figures outlined in bold red, with limited red infill features (Arndt 1962: 307-308; see also Isaacs 1980: 254, 256).

Arndt further demonstrated links between art and Dreamings at a site south of Katherine, where there is an image of *Morkul-kau-luan*, a Dreaming Being who brought sorghum grass into being so the people could grind and cook its seeds into damper for food (Arndt 1961). The large, dominant figure (1.75 m) is in red silhouette, outlined and infilled with white stripes (Arndt 1961: plate 1). At the time the site was recognised as being located within Dagoman territory, however since the extinction of this group, Dagoman lands have been subsumed within the lands of the Jawoyn Nation (Merlan 1998: 87).

Following fieldwork in Dalabon country, now within eastern Jawoyn Lands, in the mid 1960s, anthropologist Kenneth Maddock published a seminal paper on the interpretation of Dalabon rock art with the photographic assistance of Robert Edwards (Edwards and Guerin 1974: 4; Maddock 1970; also Isaacs 1980: 254, 256-257). The study concentrated on two rock art sites: *Bolungbi:m*, associated with Bolung (the Rainbow Snake) and *Gudabubi:m*, associated with the Plains Kangaroo, Gudabu. Bolong is the Jawoyn and Dalabon name for the Rainbow Snake, a major creation Dreaming Being throughout Arnhem Land, embodying both creativity and destructive power, while Gudabu (Jawoyn form, Gupu or Kuppū) is a Dreaming Being who taught various religious cults to people at select locations along their travels (Maddock 1970: 450). The two art sites, *Bolungbi:m* and *Gudabubi:m*, are 'some miles' apart (Maddock 1970: 448) and each site has prominent painted images of kangaroos: that at *Bolungbi:m* is the long-armed kangaroo (*Macropus antilopinus*: plains kangaroo, i.e. *kuppū*) travelling north-east/south-west; while that at *Gudabubi:m* is the short-armed kangaroo (*Macropus robustus*: euro, hill kangaroo, i.e. *kotiyn*)

travelling in the opposite direction. [In 1988 senior Jawoyn custodian, Peter Jatbula, told me the short-armed kangaroo was the black wallaroo, Barak, and not the euro (Gunn 1989: 20)]. The two kangaroos met at a nearby waterhole, Bulmula (Maddock 1970: 451). Both kangaroos are totems of the Yirritja moiety, as are the ceremonies that they brought with them (Maddock 1970: 450). Maddock saw no signs that ceremonies had been held at these sites, however, and both sites had recently (pre-1967) been used as camping places.

The central, large polychrome paintings were of particular interest to the Dalabon men who accompanied Maddock, as these images were held to be the shades of the depicted Dreaming Beings. The more recent monochrome and X-ray paintings surrounding the Dreaming Beings were of little interest to them. The Dreaming Beings portrayed are principal characters in Dalabon (and Jawoyn) cosmology; their images relate both to the art sites where their images occur, from whom the sites take their names, and more particularly to the nearby site at Bulmula, at which their meeting occurred and to which the paintings indirectly refer.

The Dalabon men explained two artistic conventions to Maddock: the use of multiple outlines around the figures in reference to the coloured stripes of the rainbow (Maddock 1970: 447), and 'splash-spotting' as signifying the Rainbow Snake (Maddock 1970: 462). Splash-spotting, also termed spray-dots, are c.10 cm circular disc-shaped spots sprayed from the mouth in the manner of hand stencils. Spray-dots are also applied as body decoration in both the Kunapipi and Yabudurruwa ceremonies of western Arnhem Land (Maddock 1970: 462). In 2006, Bardayal Nadjamerrek, a Kunwinjku elder with close ties to Jawoyn Lands, said that any painting with spray-dots is a sacred work as the spray-dots refer to 'brilliance and power', and that, in the old days, such paintings were not to be viewed by women or uninitiated males. This restriction now seems to apply only to those paintings that still retain their associated stories or are otherwise of particular significance to the senior custodians.

Maddock then tested a number of hypotheses to explain how the central and peripheral figures at *Bolungbi:m* and *Gudabubi:m* may be related, and found that:

Each [art] site is organised visually around a pair of central figures after one of whom the site is named. Sense can be made of the central figures by referring to regional mythology and ritual. The many peripheral figures cannot be explained merely on the grounds that they serve visually to enhance the central figures, for that leaves the selection unexplained ... Many details in the representation of the central figures can be explained by reference to the associated myths and rites. (Maddock 1970: 459).

He concluded that there is:

a formal analogy or likeness between representation in art, in myth and in rite. In each [case], the material is organised around a figure or figures of greater importance than the rest, who serve as a kind of point of reference. The relationship between central and peripheral imagery in the galleries is like both the relations between mythical heroes and the creatures they meet or encounter on their journeys, and the relation between the dominant and subordinate totems in cult performances. In each case a central or heroic or dominant figure or figures is surrounded by many others who may or may not be of the same semi-moiety or moiety as their reference point. These religious representations exhibit a structure like that found in the system of social relations brought into operation for each cult performance (Maddock 1970: 459).

Despite the importance of these findings for rock art research across the region, Maddock's findings nor his approach have not been taken up in any measure by subsequent researchers.

Bulajang

In the late 1970s Chaloupka and senior Aboriginal elders undertook a cultural survey of the northern area of Gimbat Station, within Bulajang, to support a case for the incorporation of the land into Kakadu

National Park (Chaloupka 1979, 1980a, 1980b). They recorded numerous rock art and other sites of Aboriginal significance, however their results were neither synthesised nor published. At the same time, three small scale rock art surveys were undertaken in the northern, escarpment areas of Bulajang (Longman and Meakin 1981; McLaughlin 1979; Viney 1978). These surveys provide visual and descriptive evidence, but offer no further ethnographic or archaeological details of the art, nor did they follow up on Arndt's work at Slesbeck in the southern portion of Gimbat.

Following proposals by the Coronation Hill Joint Venture in the 1980s to extend an earlier uranium mine at Coronation Hill (McKay and Mieztis 2001: 68-74; Figures 4.2 and 4.53), further anthropological studies and rock art surveys were undertaken in Bulajang by the Aboriginal Sacred Sites Protection Authority (ASSPA) in 1987-1989. Coronation Hill, known to the Jawoyn as Guratba, was within a 'Conservation Zone' of Stage 3 of the Park reserved for mining but was also one of the major mythological sites pertaining to Bula (Cooper 1987, 1992; Ellis 1994; Gunn 1992b; Maddock 1987, 1988; Merlan 1991). The ASSPA findings confirmed Arndt's earlier interpretations that Bulajang was highly significant not only to Jawoyn people, but also to people from throughout the Top End of the Northern Territory (Cooper 1987). These recent studies found, as mentioned above, that Arndt's identification of the principal Dreaming Being as Nargorkun (Nagorrgho: Chaloupka 1993: 53) was incorrect. The ASSPA surveys



Figure 4.53: The Bula site Guratba (Coronation Hill) within Bulajang, 1987

also mapped more accurately the geographical extent of Bulajang, with my rock art surveys recording 36 site complexes containing 192 archaeological sites, of which 171 contain rock art (Gunn 1987a, 1987b, 1987c, 1989a).

A subsequent report by the Resource Assessment Commission (1991) led the Federal Government to prohibit further mineral exploration or mining in the Conservation Zone and, on the basis of its cultural values, to fully incorporate the Conservation Zone back into the Park (McKay and Mieztis 2001: 69; see also Cook 1991).

A synthesis of the Bulajang data identified eight classes of pictograms (pigment art) (Table 4.13). Senior Jawoyn custodians at the time provided a range of interpretations of the art, illustrating that there was not a simple one-to-one correspondence between the emic interpretations and etic classifications. There was, however, a tendency for some interpretations to be associated with particular artistic traits (see Chapter 10). For example, paintings in the category of Jawoyn Lady (Figure 4.54) are invariably designated as spirit figures by custodians; in contrast, monochrome paintings, and dry pigment drawings, are always considered by them to be produced by people and represent human or spiritual concerns unrelated to major religious cults.

In addition to the plethora of pigment art, my Bulajang surveys also recorded three types of petroglyphs:

- **abrading** (repeated scouring with a narrow, pointed, implement): short grooves and animal tracks (Figure 4.55A);
- **pecking** (direct percussion with a pointed hammer-stone): pits and animal tracks (Figure 4.42); and

- **pounding** (direct percussion with a blunt hammer-stone): animal tracks and circles (Figure 4.55B).

All petroglyphs were seen by custodians at the time as 'old art' without current meanings, being unrelated to present Jawoyn concerns or specific beliefs.

Nitmiluk National Park

Concurrent with but independent of Arndt's work, Marie Reay (an anthropologist at the ANU) published the presence of rock art at five locations around Katherine township, including the first record of rock art, weathered red paintings, within Katherine Gorge (Reay 1962); now within Nitmiluk National Park. Although her recordings were simple, she hoped that their publication would stimulate further study (Reay 1962: 508).

During the 1980s, Chaloupka recorded over 400 sites within Nitmiluk National Park with the assistance of Jawoyn people. Unfortunately his records were lost in a flood in 1998, when the Katherine River burst its banks and inundated the National Park offices (PWCNT 2002: 37-38). No synthesis of these records was undertaken and consequently, no information regarding these sites survives.

Also during the 1980s, Lewis recorded paintings at a number of sites within 'Djauan Valley' in the south of the Park (Lewis 1988: 34, 255-259). The published records were part of his BA (hons) dissertation and depict only a few select motifs from Jawoyn Lands. Lewis concluded that Djauan Valley contained a localised regional style of his 'hooked stick/boomerang' figures (Lewis 1988: 34; see discussion above).

Table 4.13: Bulajang pigment art categories
(after Gunn 1992b)

Colour/ technique	Motif Class	Motif description
Bi/polychrome paintings	Bula style	Large 1-2 m, white silhouette figures outlined with thick red line work. Some with fine red linear infill
	Jawoyn Ladies	Sinuuous white silhouette figures outlined and infilled with fine red line work. Small number with X-ray form
	Jawoyn X-ray	Mostly white+red, or yellow+red finely executed motifs with spare X-ray infill
Monochrome pictograms	White paintings	Numerous, and amongst the most recent paintings recorded
	Yellow paintings	A sub-group of white paintings exhibiting similar styles and motif types
	Red paintings	A wide range of styles that include the earliest underlying paintings
	Black paintings	Very few examples
	Dry-pigment drawings (all colours)	Very few examples; mostly uppermost if superimposed
	Hand stencils	More weathered examples in red; less weathered examples in white or yellow

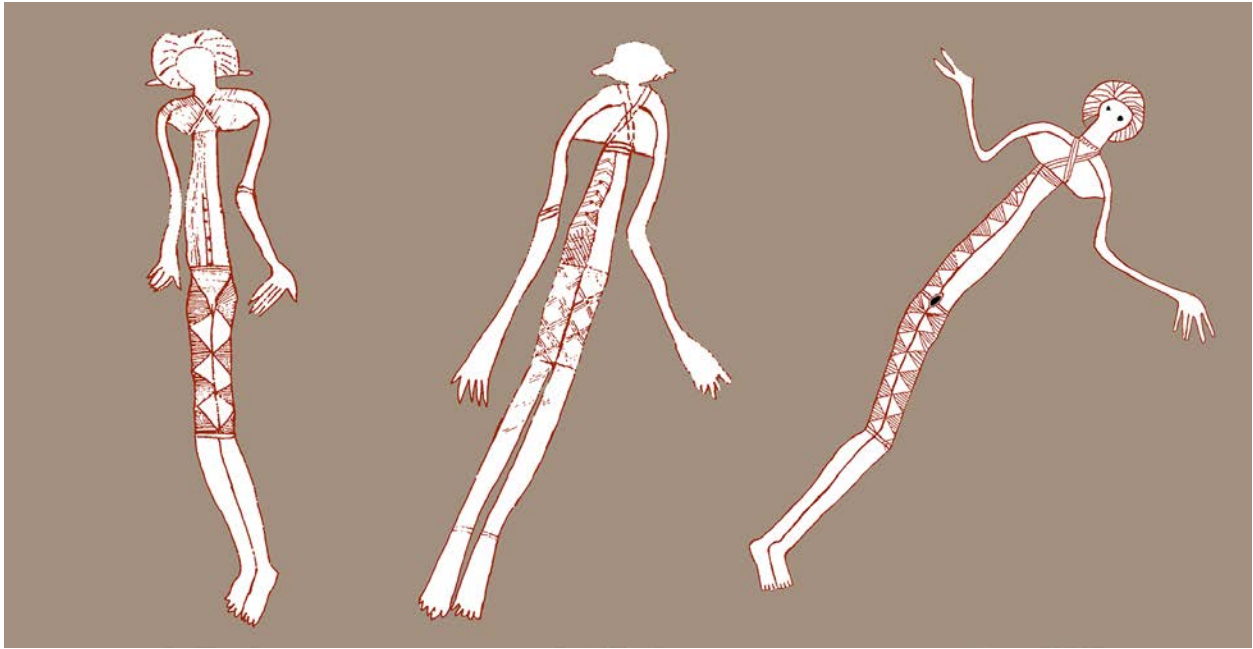


Figure 4.54: Examples of the Jawoyn Lady motif
(after Gunn 1992b: 191)

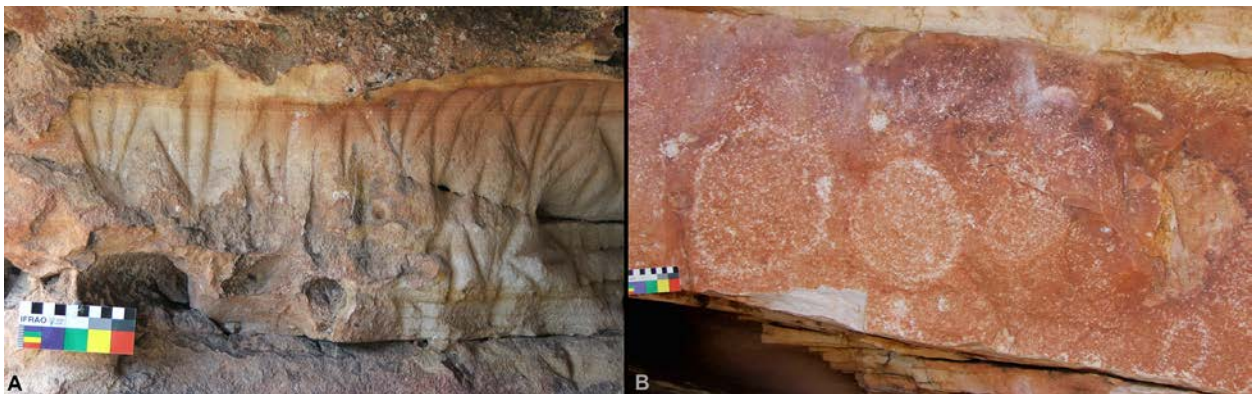


Figure 4.55: Abraded tracks and grooves (A: site ARN-048/M) and pounded circles (B: site ARN-117/10)

In conjunction with the Jawoyn Rock Art and Heritage Project (see below), in 2005, 24 art sites within the Park were recorded in detail for management purposes (Gunn 2005b). Sites around the Katherine River at the south of the Park contained mostly fresh-looking monochrome and bichrome paintings and stencils. In contrast, those along the Fergusson River, at the northern end of the Park, contained only weathered red paintings. A number of motifs within the Park were interpreted by Mayali elder, Peter Bolgay (see Chapter 10).

Wuratjluk

In 1996 and 1997, archaeological and ethnographic surveys were undertaken within Wuratluk, a Flying-fox Dreaming place on the upper King River (Figures 4.51, 4.56, 4.57) (Gunn 1996; Gunn and Haydock 1998). At the request of Jawoyn custodians the project documented several important mythological and historic sites in the

region of primary concern to them, although a number of art and other archaeological sites were also recorded. The 30 m-long wall of the *Tjingalk-tjingalk* shelter forms by far the largest of the known art shelters in this area and its friable wall is extensively decorated with abraded petroglyphs (see Chaloupka 1993: 234-235) and a small number of paintings. The petroglyphs are dominated by abraded grooves (82% of 618 motifs) but also include a large, 1.78m-tall emu, a number of animal tracks and other geometric designs (Gunn 1996; Shultz 1971). The abraded grooves, termed *gilk* by the custodians, were made by the Mimi using stone spear points (*lawk*) or stone axes to abrade the rock (Gunn and Haydock 1998: 19). Custodians consider them equivalent to cicatrices worn by people. The disregard of this type of motif during the Bulajang surveys (see above) can be attributed to the custodians' greater concern over the Bula paintings, which they consider far more significant.



Figure 4.56: Wuratluk looking over the King River, 1997



Figure 4.57: Senior elder Sarah Flora fishing at Worreluk (1996)

The paintings within Tjingalk-tjingalk, all of which overlie the petroglyphs, are predominantly white monochromes or white silhouettes with red outline and infill. Elsewhere within Wuratluk, red monochrome paintings predominate; all are poorly preserved stains that appear to be of considerable age. A single shelter (KV26) contains a suite of 137 pecked pits (cupules) and five large pecked macropod tracks on its vertical rear wall. Numerous ledge burials with European-period artefacts and khaki canvas wrapping suggest the burials were interred during or soon after World War II (c.1945–50). The site of Worreluk (Ngalworreworre or ‘mermaid’ Dreaming; Figure 4.57 and see below) was one of the sites documented during these surveys (Gunn 1996: 11–13; Gunn and Haydock 1998: 16–19).

The Jawoyn Rock Art and Heritage project

As mentioned in Chapter 3, the Jawoyn Rock Art and Heritage Project (JRAHP) began in 2005 (Gunn and Whear 2007a), with annual fieldwork for the next seven years. In total, the JRAHP systematically recorded 124 Aboriginal site complexes containing 1478 sites and 49,784 rock art motifs, and included the initial recording of Nawarla Gabarnmang on the 5th June 2006 (Gunn and Douglas 2010b: 8–10). No overview of the survey results has yet been produced, but the JRAHP has occasioned 24

unpublished reports presented to the Jawoyn Association, along with the publication of 16 refereed journal articles. The unpublished reports either summarise individual site complexes, illustrating the range of artworks within each (e.g. Gunn and Douglas 2010b), or detail specific tangential projects (Gunn 2012). The published papers similarly describe previously unreported aspects of the plateau’s archaeology (e.g. Gunn et al. 2010; Gunn et al. 2012) and rock art (Gunn and Whear 2008; Gunn et al. 2011, 2013). At one site (ARN-063/1), a black coloured beeswax pellet was dated to c.AD 1800 and an adjacent grey pellet was dated to c.AD 850 (Gunn and Whear 2008). Similarly, dating beeswax pellets at Nawarla Gabarnmang determined that the most recent phase of artistic activity at the site, including most of the densely painted panels, took place sometime over the past 500 years (Gunn et al. 2012b). The presence of a painting of a horse subimposed below X-ray fish also shows that these fish motifs were produced after AD 1845, the year that Leichhardt brought the first horses into the area. These results led to a preliminary chronology of some of the shelter’s artwork (Table 4.14), an aspect that is reconsidered in Chapter 9.

The results of the JRAHP also refined our understanding of Jawoyn rock art. In particular, the Bula style, previously thought to be restricted to the area of



Figure 4.58: Bula style Wam (sugarbag) Dreaming Beings located well to the west of the Bulajang area (Site ARN-0037/1)

Table 4.14: Preliminary correlation of art panel layers at Nawarla Gabarnmang (from Gunn, Whear and Douglas 2012b:62)

Panel D	Panel F1	Panel H	Panel K4
Polychrome fish		White bird / polychrome barramundi	
Polychrome fish			
Bichrome Jawoyn lady	Bichrome python		
	White painting	White spirit figure	
	Bichrome paintings		
	White paintings		
	Yellow paintings		
	Red paintings		
Bichrome Jawoyn male	Bichrome Jawoyn motifs		
Horse < AD 1845			
	Beeswax on white monochrome	Beeswax AD 1658-1940	Beeswax AD 1666-1940
Bichrome Jawoyn figures and white paintings		Bichrome Jawoyn figures	
		Bichrome Jawoyn figures	
		White paintings	
		White paintings	
Bichrome Jawoyn figures and white paintings		Bichrome paintings	
White paintings and hand stencils		White paintings and hand stencils	
		Red paintings	
		Red paintings	
Yellow painting	Yellow paintings	Yellow paintings	Yellow paintings
			Yellow stencil
Red painting	Red painting		
	Red painting		
	Beeswax AD 1433-1622		
	Red painting		
	Red fragments	Red fragments	

Bulajang (Gunn 1992b), is now seen to be widespread across Jawoyn Lands (Gunn and Douglas 2010b: 51), although this bold style continues to be limited to characters of great mythological and ritual importance (Figures 4.49, 4.58 and 4.59). Large, centrally placed, bichrome anthropomorph or animal motifs with double or triple outline and/or spray-dot infill, such as those recorded at Bolungbi:m (Maddock 1970), occur throughout the region; all those that have had Aboriginal interpretations documented were found to be significant Dreaming sites with a secret/sacred

aspect, although not all images are now necessarily of a restricted viewing nature (see Chapter 10).

The 'Jawoyn Lady' motif (Gunn 1992b: 180) is also now known to be widespread across Jawoyn Lands, although displaying northern and southern variations. The northern form, focused on Bulajang, is finely painted in white with delicate red infill. The body has a graceful, 'floating' form, well delineated hands and feet, and wears a complex headdress (Figure 4.60). Many, but not all, have black eyes and a black pubic oval added.

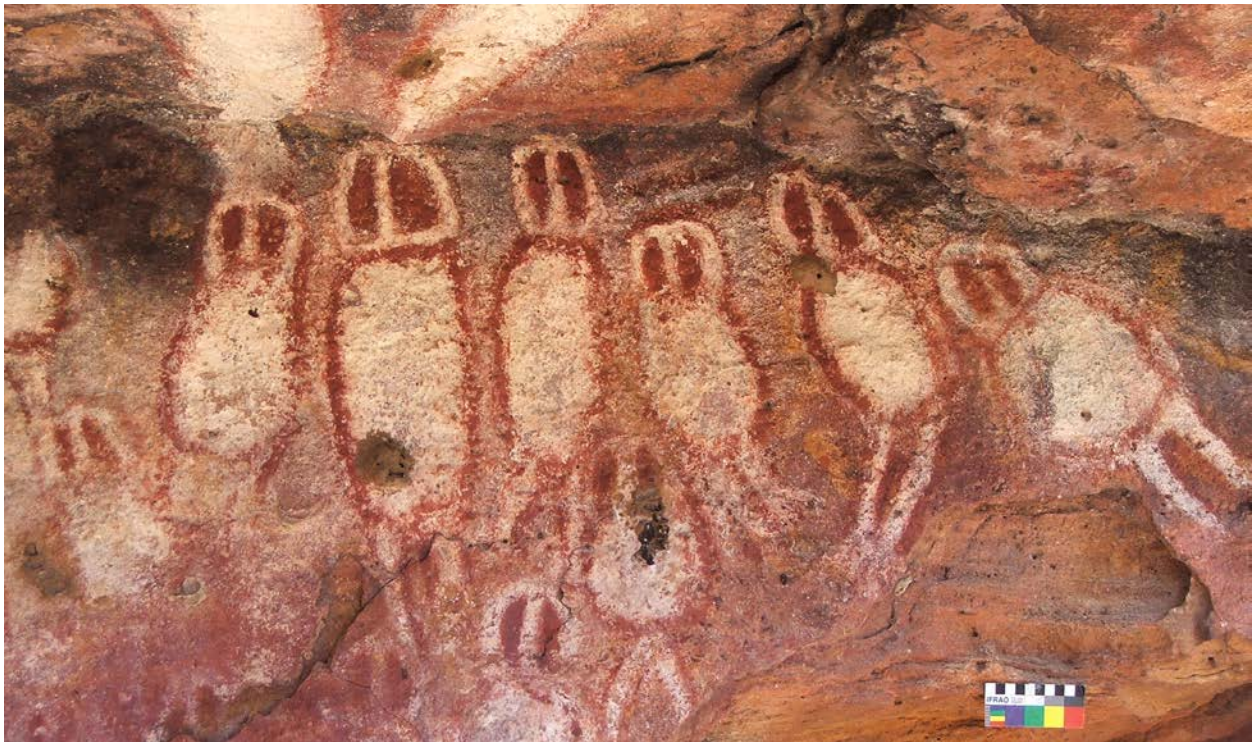


Figure 4.59: Bula style Owl Dreaming Beings located well to the south of the Bulajang area
(Site ARN-0038/24)



Figure 4.60: Jawoyn Lady motif
(Site ARN-086/1)

In contrast, a southern form (Figure 4.61) lacks feet and headdress, and tends to have a more robust, less sinuous, form. The Jawoyn interpretation of these and other motifs is given in Chapter 10.

Overall, the JRAHP has greatly expanded the known distribution, and significantly increased the

recognised quantity and variety, of rock art within Jawoyn Lands. It has also revealed the ongoing loss of information regarding the plateau art sites, both through the Jawoyn displacement during World War II and with the recent deaths of senior elders who had walked the plateau as children with their parents and elders.



Figure 4.61: Figure 4.61: Aworreworre motif ('Jawoyn Lady lacking feet')
(Site EVA-009/5)

Connecting Country: the Jawoyn Homeland Project

Developing from the JRAHP, the Jawoyn Association-Monash University's 'Connecting Country' collaborative project has established the antiquity of a number of rock art images within Jawoyn Lands (see Chapter 3). Of particular note is finding that the red Genyornis-like bird image at site ARN-124/3, previously considered to be possibly >25,000 years old (Gunn et al., 2011), has been shown to be less than 13,800 years old (Barker et al. 2017). This site contains 3MF hand stencils, a form apparently associated with Dynamic figures and limited to a chronologically distinct period, that Chaloupka (1993) suggested dated to around 20,000 years ago; Lewis to a minimum of 9,000 years ago (but no maximum), and Chippindale and Taçon (1998) to around 10,000 years ago. If the 3MF is from a restricted temporal period, then Barker et al. have provided a definitive upper limit for this form of hand stencil and, therefore, also for the 'Dynamic figures'. Both 3MF hand stencils and Dynamic figures occur at Nawarla Gabarnmang.

A beeswax star-shape sampled by David at site EXF3, provided a radiocarbon age of around 400 years old (300–480 cal BP; David, pers. comm. 2015). David also dated beeswax pellets from Nawarla Gabarnmang (see Chapter 8, Panel J1 below). Beeswax motifs at

the Dalakngalarr 1 shelter, collected by Daniel James, returned three groups of radiocarbon ages: around 100, 400, and 1800 years ago respectively. As mentioned above, excavation of the floor deposits at Dalakngalarr also show that the Northern X-ray form of painted images here are limited to the more recent period of shelter use (<290 cal BP; James et al. 2017). Overall, the beeswax dates from the JRAHP and the Connecting Country projects conform to the general pattern of beeswax age groupings established from the northern areas of the plateau (Nelson 2000; Figure 4.41).

Summary

From these studies it is clear that occupation of the western Arnhem Land plateau involves a considerable time depth (c.50,000 years), with evidence for some of the earliest rock art being produced more than 26,900 years ago. The rock art studies show that the numerous general frameworks for the sequencing of the rock art presented by previous researchers tend to contain a common structure, although few of the many purported styles that have been discussed and illustrated from the region have been systematically defined, and none have been scientifically dated. Consequently, while our knowledge of sequence is gaining ground, our understanding of the relative and absolute ages of western Arnhem Land's rock art

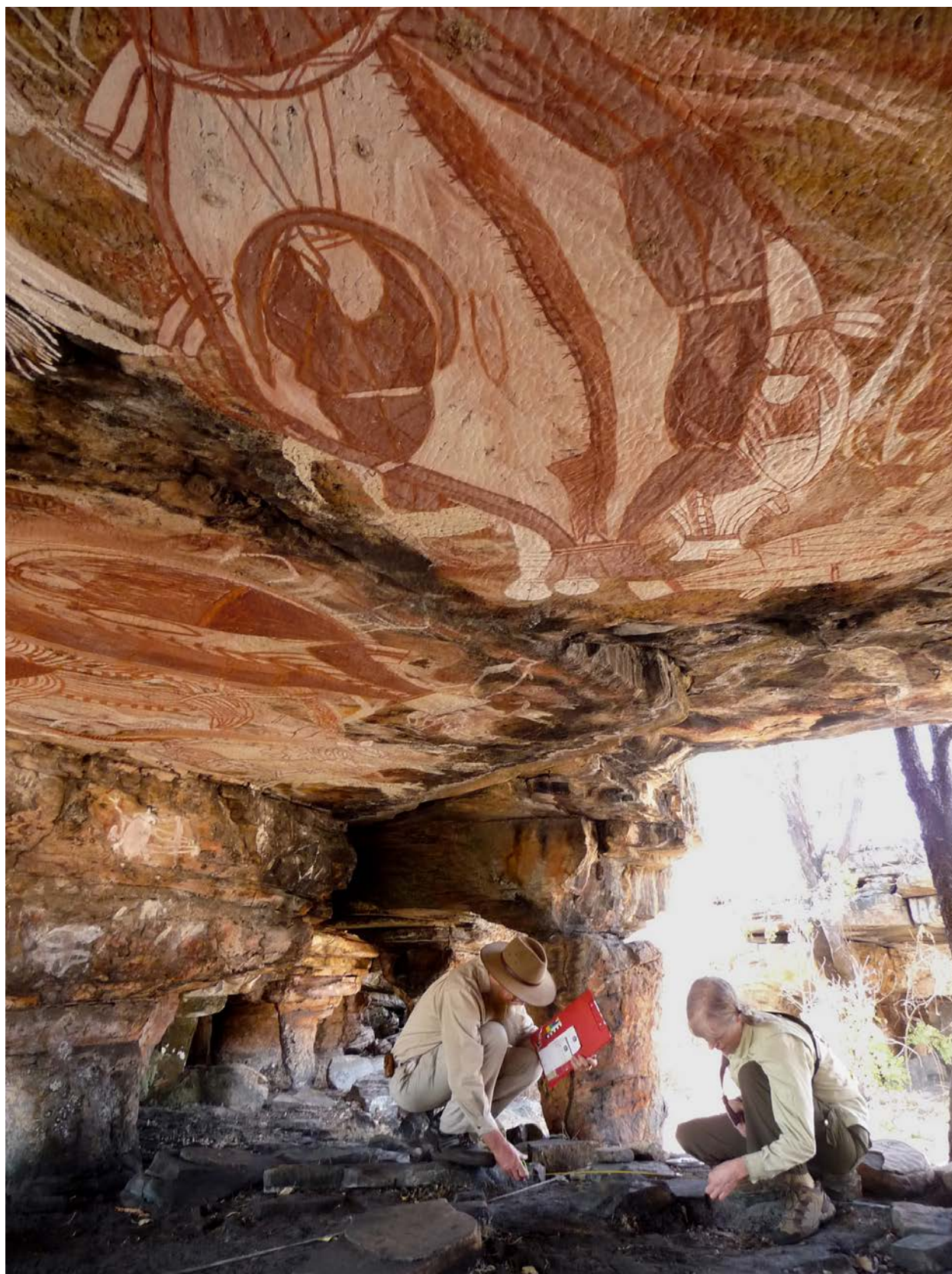
remains precarious. For this study, the sequence and proposed chronology of Chippindale and Taçon (1998; see Table 4.11), being the most recent and reliable, is used as the standard although as it derives largely from that presented in Chaloupka (1993), the latter will be referenced for examples and terminology.

Through its extensive superimpositioning and high number of well-preserved art panels, Nawarla Gabarnmang provides a rare opportunity to study the development of some phases of rock art from this region of Jawoyn Lands. While detailed studies of the earlier 'Mimi' sequences from the north-west plateau have been undertaken on several heavily superimposed panels (Chaloupka 1984; Chippindale and Taçon 1993; Haskovec 1992b), revealing artistic sequences that are doubtless applicable to sites in Jawoyn Lands, no such study has yet been published of the most recent art phases. For example, both Chaloupka (1984, 1993) and Taçon (1989a, 1992) examined a large number of 'recent' superimposition sequences, yet their supporting data has not been presented. Consequently, there is a need for the presentation of detailed sequences from a range of sites across the study area so that common patterns

can be elucidated. Through an investigation of the spatial and temporal aspects of the rock art of Nawarla Gabarnmang, this current research is the first such study.

From the early-1970s, research into the archaeology, anthropology, rock art and Aboriginal interests of the north-western Arnhem Land plateau region, along with other environmental research, advanced exponentially on the backbone of geological surveys and the consequent conflicts between large mining interests and environmentalists, the latter lobbying for the area to be declared a National Park (Ellis 1994; Maddock 1988). The importance of this association between mining, conservation and Aboriginal interests influenced, either directly or indirectly, the direction of most of the research in this region prior to 2000. This included that of rock art specialists George Chaloupka, Robert Edwards, Paul Taçon and Daryl Lewis, as well as myself.

With this background in mind, the following chapter elaborates the methods used in this study to undertake an expansion of these works through the analysis of the highly decorated ceiling at Nawarla Gabarnmang.



The author and Leigh Douglas recording Nawarla Gabarnmang
(Photograph: David Lee)



5. RESEARCH METHODS

A decorated cave [is] a 'living entity', evolving through time, and not simply the subject of intellectual games for 20th-century urban academics.
Michel Lorblanchet (1993:71)



The art at Nawarla Gabarnmang illustrates the 'living entity' of a decorated site as proposed by Lorblanchet (1993: 71). All of the larger ceiling art panels contain high numbers of motifs, most of which are superimposed over or superimposed by other motifs. Each panel contains a visual record of many successive visits by Aboriginal people over a prolonged period of time, extending back some 50,000 years. By cabling analytical techniques from Archaeology and Art History, a method of recording was developed that allowed the individual motifs within Nawarla Gabarnmang to be precisely defined and their temporal trends accurately determined. The analytical techniques used are introduced here prior to their application on the sites Art Panels.

Methodology

The Nawarla Gabarnmang rock art recording was analysed both spatially and sequentially across the site. Spatial assessment of the various panels entailed a comparison of counts of motif attributes and phases. Motif superimpositioning was analysed using the Harris Matrix Composer (see below) and the resulting sequence formed the basis for the development of the panel Art Phases (Harris 1989: 34-39). The constituent motifs for each of the art panel phases were selected through consistencies in art attributes and their relative positions within the Harris Matrix. This innovative technique drew on the Morellian method commonly used in Art History (Morelli 1892; discussed below).

Superimposition

In rock art studies, superimposition refers to the overlaying of one motif, either totally or partially, by another (Laming 1959: 103-105). It is analogous to the superposition of deposit layers in archaeology (Harris 1989) that, in turn, derives from the geological principles of superposition in the interpretation of rock strata (Leroi-Gourhan 1982: 19-24). The term 'superpose' in geology and archaeology means to cover one thing with another (such as a soil layer). 'Superimpose' is used in graphics to indicate the occurrence of one motif over another, but where the underlying motif is largely visible (Murray and Murray 1972). The geological principles of superposition were formulated by Nicolas Steno (1669), Christian Füchsel (1671) and William

Smith (1815) (Brookfield 2004; Dunbar and Rodgers 1957; Winchester 2011). Steno initially proposed:

- The 'Law of superposition': sedimentary layers are deposited in a time sequence, with the oldest layer on the bottom and the youngest on the top;
- The 'Principle of original horizontality': layers are deposited horizontally under the action of gravity; and
- The 'Principle of lateral continuity': laterally continuous rocks that are otherwise similar but separated by valleys or fissures can be assumed to have once been continuous.

In Germany in the 17 Century, Füchsel equated rock units with units of time, thereby linking stratigraphy and chronology. Füchsel work, however, was almost unknown outside Germany and therefore had little impact elsewhere. Smith, working in England 130 years later, arrived at the same conclusion as Füchsel and extended these understandings in his own 'Principle of faunal succession', thereby showing that rock layers within a large geological region (in his case, England) occurred in predictable patterns, and also that sections of discontinuous rock strata could be identified and connected through the fossil types they contained, with 'subtle differences permitting the differentiation of otherwise apparently identical strata' (Earth Observatory 2008: 2). Along with Hutton's concept of uniformitarianism (whereby natural processes now operating have always operated; Winchester 2001: 72), these principles were later popularised by Charles Lyell in his classic three volume text, *Principles of Geology* (published in 1830, 1832 and 1833 respectively).

In general, the development and interpretation of archaeological deposits and rock art panels largely conform to these principles (Harris 1989; Wheeler 1954). Burke and Smith (2004: 121) suggest three additional principles (Association, Reversal and Intrusion) but these are clearly covered by the geological principles mentioned here. Harris (1989), however, highlighted important differences between geological stratigraphy (dealing with natural formations) and archaeological formations (formed by human agency). Two of his main points were; firstly, that as artefacts are created and destroyed by humans, an artefact type may not be restricted to a particular sediment stratum, but could

be reproduced at different times with a single site at different times (periods); and secondly, archaeological layers are often unconsolidated whereas, in geology, sedimentary strata are consolidated (Harris 1989: 8, 13).

Consequently, Harris introduced a fourth law to complement those given above:

The 'Law of stratigraphic succession': a unit of archaeological stratification takes its place in the stratigraphic sequence of a site from its position between the undermost (or earliest) of the units which lie above it and the uppermost (or latest) of all units which lie below it and with which the unit has physical contact, all other superpositional relationships being redundant (Harris 1989: 34).

For rock art studies, the Principle of Original Horizontality is largely irrelevant, even notionally; a sequence of motif superimpositions is rarely consistent across any one panel, as the horizontal motifs are discrete units that were not necessarily produced within the same temporal period. Hence, motifs from different periods can lie directly on the bedrock (the primary underlying 'layer'). The aggregation of motifs into a temporal art layer, therefore, often relies on the interpretation of minor or subtle stylistic or thematic similarities with which to associate the individual motifs (e.g. Aujoulat 2005: 246) – consistent with Smith's principle of faunal succession mentioned above.

Hence, while in itself superimposition cannot reveal the period of time that has elapsed between the lower and upper motifs, it does reveal the sequence of events with the uppermost necessarily more recent than the lower. Superimposition, then, allows for the recognition of the order in which different motifs were produced on a panel. Where one of the motifs can be specifically dated by radiocarbon or other dating techniques, this then provides a key to identifying a maximum age for the overlying motifs, and a minimum age for those underlying motifs.

In geology, a layer is:

a planar unit limited by differences in composition, texture or structure of the rock material and therefore, includes not only stratification, but all other planar arrangements such as [metamorphic] gneissic banding (Dunbar and Rodgers 1957: 97).

Therefore, a layer does not necessarily represent a single stratum (stratified unit), as the layers may not have been 'deposited separately and successively' (Dunbar and Rodgers 1957: 97). The geological term *layer* is considered particularly appropriate for use in rock art analysis as some superimposed art events may have been produced during the one visit (session) and therefore

the superimpositioning in this case can be compared to metamorphic layering (i.e. contemporaneous). For example, during a sort stay at a site, a painter may produce a painting at the beginning of his/her stay, and then another later that overlaps (is superimposed over) the earlier painting; both paintings would then belong to the one layer. Superimposed layers (artistic events) that are separated through time but which are linked through common formal traits, are aggregated into a common artistic phase, while others, disconnected in time (observed through different weathering state) and artistic traits, constitute a discrete phase.

From the beginning of rock art studies in Europe,

Prehistorians have seen in [superimpositioning] a true stratification, of the same order as the chronological Dunbar and Rodgers 1957 of the geologist, and have felt it necessary to establish the order of succession of different figures, believing them to have been created at different times. A sequence does exist, but it does not presume them to have been created at different times (Leroi-Gourhan 1982: 20)

Abbe Henri Breuil, the pioneer of European rock art studies in the early 20th Century, relied heavily on superimpositioning to develop his original four-stage and later two-cycle theory of Palaeolithic rock art evolution (Breuil 1952: 38-40). Breuil did not assume, however, that all superimpositions indicated a long hiatus for, when two paintings in the same style occurred, he assumed relative contemporaneity as he considered style and technique to be better gauges of chronology than superimpositioning (Ucko and Rosenfeld 1967: 71-72). Subsequent research by Laming (1959) and Leroi-Gourhan (1967), although disagreeing with Breuil's model of art development, both considered superimpositioning to represent deliberate associations that signified particular compositions or scenes. Leroi-Gourhan went even further, dismissing superimposition as an indicator of age differences as he considered many of the supposed superimpositions to be the work of a single artist (Leroi-Gourhan 1967: 107). Leroi-Gourhan (1967: 198) extended this idea by introducing the concept of *annotation*, being the addition of discrete figures to an earlier composition. He considered annotations and repainting to be different to superimpositions on the basis that they were 'more in keeping with Palaeolithic thought'. Despite Leroi-Gourhan's somewhat subjective reasoning, however, he considered these additions indicated a clear appreciation of the earlier works by later artists. Further, repainting can occur at several subsequent times that may be interspersed by periods when the original motif was itself superimposed by different motifs, such that these motifs become sandwiched between the layers of repainting. This

sandwich may then provide a means of indicating the age of the original motif and/or subsequent repainting events.

Subsequently however, at the cave site of Cougnac, Lorblanchet (1977: 54-55) found naturalistic and schematic motifs enmeshed on the one panel without any consistency in their pattern of superimposition. This suggested to him that the superimposition was neither deliberate nor done with any appreciation of the earlier works.

In Australia, the occurrence of superimpositioning in Aboriginal rock art was recognised by Spencer as early as 1912, when he visited rock shelters in the hills behind the town of Oenpelli: 'the drawings ... had been superimposed on one another, the brighter colours of the more recent ones standing out clearly on the dark background' (Spencer 2008: 150).

Superimposition, however, was not an aspect that was often noted in early Australian rock art recordings, presumably being taken more for granted than from a lack of interest. Following the 1949 recording of Doria Gudaluk, a large Jawoyn rock art site in southern Arnhem Land, Macintosh suggested that superimpositioning was deliberately used in some cases to give potency to the overlying motif through the prior significance of the underlying figure (1952: 269). In contrast, after decades of recording in Australia, McCarthy attributed the heavy superimpositioning present in Arnhem Land and western NSW rockshelters to a lack of available panel space (McCarthy 1974: 118-119). Similarly, much over-drawing was common for European graphic artists in the 16th Century and later, when paper was scarce and expensive (e.g. Hirst 1988: 86). Clegg (1978a: 140) proposed that, where superimpositions occur on a panel with unused space that is otherwise suitable for artwork, then the superimposition is meaningful and purposeful, although this aspect has been little studied. For the most part then, in Australian rock art, there does appear to have been a general disregard of the earlier underlying work by later Aboriginal artists (McCarthy 1974: 118) although, as suggested by Ucko and Rosenfeld (1967: 228), it is likely 'that more than one criterion was operative at any one time'.

Despite this, McCarthy also used superimposition sequences from several sites around Australia to produce his pan-Australian sequence (e.g. McCarthy 1959, 1960, 1961b, 1962, 1964). McCarthy's sequence, although influential at the time, was later shown to be incorrect and is now disregarded. Maynard (1976: 56-73) was the first to highlight the problems with McCarthy's sequence analysis, and she criticised both his methods of interpreting superimpositions and his subsequent results. In her own work, Maynard undertook a detailed assessment of the superimposition

sequences in paintings from sites in the Laura region of Queensland (Maynard 1976: 166-173). She was unable to demonstrate any consistent pattern in the superimpositioning of motif types, colours or forms, and concluded that the paintings represent a single artistic style that were created during 'a single episode in the art history of the sites' (Maynard 1976: 173). Maynard then proposed her own pan-Australian sequence, suggesting that Aboriginal rock art evolved from simple markings (Panaramitee), through Simple Figurative to Complex Figurative; she also suggested that the Panaramitee was a pan-Australian tradition, while the later manifestations contained considerable regional diversity (Maynard 1976: 174-241). While some researchers still use the concept of the Panaramitee (e.g. Franklin 2004), its validity remains contentious (e.g. Bednarik 1995; Rosenfeld 1991).

In Arnhem Land, Chaloupka used superimpositioning in the development of his stylistic sequence (Chaloupka 1984: 12; see detailed description below). However, he cautioned that under some circumstances it is impossible to distinguish superimposed sequences, and he preferred to use superimposition in conjunction with a comparison of weathering states (Chaloupka 1977: 246). In contrast Lewis, in re-assessing the Arnhem Land sequence, refused to rely on superimposition at all, considering that it could not be reliably interpreted (Lewis 1988: 13). While it is difficult, if not impossible, to interpret superimpositions on many panels in Arnhem Land, this difficulty is mostly restricted to particularly weathered panels, whether they contain very old or quite recent artwork. On a great many other Arnhem Land panels, the sequences can be readily interpreted, either through close in-situ observation or through enhanced photographic techniques (Brady and Gunn 2012; David et al. 2001; Gunn et al. 2010, 2014).

In addition, superimpositioning cannot be taken simply as one of style progression over time, as two or more styles may co-occur due to differences in function (e.g. Mythical Beings or sorcery paintings; Trezise 1971: 128; Maynard 1976: 173) or the dissimilar styles of different but contemporary artists (Clegg 1978a: 38; Layton 1977: 40). Similarly, while technically a form of superimpositioning, the repainting or subsequent highlighting of a motif has been found in some areas of Australia to have been used to reinforce the original meaning of the original motif (e.g. Crawford 1968: 25-27); repainting is seen as a particular and distinct form of superimpositioning.

Overall, then, superimpositioning cannot be seen as a simple panacea for the interpretation of long term changes in rock art styles. Despite the potential problems though, if used judiciously, superimposition remains a useful and powerful tool for the identification of the order in which different events were produced over a

panel (see Morwood 1979: 279-282). The interpretation of what this order may mean to the archaeologist will differ for different panels in relation to the particular questions being asked of the motifs.

The Harris Matrix in rock art studies

The most useful method for clarifying rock art superimpositioning is the Harris Matrix (Harris 1989; Harris and Gunn 2017; Russell 2000). The term 'matrix' refers to a standardised format for presenting stratigraphic relationships between artefacts or units within a site (Harris 1989: 34). The method was devised in 1973, specifically as a way of modelling stratigraphic details from evidence revealed by archaeological excavations. Initially the modelling was a manual task, but in 2008 the Harris Matrix Composer® computer programme was developed to arrange the full matrix into a simplified stratigraphic succession (Traxler and Neubauer 2008).

For rock art analysis, the units of the Matrix are the individual motifs on a panel and the stratification refers to the superimposition sequence. Visualising the sequence of superimpositions on a panel is achieved through plotting the relative relationships of all motifs on a panel into the Harris Matrix Composer, and producing a diagram of the stratigraphic succession.

In many cases, this relative sequence of the motifs is not a simple unilinear series, as not every motif is in contact with every other on the panel; therefore the stratigraphic relationship between some motifs cannot be determined on the basis of superimposition (Figure 5.1). Where the sequence contains a number of parallel but incompletely related stems it is termed multilinear (Harris 1989: 129).

To produce a meaningful chronological relationship between the disparate branches of a sequence, analysis of non-stratigraphic data must be undertaken in this case the study of the art artefacts (motifs) recorded. Interpretation of possible permutations of the units cannot change the stratigraphic links between the units in the stratigraphic sequence of a site, which were determined by the excavator (or art recorder) according to the laws of archaeological stratigraphy:

The units may, however, move up or down on their respective stratigraphic sequences, so that deposits and features of the same period may appear at the same level in the diagram. The permutations of the sequence thus result in the stretching of the diagram in relation to the periods which may be determined (Harris 1989: 133).

The interpretation of the motifs of a multilinear sequence into a unified sequence of layers, phases and

periods relies then on the ability of the archaeologist to use appropriate traits or characteristics to associate the motifs on different branches of the sequence.

The quality of artefactual studies in relation to stratigraphic sequences is in direct proportion to the quality of the stratigraphic records, the compilation of which is the primary responsibility of archaeologists (Harris 1989: 137). This then is where clear arguments must be presented to justify any motif associations.

The potential of the Harris Matrix for interpreting rock art sequences was initially illustrated by Chippindale and Taçon (1993) and Loubser (1997), then demonstrated by subsequent larger-scale studies in South Africa (Russell 2000, 2012; Swart 2004; see also Brady and Gunn 2012; Gunn et al. 2010; Keyser 2001: 124-125; Loubser 2010; Magar and Davila 2004). Chippindale and Taçon (1993) examined two large panels of early Arnhem Land rock art within Kakadu National Park to the north-west of Nawarla Gabarnmang. The art panels they examined contained what Chaloupka had termed 'pre-Estuarine' art (Chippindale and Taçon 1993: 33), and their analysis essentially confirmed Chaloupka's proposed art sequence within this period (Chaloupka 1993: 89; see Chapter 4 above).

In a study of four panels of San rock paintings at the Main Caves North site in KwaZulu-Nata, Thembi Russell at the University of the Witwatersrand examined whether 'groups of variables tended to occur in the same position in the painted sequence and could be defined as a particular painted period' (Russell 2000: 62). The Harris Matrix was able to highlight discernible trends in the art. Russell's periods correlated well with the proposed sequences of earlier researchers working in adjacent areas of the Drakensberg (Pager 1971; Vinnicombe 1976), hence confirming their findings. The Harris Matrices further revealed that some select traits were better indicators of relative chronology than others (e.g. polychrome better than monochrome, and eland better than human figure). Russell did warn, however, that stylistic changes from one layer to the next are not necessarily indicative of distinct chronological breaks, citing Australian studies showing that style can differ with context and within a single temporal period (Rosenfeld and Smith 1997).

Following on from Russell (2000), Joané Swart (2004) recorded and compared two widely separated sites in the uKhahlamba-Drakensberg Park (UDP), using Harris Matrices. She then compared her results with sequences from studies elsewhere in the UDP, finding regional continuity and change, as well as some general patterns in the structure of the art. Swart then attempted to correlate her findings with absolute dates derived from pigment and oxalate crusts (Mazel and Watchman 1997, 2003). The results

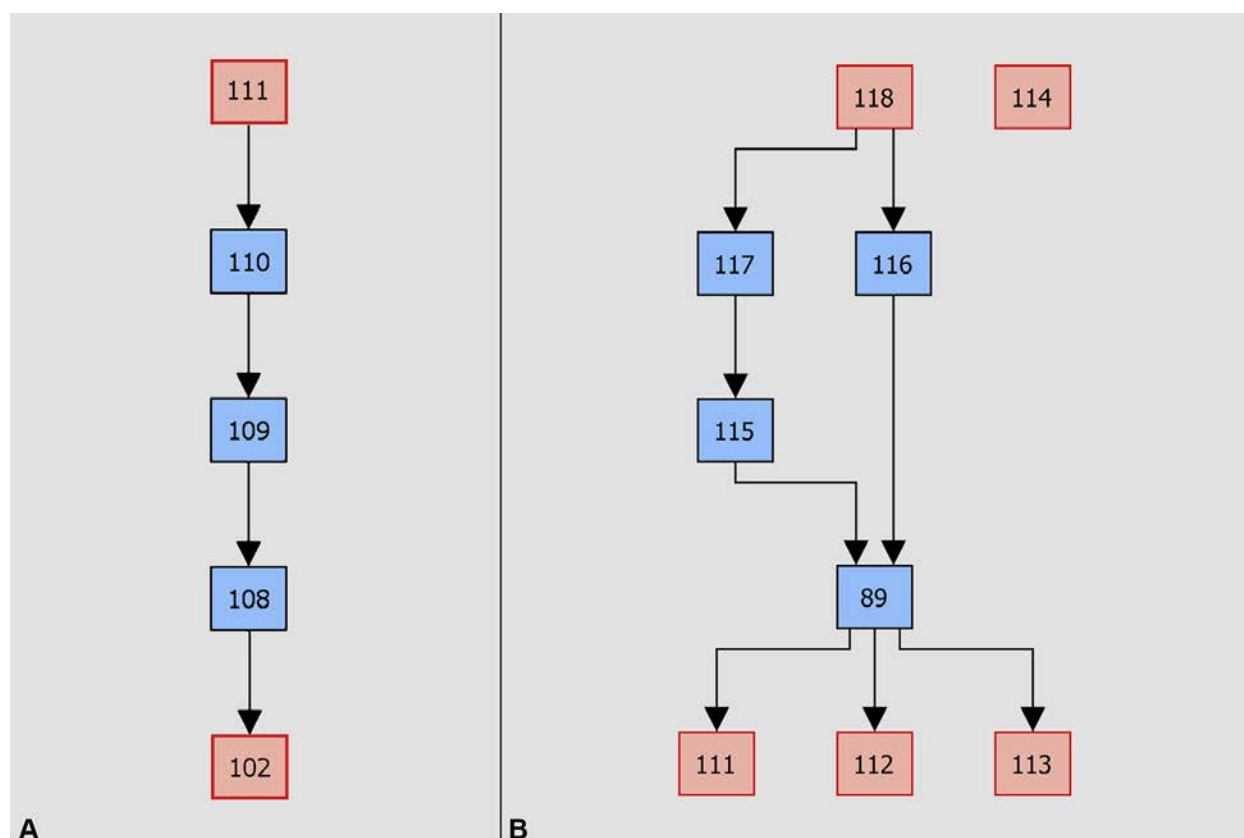


Figure 5.1: Stratigraphic sequences
A: Unilinear sequence B: Multilinear sequence

were promising, but she suggested that ‘more site-specific absolute dating, based on relative sequences, is necessary’ (Swart 2004: 33).

The use of the Harris Matrix in assisting in the interpretation of rock art sequences has therefore been well demonstrated but, to date, it has been little used in the development or clarification of Australian rock art sequences. Importantly, a method for resolving the relationship between units (motifs) within multi-linear rock art sequences that do not have superimpositional links has not been fully developed. For example, Chippindale and Taçon (1993: 36) used technique, pigment and manner (following Chaloupka’s promoted styles) to establish ‘equivalence’ (where motif sequence was not demonstrated). However, as argued throughout this study, Chaloupka’s proposed styles are poorly defined, if at all, and their identification may therefore vary from researcher to researcher. Russell (2000: 61) used the attributes of action (pose), direction and technique in conjunction with stratigraphic position to assume motif contemporaneity, while restricting style (based on paint mixing and application) to a separate class, thus permitting one or more styles to be present within a single ‘painting period’. In contrast, Swart selected subject (motif type) and colour (2004: 20-21) to correlate her phases from two sites to produce an

overall descriptive sequence that was then compared and contrasted with the sequences of previous researchers in the region.

Consequently, motifs on each panel that hold a common position in the panel sequence can be grouped into layers according to common artistic traits or attributes; such as colour, form, degree of preservation (Harris 1989: 105-119; Russell 2000: 61). The layers, then, could consist of groups of individual motifs, inter-related ‘compositions’ (cf. Haskovec and Sullivan 1989: 68-70), ‘scenes’ (cf. Domingo-Sanz 2011) or composite ‘motifs’ (Maddock 1970: 450). At one level, a ‘visual composition’ entails the graphic unity of a suite of contemporary motifs such that ‘the whole is very much more than the sum of the parts’ (Murray and Murray 1972: 95). The identification of compositions is in some cases readily apparent, while in others the defining relationship of relevant motifs remains much more difficult and may require additional explanation.

In her pioneering classification of all Australian rock art, Maynard (1976: 107-109) recognised that, while the majority of motifs in Australian rock art could be readily accommodated within a ‘type’, within each type certain idiosyncratic features could be identified from an individual motif or amongst one or more groups; these features could be taken as unifying traits to identify a

‘sub-group’ of the type. These features may be subtle aspects of technique (e.g. distinctive brushwork), form (e.g. variations on X-ray), colour (e.g. repeated use of distinctive colour combinations), size (e.g. unusually large or small motifs with other associative aspects) or additional motif elements (e.g. ‘figure with hat’).

The designation of appropriate sub-groups is a relative decision made by reference to the full data-set under study. Such idiosyncrasies may delineate the traits of an individual artist (e.g. Haskovec and Sullivan 1989: 66-70; Kemp and Cotte 2010; Morelli 1892), a particular school (through a unified style or manner of presentation) (cf. Baxandall 1972; Wöfflin 1950: 13-16), or a non-chronologically specific period (such as the broad categories of Mimi and X-ray in Arnhem Land rock art proposed by Brandl 1973: 166).

The Morellian Method

Maynard’s (1976: 107-109) choice of ‘idiosyncratic features’ to unify groups within Australian rock art appears to have been largely intuitive as no sources are referenced. In fact the technique is well-known in Art History as the Morellian method (Ferne 1995; Ginzberg 1980; Morelli 1892), whereby the work of individual artists can be recognised through the use, mostly unconscious, of idiosyncrasies or stylistic details in their technique or manner of representation. Examples include the way in which brushstrokes are applied or

the rendering of the shape of an ear, toe or fingernail (Figure 5.2). These ‘formulas’ were consistent and were repeated throughout the artist’s life and regardless of any stylistic evolution.

Giovanni Morelli was art historian, controversial critic and connoisseur who, in the 1870s, developed a method of ‘decisively’ evaluating artworks on the basis of the close examination of minute aspects of a work to verify or refute its attribution to a particular artist (Ferne 1995; Ginzberg 1980). He recognised that, within particular cultural systems, individual artists had particular traits, idiosyncrasies or stylistic details, which they repeated (mostly unconsciously). Examples include the manner in which brushstrokes are applied or the rendering of the shape of an ear, toe or fingernail. These ‘formulas’ were consistent and were repeated throughout the artist’s life regardless of any stylistic evolution. Similar ideas, comparing the individuality of a painter’s work to an individual’s handwriting and thereby highlighting forgeries, had been proposed by Giulio Mancini in Rome in the 17th Century, however, his writings were not published until the mid-20th Century (Ginzberg 1980). Morelli, in contrast, published his method, under the pseudonym of Ivan Lermolieff, in a series of articles in *Zeitschrift für bildende Kunst* 1874-76. These ideas were brought together in a large and unusual work six years later (Morelli 1892). Morelli’s studies challenged the findings of his art-historical contemporaries that were using more orthodox theoretical and academic studies.



Figure 5.2: Morelli’s comparison of the representation of the ear by different Renaissance artists (from Morelli 1892)

Overall, his many reattributions met with a large degree of success and his method became a standard in the field of connoisseurship. The late 19th Century was also the time of A.C. Doyle's deductive detective *Sherlock Holmes* and of the psychoanalytic rationalisations of Sigmund Freud, both of whom used unconsidered trifles and subtle features to derive their respective conclusions, and both of whom had had contact with Morelli's ideas (Ginzberg 1980). Rather than *deduction*, that Holmes espoused, the form of reasoning used by Morelli, Homes and Freud is essentially *abduction*; the process of arriving at an explanatory hypothesis that accounts for the observations. Unlike deductive reasoning, abduction does not assure the conclusion but provides the basis of an hypothesis, derived from a largely intuitive reading of the facts, and its validity is arrived at, in part, through the experience of the investigator in that field (see Sebeok and Sebeok 1981).

In the story 'The Cardboard Box' (Doyle 1894), Holmes gives an example of his methods on a very Morellian subject:

As a medical man, you are aware, Watson, that there is no part of the human body which varies so much as the human ear. Each ear is as a rule quite distinctive, and differs from all other ones. In last year's Anthropological Journal you will find two short monographs from my pen upon the subject. I had, therefore, examined the ears in the box with the eyes of an expert, and had carefully noted their anatomical peculiarities. Imagine my surprise then, when, on looking at Miss Cushing, I perceived that her ear corresponded exactly with the female ear which I had just inspected. The matter was entirely beyond coincidence. There was the same shortening of the pinna, the same broad curve of the upper lobe, the same convolution of the inner cartilage. In all essentials it was the same ear. Of course, I at once saw the enormous importance of the observation. It was evident that the victim was a blood relation, and probably a very close one (Doyle 1894; quoted in Ginzberg 1980: 8-9).

Holmes' conclusion is not one of proof but, following abductive reasoning, he accepts the proposed relationship as the simplest and, hence, the most logical conclusion (see also Sebeok and Sebeok 1981).

In assessing artworks, Morelli contends that 'Every true artist is committed to the repetition of certain characteristic forms or shapes' through the involuntary use of habitual modes (Wollheim 1973: 81, 194). In selecting suitable features for use with Morelli's method, the feature must:

- have a form amenable to individual expression;
- not be one characteristic of a school or tradition;

- not be one depicted in an accidental or haphazard fashion; and
- not be one of a suite of similar features that require variation, such as the ears of four people standing side by side (Wollheim 1973: 195-196).

The method, however, was seen as a means for correcting or refining an initial assessment, rather than doing away with other means of assessment (Wollheim 1973: 193).

Morelli's methods were taken up and expanded by his pupil and later the eminent art-historian, Bernard Berenson (1865-1959) who applied them, along with an assessment of the overall quality of the work, to Renaissance painting (e.g. Berenson 1962). Later, the classical archaeologist and art historian John Beazley (1885-1970) systematized the classification of Greek pots according to what he termed the 'hand' of individual artists through analysis of their production and painted decoration (e.g. Beazley 1963).

As an example of applying the Morellian Method to rock art from Nawarla Gabarnmang, a small white figure is painted in an unusual and distinctive manner using short straight lines, some of which are applied in a cross-hatch pattern (Figure 5.3A). The same cross-hatch patterning is found in a rectangular design on an adjacent panel (Figure 5.3B). Both paintings are in the same white colour and are in a similar state of preservation. Consequently, on the basis of the Morellian method, it might be concluded that the two unusually painted motifs were produced by the same artist. If so, these two paintings would provide a key for associating the layers from the respective Harris matrices of each of the two panels.

The Morellian method has, however, been criticised recently for its underlying late-19th Century paradigm, which is too conjectural (Ginzberg 1980) and supportive of an imperialist view of art, resulting in a very narrow appreciation of the artefact that belies the use of other approaches (Elsner 1990). Despite this, Art History still sees value in the method, particularly when used in conjunction with other methods of art appreciation, such as the subsequent work of art historian Michael Baxandall (Baxandall 1972) in which the cultural influences, taken for granted and consequently unacknowledged by the artist, formed the 'period eye', i.e. 'definable as the habits of seeing of a particular people in a particular time - and its relationship to social practices' (Manca 2005: 98), or the Marxist views of art critic John Berger (Berger 1972) that highlight the particular values held by the commissioners or patrons of the artwork.

In recent years several studies have used what are essentially Morellian methods to identify individual artisans through the distinctiveness of archaeological

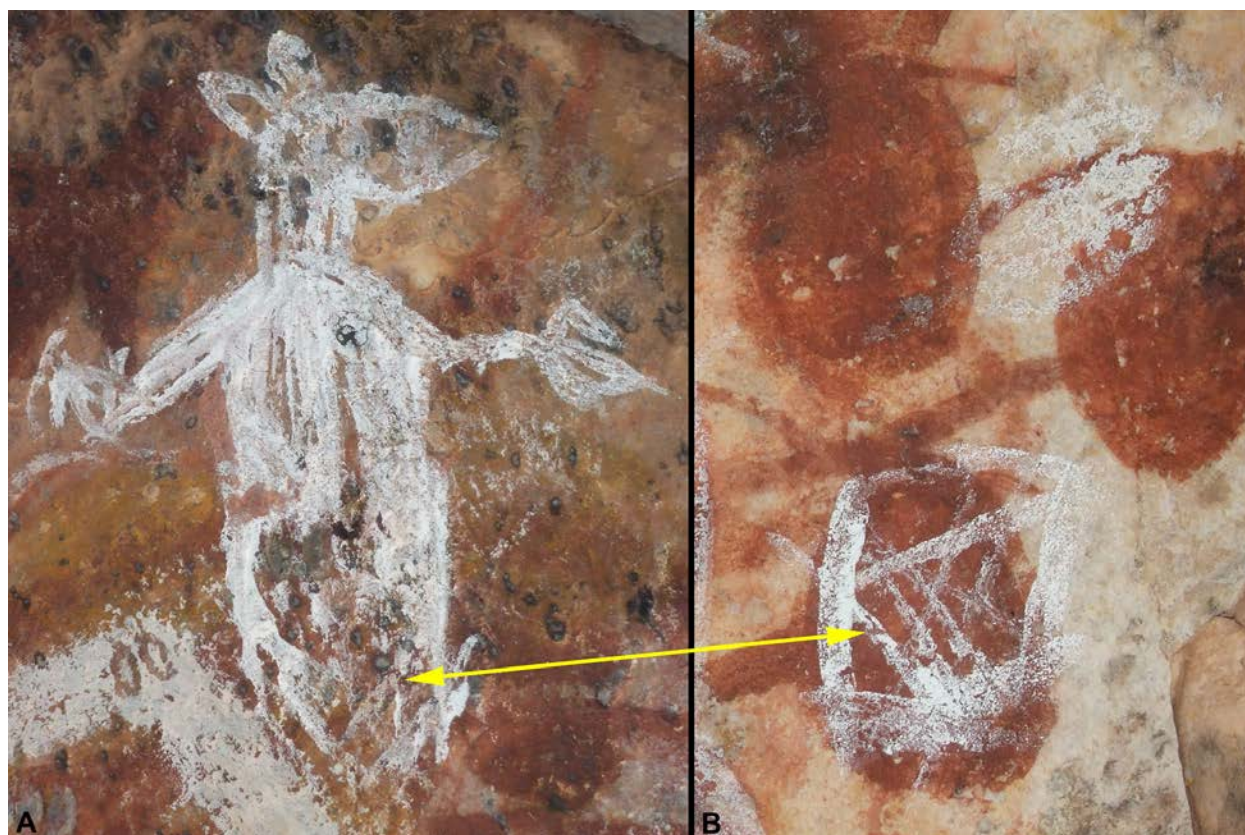


Figure 5.3: Example of two paintings at Nawarla Gabarnmang I consider to painted be by the same artist

artefact production (Carr 1995a, 1995b; Frey 2013; Hill and Gunn 1997; Thomas et al. 2009). In Mesoamerica, several archaeologists have used the method to identify the hand of individual sculptors, artefact painters and rock art artists (e.g. Cohodas 1984; Kerr and Kerr 1988; Stone 1995; Tate 1992; Van Stone 2000). Like Maynard, however, some of these authors appear to have derived the approach independently of Morelli's work.

To an unparalleled degree in archaeology at the time, Alexander Marshack, a research associate at the Peabody Museum of Archaeology and Ethnology distinguished differences in the engraved markings on Palaeolithic bone artefacts by examining the minutiae of the manner in which the markings were made (Marshack 1972, 1991; Figure 5.4). Marshack held that the size of individual markings and the direction of their orientation should be consistent for each marker. He stressed that the technique was not aimed primarily at interpreting the notations but rather to understand the way of thinking involved (Marshack 1972: 39). Although Marshack's approach to the study and his interpretations have been controversial (see Elkins 1996 and following review comments), they continue to be influential (cf. Bahn 2009) and, as will be shown, the basis of noting differences at the microscopic level does have value for rock art discrimination. As an extension of the Morellian Method, meaningful cross-correlation of motifs to contemporaneous layers or within a broader unified period may be validated

through identifying the similar chemical compositions of their pigments or of any overlying chemical skins (cf. Clottes 1997; Gunn and Lowish 2017; Huntley et al. 2011; Wesley et al. 2014).

In undertaking such analyses and in order to notice the presence of any co-variance, Chippindale and Taçon (1993:39) stress the importance of studying the various motif traits individually. An all-inclusive approach is also advocated by Swart (2004: 16). Allocating layers or phases to particular chronological periods, however, is an additional step that canonly be achieved when the layers can be pegged to specific motifs that have been firmly dated. Fortunately, at Nawarla Gabarnmang such dates are available for a small number of the motifs (e.g. Gunn et al. 2012), and these form the framework for the final analysis of the art phases.

The Data

The data for this study come from two main sources:

- Background data, obtained from the Jawoyn Association Aboriginal Corporation's (the Jawoyn Association) existing site database (the Jawoyn Database); and
- Fieldwork, involving the detailed recording of Nawarla Gabarnmang and summary recording of associated rock art and other archaeological sites.

Following fieldwork a large number of photographs from these sources was catalogued and selected information was transferred to a spread-sheet for analysis. The cataloguing and selection process is described below.

The Jawoyn Database

The Jawoyn database consists of the archaeological site files (site cards, reports and photographs) collected by the author under contract to the Jawoyn Association as part of their Jawoyn Rock Art and Heritage Project (JRAHP) (2006 and on-going; Gunn 2010a; Gunn and Douglas 2012; Gunn and Whear 2007a). The JRAHP was supervised by Ray Whear (former Land and Cultural Manager, Jawoyn Association) and the work undertaken with the assistance of Leigh Douglas, Chris Morgan (former helicopter pilot with Jawoyn Aviation) and various volunteer field workers (see Acknowledgements above). The data is used with the informed consent of the Jawoyn Association.

To 2013, the Jawoyn database contained the records of 127 site complexes, 1476 individual sites with 49,796 motifs, and incorporates over 70,000 photographs of the sites and their art. While this study focuses on the art at Nawarla Gabarnmang, the full Jawoyn database was used in developing a broader archaeological context for this exceptional site. Surveys of Bulajang (within Kakadu National Park) prior to the JRAHP recorded 36 site complexes with 192 archaeological sites, of which 171 were rock art sites (Gunn 1987a, 1987c, 1989a, 1992a). As this data is not readily compatible with the JRAHP recordings, and because of its sensitivity with respect to Jawoyn restricted and sacred sites and other issues involving Kakadu National Park, it has not been included within the Jawoyn database at this stage. Similarly, only 30 of the estimated 2000 sites within Nitmiluk National Park are included in the Jawoyn database. The general findings for Bulajang (Gunn 1992a) and Nitmiluk (Chaloupka 1993; Lewis 1988) are, however, integral to an overall understanding of Jawoyn rock art and are incorporated when considering the broader aspects of Jawoyn rock art.

The JRAHP used a basic site recording form to standardise data collection and provide comparable site information for future analysis (see Chapter 3; also Clegg 1983; Gunn 1995a, 1995b; Loendorf 2001; Rosenfeld 1977). It was stressed from the outset of the JRAHP that:

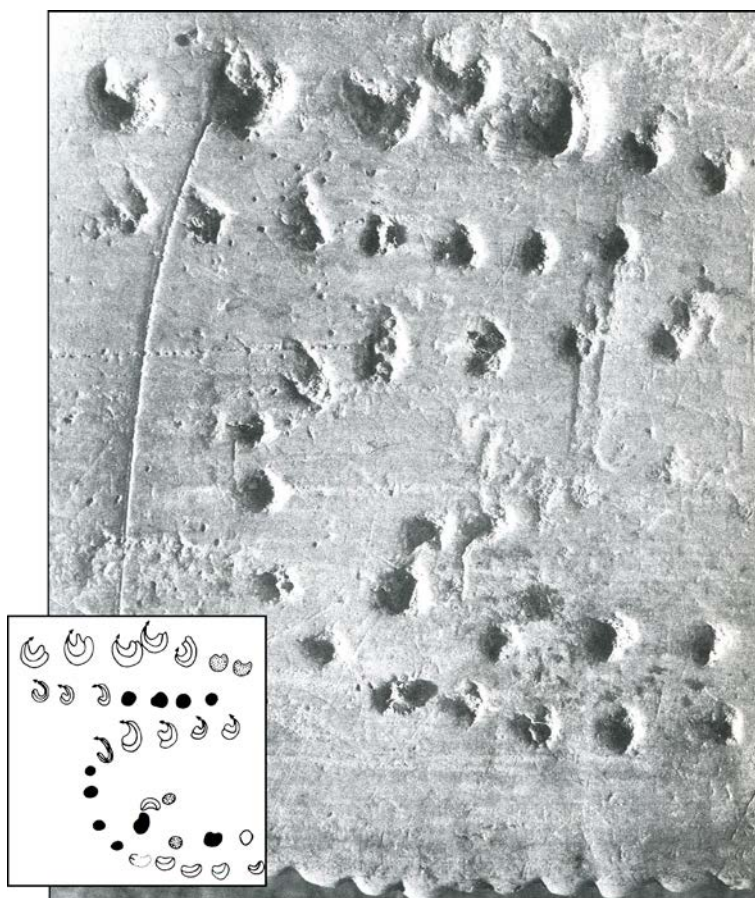


Figure 5.4: Marshack's micro distinction between engraved marks on a Palaeolithic bone fragment (adapted from Marshack 1991: 47-48)

...‘these are not complete recordings suitable for detailed study of the artwork, but basic data for management purposes to provide a general picture of the site and its contents, but that will allow areas of future research interest to be identified.’ (Gunn and Whear 2007a: 4-5).

In the field, prominent archaeological sites (principally art shelters or stone arrangements) were located during helicopter aerial reconnaissance (Figure 5.4), after which Leigh and I were dropped off to record the site and undertake survey for other archaeological sites within the vicinity.

It was clear from the initial aerial surveys that the sites within Jawoyn country generally occurred in clusters across the landscape (see Chapter 2 above). These site clusters were found to consist of one or two large, focal art shelters and a number of smaller satellite sites; these were nominated as ‘Site Complexes’ (cf. Gunn 1997; A. Ross 1996; J. Ross 2003: 59-60; Ross et al. 1996; Vinnicombe 1984; Witter 1984; see also Chippindale 2004; Hyder 2004). The site complexes were given a sequential Jawoyn site number incorporating a prefix pertaining to the Land Trust operating over that land (e.g. sites within the

Arnhem Land Land Trust were prefixed with ARN; those within the Beswick Land Trust were prefixed with BES).

The survey of each site complex was undertaken systematically from, usually, left to right across the outcrop. Art site recording involved confirming the shelter's location by handheld GPS; measuring the size and orientation of each shelter (pacing length and depth, estimating height, and taking compass bearings for orientation); counting the number of visible motifs from left to right across the shelter according to technique and colour; identifying motifs from existing recognised styles (primarily derived from Chaloupka 1993); and making notes on other archaeological aspects of the site. The photographic record entailed external views of the shelter (front and side elevations), general views of the interior, the floor, and all art panels with details of particular motifs or other features of interest. While most site complexes were recorded within a single day, those with more than 30 shelters often required two or more visits to complete. These recordings were not undertaken for the purpose of this study.

Nawarla Gabarnmang field recording

In addition to the information from the Jawoyn database, details of the art at Nawarla Gabarnmang were gathered during personal research immediately prior to and during my PhD research (Gunn 2016). Investigation of the most suitable methods to record the complex superimpositioning at this complex art site was undertaken through the George Chaloupka Fellowship, of which the author was the inaugural recipient in 2009 (Gunn 2010b; Gunn et al. 2010).

On our first entering the shelter, it was apparent that the artwork, although found throughout the shelter, was not continuous across its ceiling but was, rather, often predicated by the distribution of smooth, natural rock surfaces. These more or less discrete decorated surfaces were nominated as art panels. Artwork also occurred on many of the supporting pillars throughout the shelter. In addition, a narrow seam of horizontal sandstone running above many of the pillars provided vertical surfaces that were also decorated; these were termed bridges (Figure 5.5). To locate these panels spatially, the shelter was mapped by tape and compass and the location of each panel recorded (Figures 5.6 to 5.10). This site plan was subsequently replaced in 2013 by a more accurate version created by Professor Jean-Jacques Delannoy with the aid of laser equipment (cf. Delannoy et al. 2013). The panels were then transferred to Delannoy's map (Figure 5.11). Some differences in the shapes of the pillars between the two plans occurred due to the different locations from which the pillar diameters were measured: ours at a point one metre above the floor, considered as being the diameter most

appropriate to the potential art surface, and Delannoy's at ground level, in line with archaeological mapping conventions.

The discrete panels throughout the shelter on which the ceiling art was placed occur within localised clusters (here termed *Groups*) due to either spatial separation or distinct changes in the ceiling plane. Fifteen Groups were recognised (Groups A-Q). Within each Group, each art panel was given a reference code relating to its Group, such as Panel A1 or Panel K4 (Figure 5.9). The pillars were also numbered (Pillars 1 to 36) and their art panels given their pillar number with a suffix dependant on the primary direction the panel faced (A=west, B=east, C=north, D=south; Figure 5.10). The bridges were also numbered consecutively from west to east across the shelter (br1-11; Figures 5.9 and 5.11).

Additional fieldwork planned for 2013 and 2014 to complete the recording of the artwork on the pillars and bridges did not eventuate. Consequently, this study is limited to the extensive ceiling panels rather than a comprehensive recording of all of the artwork within the shelter. The ceiling panels, however, contained sufficient art to complete the aims of the present study.

Recording the artwork

In recording the artwork, the principle aim was to attribute the motifs, where possible, to type:

One of the first tasks of recording is that of disentangling the various pictures on the rock. Each has to be untangled not only from the other drawings, but from the bedding planes which decorate the surface, cracks, differences in colour which result from erosion or dusty deposition, or the marks left by fauna; wasps nests, termite runs, bird's nests – and so on (Clegg 1978a: 40).

The allocation of motifs to a particular Motif Type is of necessity at least partly subjective; at what point does an area of red pigment become a kangaroo and not an anthropomorph? In my experience, the more familiar a recorder is with the style, technique and motif form of the art being studied, the more consistent will be the application of regular rules of interpretation. Any inventory of the rock art can never be a true and comprehensive account of all of the pigment on a rock surface, however, the consistent application of a recording methodology that has a high degree of integrity will produce an 'adequate and appropriate' recording for the purposes of the study's author (cf. Clegg 1978a: 43-47, 1983: 102).

Following a close visual inspection of each art panel, the prominent motifs were sketched and notes made on what superimpositions could be readily observed.

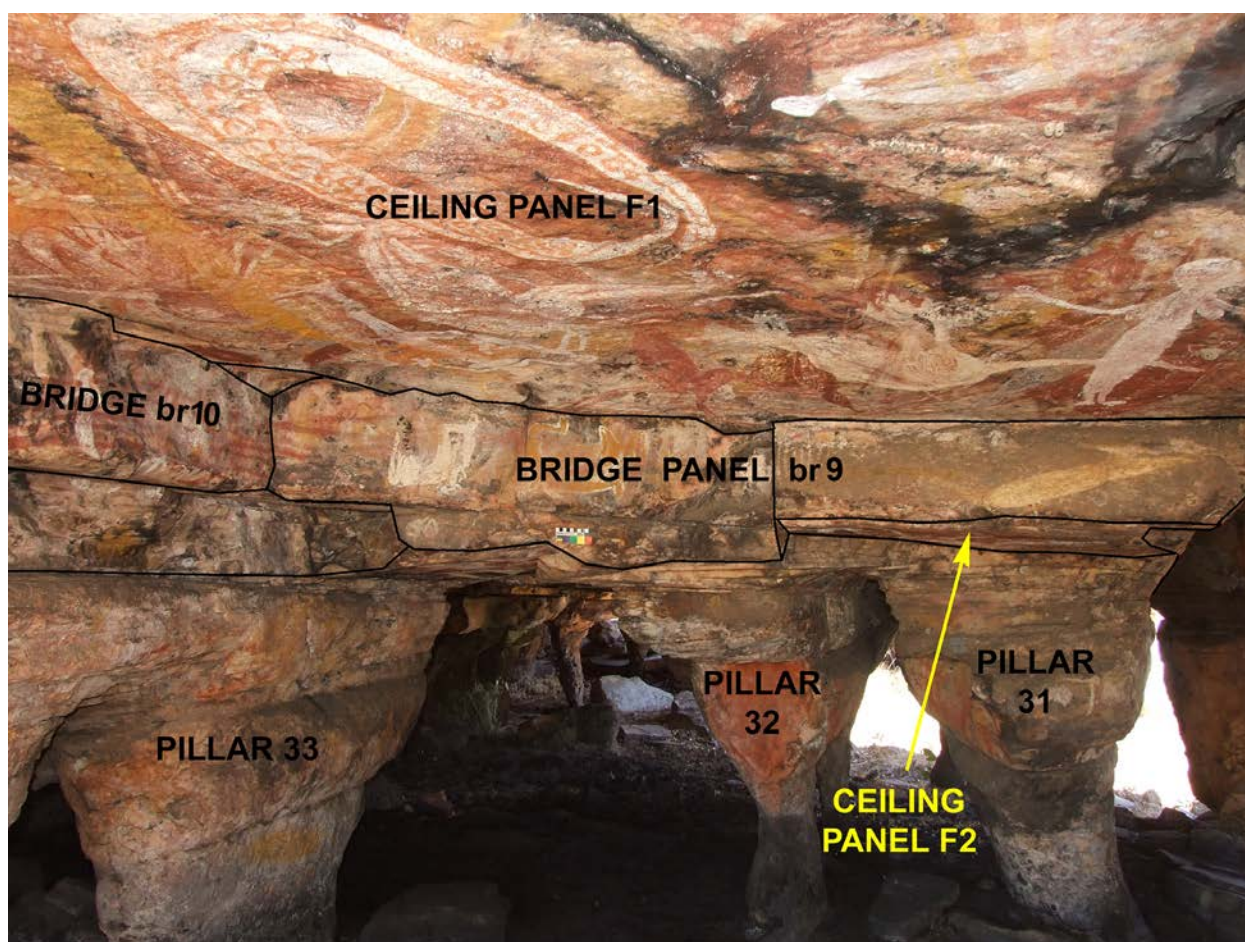


Figure 5.5: Art panels: ceiling, pillars and bridges



Figure 5.6: Measuring by tape and compass

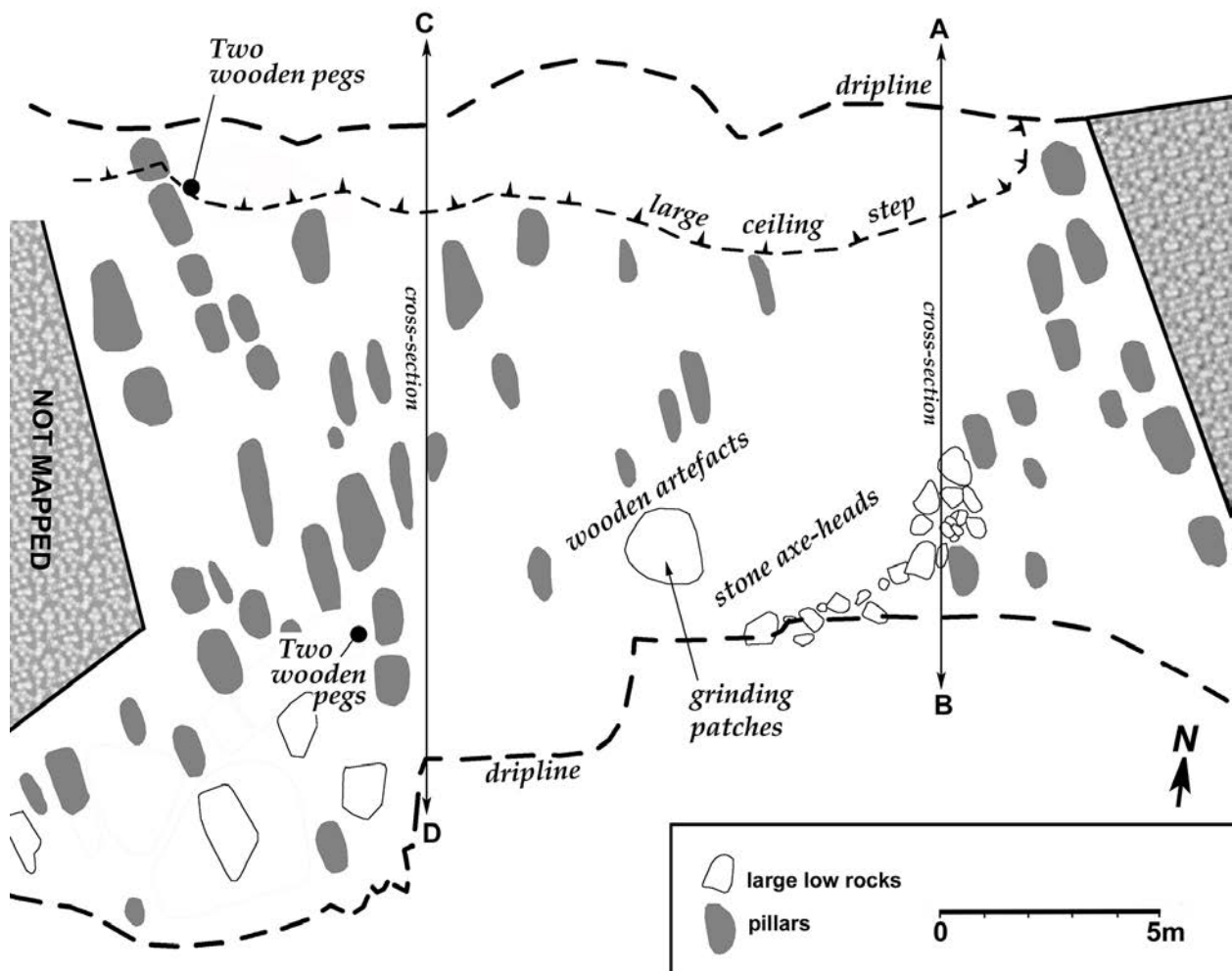


Figure 5.7: Nawarla Gabarnmang original shelter plan

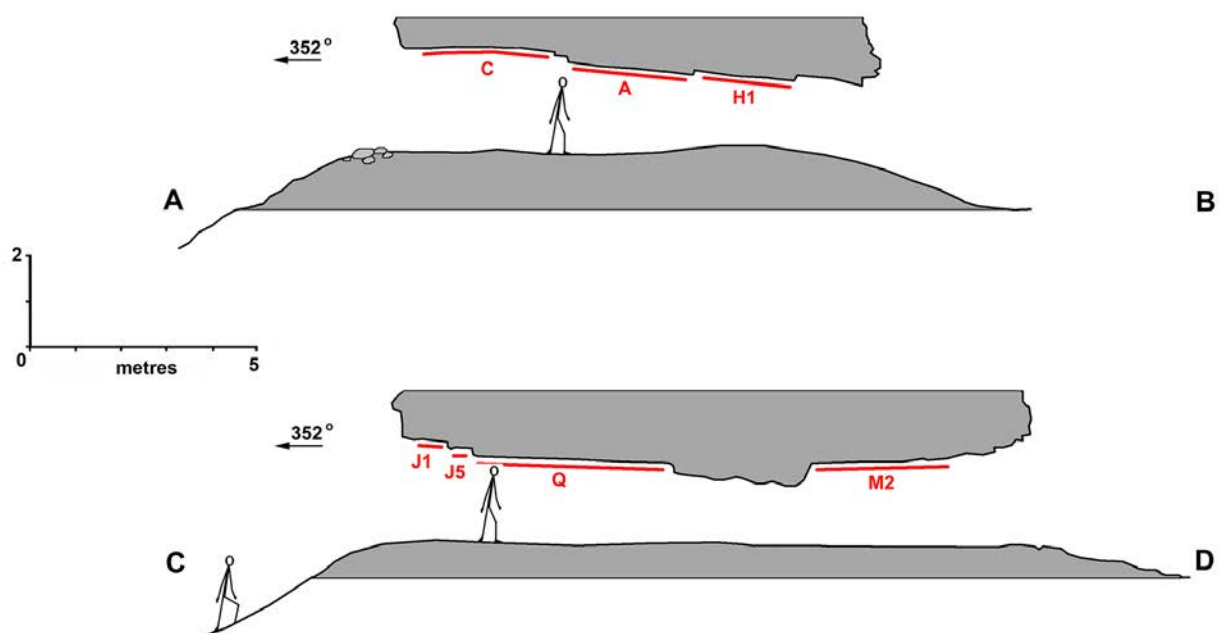


Figure 5.8: Nawarla Gabarnmang shelter profiles

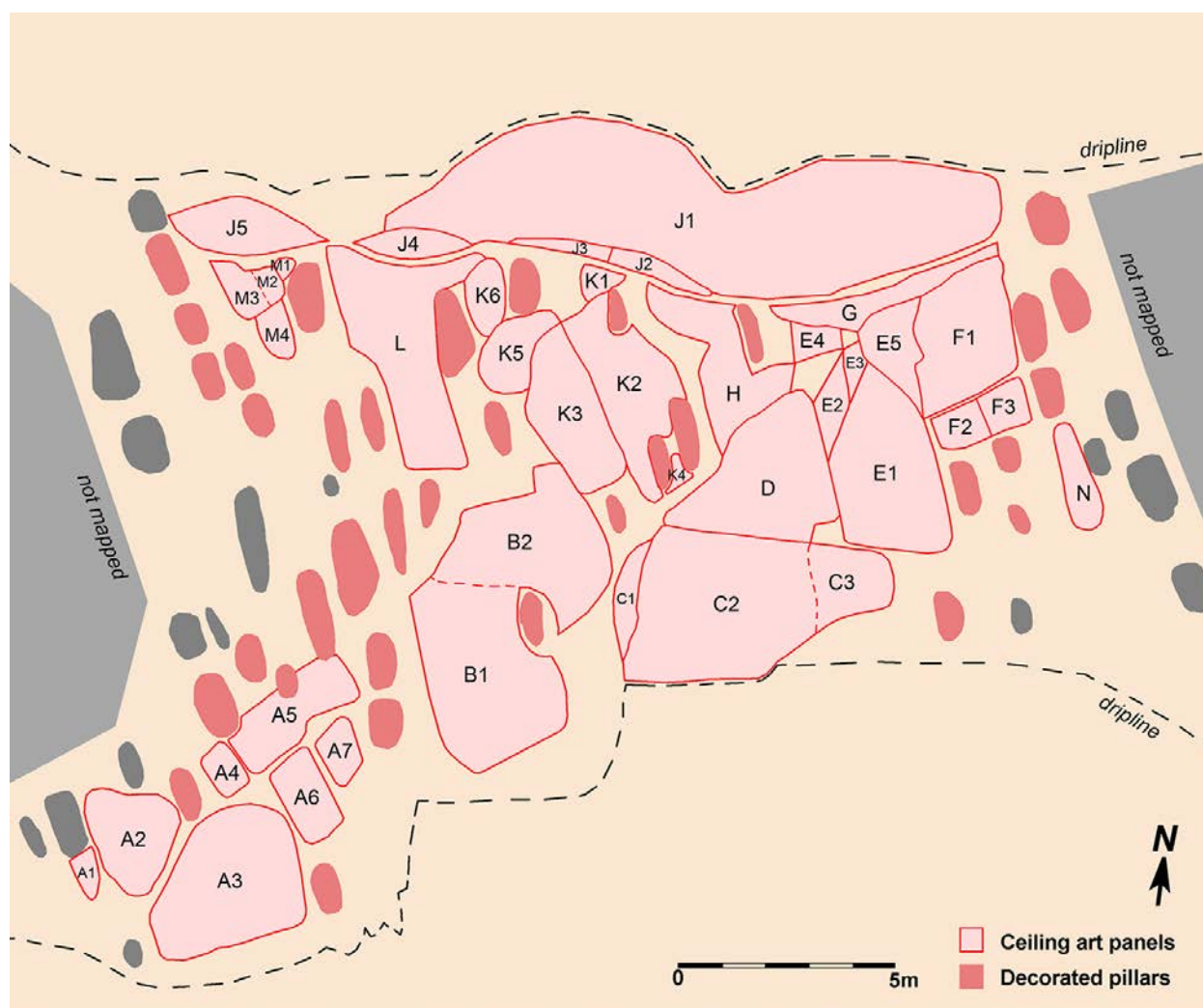


Figure 5.9: Nawarla Gabarnmang original plan of ceiling panels

Each panel was then photographed as a single unit with either a standard lens (using flash for consistent lighting) or a fisheye lens (Fisheye-Nikkor 10 mm; with natural lighting as suitable flood lighting was unavailable) (Figure 5.12). The distortion of the fish-eye lens was later corrected using the Nikon Capture® computer programme (Figure 5.13). For those panels that were too large to be encompassed within a single photograph, overlapping photographs were taken at a consistent distance from the artwork and later stitched together in a professional stitching programme (PTGui®; Figure 5.14).

The principle problem encountered in making mosaics in this way was the requirement to keep the camera at a fixed distance from the panel despite the unevenness of the floor and the slight slope of the ceiling. Consistency was achieved by selecting a fixed distance between the camera and the ceiling and then manually measuring with a wooden rod from the ceiling to the camera (mounted on a tripod).

The visual record that consists primarily of photographs and tracings derived from photographs. The tracing process here is similar to direct tracing onto polythene sheets (Clegg 1983: 103), but, unlike direct tracing, it is a non-contact technique, and hence preferable from a preservational perspective. Unfortunately, due to our inability to return to the site, these recordings have not been verified against the originals.

Post-fieldwork photographic enhancement and tracing

Back at home, where the luxury of an office atmosphere offered greater potential for careful observation and the use of additional enhancement techniques, the photographic images were imported into the Adobe Photoshop® graphics programme, which has the facility to arrange features of the art into virtual layers. This enables the isolation of motifs from different superimposed strata to be transferred onto their own layer 'sheet', either through drawing (outlining or detailed manual tracing), or selective capture using

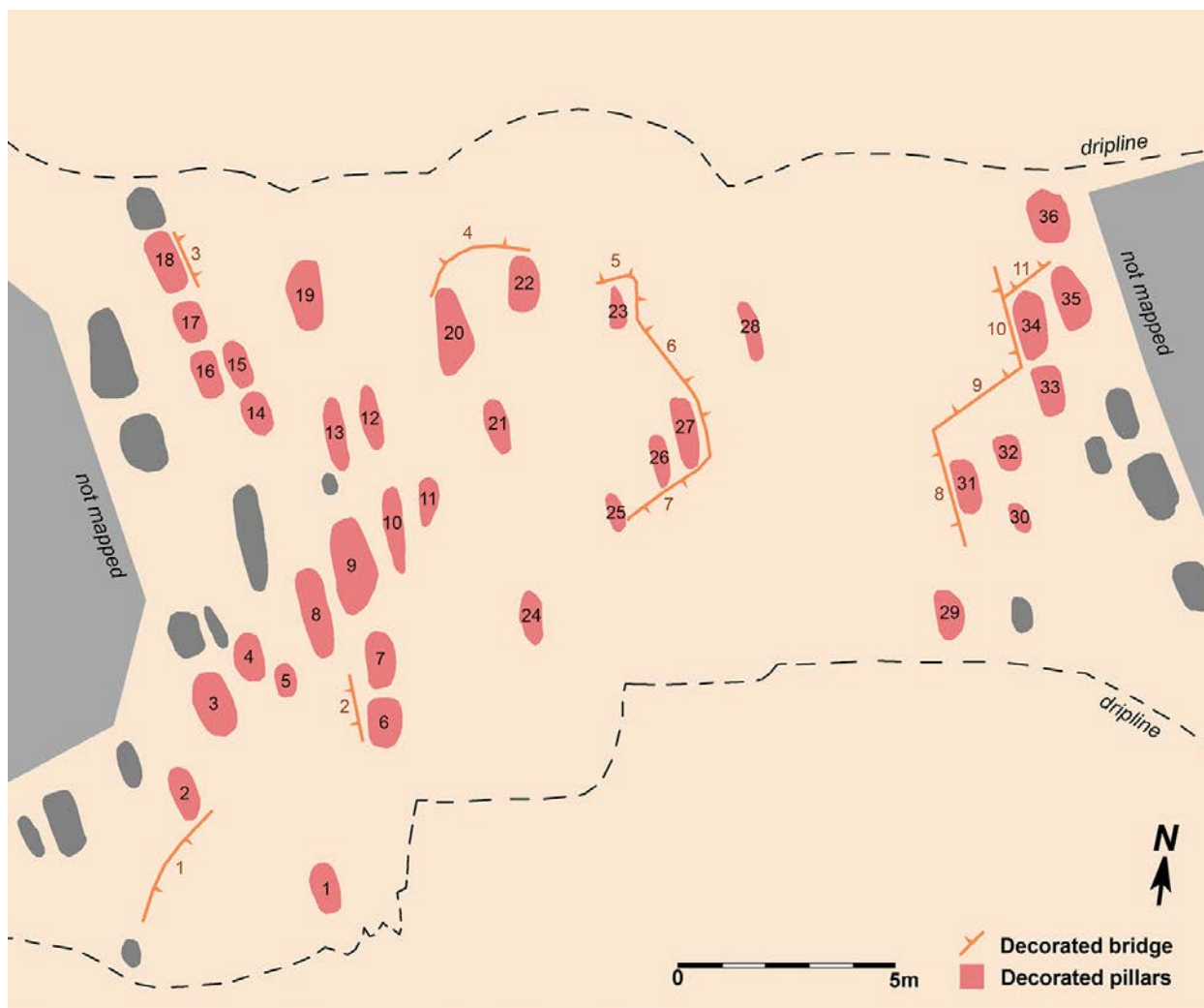


Figure 5.10: Nawarla Gabarnmang original plan of pillars and bridges

the *magic wand* feature. This process is relatively easy with the upper and most recent layers, where all or most of the motif is readily visible. In the case of faint motifs, the photographic images were enhanced using the DStretch[®] image processing software which has been optimised for rock art by selectively highlighting colours according to the colour space used (Gunn et al. 2010; Harman 2008, 2015).

While not replacing manual enhancement methods available in Photoshop (Brady 2010; David *et al.* 2001; McNiven *et al.* 2002; Ogleby 1995), and which I had previously used (e.g. Gunn 1993), the advantage of DStretch processing is that as the D-Stretch[®] colour spaces are standardized, the resultant images can be readily repeated by other researchers as the colour space of each image is recorded as a suffix in the file name. As the scale (degree) of the colour decorrelation can be varied manually, the value of the scale was recorded and included following the colour space suffix (e.g. Figure 5.15; Gunn et al. 2014). While only rarely revealing 'invisible' motifs, D-Stretch[®] often makes the

visualising of very faint motifs much clearer and in a number of cases where only traces of pigment can be seen on the original photograph, permitting the original form of the motif to be better defined.

The Photoshop graphics programme can incorporate multiple layers within a single file. Therefore, after careful scrutiny of both the original and enhanced image, each motif or pigment area was traced, either manually on the screen or via the *magic wand* tool, either from the appropriate DStretch[®] image inserted as an under-layer, or the unaltered initial photograph (the 'background'). Both interpretations were checked by turning the DStretch layer on and off. Starting from the upper layer, each layer of superimposed motifs was given a 'layer' within the file and each motif traced individually. The colours employed in the tracing were chosen to highlight the different motifs and hence rarely reflect the actual pigment colours. For example, when using white paper, white pigment can be depicted using a blue colour so that it stands out from the page.

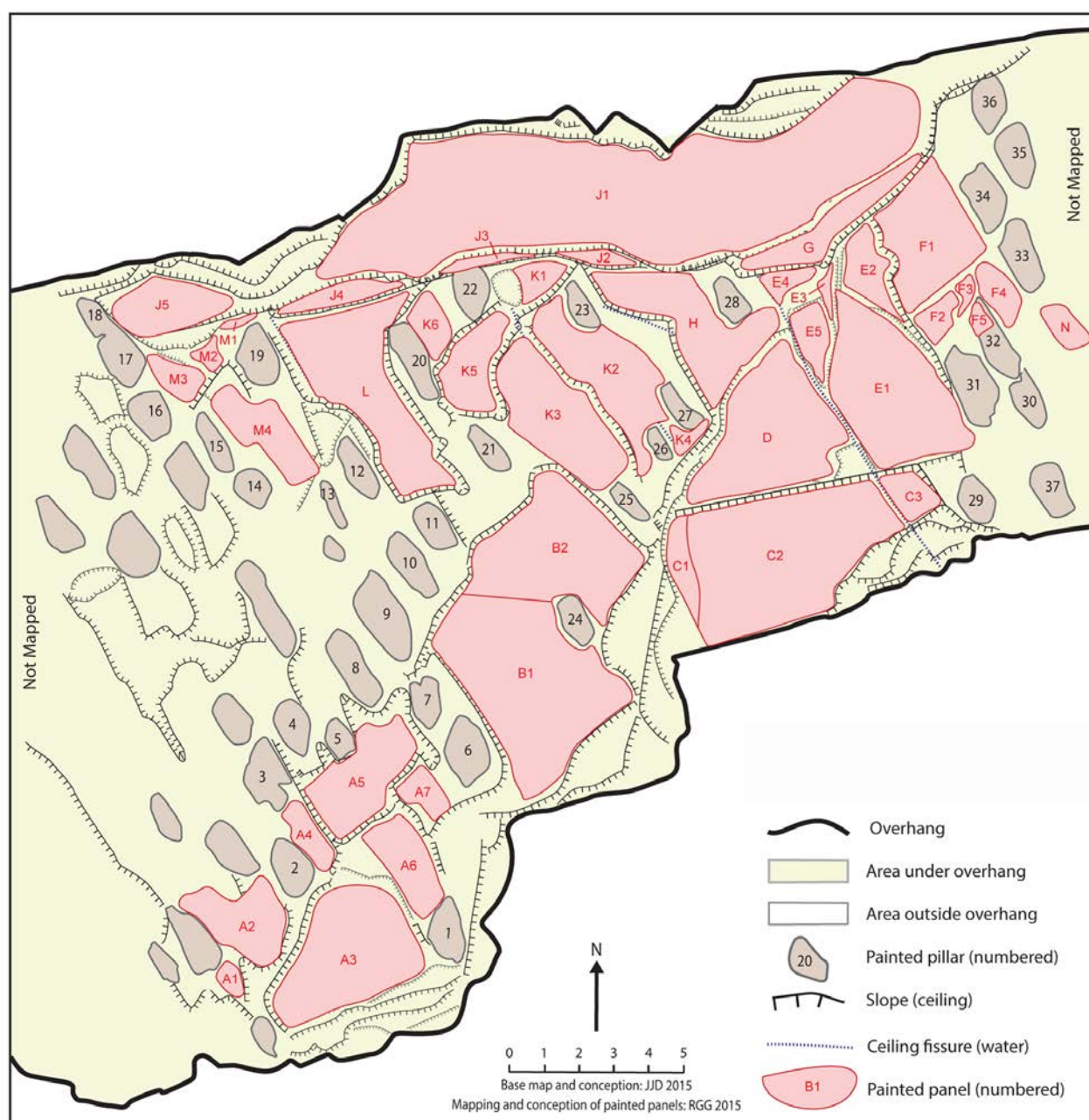


Figure 5.11: Final shelter plan showing locations of the art panels
(base-map by J-J. Delannoy with art panel placement by the author)

The scale of a tracing can be varied to suite on the accuracy required by varying the size of the digital pencil. The illustrations in this study were drawn with a size-3 pencil.

In interpreting the basal underlying layers of a panel, which often contain the most fragmented motifs due to age and over-painting, separate fragments considered to be part of the one motif were indicated by a blue arrow.

Following completion of the tracing of each panel layer, and the compound file saved, the DStretch image(s) is deleted and the traced layers saved as individual

images (Brady and Gunn 2012). The final systematic enhancement for each layer is then presented to display the individual motifs which form the basis for motif interpretation to Motif Type (see below) and analysis. The ability to keep the interpreted layers of superimposition separate also provides an opportunity for greater analysis of the spatial distribution (within a shelter or within a region) and relative (or absolute) temporality of select styles.

Up to this stage the recording process has been relatively objective, however, the identification of discrete motifs requires the classification of the individual motifs into one of a limited range of Motif Classes selected on the



Figure 5.12: Photographing the ceiling from a charcoal rich floor

basis of what the motif looks like to the recorder. The range of Motif Classes also includes a class of ‘unknown’ for those complete motifs whose shape cannot be identified. Further, amorphous areas of pigment are recorded as ‘fragments’ or ‘traces’ (see below). As mentioned above, this is essentially a subjective process that relies very much on the classifiers perception of the schema or canonical form of the artists (Dobrez and Dobrez 2013; Gombrich 1961: 89).

Once the motif, fragment, or trace has been visually interpreted and isolated it was given a unique panel number from which it could be individually identified and described (see below).

For a final image of the traced motifs, the composite Photoshop® file for each panel, including all layers, was flattened within Photoshop, either over the background photograph (to give an artificial image over the natural background) or over a suitably coloured base layer (to give a flat drawing of the motif or panel mosaic).

When confronted with poorly-preserved motifs in multiple colours (e.g. Figure 5.16A), a series of enhanced DStretch images relevant to the colours within the motif were added as layers in the one Photoshop file (as above). The highlighted colour within each DStretch image was isolated with the *magic wand* tool; here set to a tolerance of level 30 (Figure 5.17; A1 for red, A2 for white). In any painting or drawing, however, the hue and tone of will often vary across the motif because

of varying lighting conditions (due to irregularities in the rock surface), pigment density (due to the application technique) and pigment impurities (from pigment preparation) and differential preservation (Figure 5.16B). As a consequence, the magic wand will not pick up the entire motif with any single selection. In selecting all areas of the motif, the shift key is held down and all appropriate tones included within the selection (Figure 5.17B1 and B2). This part of the process is another that is to some degree subjective, as the areas chosen as forming the motif will direct the colour selection. At this point, if the requirement is to interpret a particular and recognised motif, the surrounding colour pixels considered to be extraneous to the motif, such as in the natural rock or parts of other motifs, can be deleted with the eraser tool (Figure 5.17C1 and C2). The process was conducted for each of the other required colours within the motif and the layers arranged according to the order in which the major colours were applied on the painting (as observed and noted on site or on the original photograph). The layers were then flattened into a single, composite image for reproduction; either on a flat background (Figure 5.17D1) or the original photograph (Figure 5.17D2; cf. Harman 2008).

Attributes of the rock art

Each discrete mark (motif) was given an individual number related to its particular Group (e.g. ‘Motif C-23’ represents motif 23 in Group C). Numbers were assigned

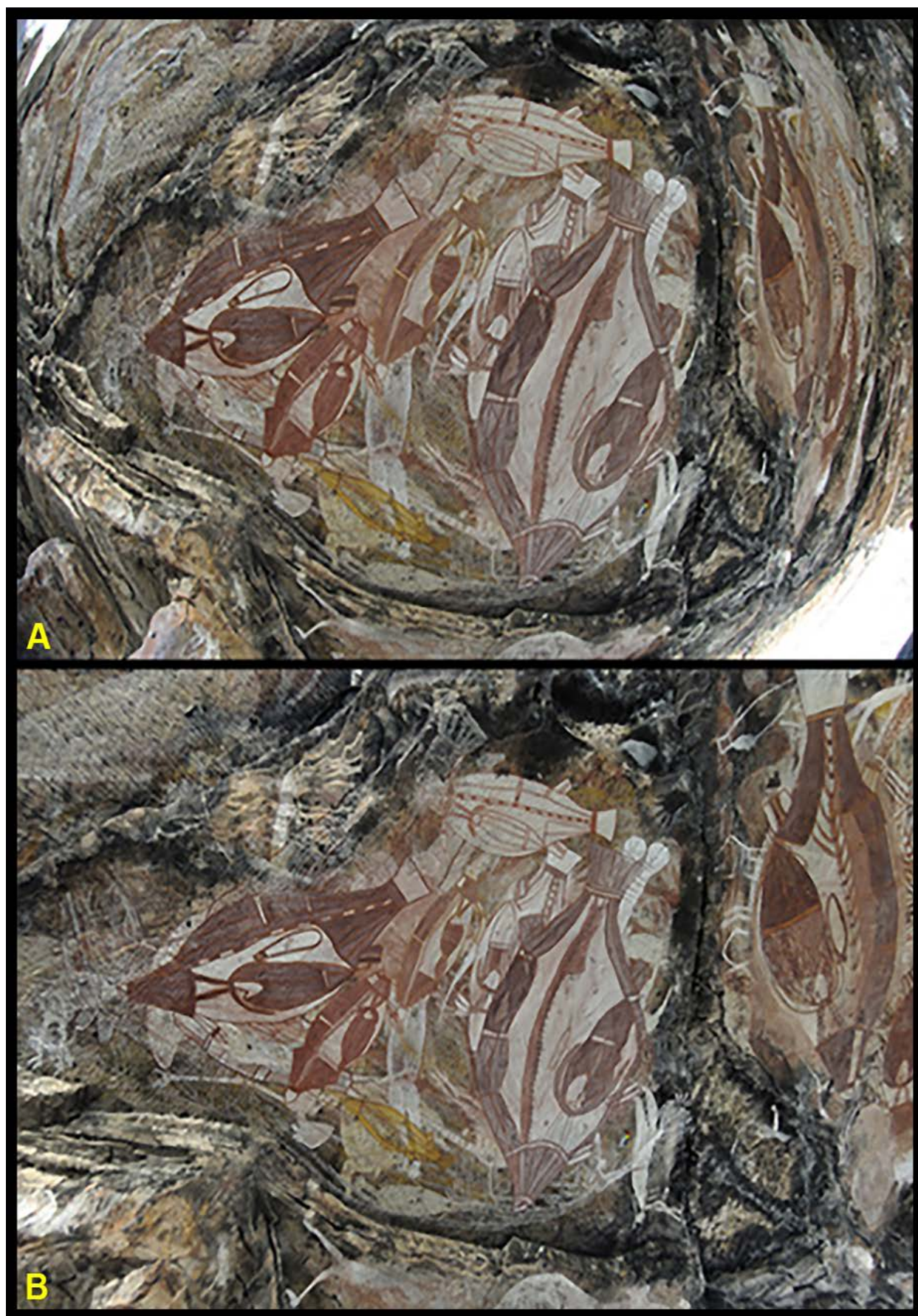


Figure 5.13: Fisheye lens photograph and correction

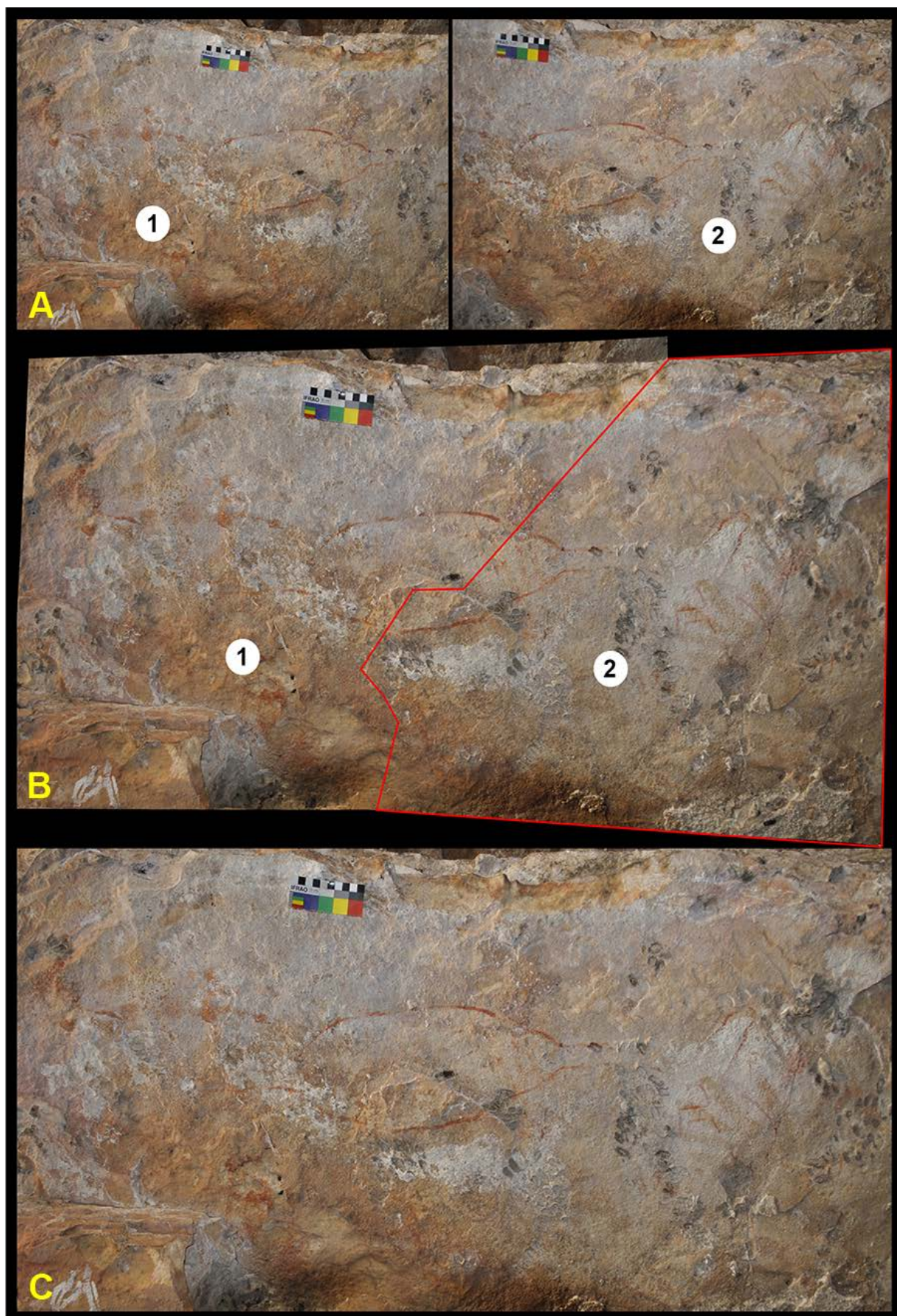


Figure 5.14: Example of the photo-stitching process

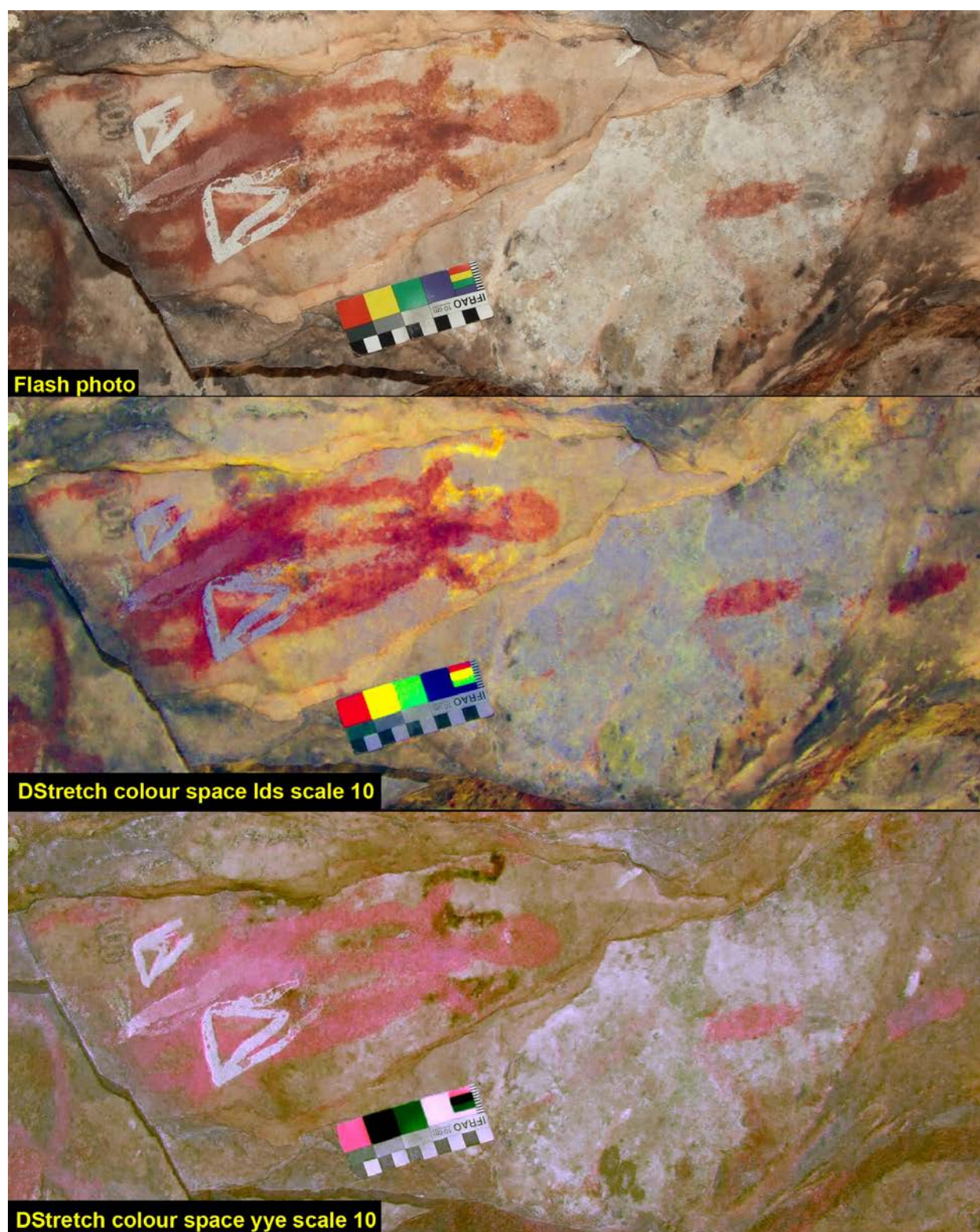


Figure 5.15: Example of DStretch enhancement of Panel A4 showing colour space and scale
 These images would be referenced as Panel A4_lds10 and Panel A4_yye10 respectively.

consecutively for all panels within a Group (i.e. within Group C, the numbering begins with motif C-1 on Panel C1, and the first motif on Panel C2 follows on from the last motif numbered on Panel C1).

For each motif, following McCarthy (1967: 14-29, 32-42; 1979: 14-32, 42-50), Maynard (1976: 92-114) and Clegg (1983: 89-94), a select range of formal attributes was recorded for each motif:



Figure 5.16: Pigment hue and chroma variation across motif A-70
A: motif A3/70 daylight photograph B: detail showing variation in pigment hue and chroma, and highlighting hue similarities between the pigment and other underlying staining in the bedrock (natural iron or weathered pigment)

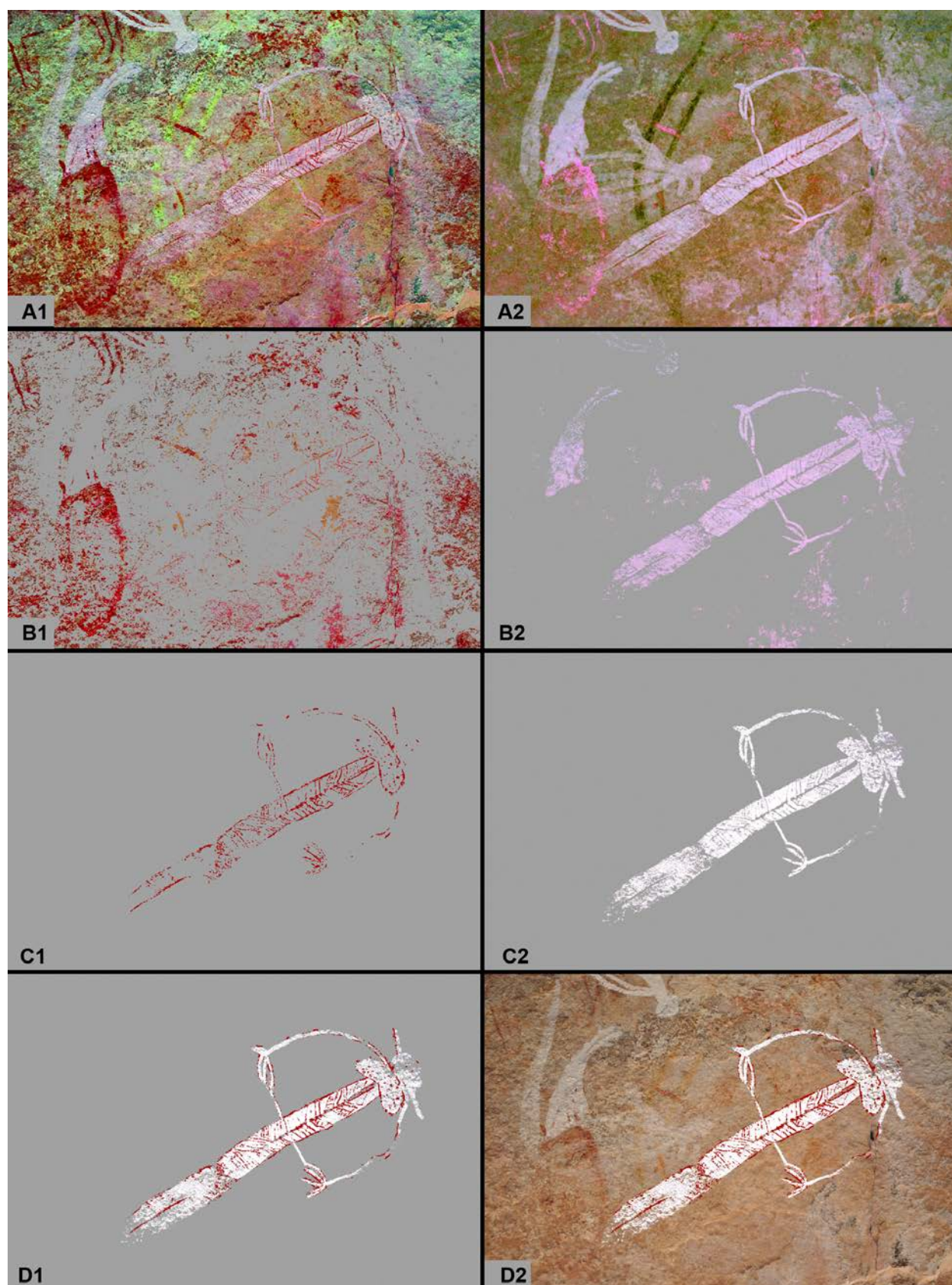


Figure 5.17: The DStretch enhancement processes (cf. Figure5.16A)

- Colour or degree of patination;
- Technique;
- Motif Form;
- Motif class;
- Motif type;
- Condition;
- Size; and
- Superimposition.

Uncommon or other features of interest, such as association/composition and idiosyncratic features/character, are described within the panel descriptions.

Throughout this study, the term **motif** is used as a term that embraces all culturally created rock markings (Clegg 1978a: 42). A *motif* (in contrast to terms such as marks, images, pictures, designs, elements, figures or glyphs used by other researchers) is distinct from a Motif Type (the classification to subject by shape). Motifs that can be classified to technique (see below) but not form or motif type (such that the original shape or its form cannot be determined), due to poor preservation or superimposition, are regarded as ‘*fragments*’, while those whose technique cannot be interpreted are classified as ‘*traces*’. Fragments and traces are not motifs, and are therefore excluded from any comparative motif analysis. Both types of marks do have colour and are therefore included in panel counts relating to colour and, on the assumption that they once existed as classifiable motifs, they are tallied to provide a minimum count of motifs on the panel or within the layer they are allocated to.

Colour refers to the overall pigment hue and, in the case of petroglyphs, degree of patination. The primary hues used in Australian Aboriginal rock art are red, white, black and yellow; with the secondary hues of purple, pink, cream, brown and grey. Petroglyph patination is classed as fresh, weathered, partially patinated or fully patinated depending on the contrast state between the surface of the petroglyph and that of the natural rock surface.

Variations in tones (e.g. light red vs dark red) and chroma (e.g. dull red vs bright red) are considered separate colours if the difference is visually distinct to the recorder and consistent within the area of pigment. Munsell or Pantone colour charts are not used here to assess the colour of rock art motifs as their use has been found to be unreliable in the field due to the uneven nature of the rock and pigment surfaces, variability of lighting within rock shelters, the variations of hue within a single motif and optical differences in recorders (pers. obs., from over 40 years’ experience; Gerharz et al. 1988; Ross 2003: 78). Indeed, their use in rock art infers an accuracy that does not in fact exist, particularly as colour in reality (and in any artwork) is relative (Gombrich 1961: 308-311) and, due to pigment impurities, colour may vary from one part of a motif to another. While colour chart readings

by the one recorder could be used to illustrate variation within a single motif, such precision is not required for this study.

With petroglyphs, the ‘colour’ refers to the relative discolouration of the exposed rock (area of removal) relative to the weathered surface. This can range from ‘unpatinated’ (the colour of the freshly broken rock surface), to ‘fully-patinated’ (the same colour as the surrounding weathered rock surface), and ‘partly-patinated’ (between these two states). As discolouration is a process that occurs gradually over time, the differences in patination states is often indicative of relative age. [Note that the term ‘patination’, also incorporates discolouration from physical and chemical processes that are distinct from any patina, mineral skin or biofilm development but which give similar optical effects (see Bednarik 1978/9; Dorn 2001: 172-178; Mulvaney 2010: 77-78; Rosenfeld 1988: 17-48; Watchman 1992)].

Technique refers to the method used in producing or rendering the mark visible. This can be either additive (pictograms) or subtractive (petroglyphs). Additive methods refer to the application of pigment to the rock surface (also elsewhere referred to as the support, ground or canvas), while subtractive methods refer to removing rock from the surface. The techniques found at Nawarla Gabarnmang restricted to nine classes (Table 5.1).

With pigment art, the technique will often limit the range of forms and types of a motif possible (Figure 5.18). However, while particular motif types are often associated with individual techniques (such as hands with stencils or grooves with abrading), the association is not predetermined.

Motif form is the manner in which the graphic elements that make up a motif are arranged: its graphic composition or organisation (Maynard 1976: 96-99). These elements can be sub-divided initially into *pre-forms* and *free-forms*. With pre-forms, the form is predetermined by the technique, while with free-forms it is not, thereby allowing a much broader range of motif forms and types to be explored (see Figure 5.18). The Pre-forms present at Nawarla Gabarnmang include hand stencils, object stencils and spray areas.

The principle free-form elements at Nawarla Gabarnmang are dot, linear, outline, solid (silhouette), and infill. With motifs that use more than one of these elements, the principle type of form is described first, followed by the other elements ranked in order of relative visual importance. The principle form type is the type that presents the greatest amount of information about its Motif Type. For example, a stick-figure is composed of only linear elements and therefore has a *linear* form; a solid-bodied figure with stick limbs has a *solid+linear* form, while a thin branch

with solid leaves has a *linear+solid* form. A special free-form type recognised in Australian rock art is the *X-ray*: a specialised variant of the *solid+outline+infill* form, having the infill pattern based loosely on the internal features of the motif (Brandl 1973: 167-169; Chaloupka 1993: 162-205; Mountford 1956: 112). The X-ray form is restricted to anthropomorphic and faunal motifs. Brandl sub-divided X-ray paintings into four categories based on the degree of complexity of the internal design:

incipient, simple, standard and complex (1973: 168), whereas Chaloupka suggested just two: descriptive and decorative (1993: 162). Taçon (1989a) has argued against the continued use of the term X-ray as it ‘contributes to misunderstanding rather than understanding’ because it represents a ‘motif applied, in varying degrees, to some painting and not ... as a comprehensive style’ (Taçon 1989a: 16 and 19). [In this sense he appears to be using the term motif in its fine art meaning of a leitmotif; that of a recurring trait that represents a particular theme].

Taçon proposes the use of the terms ‘internal’ and ‘external’ features but, as he himself acknowledges ‘the term [X-ray] is so entrenched in the literature [...] that it is difficult to avoid, especially when referring to the work of others’ (Taçon 1989a: 16). Initially, then, the term X-ray is retained here, although two distinct types are recognised: *Jawoyn X-ray* and *Northern X-ray*. The Jawoyn X-ray form consists of white silhouettes outlined in red, illustrating the external shape of the creature (various fauna and anthropomorphic figures), and decorated with red linear infill depicting the internal bones, muscles and/or organs of the creature portrayed (Figure 5.19A). In general the internal organs depicted in Jawoyn X-ray tend to be the backbone and muscle and highlighted with fine hatched infill. While the Northern X-ray form also involves the use a white base silhouette, its internal decoration uses a wide range of colours (most are polychrome) and its linear compartments are filled with flat areas of solid colour (Fig. 5.19B). In contrast to the

Jawoyn X-ray form, Northern X-ray form also highlights the digestive organs. As a result of the use of polychrome infill in solid areas, the Northern X-ray is more visually striking the Jawoyn X-ray form (see Chapter 4 – Jawoyn rock art).

In this study, motifs are classified into **Motif Types** on the basis of the overall shape (linear pattern, outline or solid silhouette). The system of classification for motif types remains problematic, with researchers generally developing their own systems to suite their particular research questions and in reference to the level of analysis they require (Officer 1991: 113; Rosenfeld 1977: 9-11; Ross 2003: 69-72). It is an axiom of rock art research to aim to ensure that the criteria for the identification of motif types are made explicit and are consistent (Clegg 1978a: 42). A distinct classification of motif type was developed following examination of the full corpus of artwork but, where appropriate, continuing the use of terminology in general parlance for western Arnhem Land rock art (such as Dynamic figures, Barramundi, Thylacines, etc., from Chaloupka 1993; Gunn 1992a; Lewis 1988; Taçon 1988).

While purely formal methods exist to classify motifs (cf. Clegg et al. 1977), this study selects motif types on the basis of explicit visual cues (Dobrez 2011; Dobrez and Dobrez 2013; Smith 1998), some of which may be formal attributes (e.g. Taçon 1988) while others are previously defined types derived from well-known local indigenous classifications, such as *Bolung* (The ‘Rainbow’ or ‘Rainbow Snake’, known by different names to different language groups: Brandl 1972: 181-182; Chaloupka 1993: 47-52; Edwards 1979b: 59-66), *Namarrkan* (The ‘Lightning Man’: Chaloupka 1993: 56-58; Edwards 1979b: 82-86; Taçon 1989a: 261-270), *Jawoyn Lady* (Gunn 1992a) or *Ngar-Mimi* (Gunn et al. 2013). To overcome the inherent problems of equating a motif with a real thing, the classes and types are seen purely as convenient labels, being grouped and categorized according perceived similarities with subjects recognised by the recorder, and not necessarily

Table 5.1: Technique class definitions

Prime process	Class	Definition
Additive	painting	Mobile application of a wet or prepared pigment by use of an applicator (e.g. brush, spatula or finger)
	drawing	Direct application using a nodule, stick or crayon, of dry or raw pigment
	spraying	Blowing pigment, usually wet, from the mouth or other vessel
	stencilling	Spraying wet pigment over and around an object to produce a negative motif
	printing	Stamping a wet pigment-laden object to produce a positive motif
	appliqué	Impressing beeswax, or other media, onto a surface
Subtractive	pecking	Repeated direct percussion with a sharpened hammer stone
	scratching	Linear surface abrasion with sharp implement
	incising	Repeated abrasion of a scratched line with a sharp implement

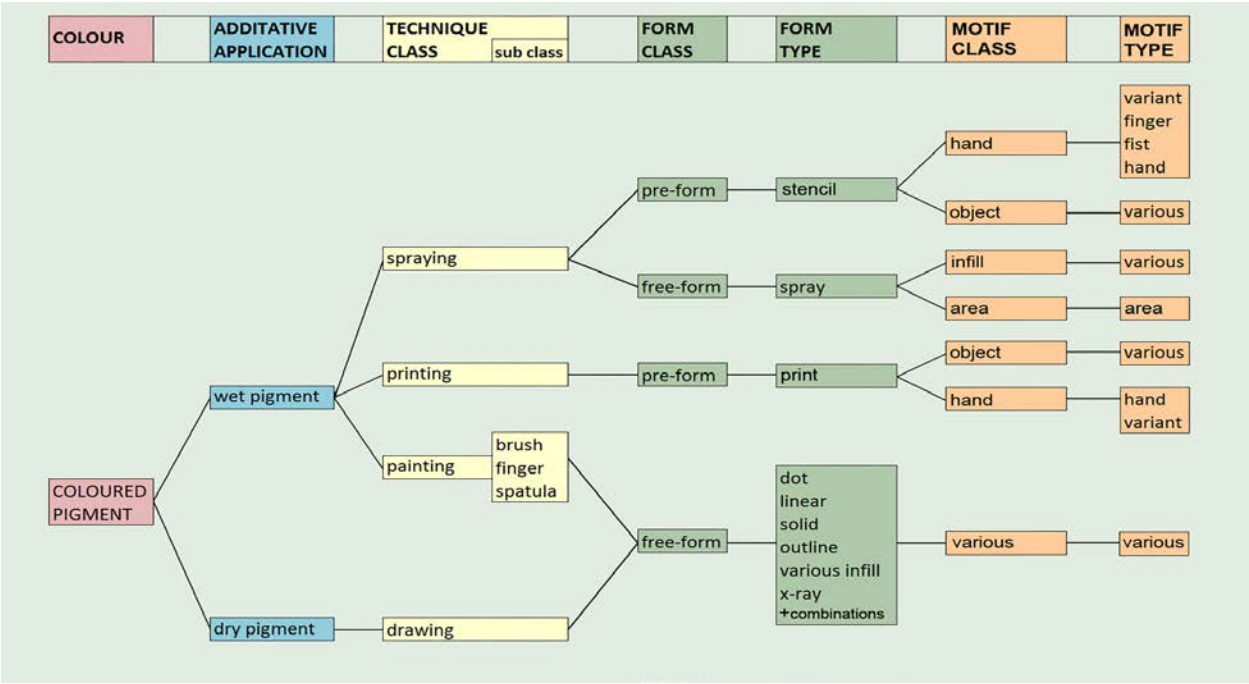


Figure 5.18: Associations between pictogram colour, technique, form and motif type

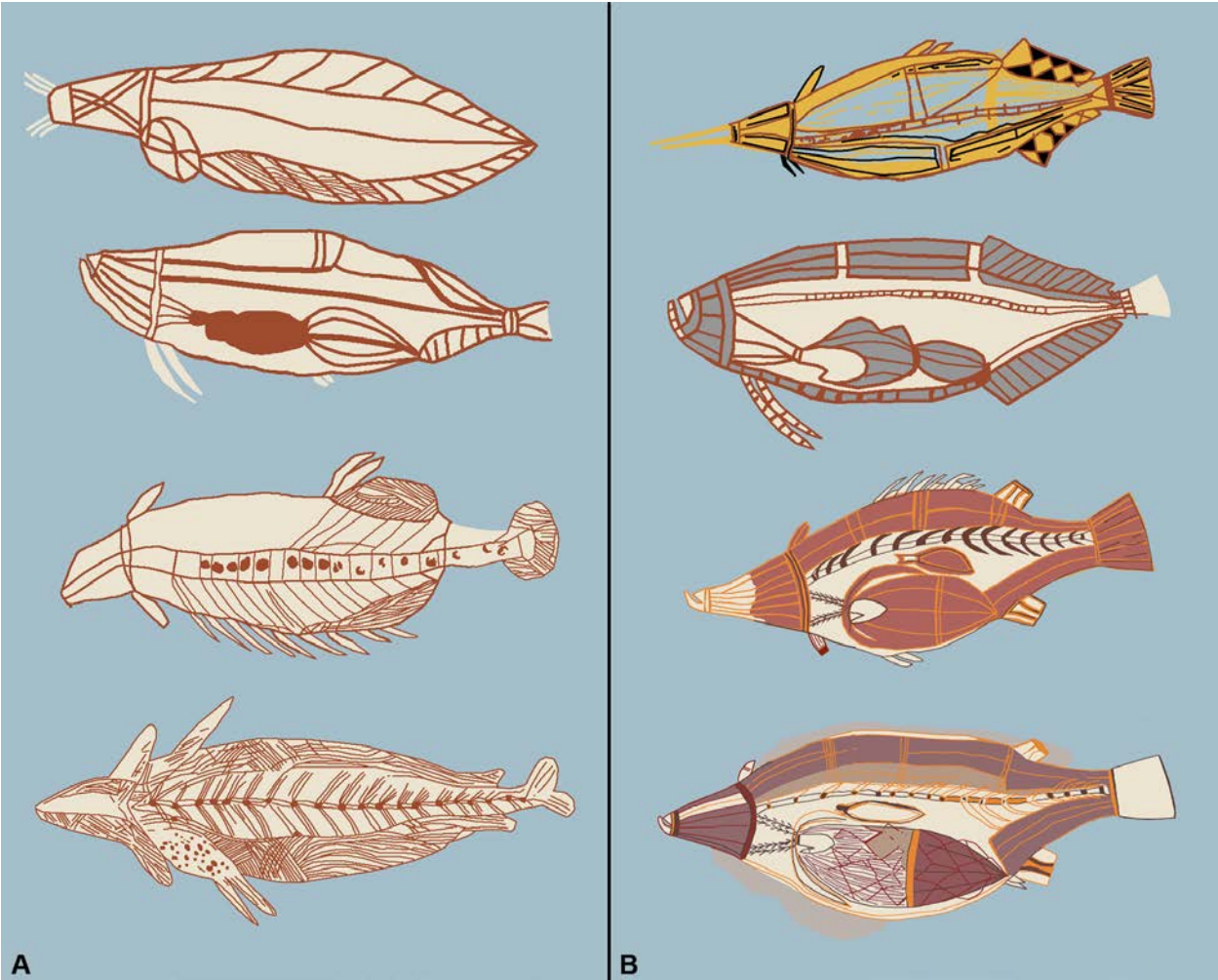


Figure 5.19: Comparison of the Jawoyn (A) and Northern (B) X-ray forms

reflecting the reality envisaged by the original rock artist or subsequent users of the art (see Clegg 1978a: 19-20; 1991; Officer 1991). Even those labels derived from informed Aboriginal people are interpretations of their generation and are not necessarily those of their forbears (Maddock 1970: 450; Merlan 1989). Also, motif types can be grouped at either a broad-scale (such as all macropods) to facilitate regional comparisons, or at a finer-grained level (such as each species of macropod) to examine the minutiae of differences within the repertoire under study (Rosenfeld 1997: 297; Ross 2003: 71). In line with the aim of this study to undertake a detailed analysis of the motif types over time, both levels are used here: the former as the **Motif Class**, and the latter as the **Motif Type**.

Non-figurative motifs are classified either as geometric elements, simple designs or complex designs. Geometric elements are basic shapes such as circles, arcs, V- or T-shapes, single lines, etc. Simple designs are formed by the combination of two or three geometric elements, whereas complex designs are those geometric motifs with a compound and intricate graphic structure (and usually, because of their complexity, are larger than simple designs).

Hands are recorded as either Hand left or Hand right depending on the position of the thumb. Where the thumb is not apparent, they are classed as Hand.

Motifs that can be classified to technique but not Motif Form or Motif Type, such that the original shape or its form cannot be determined (due to poor preservation or superimposition), are regarded as 'fragments'. Those motifs whose Motif Form or Technique cannot be interpreted are classified as 'traces'. Fragments and traces are excluded from any comparative Motif Type analysis. Both fragments and traces do have colour and are therefore included in panel counts relating to colour and technique (where possible) and, on the assumption that they were originally produced as classifiable motifs, they are tallied to provide a minimum count of motifs on the panel or within the layer to which they are allocated.

Condition refers to the state of preservation of an individual motif, being assigned on a visual assessment to one of five categories: very poor, poor, fair, good, very good (Figure 20). For a motif to be very poor it remains as all but a fragment or trace, with all fragments and traces necessarily being within this class. To be very good, the motif must look as if it was produced 'yesterday'. While condition is often taken as an indication of relative age, this is not the case in Arnhem Land where many red paintings, in particular Dynamic figures (a particular sub-class of anthropomorphs), which are generally considered to be amongst the earliest surviving art here, can be better preserved than some of the more recent X-ray motifs (Edwards 1979: 151-165).

Size is the maximum length of the prime axis of the motif (head to feet, head to tail, maximum dimension of objects and designs). Width is recorded as the widest part of the motif measured at right angles to the prime axis (Figure 5.21). A general measure of the motif area can be calculated multiply length by width. Motifs are measured to the nearest 0.5 cm.

In the case of hand stencils and hand prints, the preferred measurement is the length of the middle finger (MF), followed by hand length (HL), then the width of the knuckles (Kn) (Figure 5.22). Hand size gives an indication of the age/gender of the individual whose hand was stencilled (Gunn 2006), but while the hand stencilled may give an indication of handedness, it is more likely to indicate a compositional preference (Gunn 2007).

Superimposition (motif stratification) in rock art refers to the overlying of one motif by another, with the understanding that the upper-most motif (that closest to the surface and furthest from the rock face) will be the most recent in time (Harris 1989). If the order thus formed can be interpreted unambiguously, then the sequence must be correct. As in archaeological excavations, however, pigment layers in rock art can be disturbed, most commonly through differential preservation, whereby the more recent motif may 'look' older than the motif it overlies. Alternatively, two motifs in superimposition may both be so badly weathered that they now exist only as equally thin pigment stains within the rock surface, in which case it is usually very difficult, if not impossible, (even with the use of colour enhancements) to distinguish their correct sequence.

While there is some argument against the validity of interpreting superimpositioning in some circumstances (Brandl 1973: 172; Leroi-Gourhan 1967: 107; Lewis 1988: 4-5; Maynard 1976: 61; Morwood 1980: 106; Sim 1969: 147), its inherent value has been acknowledged by each of these same authors and by most other rock art researchers in Australia (e.g. Chippindale and Taçon 1993; McDonald 2008: 236-237; McCarthy 1974, 1979: 83; Taçon 1989: 118) and internationally (e.g. Aujoulat 2005: 242; Clottes 2003: 9-10; Domingo Sanz 2012: 318; Keyser 2001: 123-125; Llosas 2012: 343; Prous 1991: 58-60). While the upper motif in a sequence will be the most recent and those at the base of the sequence the earliest, superimposition provides only a 'relative sequential order' (Harris 1989: 36) and does not give any indication of the time period (minutes, days, centuries, etc.) that has lapsed between the production of one motifs layer and another.

The analysis of motif superimpositioning at Nawarla Gabarnmang underpins the development of its art sequence (layers) and the subsequent interpretation of its art phases (periods) (see Chapter 9).

A **visual composition** involves the graphic unity of a suite of contemporary (usually contemporary) motifs such that ‘the whole is very much more than the sum of the parts’ (Murray and Murray 1972: 95). The identification of compositions is in some cases readily apparent while in others the defining relationship of relevant motifs remains much more difficult. In either case, an explanatory argument for treating a set of motifs as a visual composition is provided. A visual composition will only register a thematic composition if it utilises perceptible visual traits within a visually perceived spatial relationship. It is taken for granted that many thematic compositions cannot be recognised on archaeological grounds alone (cf. Lewis-Williams 1981; Maddock 1970).

Taken together then, the attributes listed above provide an overall description of each individual motif, and these form the basis for an objective comparison to others on the panel and elsewhere within the shelter.

Also, as a special form of composition, the relationship between the art and the rock surface (such as an awareness, use or avoidance, of natural features) were noted, along with where, within the shelter, the panels and motifs occur (e.g. Leroi-Gourhan 1967). Similarly, the manner in which each panel developed over time and the relationships between superimposed motifs was also examined (cf. Clegg 1971, 1978a: 135–141, 1980).

The Interpretations

Over the past twenty-nine years, I have been fortunate to have recorded rock art in close collaboration with a number of senior Jawoyn people and others knowledgeable of Jawoyn rock art. This work, primarily for or on behalf of the Jawoyn Association, permitted me to record the identification of a range of specific motifs, while also providing familiarity with a generalised pattern of Aboriginal interpretation. Of principle assistance with these interpretations were senior Jawoyn elders Peter Jatbula*, Julie Williams, Sandy Barrawei*, Nipper Brown*, Bardayal Nadjamerrek*, Peter Bolgay*, Sarah Flora* and Sybil Ranch*. In addition to Margaret Katherine*, others who contributed were Jimmy Karelia, Richard Miller, George Manyita, Captain Andrews*, Larry Atkinson*, Ryan Barrawui, Lily Bennet, Queenie Brown*, Nikabini Dalak, Lazarus Ford, Dudley Lawrence, Robert Lee*, Larissa Lee, Peter Manabaru*, Ken Murray, Phillip Runyu and Hitler Wood*, Jimmy Wisen* and Phyllis Wiynjorrotj*, along with the Wardaman elder Bill Harney. [*=now deceased].

Assistance with some interviews was provided by anthropologist David Cooper, Jawoyn Culture and Environment Officer Ray Whear, and linguist Murray Garde. Bardayal Nadjamerrek is the only artist to produce rock paintings (see Munro 2010). In most

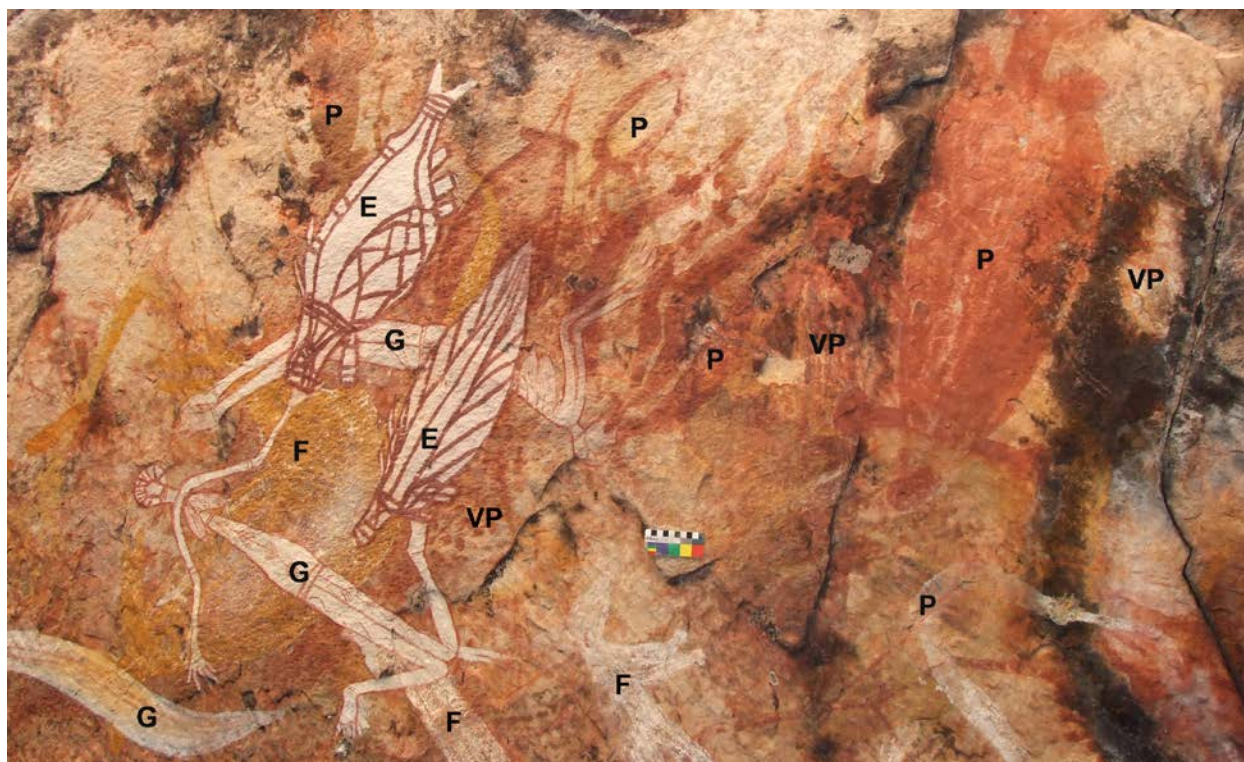


Figure 5.20: Examples of various motif condition classes
VP: very poor P: poor F: fair G: good E: excellent

cases, these people visited shelters with rock art when they were younger, and mostly in association with their parents who related specific interpretations.

The Jawoyn interpretations of their rock art, and other archaeological facets relevant to this study, are presented in Chapter 10.

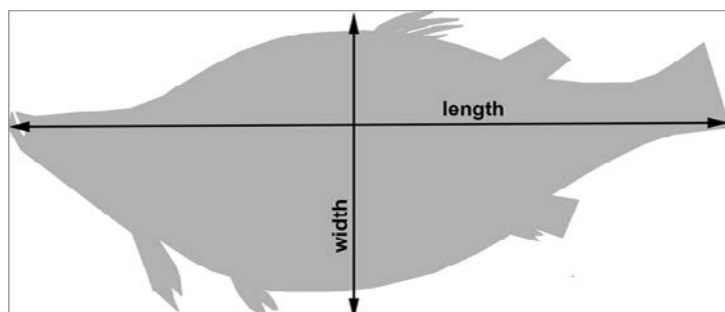


Figure 5.21: Motif measurements

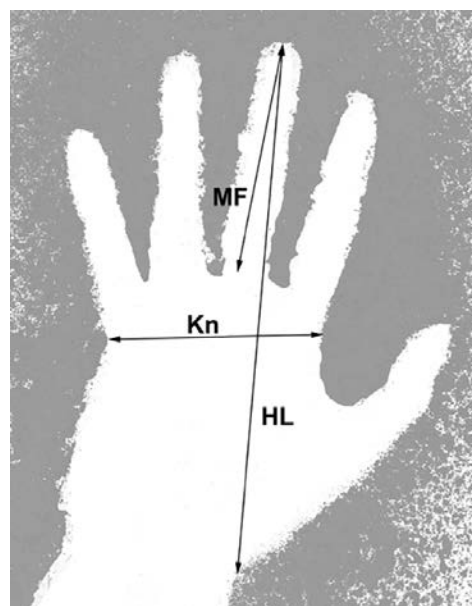
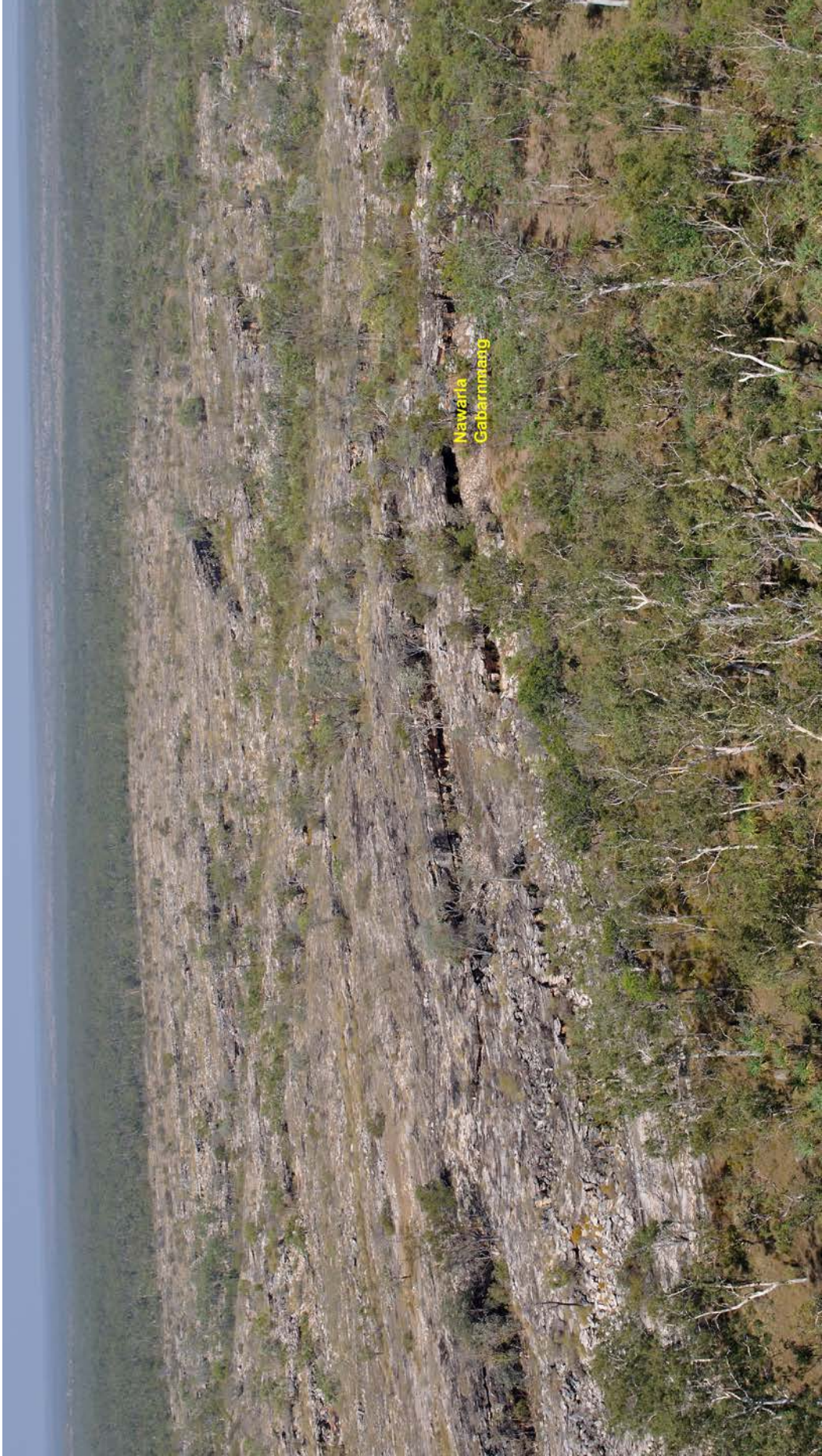


Figure 5.22: Hand size measurements



Location of Nawarla Gabarnmaag from the north-east



6. NAWARLA GABARNMANG AND ITS ARCHAEOLOGICAL CONTEXT



In our culture, we feel our ancestors are here and for these Mimi they still look after all inside this cave, they stay and look after this country for me.

Margaret Katherine 2013

The rock shelter of Nawarla Gabarnmang lies on the northern side of a large but low and quartzose-sandstone outcrop, roughly 2×1 km in area, which rises to no more than 15 m above the surrounding plain (Figure 6.1). The flat-topped outcrop sits within an open woodland sand plain at an elevation of around 385 m above sea level.

An ephemeral creek runs around the northern side of the outcrop with a small soak 100m north-east of the shelter, dominated by *Pandanus* and rushes. The creek also contains several small seasonal waterholes and joins a larger creek on the western side of the outcrop that, in turn, continues south-west for three kilometres to join the permanent waters of the Katherine River (Figures 2.1 and 6.1). Although no specific flora or fauna surveys have been undertaken, the immediate environments around Nawarla Gabarnmang are diverse and seasonally variable (Figure 6.2).

Location and recording of Nawarla Gabarnmang

During a return flight from Kapawanamu on the 11 June 2006, Ray Whear, then Lands and Cultural Heritage Manager for the Jawoyn Association, pilot Chris Morgan

and myself (Figure 6.3) spotted a large rock shelter with dark floor deposit likely to be a significant occupation and art site. As with the majority of recorded complexes, the finding of Nawarla Gabarnmang was fortuitous, as reconnaissance was mostly restricted to flight paths dictated by management projects, such as feral animal control or seasonal burning.

The rock shelter stood out due to its cavernous overhang and sizable black floor deposit (Figure 6.4). The site was inspected by Ray and Chris two days later while Leigh and I recorded a nearby complex (ARN-0072). Given their excitement over what they saw they returned and immediately took us over for an initial assessment:

Quick trip over to the cave with the deposit: an amazing geological formation: columns and roof: a supported bridge. Huge amount of deposit including a wooden woomera (narrow type). But the art! Huge 2 m barramundi in pristine condition. Layer upon layer, figures, Jawoyn ladies, fish, kangaroos, turtles, they're all there. One of Australia's spectacular sites. Would need a whole day just for this one site. Amazing. But what are large barra doing up onto of the plateau, miles away from any river with barra

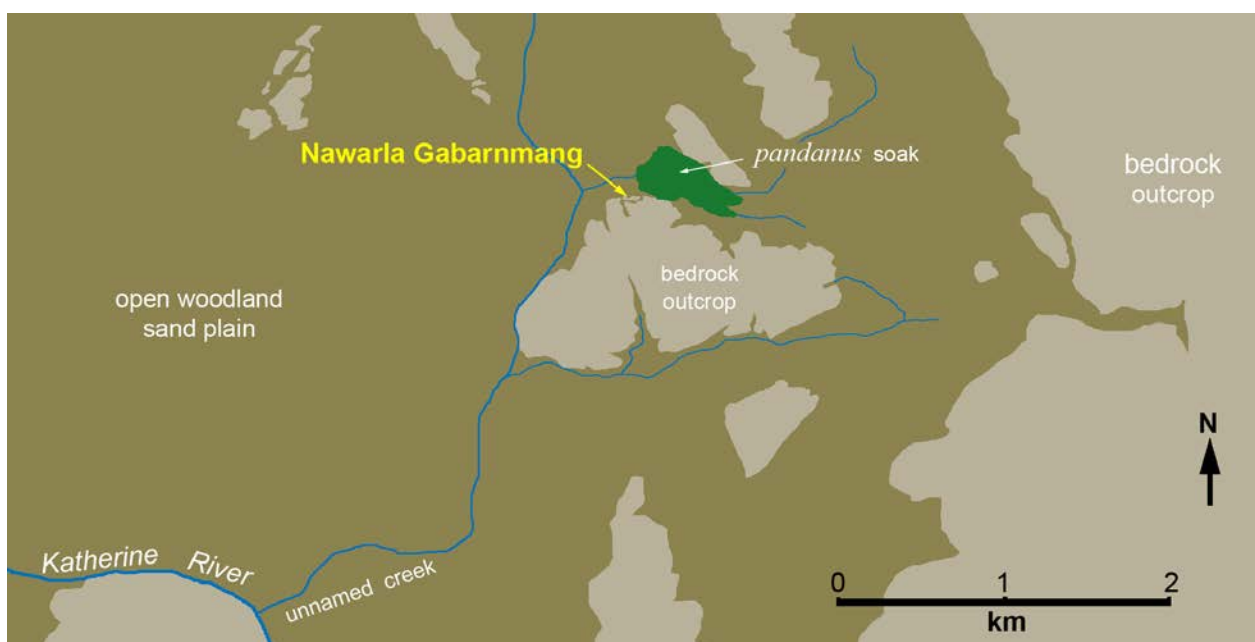


Figure 6.1: Environmental context of Nawarla Gabarnmang (Site ARN-074/A)

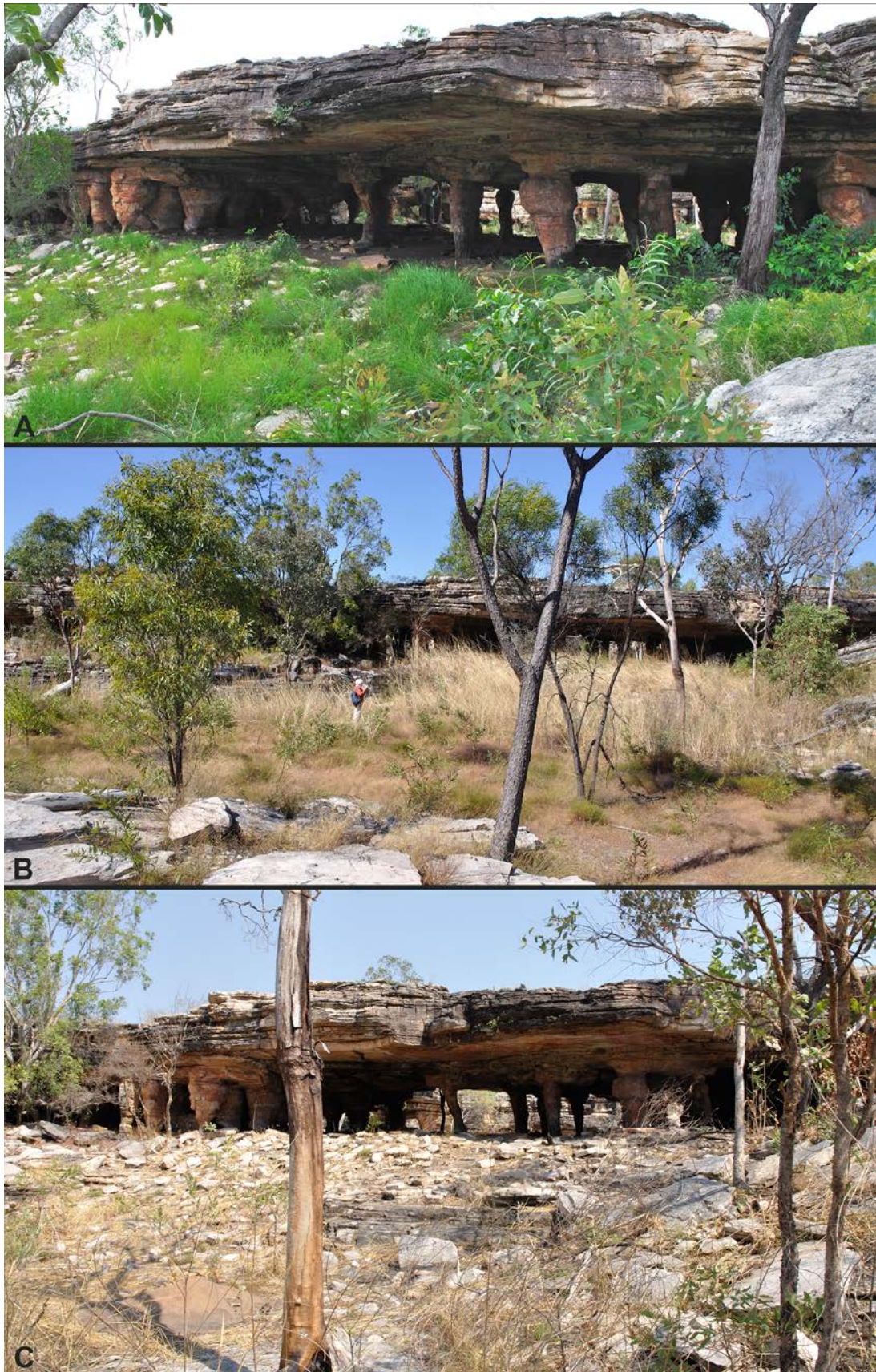


Figure 6.2: Seasonal vegetation changes at the shelter
A: Mid wet season (late December) B: Early dry season (late May)
C: Late dry season (late September), following a lightning ignited grass fire



Figure 6.3: Ray Whear, Peter Bolgay and Chris Morgan on survey (2005)



Figure 6.4: Initial photograph of Nawarla Gabarnmang (2006) prior to its initial recording

(none in the upper Katherine)? Many questions. Wood cut with metal blades, but no tin cans or other contact artefacts or paintings of contact bits (R. Gunn diary; 13 June 2006).

We undertook a preliminary recording of the site on the 15 June 2006. At that time the Aboriginal name for the site was unknown and it was given the Jawoyn site complex number ARN-074, with the shelter designated site ARN-074/A1.

The following day our friend and colleague Peter Bolgay, a senior Mayali man with knowledge of Mayali and Jawoyn rock art and ritual, was flown up to see the site. He was surprised by the number of large polychrome X-ray barramundi painted on the ceiling; such depictions are more common around the edge of the plateau further to the north than here in Jawoyn Lands (cf. Taçon 1989a, 1989b, 1993). After some deliberations on the presence of these unexpected paintings, he concluded that, as the barramundi was of particular spiritual significance to the people along the East Alligator River, the site must have been used by them as a camping place when visiting this area. He proposed that these visits were most likely made during the wet season, when they joined with Jawoyn and other groups for ceremony and trade. Peter further speculated that the ceremonies at this time would have been held ‘not far’ (probably within a few kilometres?) from the Nawarla Gabarnmang shelter.

On several subsequent visits to the site with senior Traditional Owners and other knowledgeable elders (including Wamud Nadjamerrek, Jimmy Kalarriya and Larry Anderson), Ray Whear was told that the site was known as *Nawarla Gabarnmang*, meaning ‘hole through the rock’. Ray also learnt that, as children, these men had camped at the site with their parents in the 1930s and then, later, when walking over the plateau to work in the Maranboy mines in the 1950s. Nadjamerrek recalls having noticed the paintings of the large X-ray fish on the ceiling from the times of his earliest visits.

On approaching the site, its most striking aspect is its rock formation. The entrance of the shelter is some 30 m long and around two metres high, and sits commandingly three metres above the frontal plain (Figure 6.5). It has a ceiling of near-horizontal sandstone supported by over 50 large sandstone pillars (Figure 6.6). Furthermore, as the shelter is open at both its northern and southern ends, from the outside the internal pillars are silhouetted against the back-lighting, giving the sheltered area an imposing colonnaded appearance. The interior of the shelter is light and roomy, and the ceiling has been extensively decorated with striking

and colourful artwork. Forty or so of the pillars have also been decorated and, while not the subject of this study, they warrant brief mention. All have paintings and/or stencils (e.g. Figure 6.7); mostly on the larger side that face towards the centre of the shelter, but several have artwork on all four sides. Three pillars also have petroglyphs: Pillars 23, 25 and 28 with cupules (Figure 6.8A), and Pillar 25 also with three small incised bird tracks (Figure 6.8B). While not counted, each pillar probably has less than 20 motifs, with several bearing only a single motif. Low numbers of paintings are also found on several smaller protected panels to the east of the main shelter area where the pillars form a tight

maze as they get closer and closer together; eventually joining into a solid wall. Another pillar immediately south of the main shelter contains paintings of Dynamic style figures painted in red and then re-painted in yellow (Figure 6.9).

The initial recording of the main shelter of the site (ARN-074/A1) counted 462 motifs, on 43 ceiling panels and 36 of the 40 decorated pillars. This gave Nawarla Gabarnmang the densest rock art concentration of any known site in Jawoyn Lands at the time; a pre-eminence it still retains. Subsequent detailed recording has revealed that the site contains over 1300 motifs (see below).

While a first impression of the artwork is of an overwhelming array of well-preserved images involved in complex superimpositions, much of the art is very faint and difficult to see. The problems associated with documenting and analysing this copious body of artwork, then, became a basis for this study.

The shelter, which ranges from 13m to 22m in depth, has a protected floor area of approximately 500 m² but, excluding the area taken up by the 50 or so pillars, it has a habitable floor area of around 400 m², making it the largest single Jawoyn occupation shelter yet recorded.

The sandy floor of the shelter, although in places disturbed by trampling buffalo, contained a wide range of surface artefacts, including a spearthrower, clap-stick (hardwood musical instrument), message stick, a tin sheet, and several ground stone axe-heads (Figures 6.10 and 6.11), as well as a range of stone flakes and worked wooden points. On the basis of the very high archaeological potential of the floor deposits, Dr Bruno David and his team (see above) began an excavation programme here and at other nearby sites on Jawoyn Lands in 2010.

The excavation of the floor deposits at Nawarla Gabarnmang revealed, through radiocarbon dating of charcoal, that earliest occupation of the site began more than 46,000 years ago (David et al. 2011, 2013; Geneste et al. 2010, 2012). This age made it the oldest dated occupation site within Jawoyn Lands and one of the oldest securely dated sites in Australia. The age of occupation is similar to that recovered from the oldest dated rock shelters around the perimeter of the Arnhem Land plateau, 100 km to the north-west (Roberts et al. 1990, 1994).

A further distinction for Nawarla Gabarnmang was the realisation that much of the interior of the shelter had been enlarged by human modification. This was achieved by the intentional removal of a number of the sandstone pillars (Delannoy et al. 2013, 2017). This enlarging process caused parts of the ceiling to collapse,



Figure 6.5: The setting of Nawarla Gabarnmang from the north (upper) and west (lower)
Lower photograph: Leigh Douglas



Figure 6.6: The interior of Nawarla Gabarnmang
Photographs: Leigh Douglas

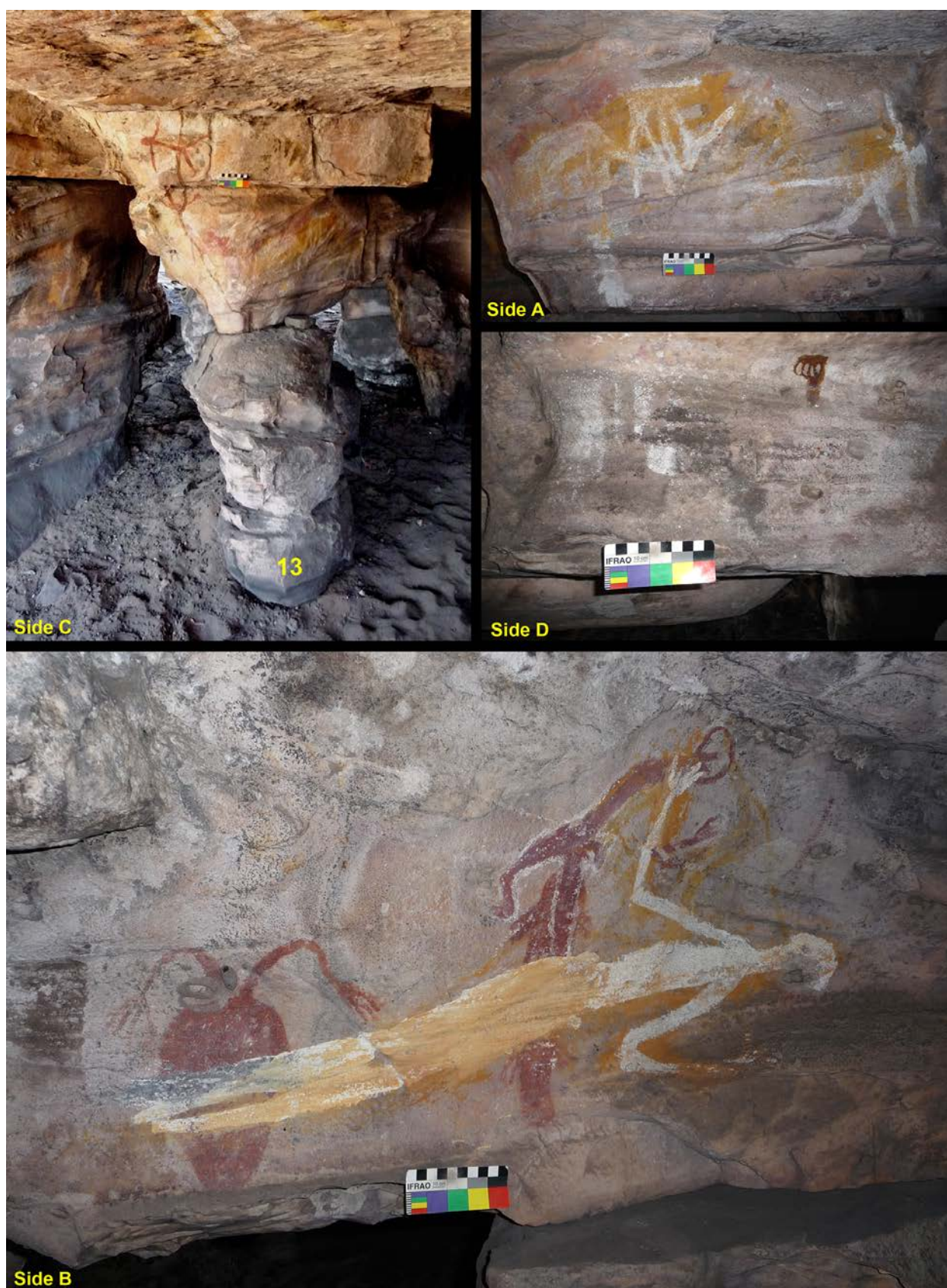


Figure 6.7: Pillar 13 showing art panels on four sides



Figure 6.8: Pillar petroglyphs
A: Pillar 28 cupules B: Pillar 25 incised bird tracks

creating new ceiling surfaces including several of those that are now highly decorated. The effort required to undertake such an enlargement indicates that the site, prior to its present condition, must have held a high significance as a special cultural place in the regional landscape.

The regional context

A survey of the rock outcrop surrounding Nawarla Gabarnmang was undertaken over several visits between 2009 and 2012 by Leigh Douglas and myself, with the assistance of American rock art recorders David Lee and Charlotte Armstrong. This survey covered the areas of three adjacent and previously nominated Jawoyn site complexes: ARN-021 (field code BBG), ARN-120 (field code BBW) and ARN-121 (field code BBS). Two un-nominated areas to the south and south-east (field codes BBC and BBE) were later included within the greater ARN-074 site complex (Fig. 6.12). The survey was systematic and comprehensive, and it is expected that all archaeological sites on the outcrop have now been recorded.

Nawarla Gabarnmang occurs within a roughly triangular rock outcrop, measuring roughly 1 km north-south by 2 km east-west. The surveys of the entire outcrop recorded 159 archaeological sites from four contiguous survey areas (Table 6.1; Figure 6.13). Of these, the most common site types were art shelters (with or without other archaeological expressions; $n=71$) and standing stones ($n=68$) (Figure 6.14). The range of other kinds of stone structures other than individual standing

stones included cairns ($n=4$), store houses ($n=2$), a cache of stones ($n=1$), a conical stone ($n=1$), a linear stone arrangement ($n=1$), and two examples including combinations of these. Three human burial crypts were recorded: all were bundle burials placed in clefts and sealed with stone walling (cf. L'Oste-Brown et al. 2002). Three areas of bedrock with grinding patches were recorded, all of which were within close proximity to the Nawarla Gabarnmang shelter (see below).

Art shelters

The art shelters range in length (taken as a general measure of shelter size) from 2 m to 25 m, the largest being Nawarla Gabarnmang. Shelters greater than 10 m in length occur throughout the outcrop, but the largest shelters tend to occur along the more elevated northern face of the outcrop (as the outcrop dips down from north to south). The eight largest shelters all lie along the northern tip of the outcrop, on either side of the central north-south trending joint line. The smaller shelters, however, are widely distributed across the outcrop.

The art shelters are mostly orientated either towards the north or south (Figure 6.15). This is not seen simply as a measure of cultural preference, however, but more a reflection of natural erosional patterns, as the shelters tend to occur on either side of roughly east-west trending joint lines (see Figure 6.13).

The initial site recordings counted all readily visible motifs. Subsequent detailed recordings of a small



Figure 6.9: Detail of composition of Dynamic Figures on an outer pillar at Nawarla Gabarnmang
 A: Flash photograph B: DStretch_rgb015 highlighting the red and yellow C: DStretch_yye15 showing the red (pink) and ghosting the yellow, to highlight the over-painting

number of art sites (field notes 2006-2012) indicates that the initial recordings under-represent the number of motifs by a factor of around 1/3, with the discrepancy greater for shelters with high motif numbers and less for shelters with lower motif numbers. The greater discrepancies in sites with higher motif numbers are largely due to their higher densities of superimpositions; note the differences in the initial and detailed recording of Nawarla Gabarnmang mentioned above. Overall, however, the initial recordings provide a reliable estimate of the relative number of motifs within each site and, therefore, the following analysis of motif numbers per site should be seen as a general pattern that will require refinement should more detailed recordings be undertaken.

From the initial recordings, then, the number of motifs per art site ranged from 1 to 462 (Figure 6.16), with a mean of 33 and a median of eight. Nine shelters stand out as having exceptionally high motif numbers, with Nawarla Gabarnmang (with 462 motifs counted at the time) clearly being the major art shelter of the outcrop with the next highest number of motifs being 272.

Of the other eight shelters, seven have more than 100 motifs each and these tend to be focused within four areas (Figure 6.13), suggesting four foci of art production and, hence, occupation. While three of these clusters occur along the northern perimeter of the outcrop, the fourth, consisting of two separate sites in the south-eastern portion of the outcrop, appears anomalous. The two sites, ARN-074/56 and ARN-074/58, occur in different environmental contexts: ARN-074/56 above a gorge-like north-south joint line, and ARN-075/58 beneath a mushroom rock on a broad flat pavement. Neither is near a ready water source but both are in areas largely devoid of other rock shelters.

Generally throughout Australia, art shelters with high motif numbers tend to be large and central to a suite of smaller shelters with lower motif numbers, largely due to erosional patterns (pers. obs.). Nawarla Gabarnmang in contrast,



Figure 6.10: Floor of the central area of the shelter in 2009

Table 6.1: Recorded sites numbers by survey area (2006-2010)

SURVEY AREA	Art shelter	Standing stone	Cairn	Burial	Grinding areas	Flaking shelter	Store house	Other stone	Stone alignment	Ritual stone	TOTAL No. of SITES	No. of Motifs
BB	25	36	2		3		1	1	1	1	71	1078
BBG	23	5		1							29	653
BBW	14	9	2	2		3	1	1			32	552
BBS	9	17					1				27	77
TOTAL	71	67	4	3	3	3	3	2	1	1	159	2360

which is the largest and most densely painted art site within its site cluster has no more satellite art sites than any of the other three site clusters here. This unusual pattern again can be explained by the geomorphology of the complex where few other shelters have developed.

There is no positive correlation between shelter length (taken as an overall measure of size) and motif numbers (Figure 6.17). This suggests that shelter size was not a major factor in art site selection or art preservation. A similar lack of positive correlation was found between motif numbers and shelter orientation. Shelters

with greater than 50 motifs, however, tend to have a northerly orientation (five facing north, two south, one west), largely due to their occurrence along the northern face of the outcrop (Figure 6.13). In contrast, of the 15 shelters over 15 m long, eight have southerly orientations and only five open to the north.

Sixteen other shelters within the outcrop occur in pillar karst formations similar to that at Nawarla Gabarnmang (e.g. Figure 6.18). Unlike Nawarla Gabarnmang, however, five of these 16 shelters have very limited floor areas for occupation as the pillars occupy most of



Figure 6.11: Nawarla Gabarnmang surface artefacts

A: spearthrower and clap-stick B: barbed spear point C: message stick D: tin sheet E: ground stone axe-heads F: dillybag hook in ceiling G: unspecific cut wood H: grindstone with red ochre

the interior space with only narrow corridors between them. In addition, the ceilings of two of these shelters (ARN-074/L and ARN-074/53; Figure 6.18A and D) are just over a meter above the floor.

Of these pillar karst shelters, only one show signs of artificial enlargement and has been extensively

decorated. The exceptional shelter, ARN-120/1, is the second-largest and second-most prolifically decorated of the art shelters on the outcrop (Figure 6.19). A central open area suggests the shelter may have been the target of pillar removal, but this has yet to be investigated. The shelter faces south and its interior height quickly reduces with depth. The ceiling panels

Table 6.2: Frequencies of shelter forms on the Nawarla Gabarnmang outcrop

Shelter form	No.	%
Slab	19	27
Undercut	14	20
Pillar	17	24
Stepped	8	11
Capped Wall	7	10
Mushroom	3	4
Fallen block	3	4
Total	71	100

are mostly badly marred by deposited salts but, despite this, most of the outer panels have been decorated. Like Nawarla Gabarnmang, the floor consists of charcoal-stained sand and rubble. Numerous stone artefacts occur around the dripline, and within the shelter there are several grindstones, stone axe-heads and a small metal piece. The artwork consists of a range of non-diagnostic styles in red, white monochrome and white+red bichrome works. Several images with X-ray features are present that utilise the Jawoyn X-ray form; none utilise the Northern X-ray form.

Those art shelters around the outcrop not within the pillar karst formations have developed from more common forms of sandstone erosion: undercut walls or stacks, collapsed slabs, rock walls, or mushroom rocks (Table 6.2; Figure 6.20). Compared to the general pattern of shelter forms on Jawoyn Lands, there are a markedly higher proportion of pillar shelters here than elsewhere (24% cf. 4%) and a lower proportion of stepped shelters (11% vs 29%; see Chapter 2, Table 2.1 above). This difference is due to the local geology, with the presence of the exposed sandstone-karst layer within the Nawarla Gabarnmang outcrop providing the context for the pillar shelters; here the finer lamellar breakages required for stepped shelter development have been prevented by the more homogeneous nature of the better silicified sandstone layers that is most common across the outcrop.

Artwork

The Jawoyn Rock Art and Heritage Project (JRAHP) (Gunn and Whear 2007), summarily categorised the rock art found in Jawoyn Lands into three periods:

- **Mimi:** artwork said by custodians to have been painted by Mimi spirits. These images are generally taken by custodians and researchers to be the Pre-estuarine styles proposed by Chaloupka (1993: 91-152);

- **Recent:** where the art form was recognised by custodians as being produced by their ancestors and which they recognise as any artwork with predominantly white pigment; and
- **Contact:** motifs that can be readily recognised as indicating contact with non-Aboriginal cultures.

Within each of these periods, wherever possible, motifs were noted when present according to the classes proposed by Chaloupka (1993) or within a broad class of 'other' (Table 6.3).

All of the art sites on the Nawarla Gabarnmang outcrop contain motifs from the Mimi period and, of the recognised classes, red hand stencils are the most frequent (27%) (Table 6.3; Figure 6.21). The other three art classes of note are Large Naturalistic (13%), Dynamic (13%) and Stick figures (11%).

The class 'Other' is represented at 62 sites (87%), indicating that there are a wide range of currently unrecognised motif classes within the gamut of Mimi art (Figure 6.22). Note that this basic starting chronology will be re-evaluated below (see Chapter 9).

Hand stencils within the Mimi art occur at sites throughout the outcrop (Figure 6.23) and at all major art shelters with the exception of ARN-074/56 in the central-east. The art within site ARN-074/56 is unusual also for its repertoire, which consists almost entirely of 'Other' Mimi motifs; it is the only major art shelter from the outcrop with a total lack of any Recent motifs.

The Recent artwork occurs within large shelters and their immediate neighbours located along the northern

Table 6.3: Art class site frequency

	No. of Sites		No. of Sites
MIMI ART		RECENT ART	
Large naturalistic	9	Polychrome X-ray	1
Dynamic	9	Bichrome X-ray	3
Post-Dynamic	3	Other polychrome	8
Yam	3	Monochrome	10
Ngar-Mimi	3	Stencils	5
Other SFB	1	Prints	0
Beehive headdress	3	Beeswax	2
Stick figures	8		
Hand stencil	19		
3MF stencil	2	CONTACT ART	1
Hand print	0		
Other	62		
(n)	(71)	(n)	(11)

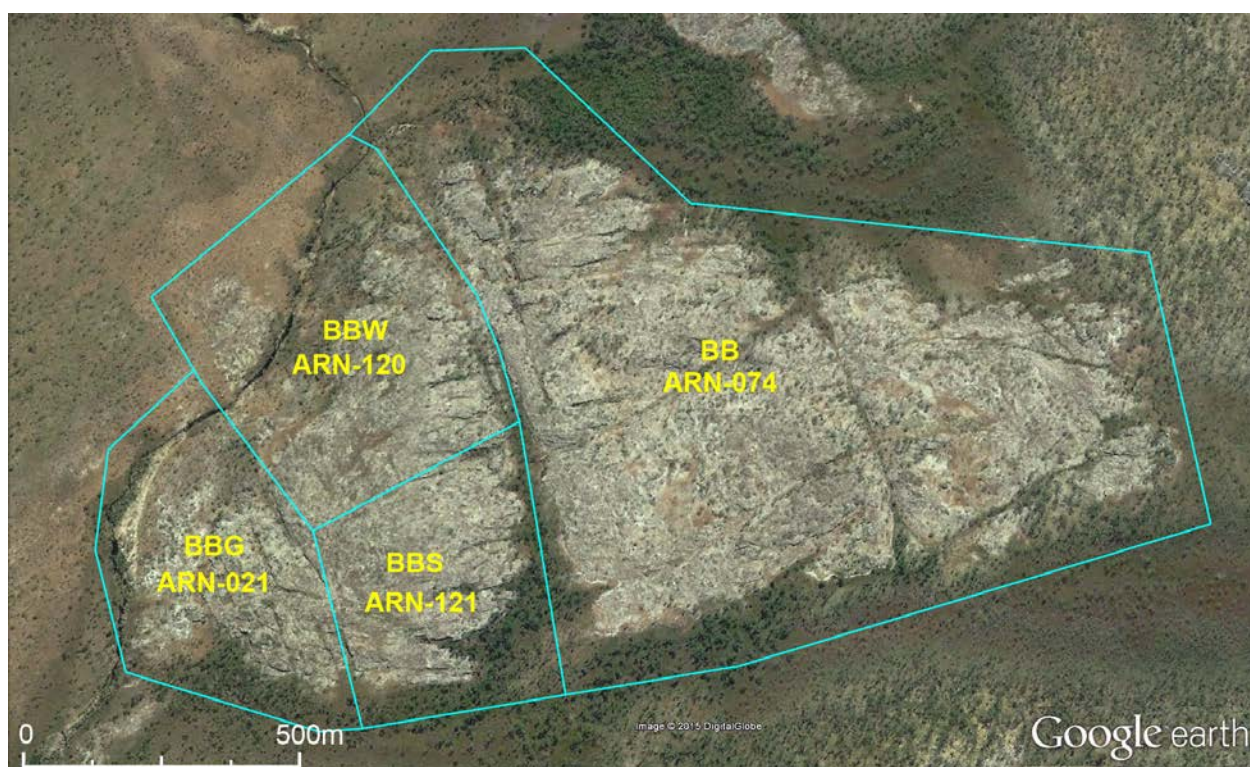


Figure 6.12: Site survey units across the Nawarla Gabarnmang outcrop
(base photograph from Google Earth)

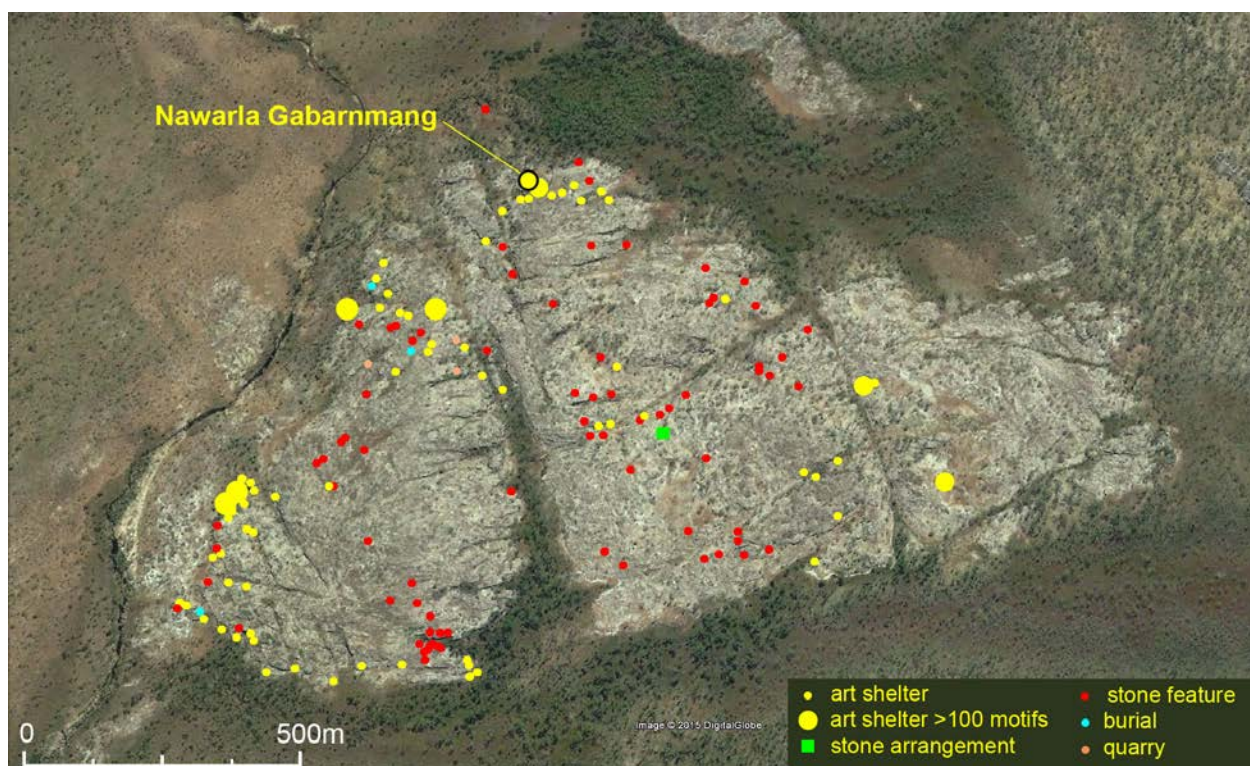


Figure 6.13: Site distribution across the Nawarla Gabarnmang outcrop
Excluding three grinding areas; see below.
(base photograph from Google Earth)

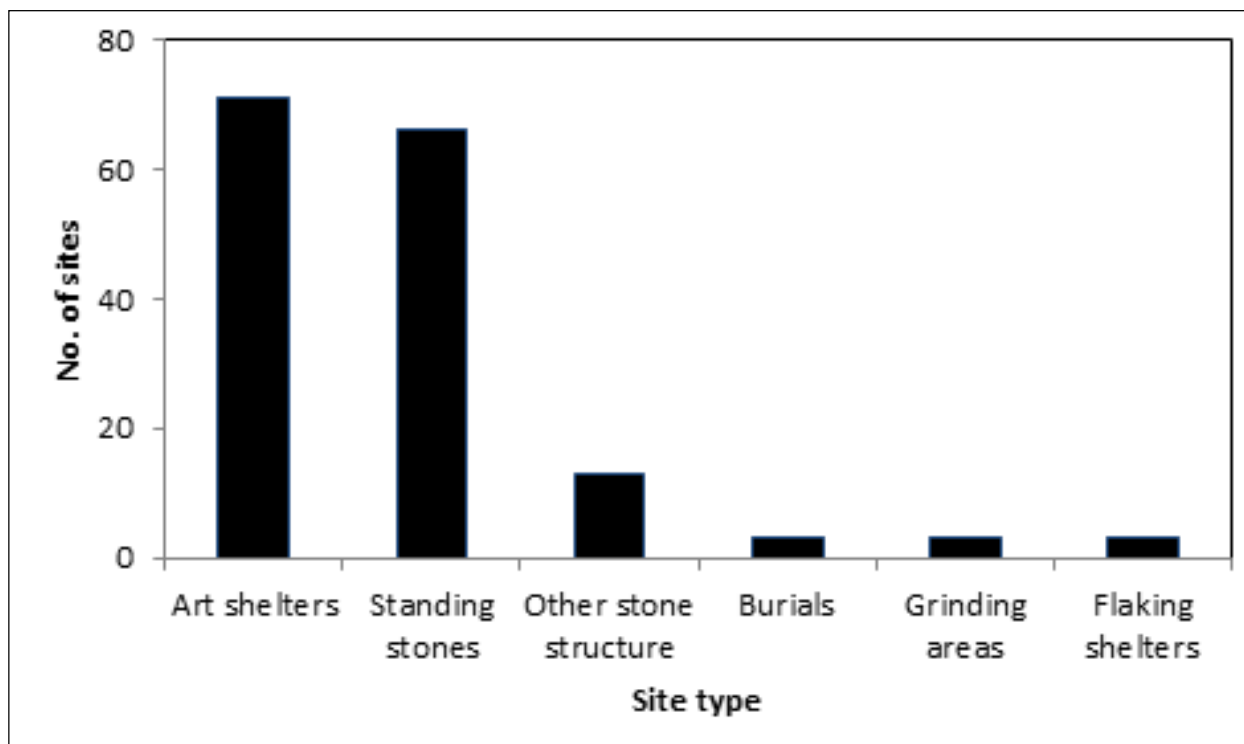


Figure 6.14: Site type frequencies

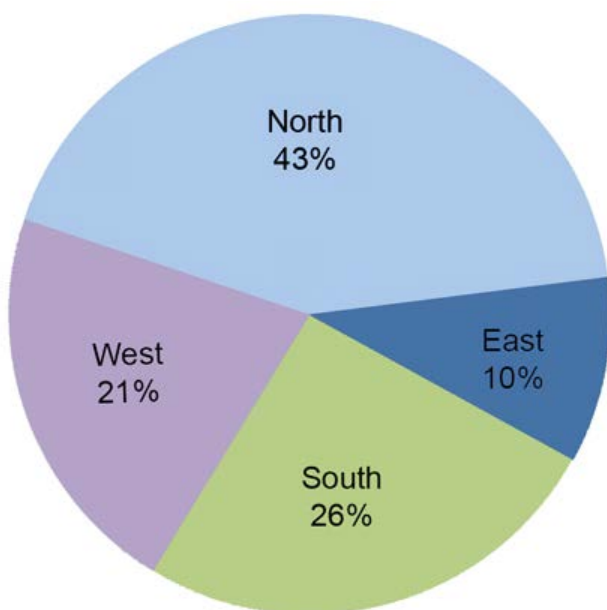


Figure 6.15: Shelter orientations

rim of the outcrop (Figure 6.24). Evidence of Recent artwork is lacking elsewhere over the outcrop.

Within the Recent artwork, monochrome motifs occur in ten of the eleven sites from this group, and 'Other' polychrome in eight sites. The former motifs are almost exclusively in white, while the latter consist primarily of white silhouette images with red outline and infill, a small number being in red with white infill (Figures 6.25 and 6.26). 'Other' polychrome motifs occur either in, or in sites

adjacent to, those sites with high motif numbers. Hand stencils, also predominantly in white, were recorded from just under half of the Recent art sites, all of which also contain Mimi hand stencils. The 'Bichrome X-ray' motifs (Figure 6.27) occur in the two largest art sites (Nawarla Gabarnmang and ARN-120/1) and an adjacent site (ARN-074/A2). 'Polychrome X-ray' images occur only in one site: Nawarla Gabarnmang. The single contact image recorded within the outcrop, a horse, also occurs within Nawarla Gabarnmang (see Chapter 7 below).

Overall, in both the Mimi and Recent artwork, there is a trend for those art shelters with the highest motif numbers to also have the greatest range of motif classes. Consequently, the range of motif classes at Nawarla Gabarnmang, with its exceptionally high motif numbers, is the highest of all the art sites from the outcrop. Nawarla Gabarnmang also has twice the number of motif classes of both Mimi and Recent art of any other art site on the outcrop. This then suggests that it was a considered a favoured shelter for both Mimi and Recent art production.

Although specific counts are not available at present, generally anthropomorphic figures are well represented within both the Mimi and Recent artworks across the outcrop. The principle difference between the two is a focus on land-based fauna in the Mimi art (principally macropods, small quadrupeds and emu), and a substantial increase in the depiction of aquatic fauna (fish, crocodiles and water birds) alongside the continued representation of macropods and emu in the Recent art.

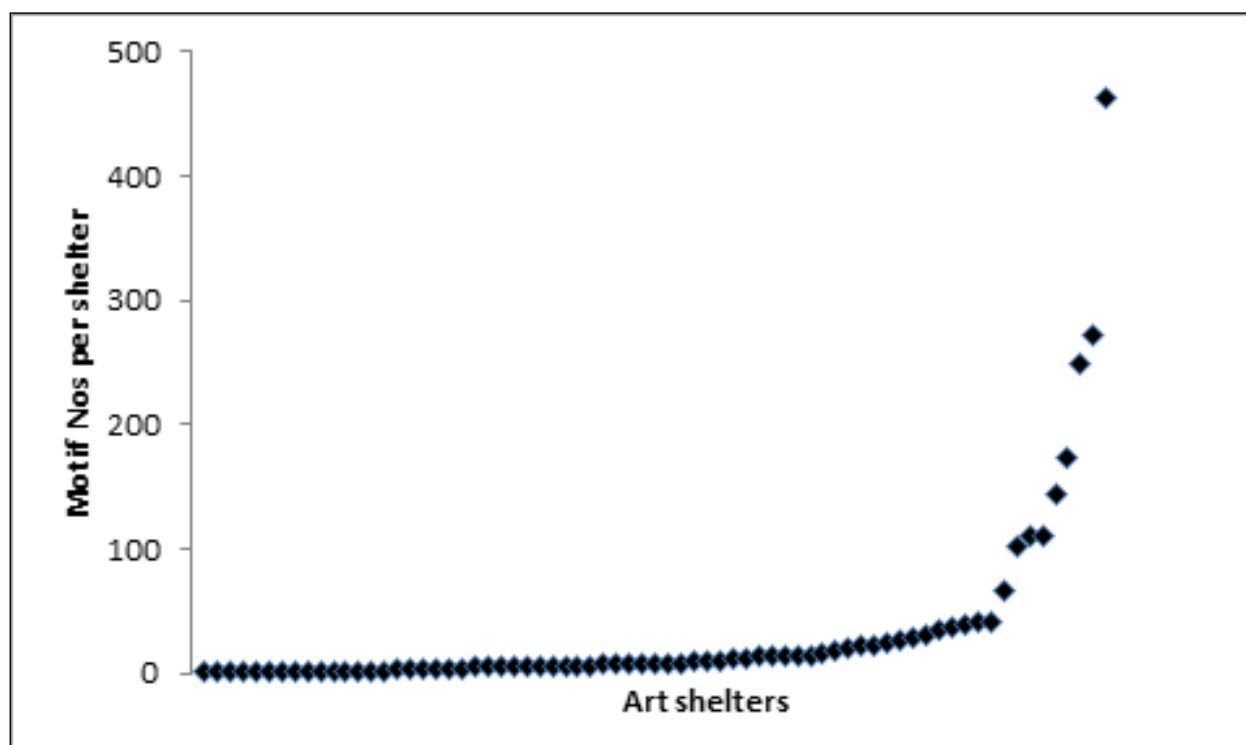


Figure 6.16: Art shelter motif numbers

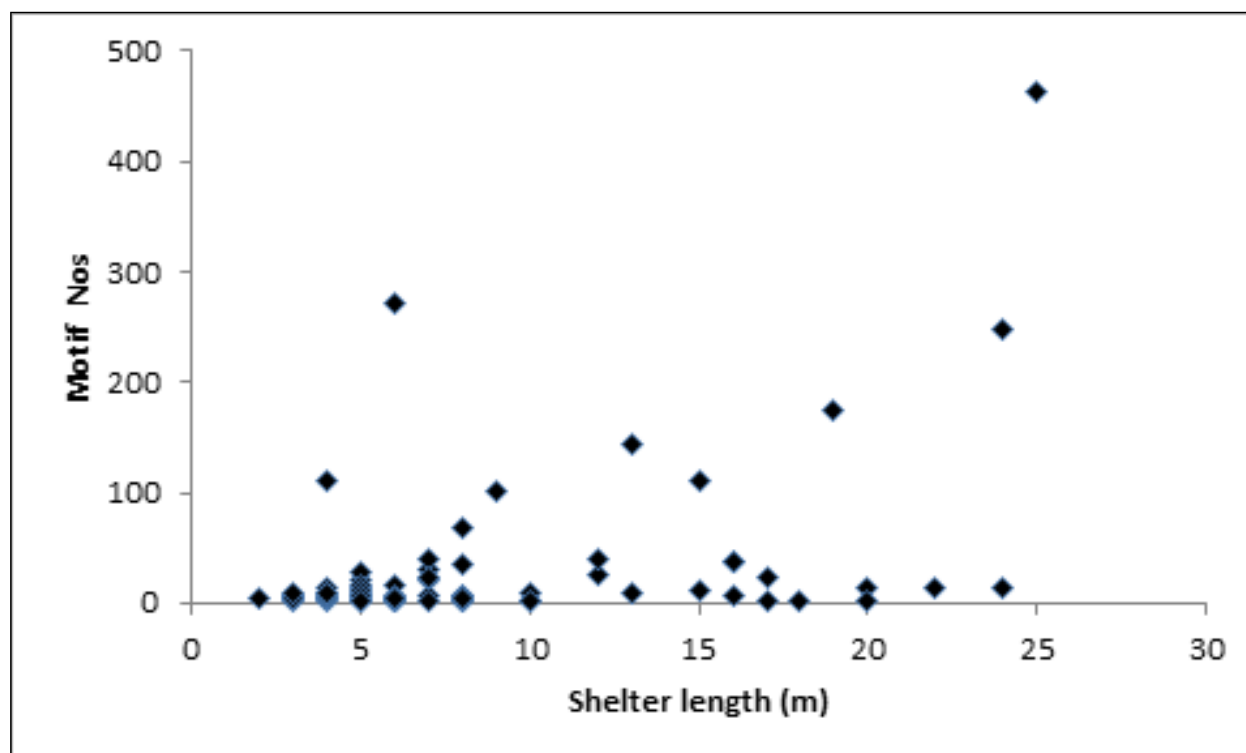


Figure 6.17: Shelter motif numbers by shelter length

Standing stones

Standing stones are small slabs of unmodified sandstone, most commonly found leaning at an acute angle against a rock wall or natural rock step (see Gunn

et al. 2012). The slabs tend to be around $40 \times 25 \times 6$ cm in size, and are mostly either rectangular or triangular in shape. Generally they are unobtrusive, but occasionally one can be found on a prominent knoll or above the entrance to a rock shelter. There is no ethnography

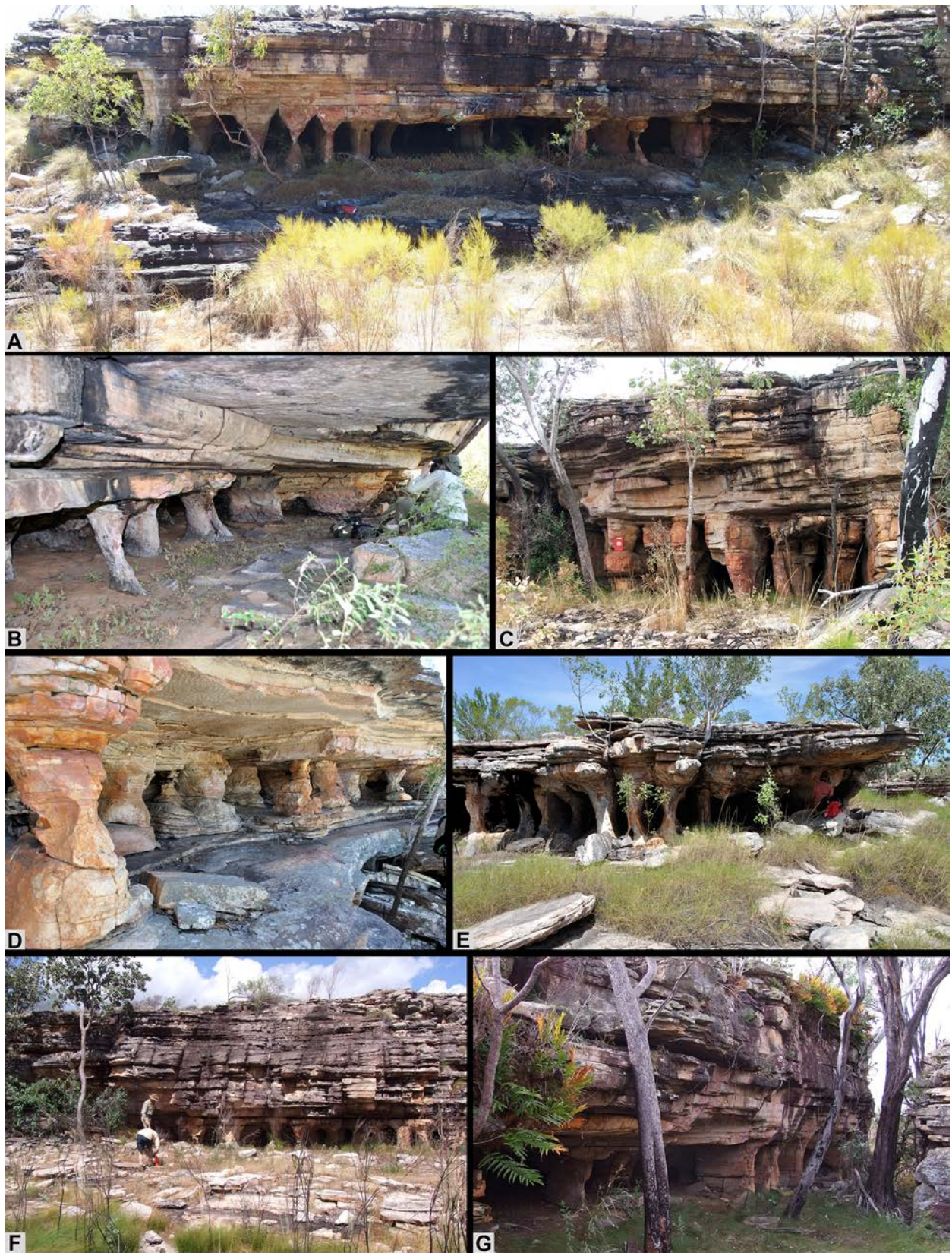


Figure 6.18: The smaller pillar karst art shelters from the Nawarla Gabarnmang outcrop

Sites: A: ARN-074/L B: ARN-074/28 C: ARN-074/H D: ARN-074/53
E: ARN-021/4 F: ARN-120/2 (Photograph: Leigh Douglas) G: ARN-120/10



Figure 6.19: Pillar art shelter ARN-120/1



Figure 6.20: Other shelter forms from the Nawarla Gabarnmang outcrop
A: Undercut stack B: Mushroom rock C: Stepped rock wall D: Slab roof-fall
Sites: ARN-074/56, ARN-074/58, ARN-120/21 and ARN-021/9 respectively

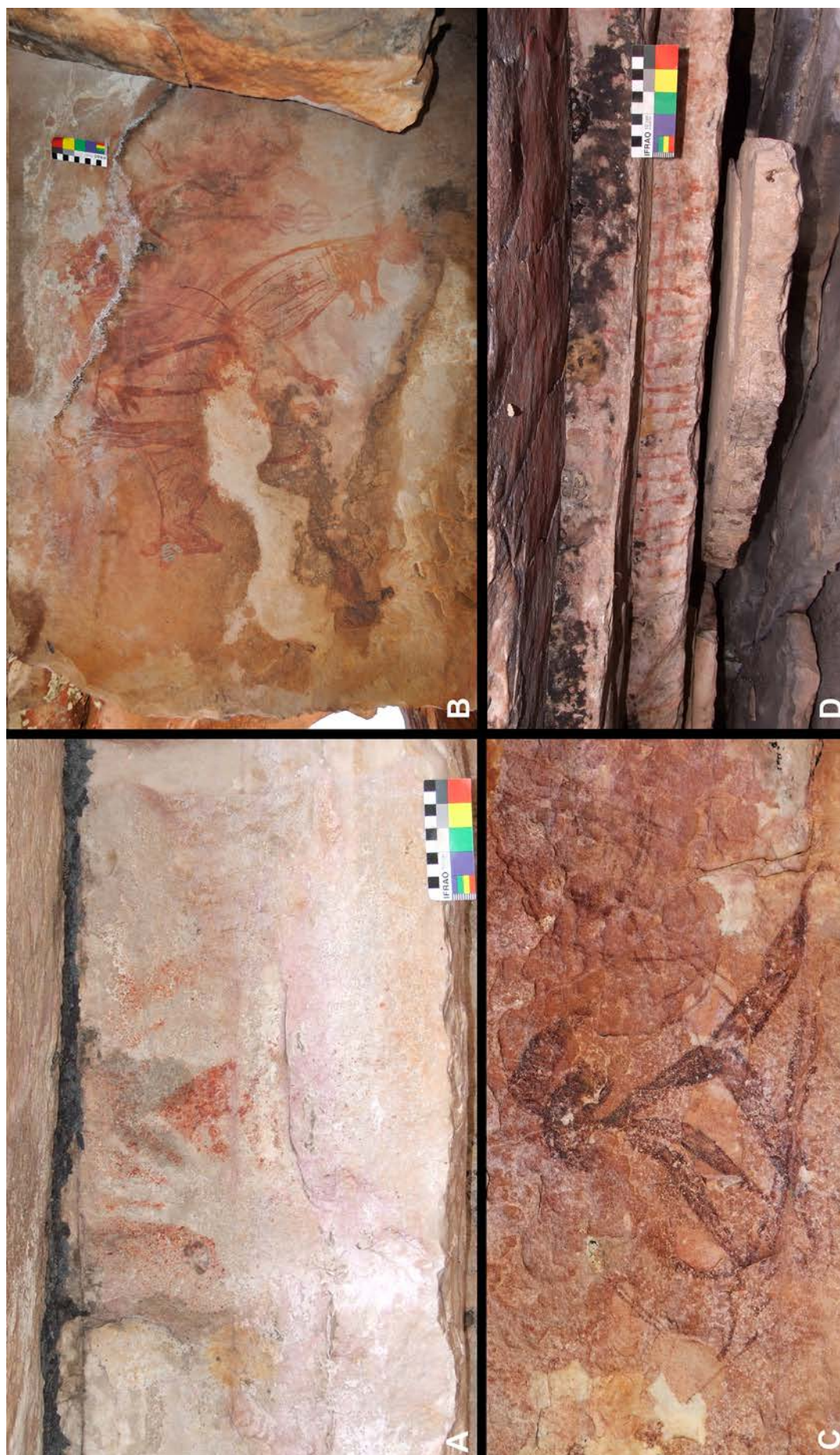


Figure 6.21: Major Mimi art classes
 A: Hand stencils (Site ARN-074/C) B: Large Naturalistic (Site ARN-120/22)
 C: Dynamic figure (Site ARN-074/J) D: Stick Figures (Site ARN021-9)



Figure 6.22: Examples of 'Other' Mimi class (unrecognised styles)
 Sites: A: ARN-021/19 B: ARN-021/27 C: ARN-120/22 D: ARN-021/9 E: ARN-021/27

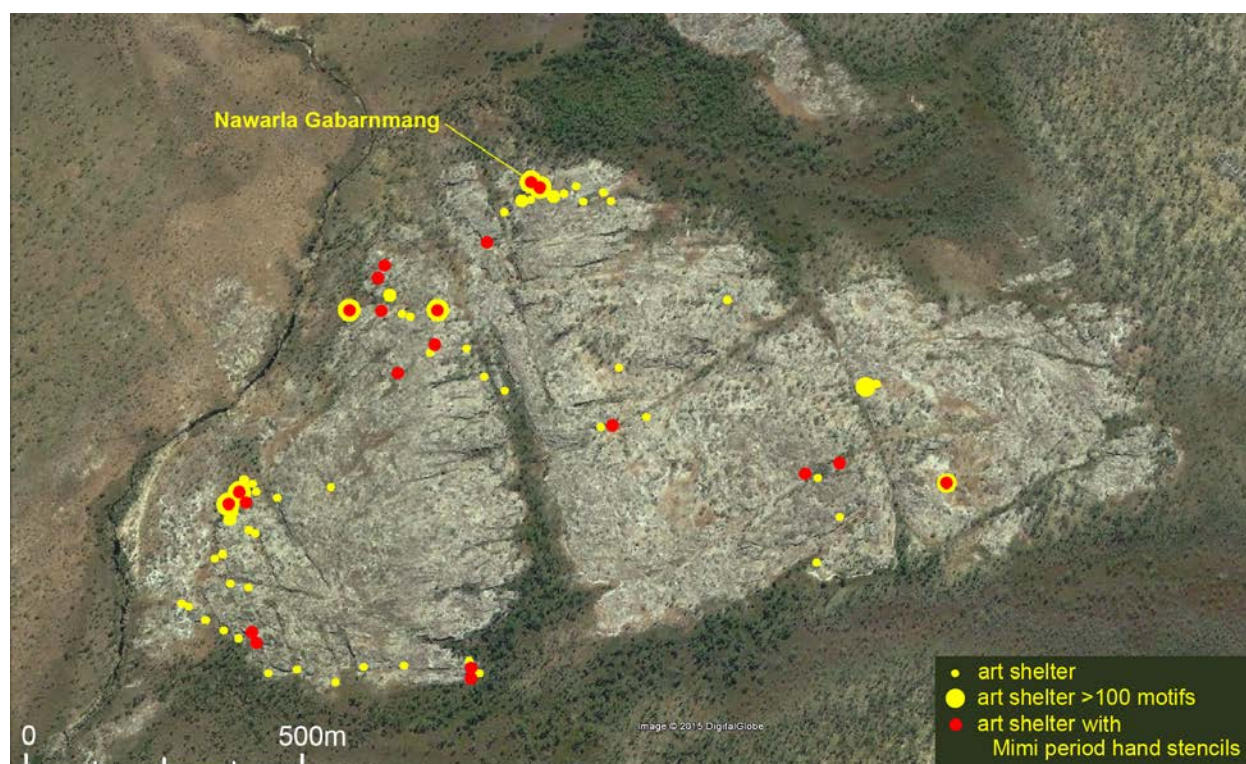


Figure 6.23: Location of shelters with 'Mimi period' hand stencils
(base photograph Google Earth)

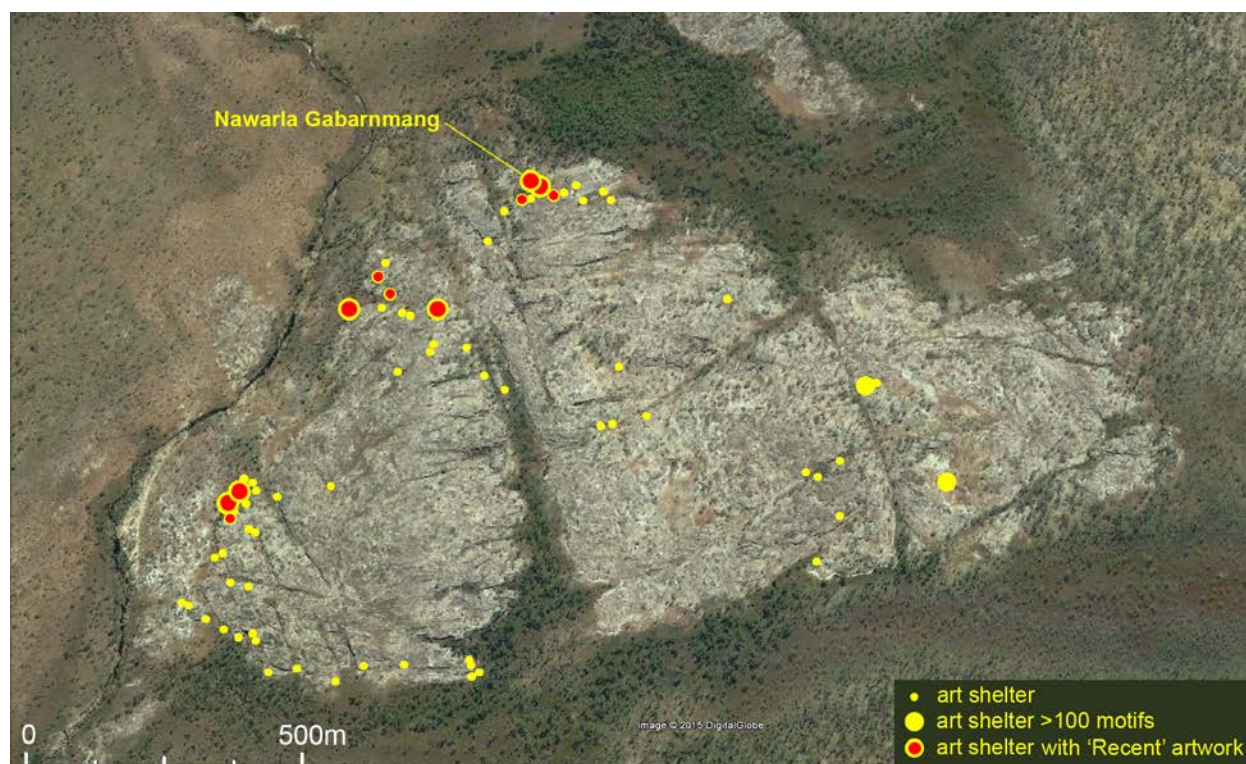


Figure 6.24: Location of shelters with 'Recent' artwork
(base photograph Google Earth)

from Arnhem Land about such standing stones and their function is unknown. Ethnographic sources from the Kimberley, where similar examples occur, indicate

they were used there for a wide variety of functions from broad social indicators to highly personal markers (Gunn et al. 2012; Love 1934).

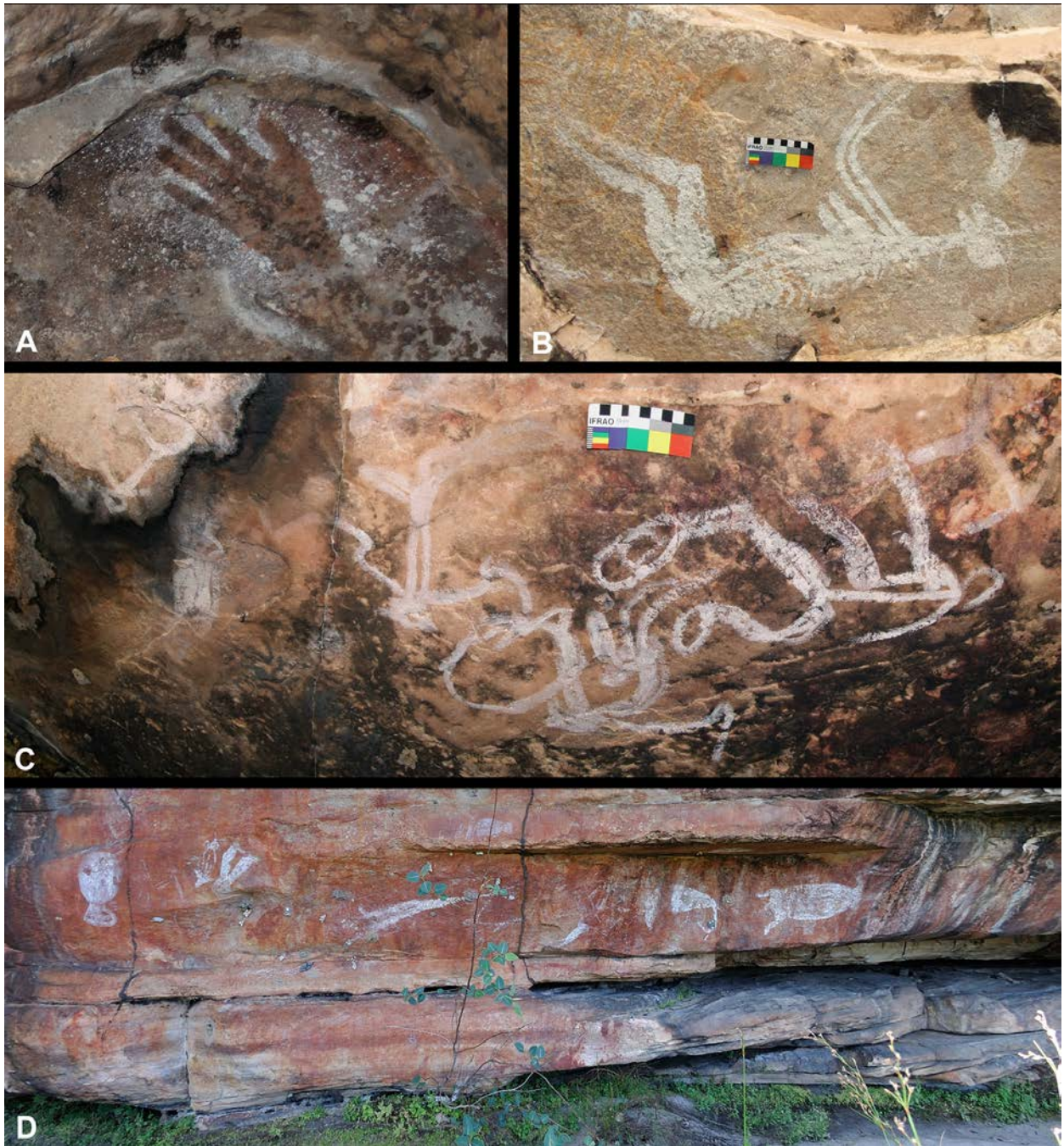


Figure 6.25: White monochrome paintings and hand stencil
 Sites: A: ARN-074/K5 B: ARN-121/1 C: ARN-120/21 D: ARN-120/21

Sixty-six standing stone sites are recorded from across the Nawarla Gabarnmang outcrop (Figure 6.13). Most of these sites consist of a single standing stone, but a small number of sites combine two or three examples. The sites are very widely spread across the outcrop, although their distribution tends to be bounded by that of the rock art sites. The density of standing stones here is greater than elsewhere within Jawoyn Lands

(cf. Gunn et al. 2012: 41), although this is likely to be a reflection of the larger size of the surveyed outcrop that, unusually, incorporates four closely associated site complexes (ARN-021, 074, 120 and 121).

The types of standing stones and their varied locations here (e.g. Figure 6.28) are mostly consistent with those found at other site complexes across the Arnhem Land

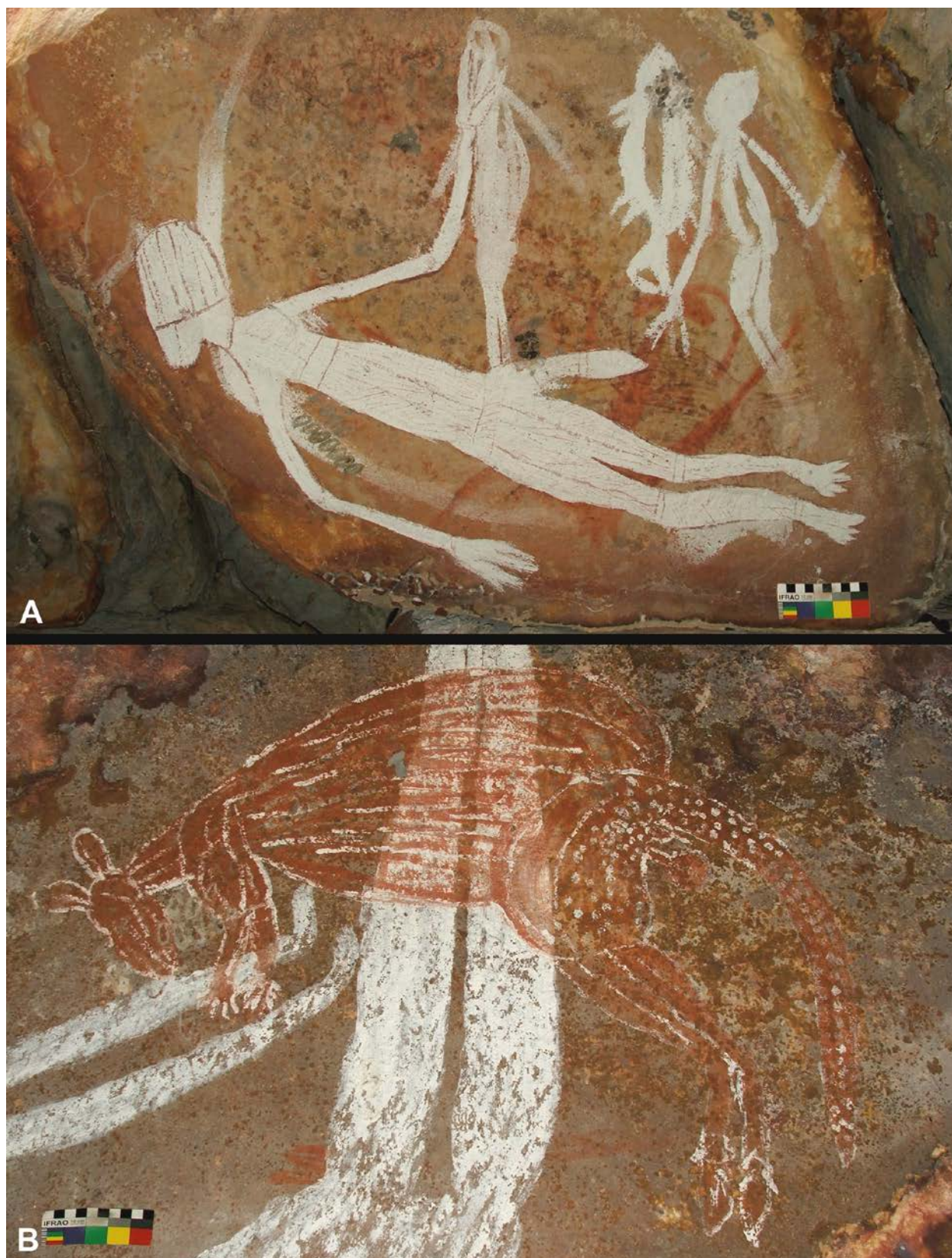


Figure 6.26: Recent period bichrome motifs
A: White+red (Site ARN-074/H) B: Red+white (Site ARN-074/F)

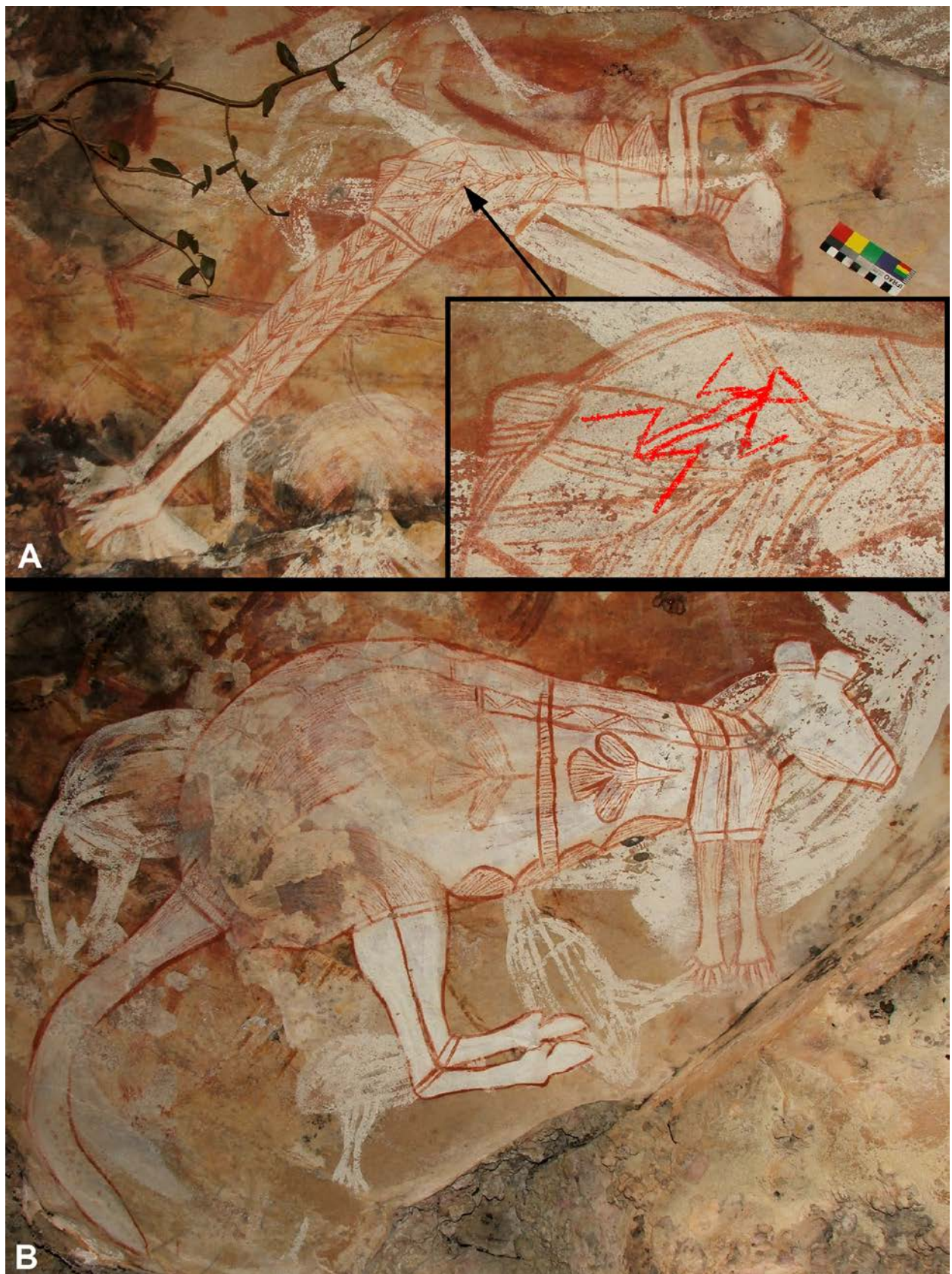


Figure 6.27: Bichrome X-ray form figures (Site ARN-074/A2)



Figure 6.28: Selection of standing stones in their settings
 Sites: A: ARN-021/17 B: ARN-074/21 C: ARN-074/67 D: ARN-074/R
 E: ARN-121/3 (Photographs B-E: Leigh Douglas)

plateau. One exception, however, is site ARN-021/17. This site consists of one large and two smaller standing stones (Figure 6.28A), with the bigger stone being the largest standing stone recorded to date on Jawoyn Lands: 125 × 61 × 4 cm. The placement of the stones is also unusual as it is on the back (uphill side) of a boulder facing into the hillside, where it cannot be seen from the plain or the plateau crest above. The most common site association of standing stones is with other arranged stones (see below).

Other arranged stone sites

Apart from standing stones, four other types of arranged stone sites were recorded on the outcrop: cairns (n=4), store houses (n=3), linear alignments (n=1), conical stones (n=1), and two 'other' arrangements that consist of combinations of these (n=2) (Table 6.1).

Five individual cairns were recorded from four sites. All are less than a metre in diameter and <20 cm tall, and are constructed from five to twelve local sandstone slabs, most being similar in size and shape to those used as standing stones (Figure 6.29A). Two of the cairns are small piles of stones placed on top of a larger block, while the other three are built directly on rock pavements. Other cairns occur within stone alignments (see below).

Store houses consist of erected slabs enclosing (and protecting) a space. The three recorded here are around two metres long by one metre deep and less than a metre high (Figure 6.29B). The term 'store house' was not a Jawoyn interpretation, but as the structures are similar in size and placement to others documented by myself in other parts of Australia, especially in Central Australia, the term seems appropriate pending any further information from Aboriginal people from this region. The presence of these structures, then, is taken to imply their use for the storage of either artefacts or food.

The stone alignment (ARN-074/40: Figure 6.30) consists of a row of three small cairns with a supported standing stone at one end and a free-standing standing stone at

the other. The arrangement is 13 m long, slightly curved, and orientated roughly NE-SW (217o). The individual cairns are low stone piles up to 100 cm in diameter and 20 cm in height. The leaning standing stone is 43 × 19 × 4 cm, and the free-standing stone 50 × 40 × 10 cm. The site lacks the dramatic impact and design complexity found in other, mostly larger, stone alignments elsewhere we have recorded elsewhere within Jawoyn Lands.

The two 'Other' stone sites recorded (Site ARN-074/39 and ARN-120/3) differ from each other. Site ARN-074/39 consists of a standing stone, small cairn and pocket of cached rocks within and around a larger table-like rock (Figure 6.31). Such arrangements are not uncommon elsewhere in Jawoyn Lands and in all cases they are associated with standing stones or small cairns. Site ARN-120/3, in contrast, has two small cairns wedged within the narrow rock ledge of a tall rock stack. Directly above these there is a prominent standing stone (Figure 6.32).

The single smooth 'conical' stone recorded (ARN-074/S) is roughly conical in shape with smooth sides and rounded cap (Figure 6.33). The cap and sides are weathered but appear to have been abraded. The stone is made from a friable sandstone not local to the immediate area and therefore must have been brought to the site. It stands within a grassy flat to the north of Nawarla Gabarnmang. Margaret Katherine interpreted it as a ritual stone on the basis of her knowledge of similar stones elsewhere in Jawoyn Lands (see below). This interpretation is consistent within other examples from Arnhem Land and elsewhere throughout much of northern and central Australia, where they are commonly associated with small-scale ritual performances (e.g. Mountford 1976: 142).

Burials

Three walled burial crypts were located that contained no other evidence of use. One is within a narrow ledge (ARN-021/18), the other two within solution tubes (ARN-120/23) (Figure 6.34A-C). A fourth site, ARN-



Figure 6.29: Stone cairn and store house
A: Cairn (Site ARN-74/46) B: Store house (Site ARN-120/29)

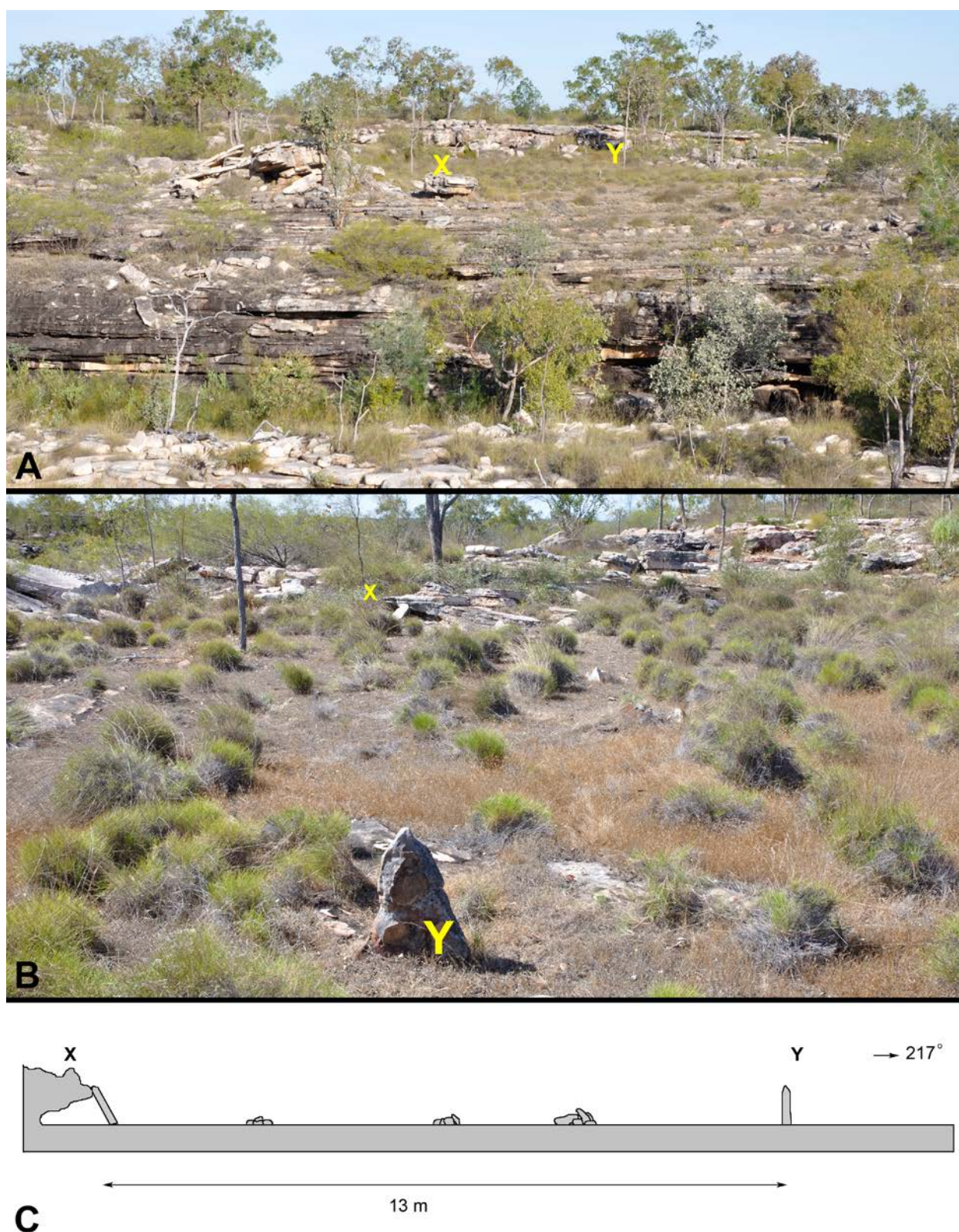


Figure 6.30: Stone alignment ARN-074/40
 A: location from the north B: alignment from the west C: alignment profile (vertical scale exaggerated)

021/16, has two burials that also utilise solution tubes, was also a rock art site (Figure 6.33D). All of the burials are badly disturbed, presumably by goannas and/or other rock-dwelling animals.

Grinding patches

Three sets of grinding patches were recorded in the immediate vicinity of the Nawarla Gabarnmang shelter.



Figure 6.31: 'Other' stone sites
Site ARN-074/39 (Photograph: Leigh Douglas)

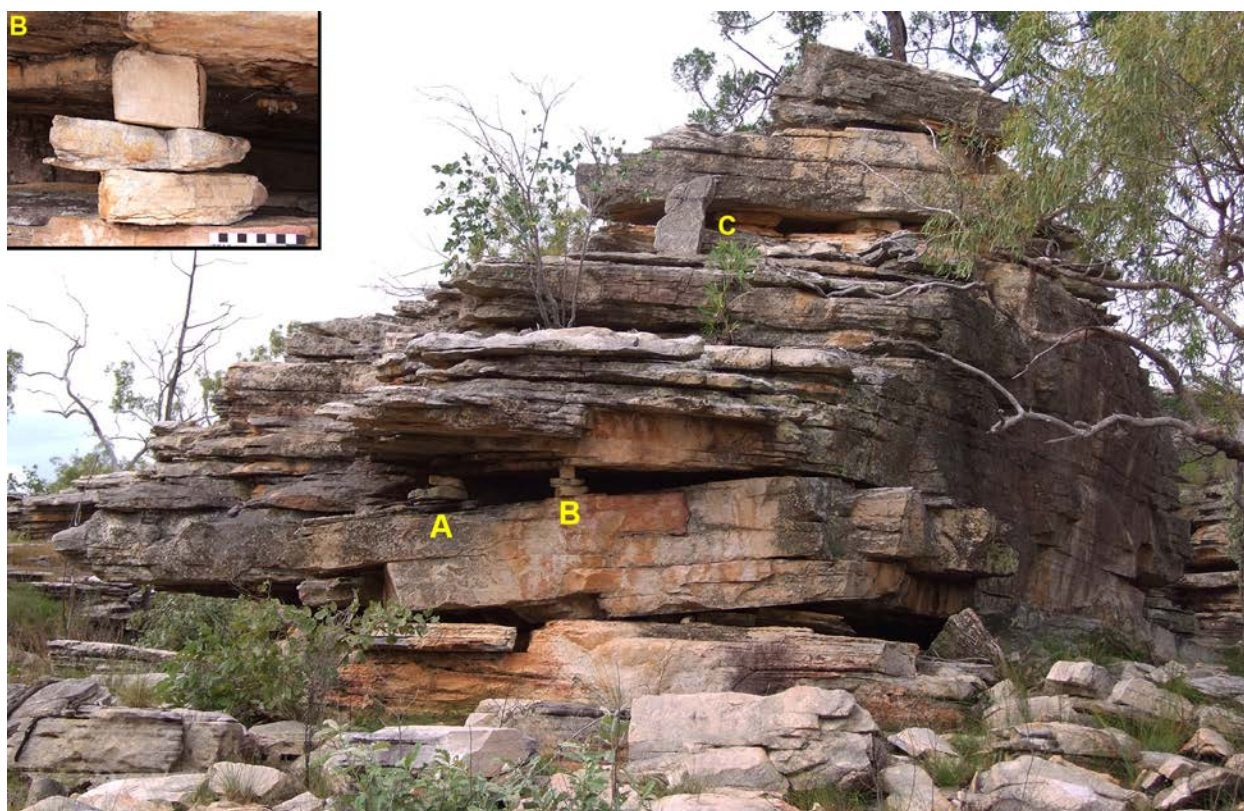


Figure 6.32: Wedged stones (A and B) and standing stone (C)
Site ARN-120/3

Ten grinding patches (ARN-074/U) occur on a low outcrop immediately in front of the shelter, seven on a large pavement to the east of the shelter (ARN-074/Q), and two on horizontal rock slabs adjacent to the creek-

line (ARN-074/T) (Figure 6.35). Although similarly exposed rock pavements occur elsewhere around the outcrop, no other examples of grinding patches have been located.



Figure 6.33: Conical standing stone with abraded cap (Site ARN-074/S)

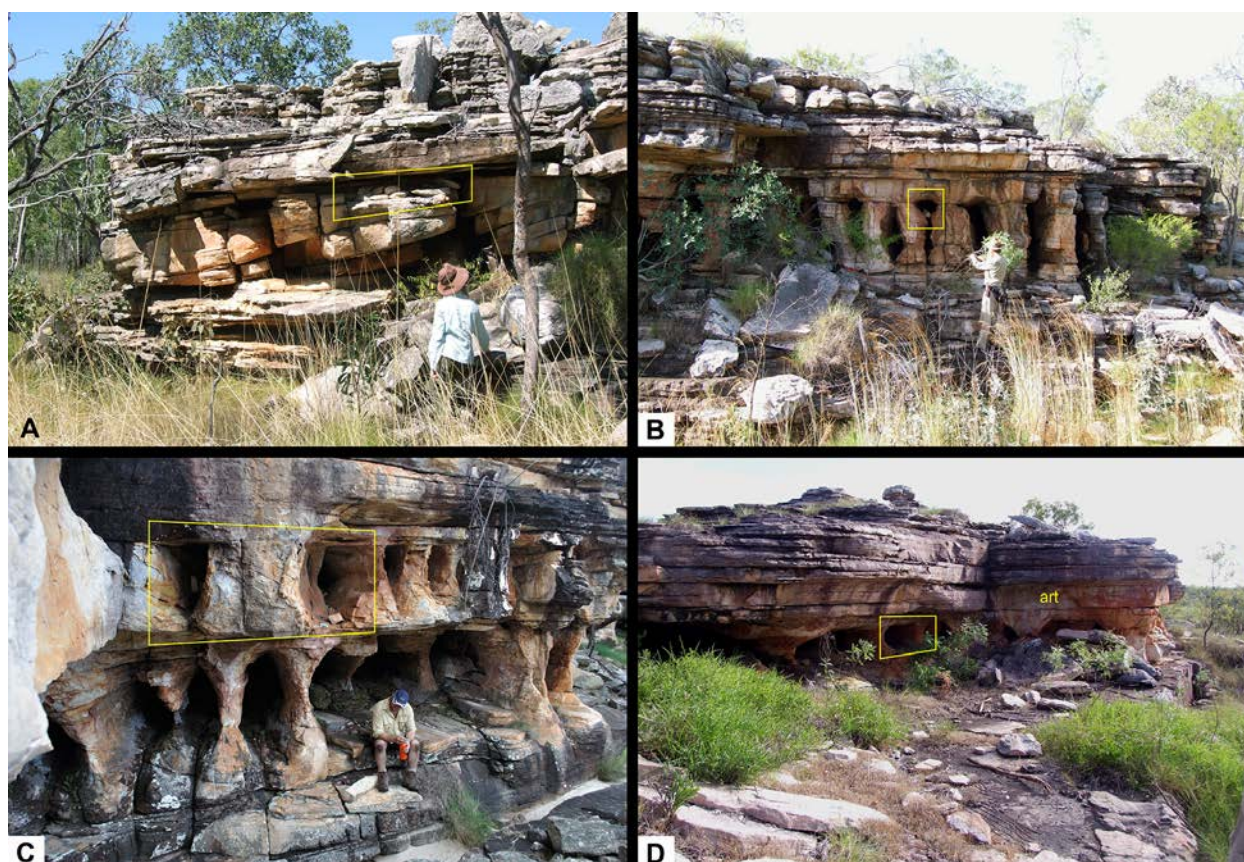


Figure 6.34: Walled burial crypts

Sites: A: ARN-021/18 B: ARN-120/23 (Photograph: Leigh Douglas)
C: ARN-120/11 D: ARN-021/16



Figure 6.35: Grinding stone pavements
 A: Site ARN-074/Q B: Site ARN-074/T (Photograph: Leigh Douglas)

Grinding patches are commonly associated with plant food preparation in other parts of Australia (Gorecki et al. 1997). Grinding patches also occur on fallen slabs within the Nawarla Gabarnmang shelter itself, some of which bear traces of red ochre, indicating their use in pigment preparation. No grinding cups or hollows were located within Nawarla Gabarnmang or any other of the sites on this outcrop, although they are a common feature of shelter sites around the western and southern margins of the plateau (pers. obs., and see Jones and Johnson 1985b: 39).

Also, no distinct axe-grinding grooves were recorded (cf. McCarthy 1976b:54; Burke and Smith 2004:213). As edge-ground axes are a common find in many Arnhem Land shelters, this lack of axe-grinding grooves is not due to the lack of this implement type but is more likely due to the hardness of the quartzose sandstones not wearing away into the form of the typical axe-grinding groove. It is possible that many of the grinding patches recorded were used, among other things, for grinding and resharpening stone axe-heads.

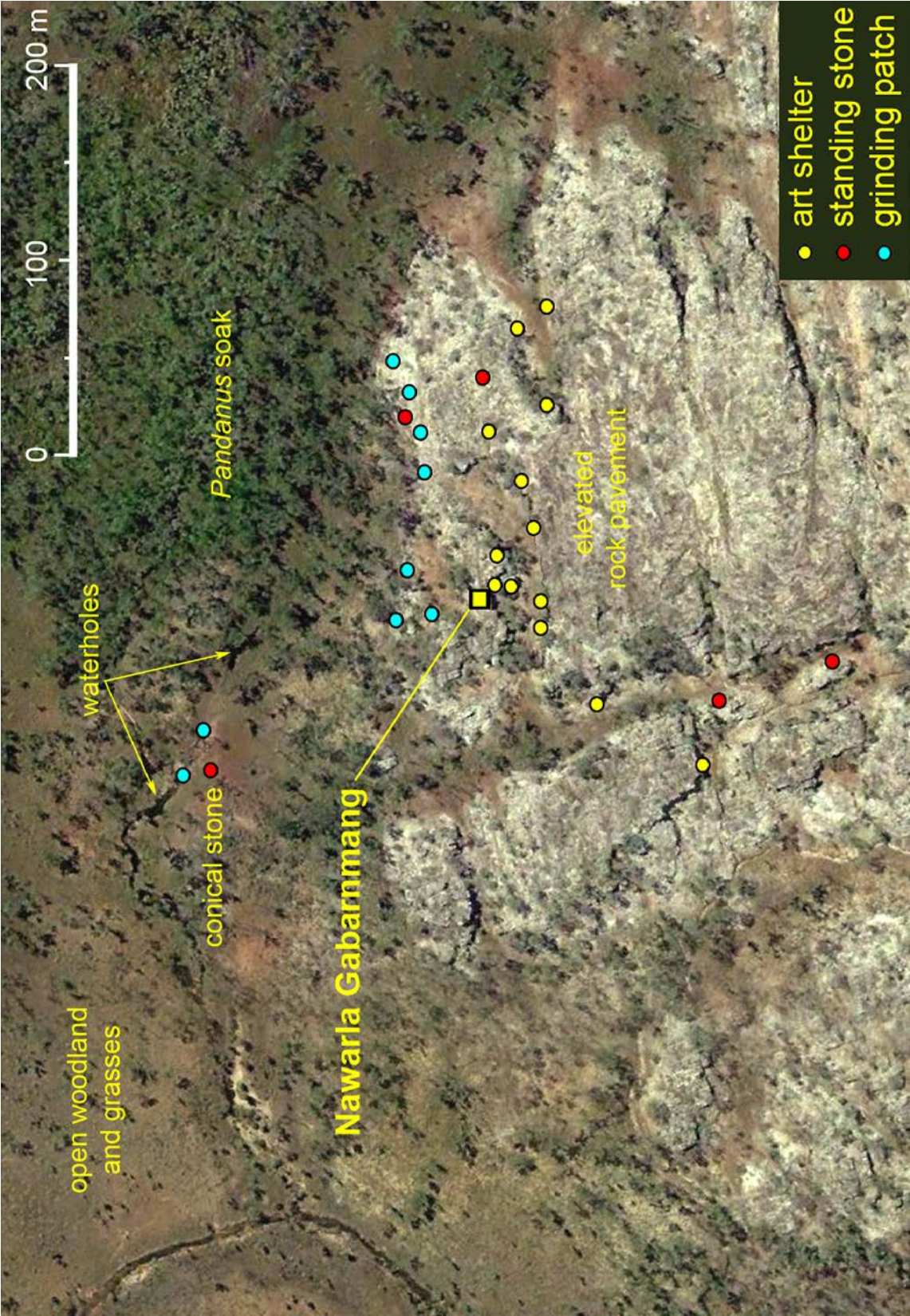


Figure 6.36: The landscape of Nawarla Gabarnmang showing location of recorded sites
(base photograph from Google Earth)

Summary

The Nawarla Gabarnmang outcrop contains 71 art shelters, of which Nawarla Gabarnmang is the largest and by far the most highly decorated. The outcrop also has 67 standing stones and representatives of eight other archaeological site types. Within a radius of 200 m of Nawarla Gabarnmang there are 11 art shelters, three areas of multiple grinding patches, five standing stones (including the conical stone), a waterhole and a *Pandanus* soak (Figure 6.36). Archaeologically, then, Nawarla Gabarnmang is seen as the focal shelter of a number of sites that constitute a multifaceted archaeological site complex (Jawoyn site complex ARN-074). These sites in turn

indicate a range of activities that supported Nawarla Gabarnmang's role as the focal art and occupation shelter. Furthermore, as the ARN-074 site complex is the largest of four local site clusters that make up the archaeological landscape of the large Nawarla Gabarnmang rock outcrop, the Nawarla Gabarnmang shelter arguably acted as a regional centre for the full period of Aboriginal occupation in this sector of the Arnhem Land plateau; a time period that extends back beyond the time of the shelters development as we see it today. The significance of the various activities suggested by the surrounding sites is developed further in Chapter 11 below, providing an indication of the cultural landscape of in which the art of Nawarla Gabarnmang is situated.



Nawarla Gabarnmang interior



7. THE CEILING GALLERY

These painting, they're very special paintings.
They had to find a nice place to draw that the second
generation will know and keep it forever.

Margaret Katherine, 2009



This chapter presents the recording of the art on each of the 42 ceiling panels at Nawarla Gabarnmang: where they are and what they look like. As the ceiling panels tend to occur in localised clusters due to irregularities in the ceiling (blank areas or major joint or fault lines) and the break-up of space by the pillars, they are presented sequentially by Panel Group, beginning with the south-western corner, progressing across the southern side of the shelter to the north-eastern corner and then traversing westward across the northern side. The clusters are termed Panel Groups (A, B, etc.) and the constituent panels labelled Panel A1, A2, etc. Motif numbering is by Panel Group (Motif A-1, Motif A-2, etc.) beginning with the underlying motifs and roughly following the superimposition sequence to the upper most motifs (see Chapter 9 for a presentation of the chronology).

Generally, each art layer is numbered from left to right across the panel. On some panels, additional motifs were located following the initial motif numbering. These motifs were numbered following on from the last recorded in that Group, and hence are not sequential on their particular panel. The 15 m long Panel J1 was subdivided into five sections (Panel J1a to Panel J1b) because of its exceptional length and complexity and the motif numbering reflects these subdivisions.

Within the Panel Groups, each art panel is briefly described and particular motifs or unusual features are discussed. Each panel is illustrated by:

- a standard photograph or photomosaic.
- a photo-tracing showing the motifs and an outline of the panel;
- drawings of one or more layer showing the individual motifs and their allocated numbers.

This illustrated record is followed by a list of motifs tabulated by attributes: technique, colour, form, motif type, condition and size. The photo-tracings of the motifs use standardised colours placed on a grey background (Pantone Cool Grey 9C) that are not necessarily the hues of the original artworks against the rock.

The attributes recorded for each motif are described fully in Chapter 5. The motifs are assembled into broad **Motif Classes**: anthropomorph, mammal, bird, reptile, fish, geometric elements and simple non-figurative designs (sd) or complex non-figurative designs (cd). The motifs are then further divided into **Motif Types** such as faunal taxon and specific objects. If depicted, mammal types and anthropomorphs are also suffixed by sex. Where division to Motif Type is not possible, as in the case of a generalised or non-specific image of a fish, the Motif Class is repeated as the Motif Type (i.e. Motif Class=fish, Motif Type=Fish) but with a capital first letter. Similarly, mammals that could not be speciated are given an 'Animal' Motif Type.

Panel A1

Panel A1 is $c.0.8 \times 0.6$ m in size, and is one of seven panels located at the south-western corner of the shelter. As all seven panels are within a distinctive and semi-isolated alcove, they are collectively referred to as Group A (Figures 7.1 and 7.2). The margins of the rock panel have been flaked, causing invasive flake scarring of the panel surface (see Figure 7.3).

Panel A1 contains two motifs (Table 7.1; Figure 7.4), both of which are interpreted to Motif Type. Motif A-1 is a red stencil of a right hand that is only partially preserved. The extent of the spread of the stencil spray is difficult to determine, as the pigment

colour blends into that of natural iron staining within the rock. This motif is partially overlain by a white painting of a macropod (Motif A-2). Both motifs are centrally positioned on the available area of the panel. Exfoliation of the panel surface occurred prior to the painting of the macropod (Figure 7.5) and, on the basis of the rock's discolouration, the exfoliation appears to have occurred after the production of the hand stencil. Consequently, as the hand stencil is partially deteriorated and difficult to see, the placement of the macropod was unlikely to be influenced by the position of the earlier stencil. The legs of the macropod were painted following the infilling of its body (Figure 7.5) but, for unknown reasons, its forepaws were not included.

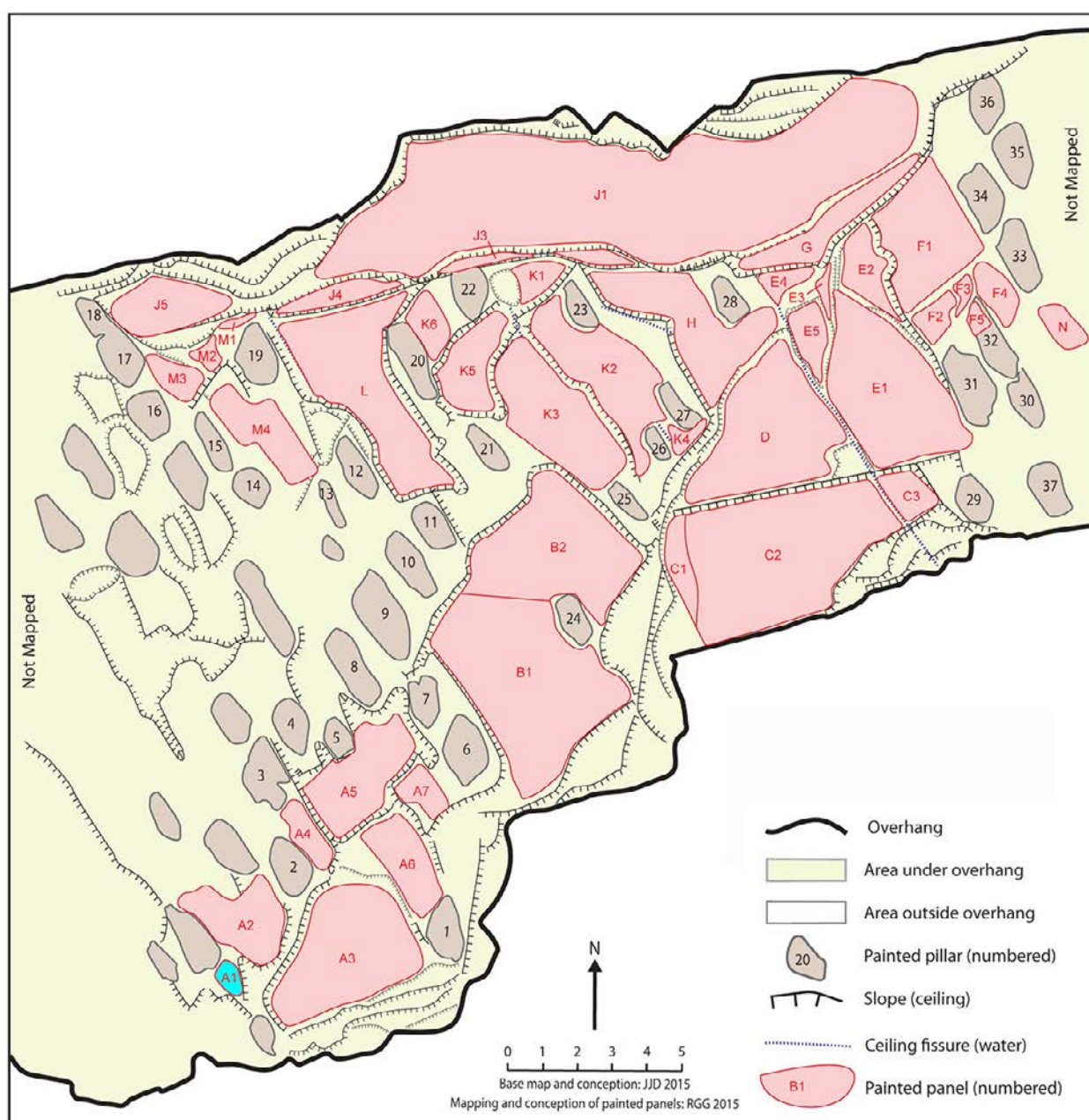


Figure 7.1: Location of Panel A1



Figure 7.2: Location of Panel A1
Photograph: Leigh Douglas

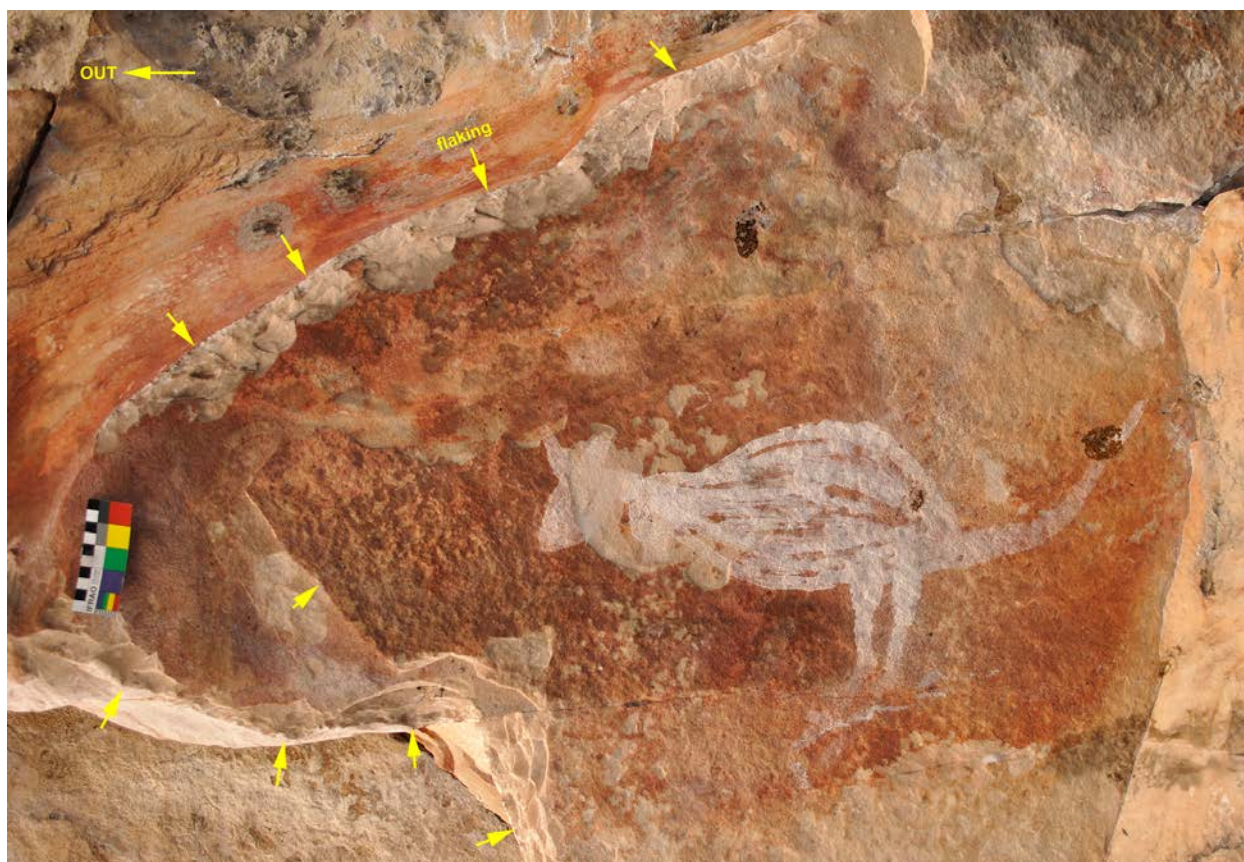


Figure 7.3: Panel A1 photograph
Flaked edges of the rock panel arrowed

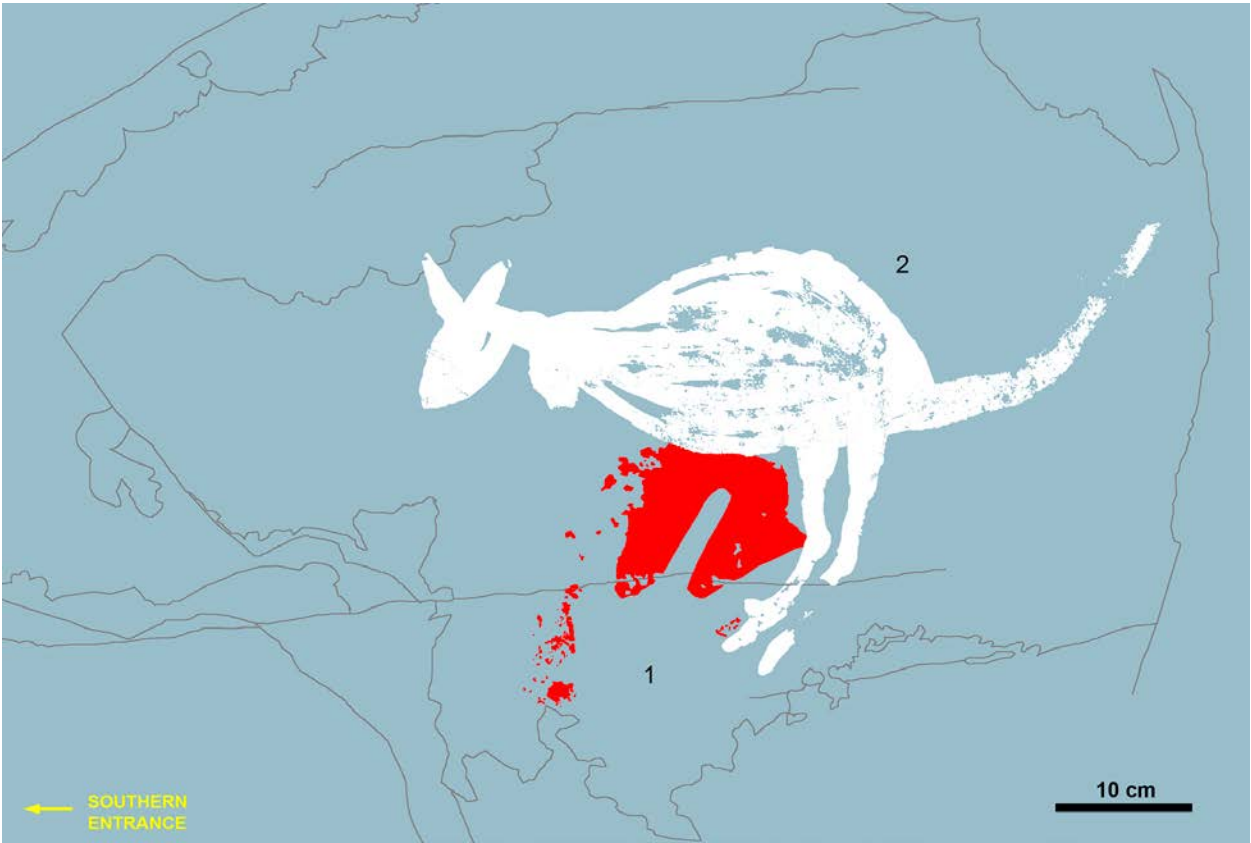


Figure 7.4: Panel A1 photo-tracing and motif interpretation

Table 7.1: Panel A1 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
A-1	red	spray	stencil	hand	Hand right	very poor		
A-2	white	painting	outline+infill	mammal	Macropod	fair	54	31

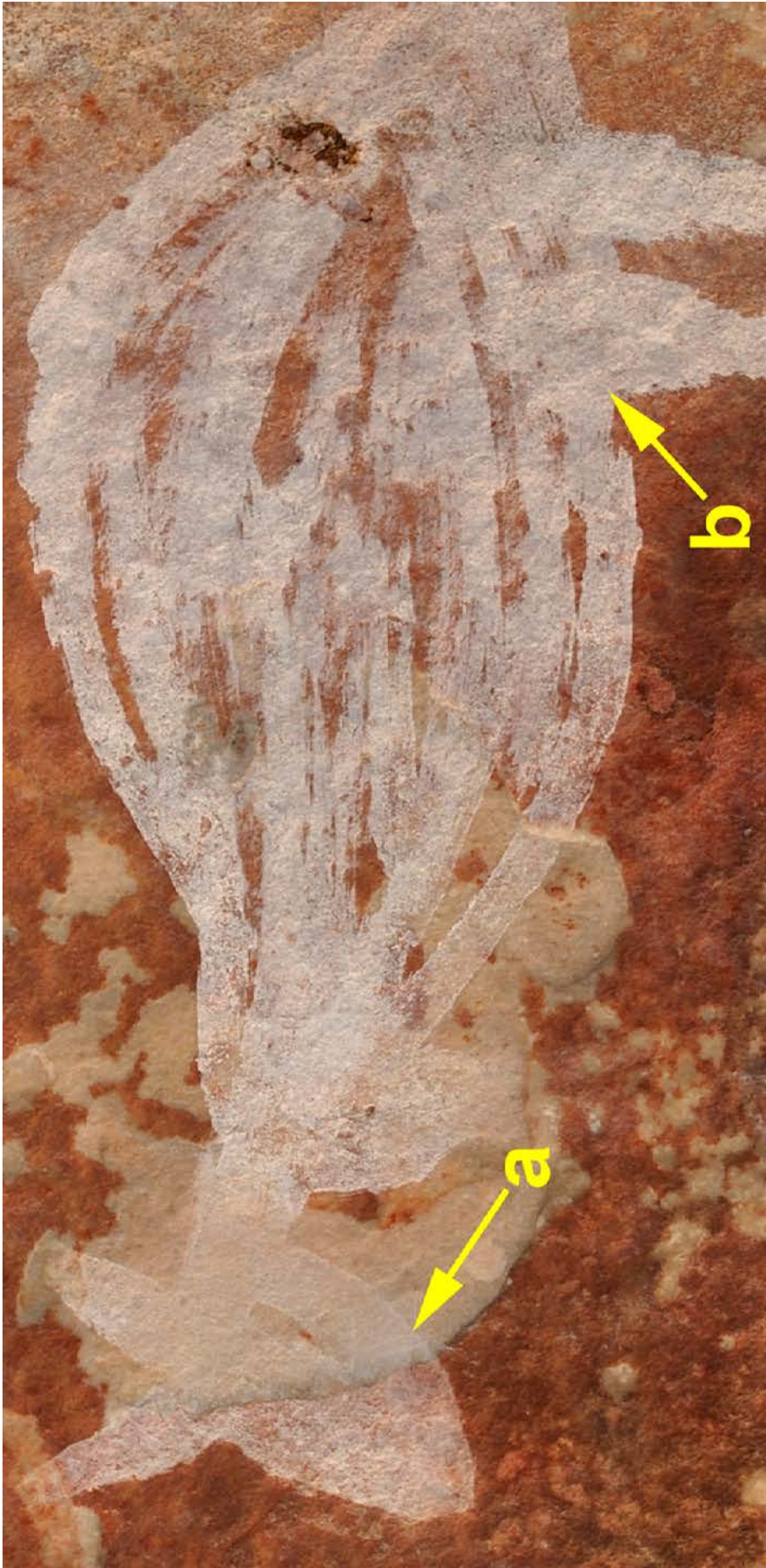


Figure 7.5: Panel A1, details of Motif A-2
a: white pigment over exfoliated surface b: legs of the macropod overlying the body

Panel A2

Panel A2 (Figure 7.6) is roughly rectangular in shape, 2.5 × 1.7 m in size, although it consists of two adjacent surfaces, with the larger Panel surface A2a being some 10 cm higher above the ground than that of Panel surface A2b (Figure 7.7 and 7.8). Panel surface A2a is uneven as a result of surface fracturing, salt encrustation and exfoliation, while Panel surface A2b has an undulating ripple bedding surface with a light coating of white salt.

Together, the two Panel surfaces contain 21 motifs (Table 7.2; Figures 7.8 to 7.11) of which 13 were

interpreted to Motif Type. Panel A2a has the highest number of hand stencils within the shelter (eight in red and two in yellow) and is the only panel numerically dominated by hand stencils. The red painted motifs (Motifs A-19 and A-20) are both areas of amorphous pigment, while the black (charcoal?) drawing (Motif A-8) is a running anthropomorph (Figures 7.9 and 7.12). Both Motifs A-21 and A-22 overlie darker red hand stencils (Motifs A-11, A-12 and A-18). These two yellow hand stencils and the brighter red paintings are in a similarly poor state of preservation, while the red hand stencils they overlie are even more poorly preserved. The black drawing, in contrast, is well preserved and is likely to be the most recent addition

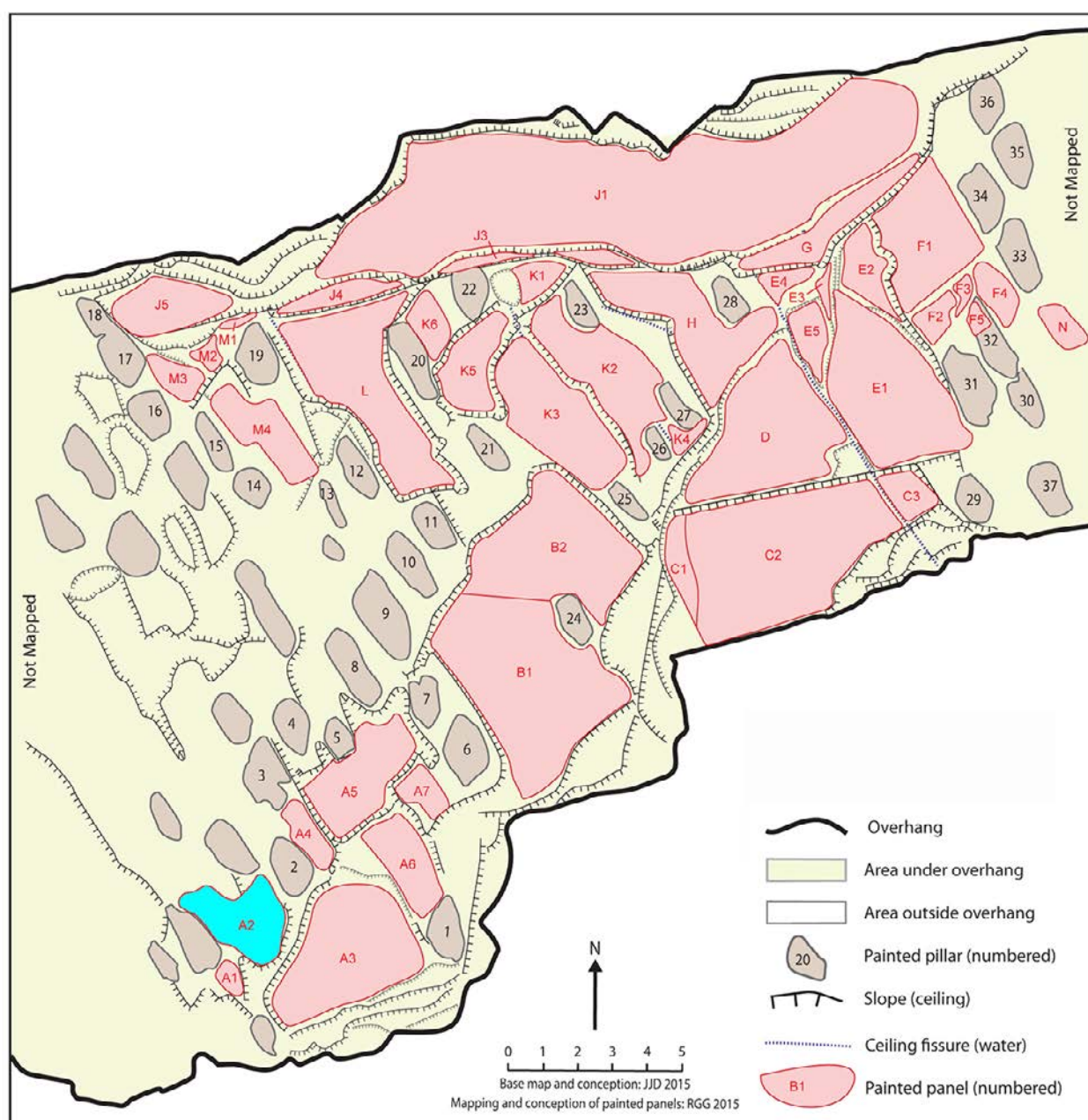


Figure 7.6: Location of Panel A2

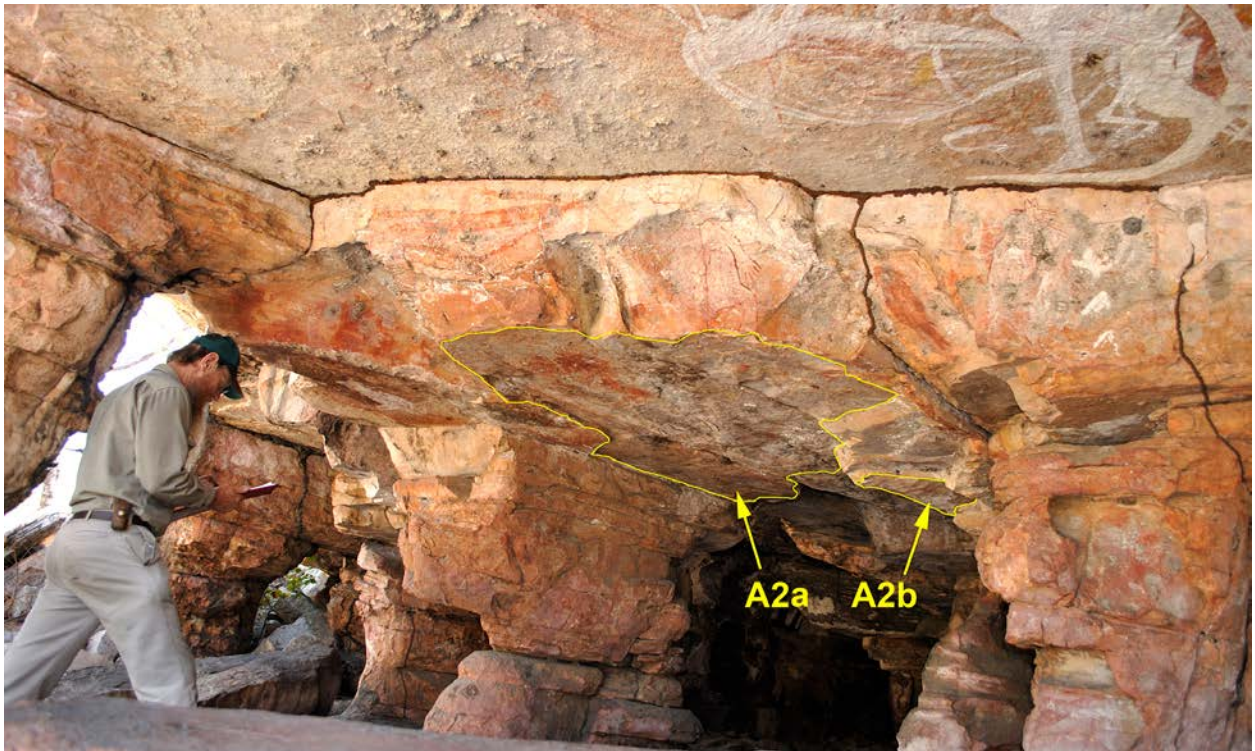
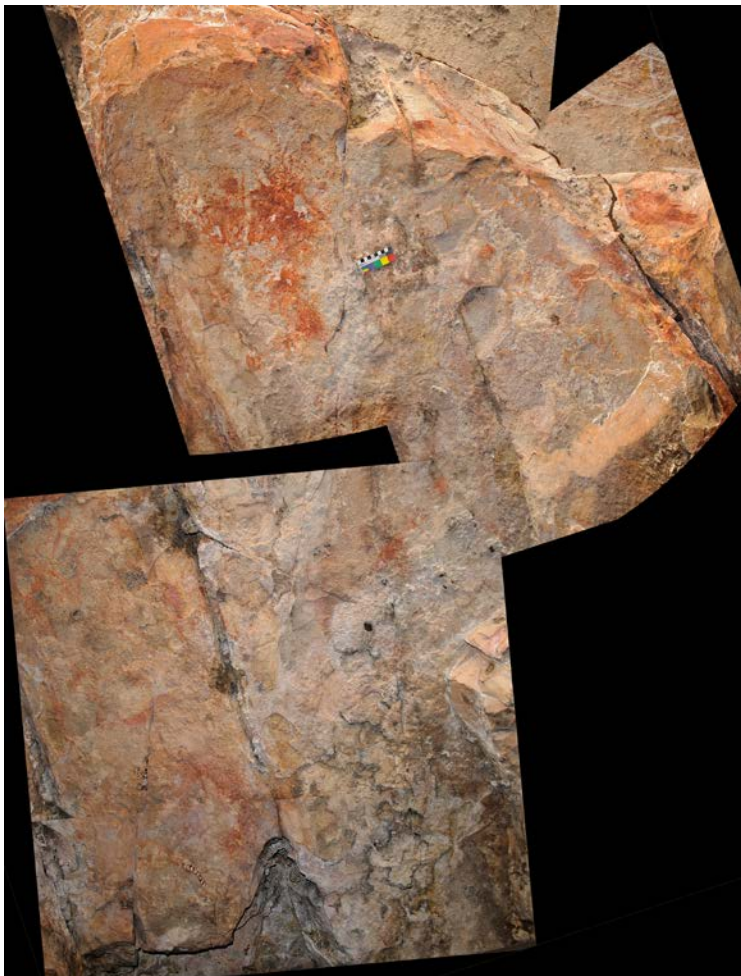


Figure 7.7: Location of Panel A2
Showing relative location of panel surfaces A2a and A2b
Photograph: Leigh Douglas



to the panel. The motifs are relatively evenly distributed across the panel.

The form of one of the red hand stencils (Motif A-112) is unusual, in that the middle finger and forefinger are held together (Figure 7.13). This are termed '2MF' ('two-middle fingers') in reference to Chaloupka's more common 3MF hand stencil convention (Chaloupka 1993: 110). Two of the red hand stencils (Motifs A-9 and A-17) and the two yellow hand stencils have all three central fingers held together with the thumb and little finger extended, conforming to the 3MF convention. While the 3MF form is recognised as being widely distributed across western Arnhem Land (Chippindale and Taçon 1998: 107), the 2MF form has not previously been reported. Given their similarities of colour and preservational states, it is likely that all of the red stencils on these two sub-panels are of similar age.

Figure 7.8: Panel surface A2a photomosaic

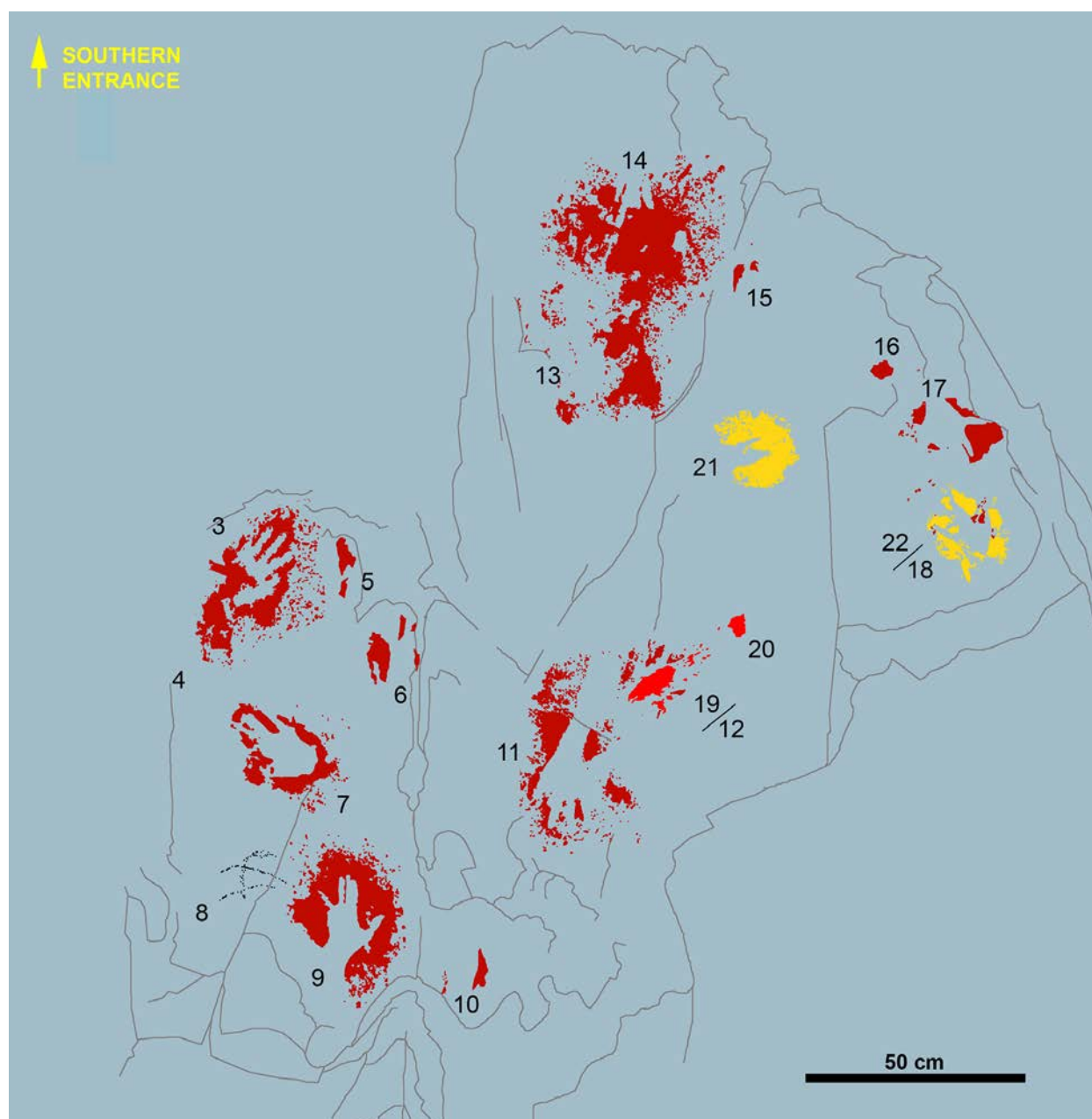


Figure 7.9: Panel surface A2a photo-tracing and interpretation

Motif A-8 is similar in pose to the classic Dynamic figure style (Figure 7.12), although here drawn rather than painted (cf. Chaloupka 1993). Dynamic style drawings have been previously reported from a site in the Jawoyn region of the plateau (Gunn and Whear 2007) and were considered by them to from either Chaloupka's Dynamic or Post-Dynamic periods. He suggests that

these styles date to the period between 6000 and 10,000 years ago (see also Chippindale and Taçon 1998). Given that Motif A-8 is adjacent to 3MF hand stencils, which are commonly associated with Dynamic style figures (Chippindale and Taçon 1998), an association with this period is possible, although the preservation of the drawn motif seems to indicate a much younger age.

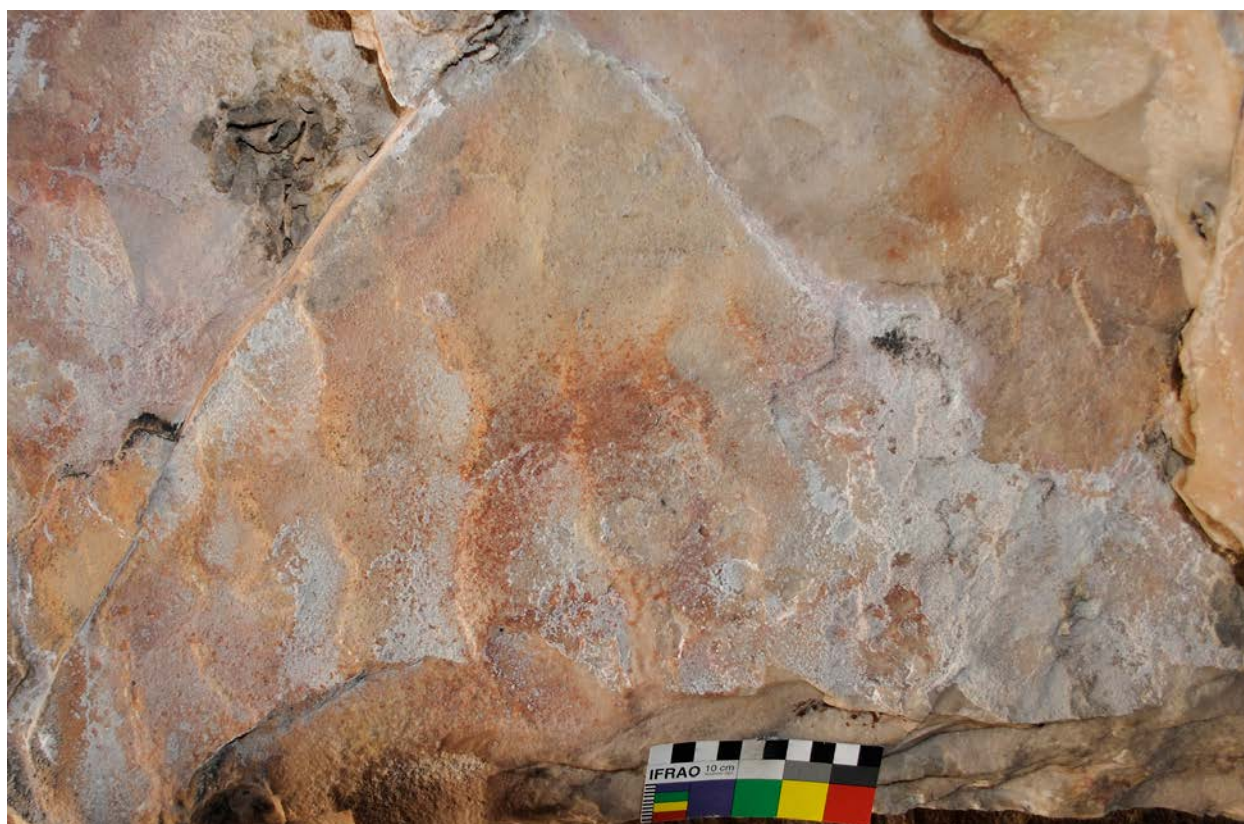


Figure 7.10: Panel surface A2b photograph

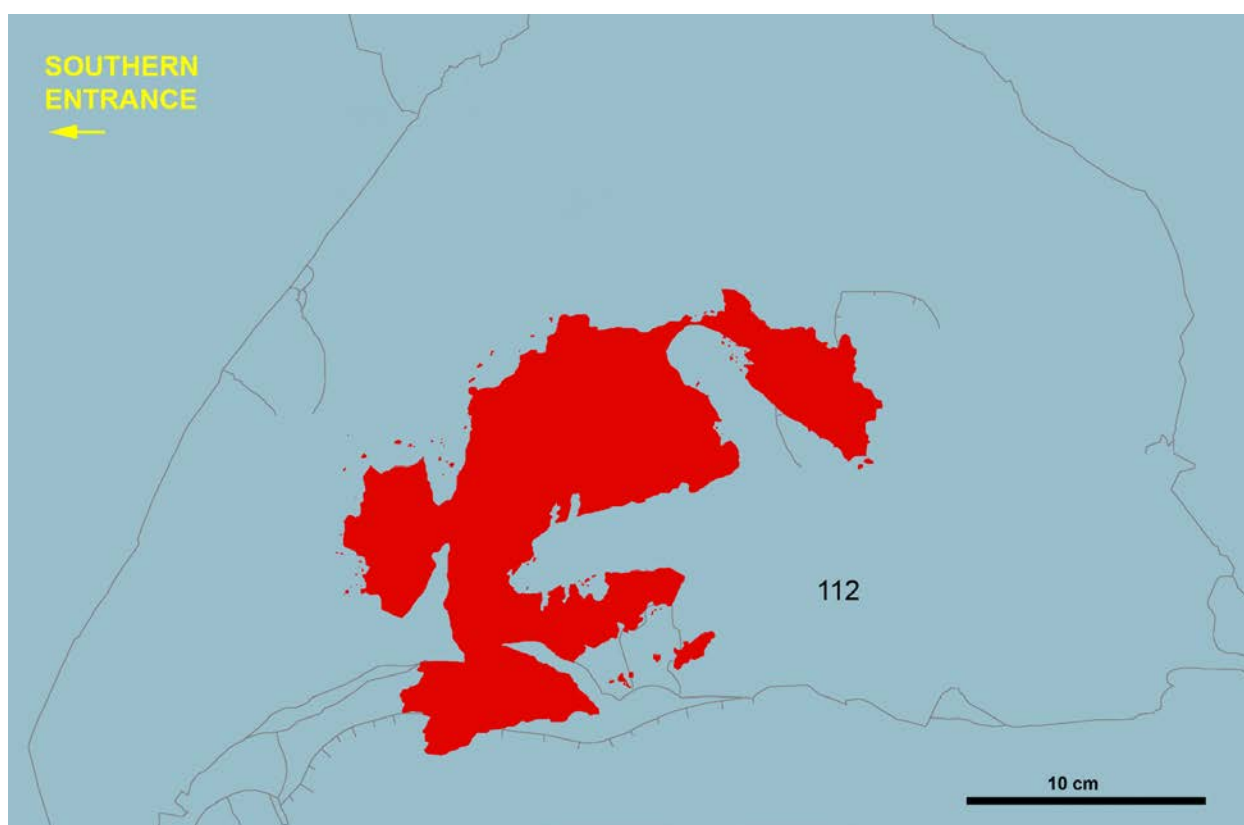


Figure 7.11: Panel surface A2b photo-tracing and interpretation

Table 7.2: Panel A2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
A-3	red	spray	stencil	hand	Hand left	very poor	mf 8.5	
A-4	red	spray	fragment	fragment	fragment	very poor		
A-5	red	spray	fragment	fragment	fragment	very poor		
A-6	red	spray	stencil	hand	Hand	very poor		
A-7	red	spray	stencil	hand	Hand	very poor	mf 8.0	
A-8	black	drawing	linear	anthropomorph	Anthropomorph male	fair	13	
A-9	red	spray	stencil	hand	Hand 3MF	poor	mf 8.5	
A-10	red	spray	fragment	fragment	fragment	very poor		
A-11	red	spray	stencil	hand	Hand left	very poor		
A-12	red	spray	stencil	hand	Hand	poor		
A-13	red	spray	fragment	fragment	fragment	very poor		
A-14	red	spray	stencil	hand	Hand	very poor	mf 6.0	
A-15	red	spray	fragment	fragment	fragment	very poor		
A-16	red	spray	fragment	fragment	fragment	very poor		
A-17	red	spray	stencil	hand	Hand 3MF	very poor		
A-18	red	spray	fragment	fragment	fragment	very poor		
A-19	red	painting	solid	area	Area	poor		
A-20	red	painting	solid	area	Area	poor		
A-21	yellow	spray	stencil	hand	Hand 3MF	poor		
A-22	yellow	spray	stencil	hand	Hand 3MF	poor	mf 7.0	
A-112	red	spray	stencil	hand	Hand 2MF	very poor	mf 8.0	

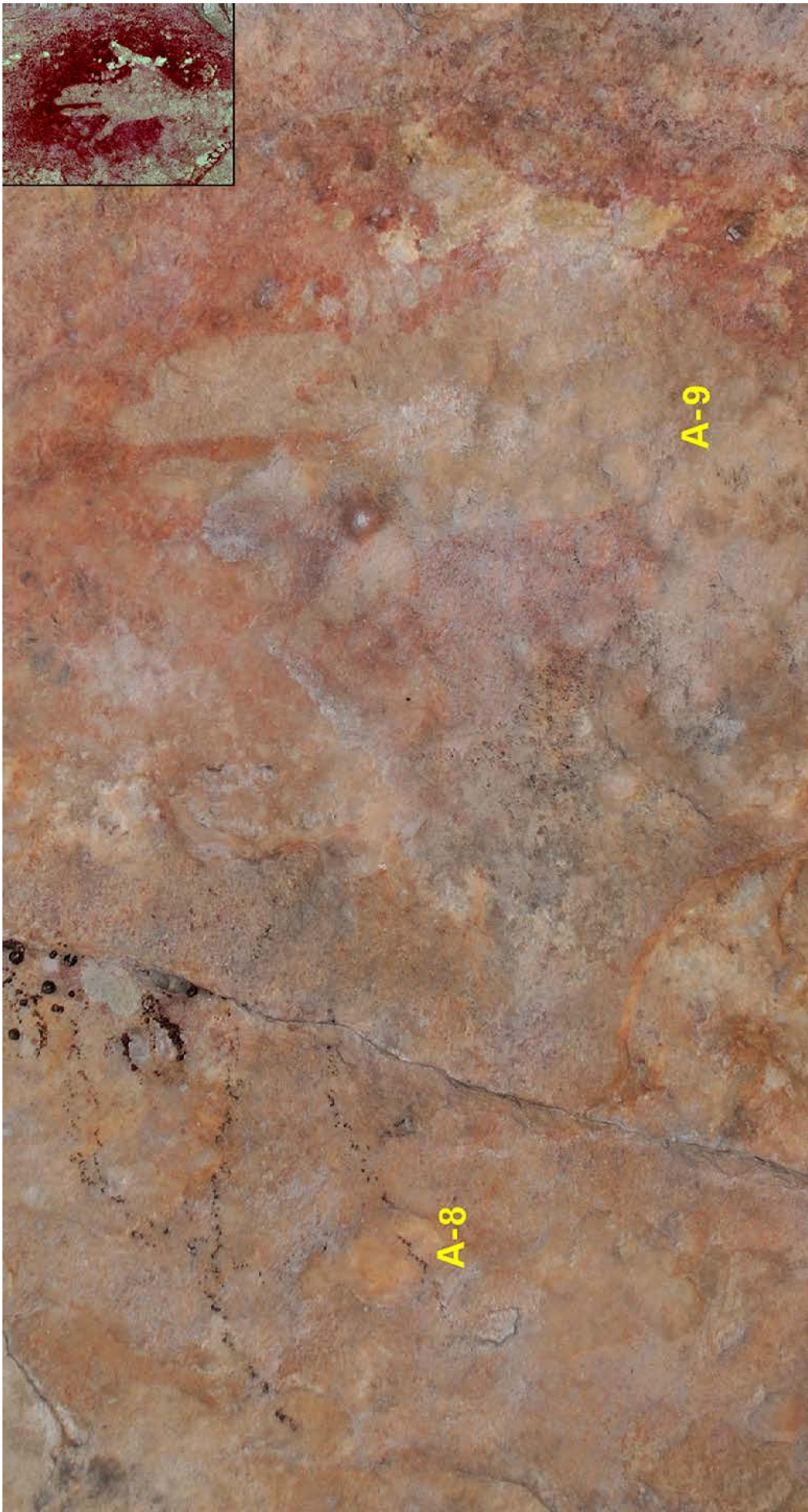


Figure 7.12: Panel A2a details
Charcoal drawing (Motif A-8) and 3MF hand stencil (Motif A-9) Insert: Motif A-9 DStretch_yre15

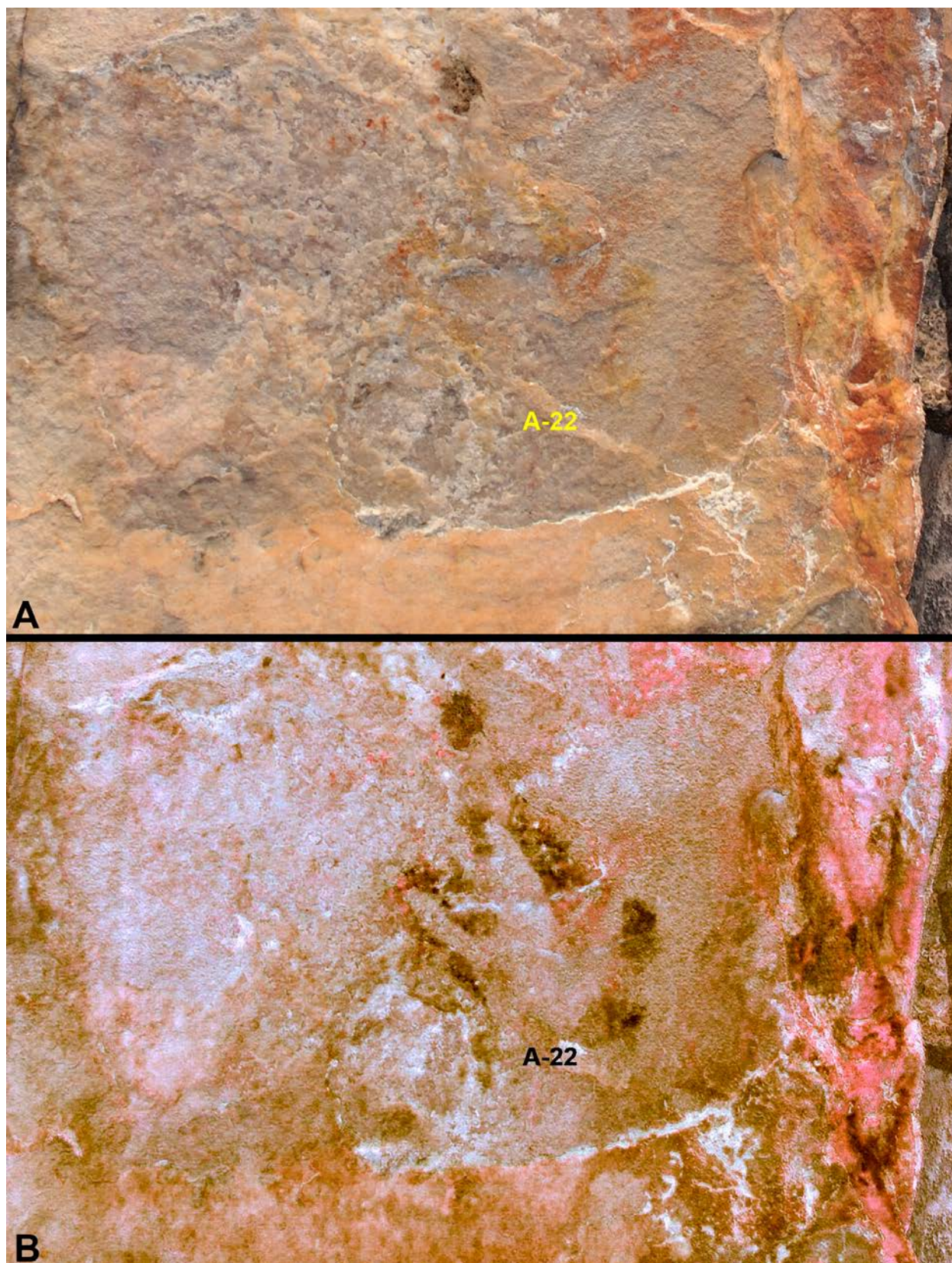


Figure 7.13: 3MF hand stencil (Motif A-22)
A: Flash photograph B: Enhancement: DStretch_lye10

Panel A3

Panel A3 (Figures 7.14 and 7.15) was divided into two sections for recording. The two sections (A3a and A3b) are not separate sub-panels but necessary divisions as the photomosaics of the two photographed sections were incompatible for photo-stitching (Figure 7.16). In discussion, however, the panel is treated as a single unit. The panel is large, 2.8×2.2 m in size, and roughly triangular in shape. Except for small areas of salt concretions and mud-wasp nest remnants, its surface is flat and smooth.

Panel A3 contains 55 motifs (Table 7.3; Figures 7.17 to 7.26) of which 42 (76%) are interpreted to Motif Type. The motifs are concentrated at the inner apex of the panel, but they are aligned in a variety of directions, suggesting that there was no preferred orientation for viewing.

The panel has at least 10 layers of superimpositioning (see also Gunn et al. 2010), dominated by several layers of different white paintings overlying less distinct layers of yellow and red paintings (see Chapter 9). Nine of the motifs are large by Arnhem Land standards (>100

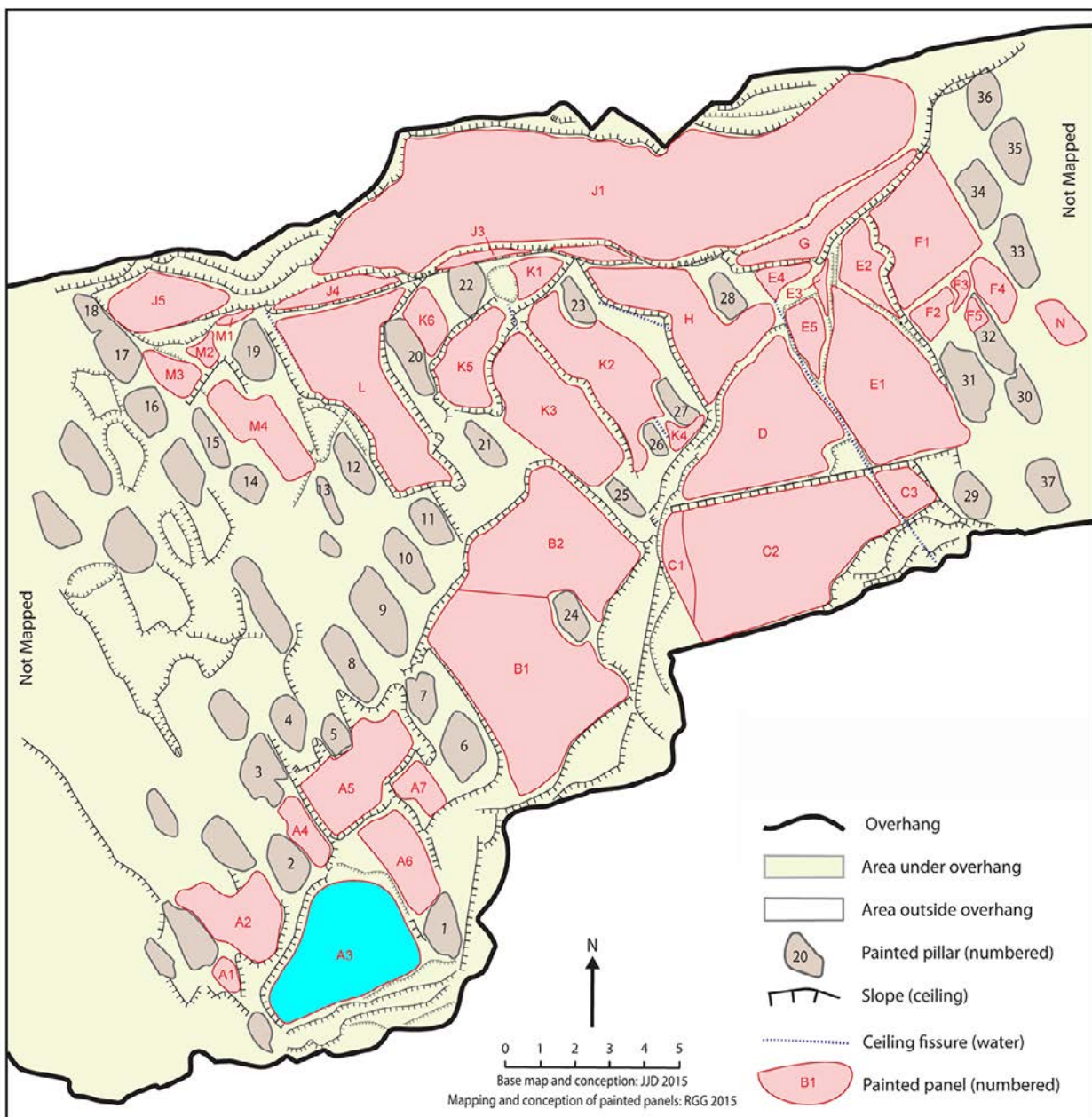


Figure 7.14: Location of Panel A3

cm long; Table 7.3). Four motifs (Motifs A-44, A-67, A-70 and A-71) have patterned infill, but none have distinct X-ray features. Given the paucity of motifs on the area of section A3b, the concentrated placement of motifs within the area of section A3a appears to be deliberate and planned. The position of the finely painted Jawoyn Lady motif (Motif A-70; Figure 7.27) at the periphery of this dense motif cluster on section A3a would also, then, appear to have been a considered placement.

The large emu motif (Motif A-71) appears to be the most recent motif on the panel. The body of this motif was painted with a relatively fluid wash that gives it a slightly translucent quality. In contrast, the thick paste-like pigment of the underlying anthropomorphs has a far greater visual intensity (Motifs A-60 and A-62; Figure 7.28). Motif A-71, which is relatively recent, large and prominent, is the only bird depicted on the panel.



Figure 7.15: Location of Panel A3



Figure 7.16: Panel A3 photo-tracing



Figure 7.17: Panel surface A3a photomosaic



Figure 7.18: Panel surface A3a photo-tracing

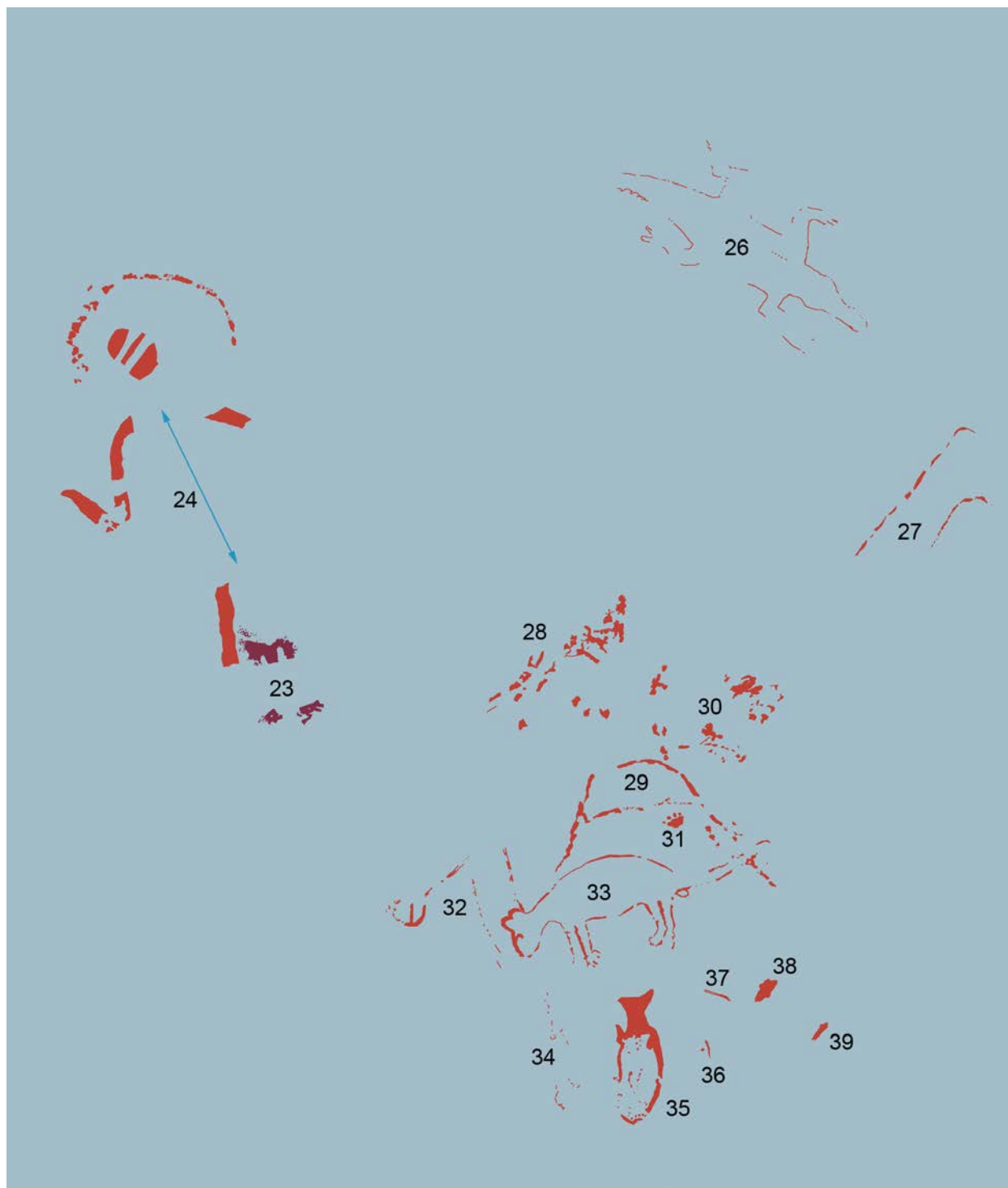


Figure 7.19: Panel surface A3a motif interpretations (i)

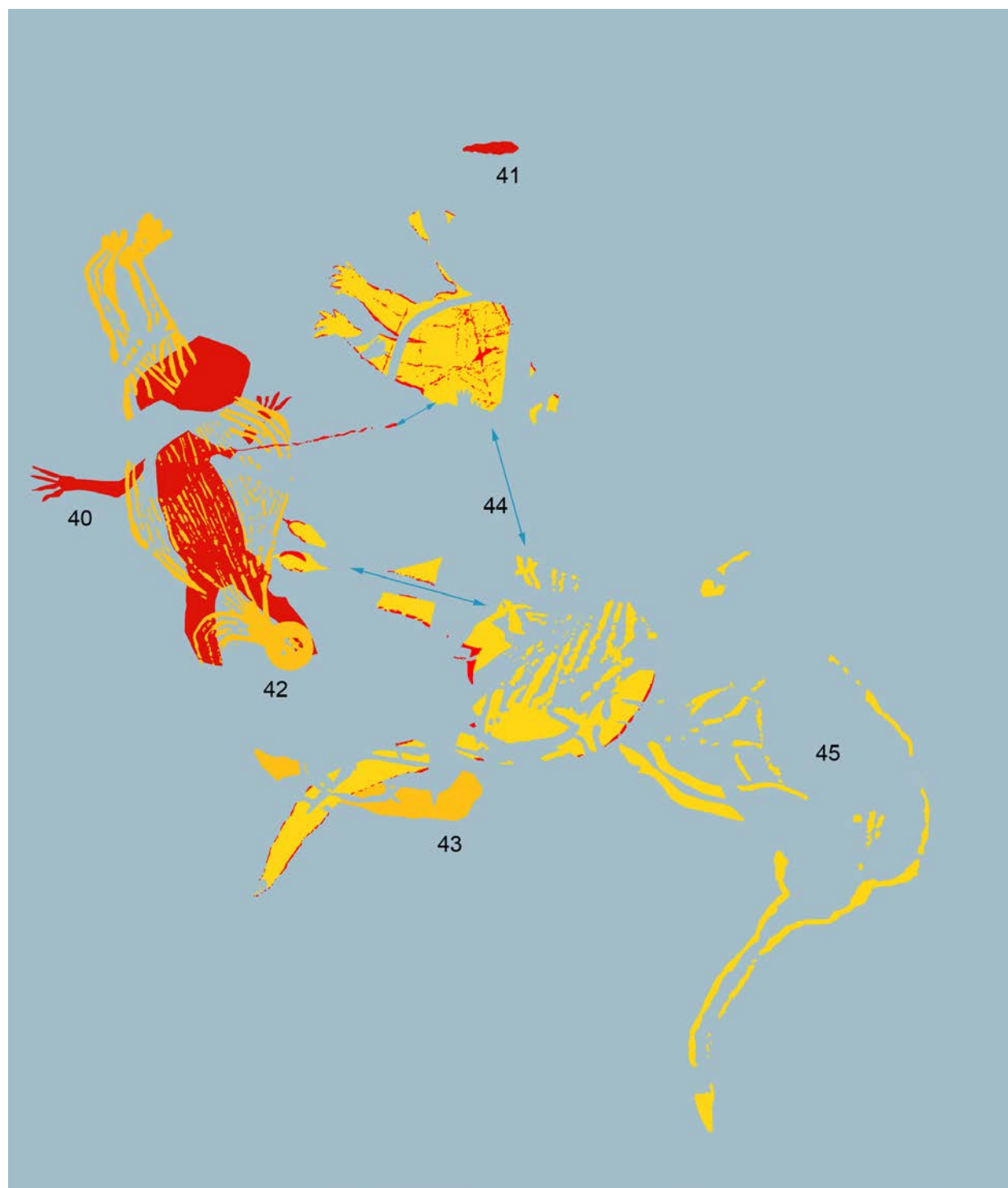


Figure 7.20: Panel surface A3a motif interpretations (ii)



Figure 7.21: Panel surface A3a motif interpretations (iii)

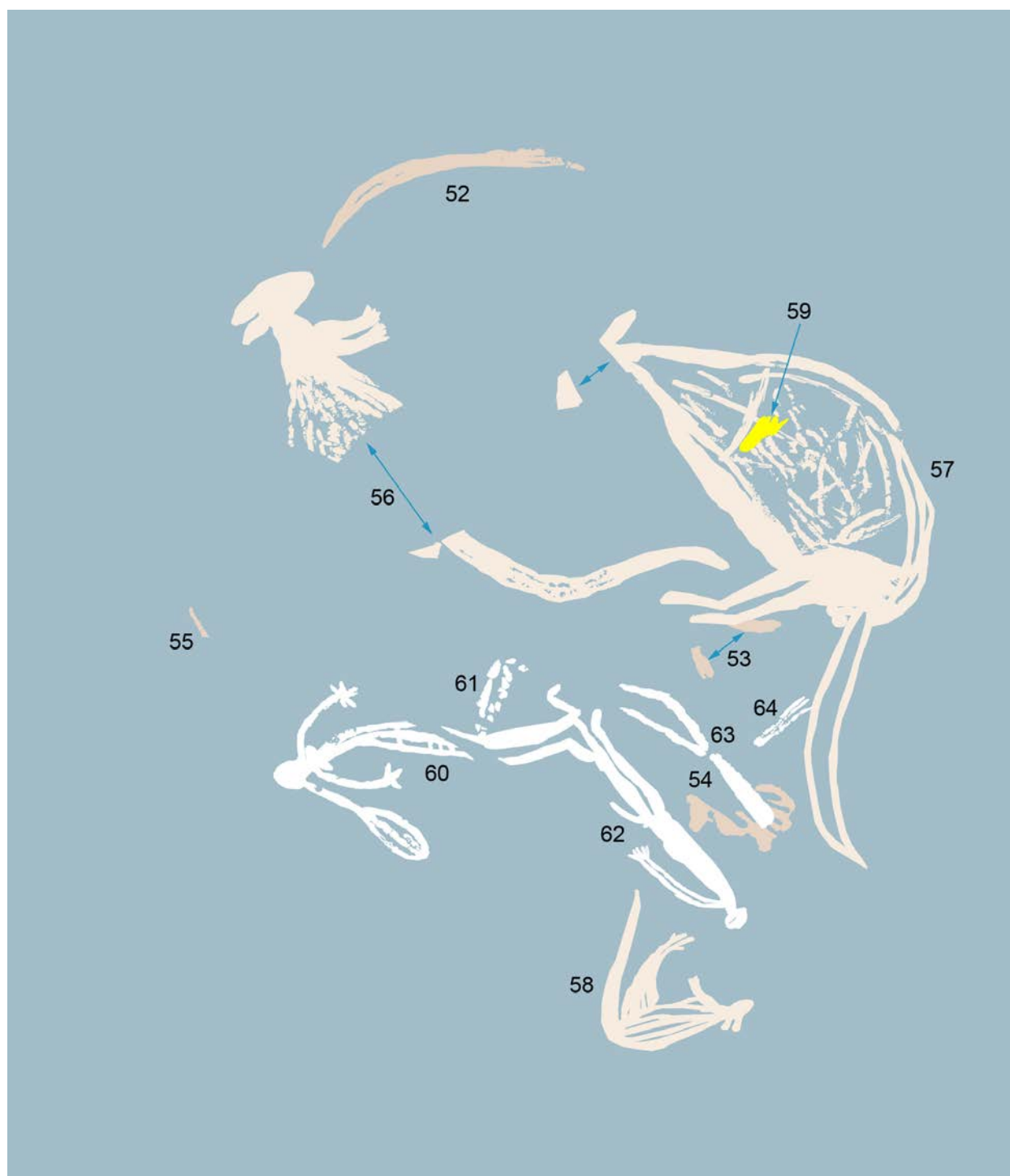


Figure 7.22: Panel surface A3a motif interpretations (iv)



Figure 7.23: Panel surface A3a motif interpretations (v)

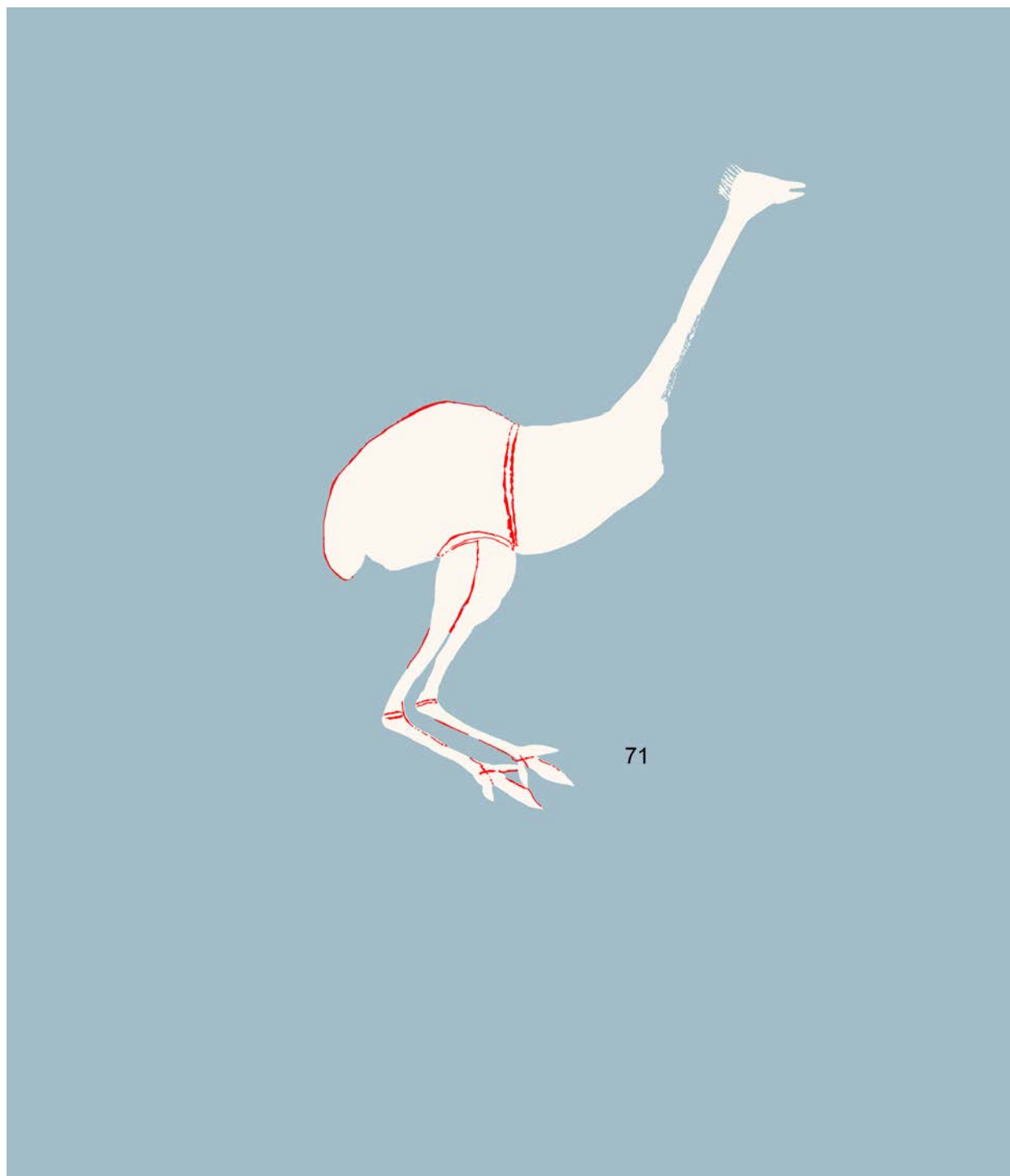


Figure 7.24: Panel surface A3a motif interpretations (vi)



Figure 7.25: Panel surface A3b photomosaic

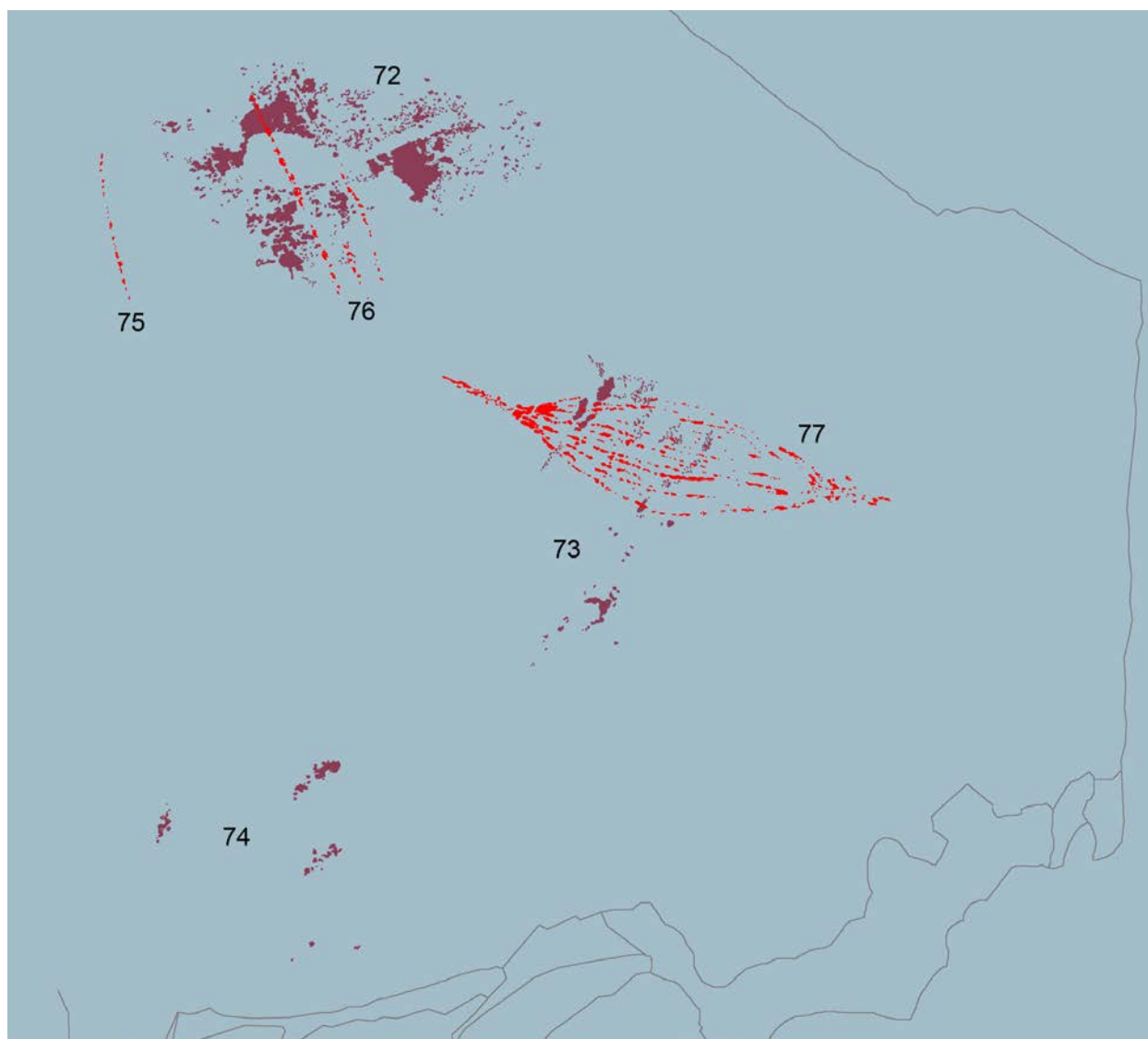


Figure 7.26: Panel surface A3b motif interpretations

Table 7.3: Panel A3 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
A-23	mulberry	spray	stencil	hand	Hand	very poor		
A-24	red	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
A-25	red	painting	solid	mammal	Animal	very poor		
A-26	red	painting	outline	reptile	Crocodile	very poor	65	23
A-27	red	painting	outline	fragment	fragment	very poor		
A-28	red	painting	fragment	fragment	fragment	very poor		
A-29	red	painting	linear	fragment	fragment	very poor		
A-30	red	painting	fragment	fragment	fragment	very poor		
A-31	red	painting	solid+dot	track	Paw track	poor		
A-32	red	painting	linear	fragment	fragment	poor		
A-33	red	painting	outline	mammal	Thylacine	poor		
A-34	red	painting	trace	trace	trace	very poor		
A-35	red	painting	outline+solid	fish	Fish	very poor		
A-36	red	painting	trace	trace	trace	very poor		
A-37	red	painting	linear	geometric	Line	poor		
A-38	red	painting	fragment	fragment	fragment	very poor		
A-39	red	painting	fragment	fragment	fragment	very poor		
A-40	red	painting	solid	anthropomorph	Anthropomorph	poor		
A-41	red	painting	solid	fragment	fragment	poor		
A-42	yellow	painting	outline+infill	anthropomorph	Anthropomorph	very poor		
A-43	yellow	painting	solid	fragment	fragment	very poor		
A-44	yellow+red	painting	solid+outline+infill	mammal	Macropod+spear	very poor		
A-45	yellow	painting	outline	mammal	Macropod female	very poor		
A-46	red	painting	outline+solid+infill	mammal	Macropod	very poor		
A-47	red	painting	linear	geometric	Y-shape	fair		
A-48	red	painting	outline+infill	mammal	Macropod	very poor		
A-49	red	painting	solid	anthropomorph	Anthropomorph male	fair	110	25
A-50	red	painting	solid	reptile	Goanna	fair	50	14

A-51	red	painting	outline	anthropomorph	Anthropomorph	fair	81	37
A-52	white	painting	outline	geometric	Arc	poor		
A-53	white	painting	solid	track	Macropod track	poor		
A-54	white	spray	stencil	hand	Hand left	poor		
A-55	white	painting	linear	geometric	Line	poor		
A-56	white	painting	outline+infill	mammal	Macropod	fair	114	-
A-57	white	painting	outline+infill	mammal	Macropod male	fair	143	67
A-58	white	painting	outline+infill	mammal	Macropod	poor	53	37
A-59	yellow	painting	solid	track	Footprint	fair		
A-60	white	painting	solid+outline+infill	anthropomorph	Anthropomorph female	good	79	52
A-61	white	painting	dot	unknown	Unknown	good		
A-62	white	painting	solid+linear	anthropomorph	Anthropomorph male	good	70	16
A-63	white	painting	solid+linear	unknown	Unknown	good	58	18
A-64	white	painting	linear	simple design	Design apex	good		
A-65	white	painting	solid+outline	mammal	Macropod male	good	160	88
A-66	white+black	painting	solid+infill	anthropomorph	Anthropomorph female	good	90	16
A-67	white+red	painting	solid+infill	mammal	Macropod male	good	125	71
A-68	white	painting	solid+linear	unknown	Unknown	good		
A-69	white	painting	solid+linear	unknown	Unknown	good		
A-70	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	good	90	35
A-71	white+red	painting	solid+infill	bird	Emu	good	160	84
A-72	red	spray	stencil	object	Object	very poor		
A-73	red	painting	trace	trace	trace	very poor		
A-74	red	painting	trace	trace	trace	very poor		
A-75	red	painting	linear	geometric	Line	fair		
A-76	red	painting	linear	simple design	Line set	fair		
A-77	red	painting	outline+infill	simple design	Design regular	poor		



Figure 7.27: Detail of Jawoyn Lady infill (Motif A-70)



Figure 7.28: Detail of the paste-like pigment of Motif A-62

Panel A4

Panel A4 (Figure 7.29) is composed of two adjacent rock surfaces: Panel A4a (with five motifs) and Panel A4b (one motif). The surface of Panel A4a is positioned c.10 cm higher above the ground than that of Panel A4b (Figure 7.30). The overall panel covers a roughly rectangular area 1.5 × 0.6 m in size (Figure 7.31). A thin layer of white salts partially coats both surfaces and there is a concentration of grey mud-wasp nests around a white

hand stencil (Motif A-81). As thin lamellar exfoliation on the right side of the panel has removed part of the stencil spray, it must have occurred subsequent to the production of the hand stencil.

Panel A4 contains six motifs (Table 7.4; Figures 7.31 and 7.32), four of which are interpreted to Motif Type. Most motifs are in poor to very poor condition, and the best preserved (Motif A-83) is an unusual simple design in white.

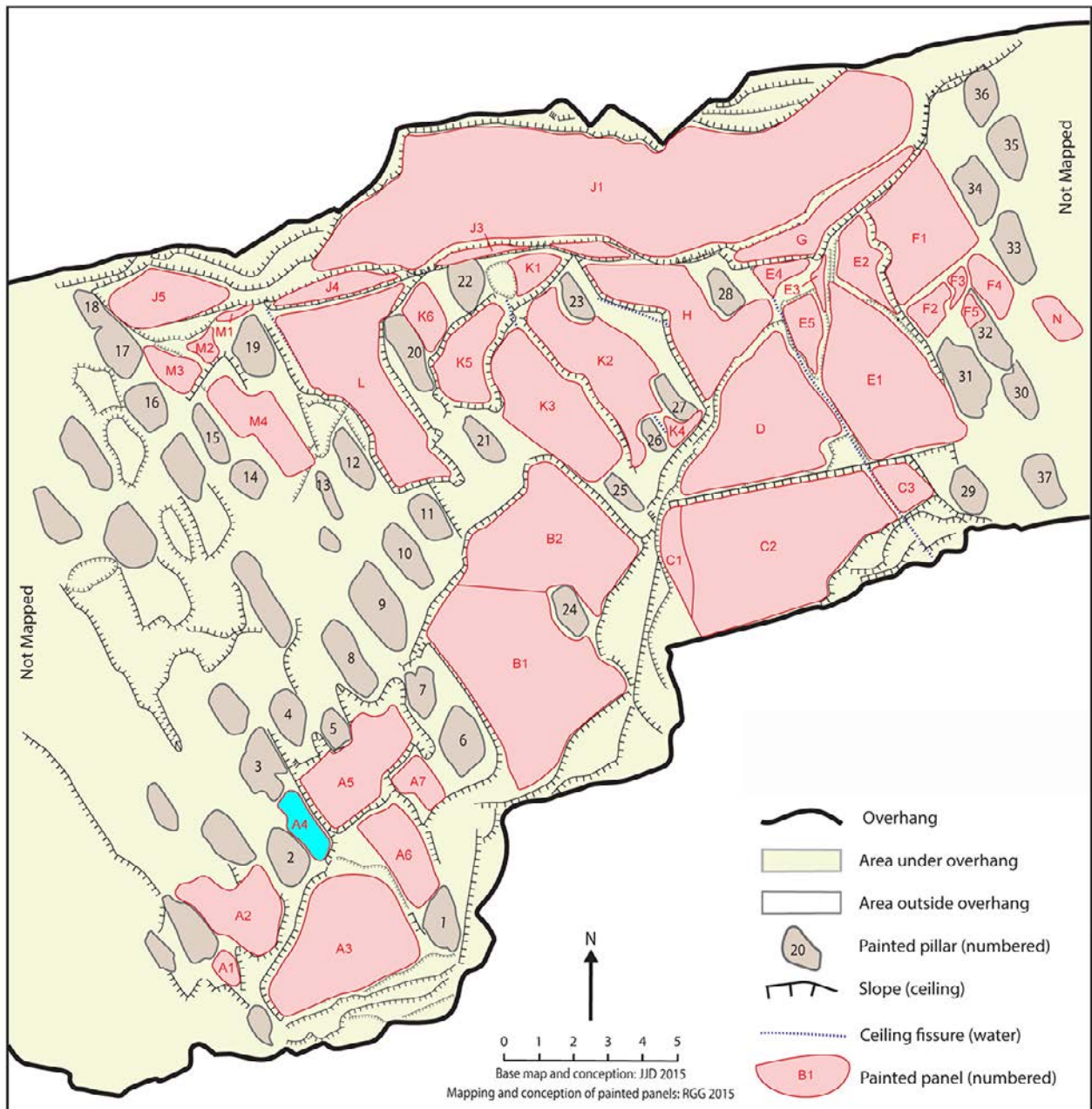


Figure 7.29: Location of Panel A4

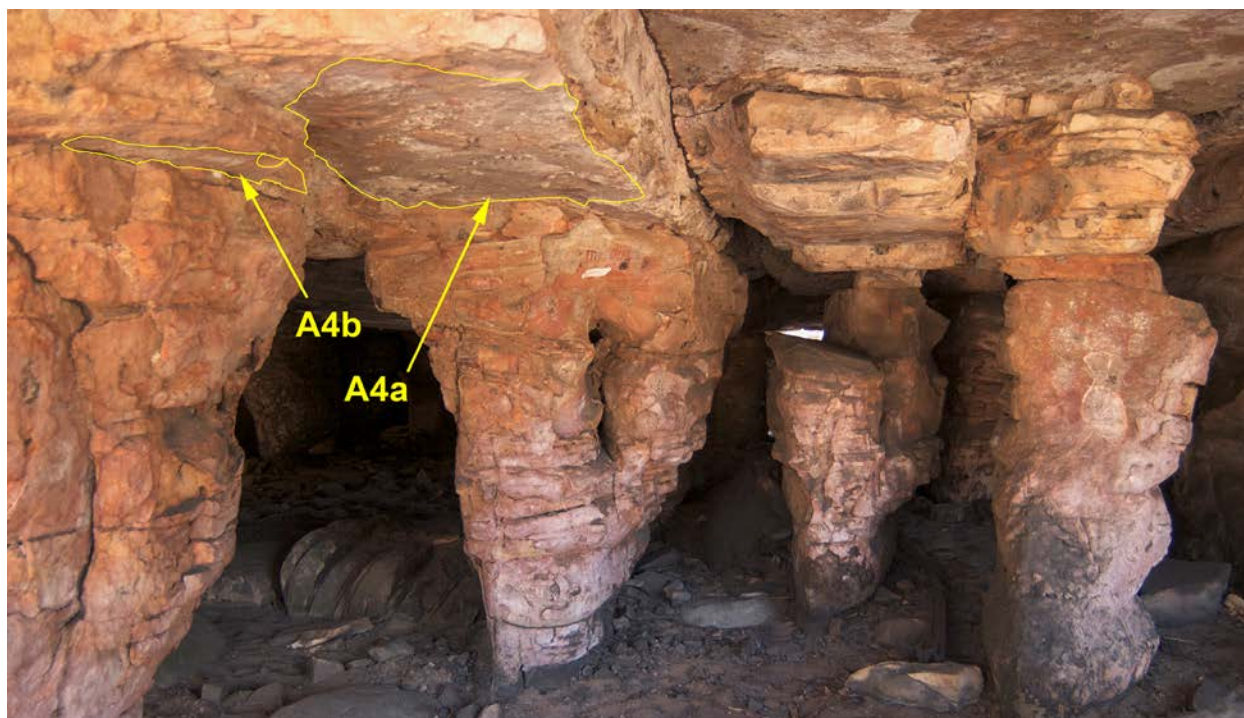


Figure 7.30: Location of Panel A4
Showing relative position of Panel surfaces A4a and A4b

Table 7.4: Panel A4 motif list

Motif No.	Colour	Technique	Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
A-78	red	spray	stencil	hand	Hand	very poor		
A-79	red	painting	fragment	fragment	fragment	very poor		
A-80	red	painting	trace	trace	trace	very poor		
A-81	red	painting	outline	simple design	Design irregular	poor		
A-82	white	spray	stencil	hand	Left hand	fair		
A-83	white	painting	linear	simple design	Design irregular	good		
A-113	red	painting	fragment	fragment	fragment	very poor		



Figure 7.31: Panel A4 photograph

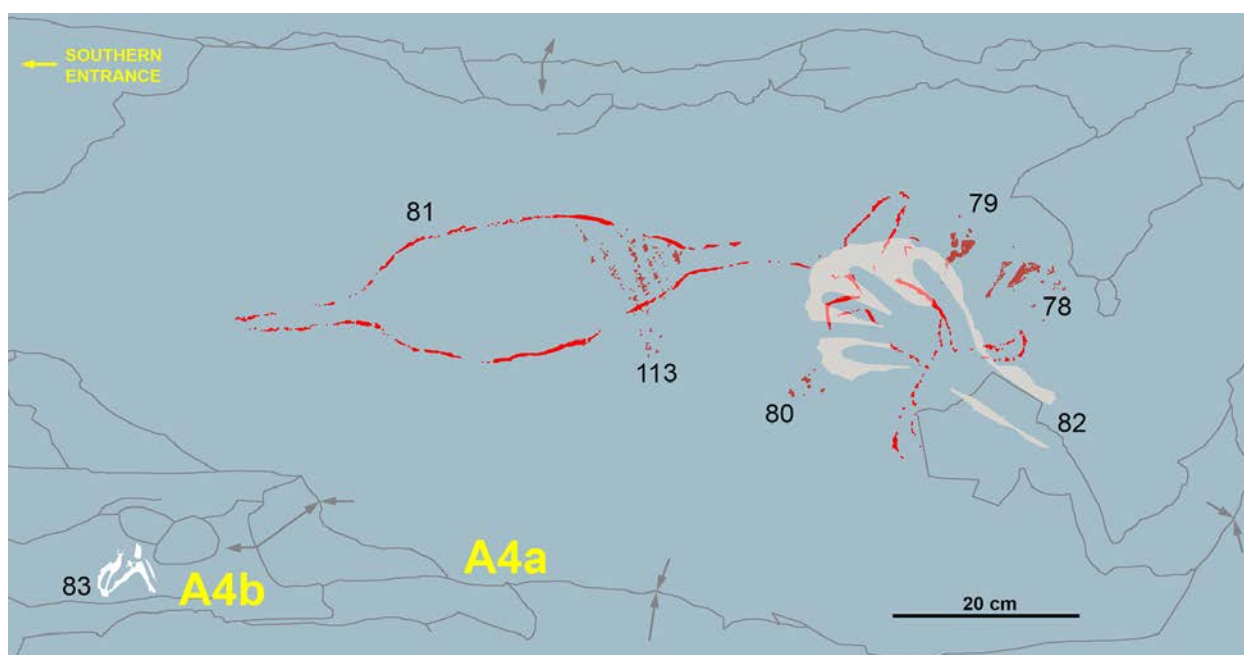


Figure 7.32: Panel A4 photo-tracing and interpretation

Panel A5

Panel A5 (Figure 7.33 to 7.35) is a large but irregularly shaped panel, approximately 2.0 × 1.0 m in area. A thin veneer of seepage-deposited salts covers much of the panel. For the most part the panel is flat, but it is subdivided by a central oval-shaped cavity measuring 65 × 35 cm. Two unmodified wooden pegs are wedged into a horizontal cleft between rock layers on the southern side of the panel (Figure 7.35). Both pegs are situated close to the artwork, but the apparent association between them and the artwork appears fortuitous, created by the availability of the crack in the rock into to which they are wedged. Such pegs are

common in rock shelters throughout Jawoyn Lands and are referred to by Aboriginal people as ‘dillybag hooks’, although they were also used for hanging meat to keep it out of reach of camp dogs (Peter Bolgay, pers. comm., 2006).

Panel A5 contains five motifs (Table 7.5; Figures 7.36 to 7.38) four of which are interpreted to Motif Type. The motifs occur in two groups with white paintings to the west of the cavity and red paintings to the east. The head of the white fish (Motif A-88; Figure 7.38) is almost at a right-angle to the body. This is a manner of depicting a fish with a broken neck and illustrates a common fishing practice recorded in ethnographic

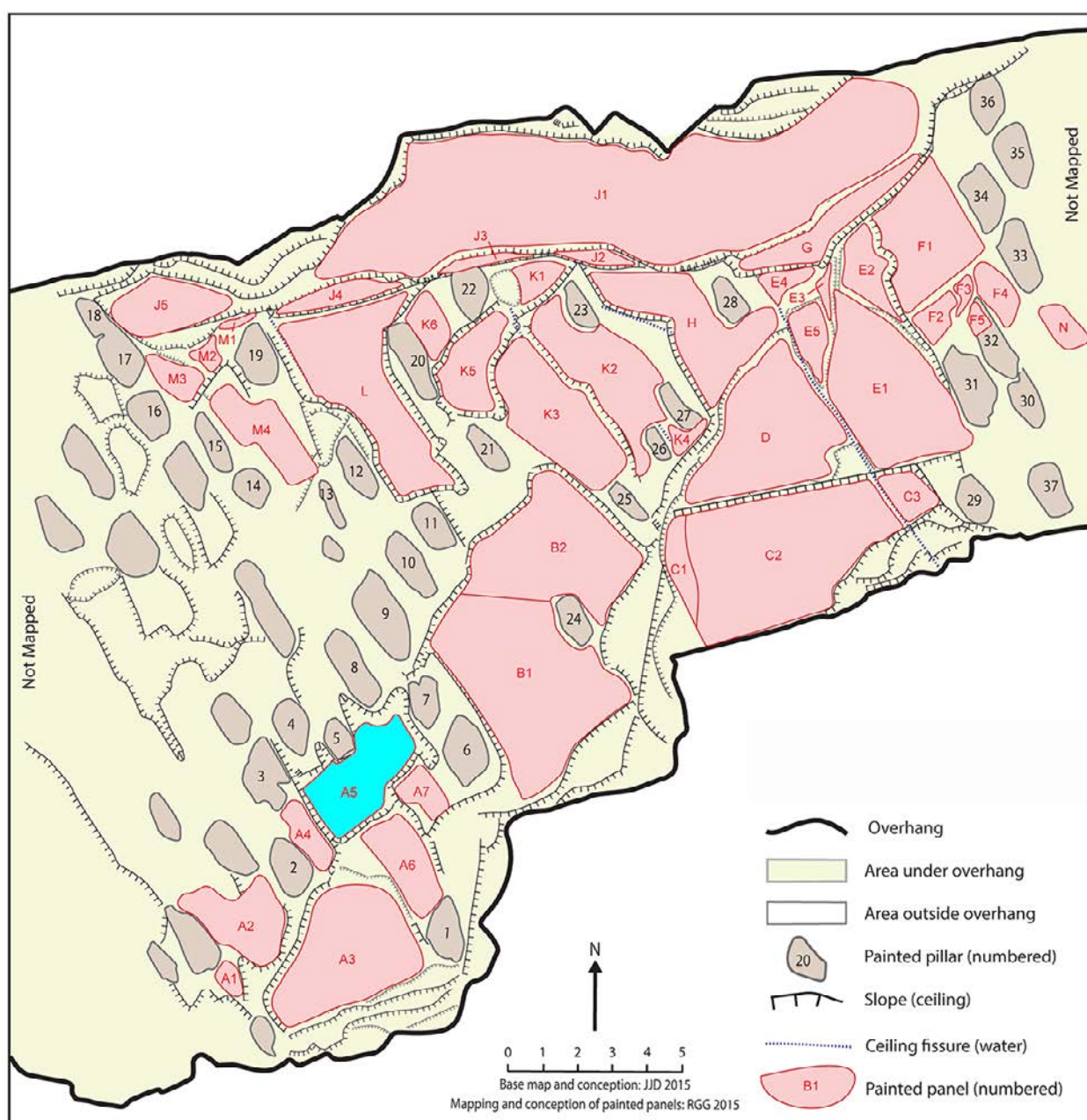


Figure 7.33: Location of Panel A5

times by Aboriginal peoples across Arnhem Land (see Taçon 1988: 10). Motif A-87 is a depiction of an animal but its full shape is unclear as its hind quarters are partially hidden beneath, and it is painted in a similar colour to Motif A-88. Digital enhancement of Motif A-87 suggests that the animal has a short tail, and hence it is likely to be a bandicoot. The full form of Motif A-84 is also unclear (Figure 7.37), but it seems to have been painted with an almost dry brush (with little water or other solvent being mixed with the pigment), as

individual bristle marks are apparent: these would not be so distinct with fluid pigment. Motif A-86 appears to have been left uncompleted (Figure 7.37), however, as it has the same shape as the tail of the adjacent Motif A-85 and is the same colour, it may be the beginnings of a second macropod. Although Motif A-85 is now indistinct, enhancement with DStretch (Figures 7.39 and 7.40) shows it was executed by a proficient painter, as the line-work is sure and even, and the fine details carefully delineated.

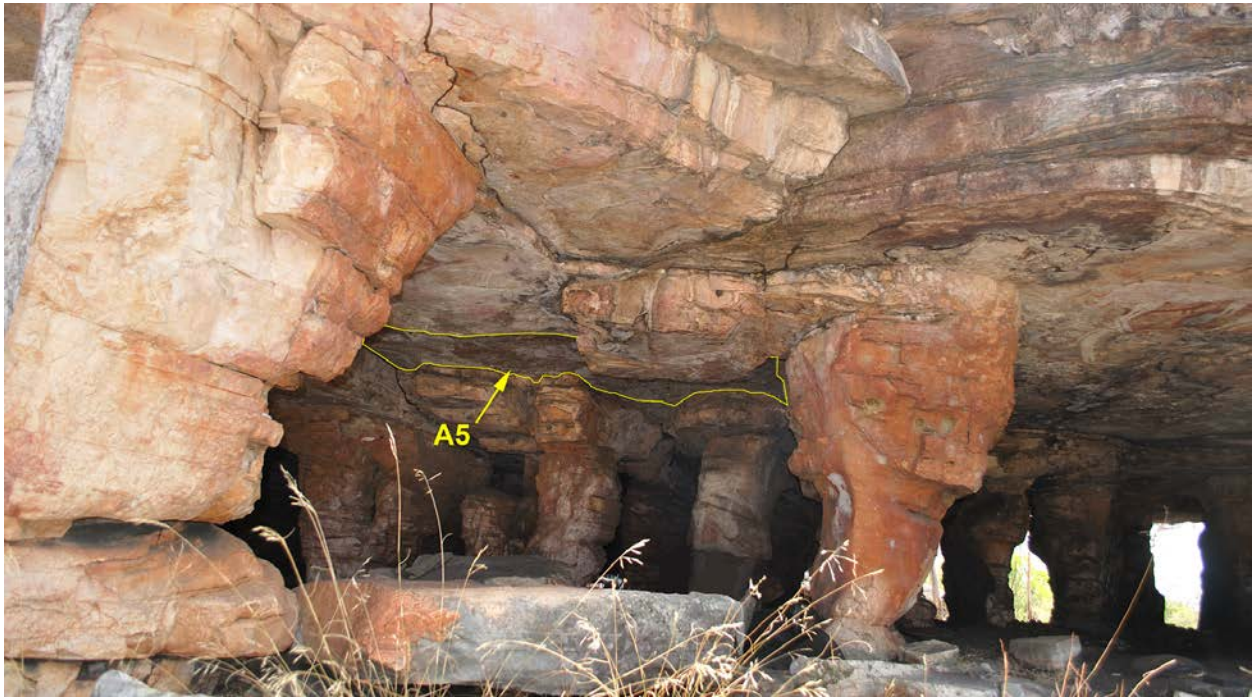


Figure 7.34: Location of Panel A5

Table 7.5: Panel A5 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
A-84	red	painting	fragment	fragment	fragment	very poor		
A-85	red	painting	outline+infill	mammal	Macropod	poor		
A-86	red	painting	fragment	fragment	fragment	very poor		
A-87	white	painting	solid+linear	mammal	Bandicoot	fair		
A-88	white	painting	solid	fish	Saratoga	fair	93	32

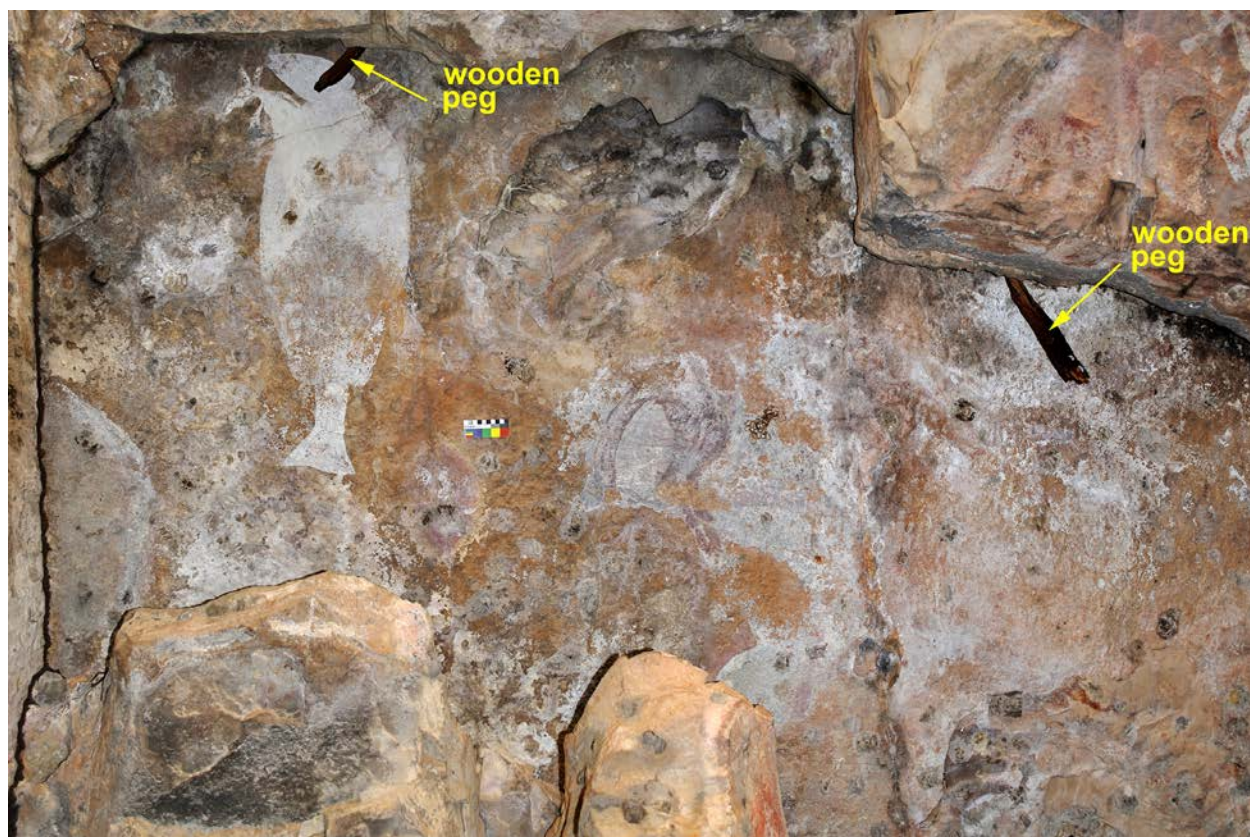


Figure 7.35: Panel A5
Showing location of wooden pegs (dillybag hooks) wedged into the horizontal crevice

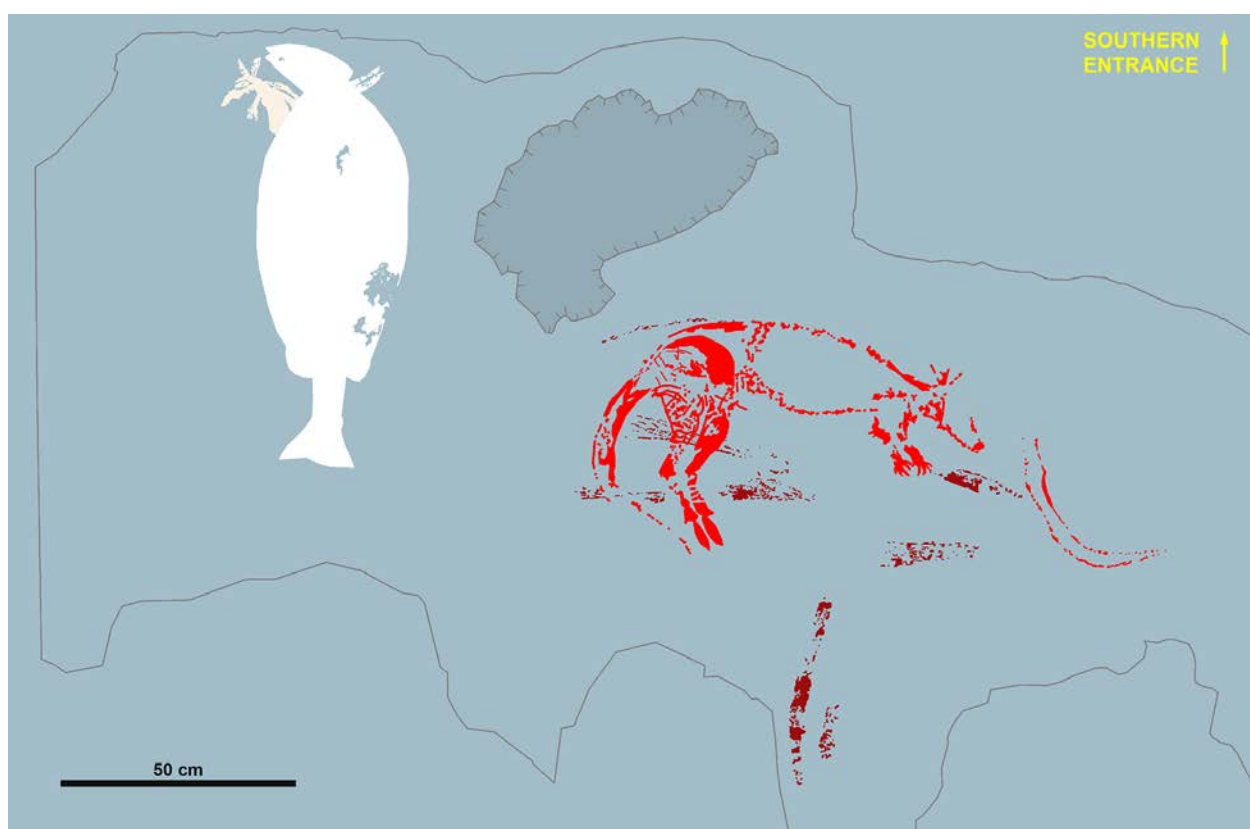


Figure 7.36: Panel A5 photo-tracing

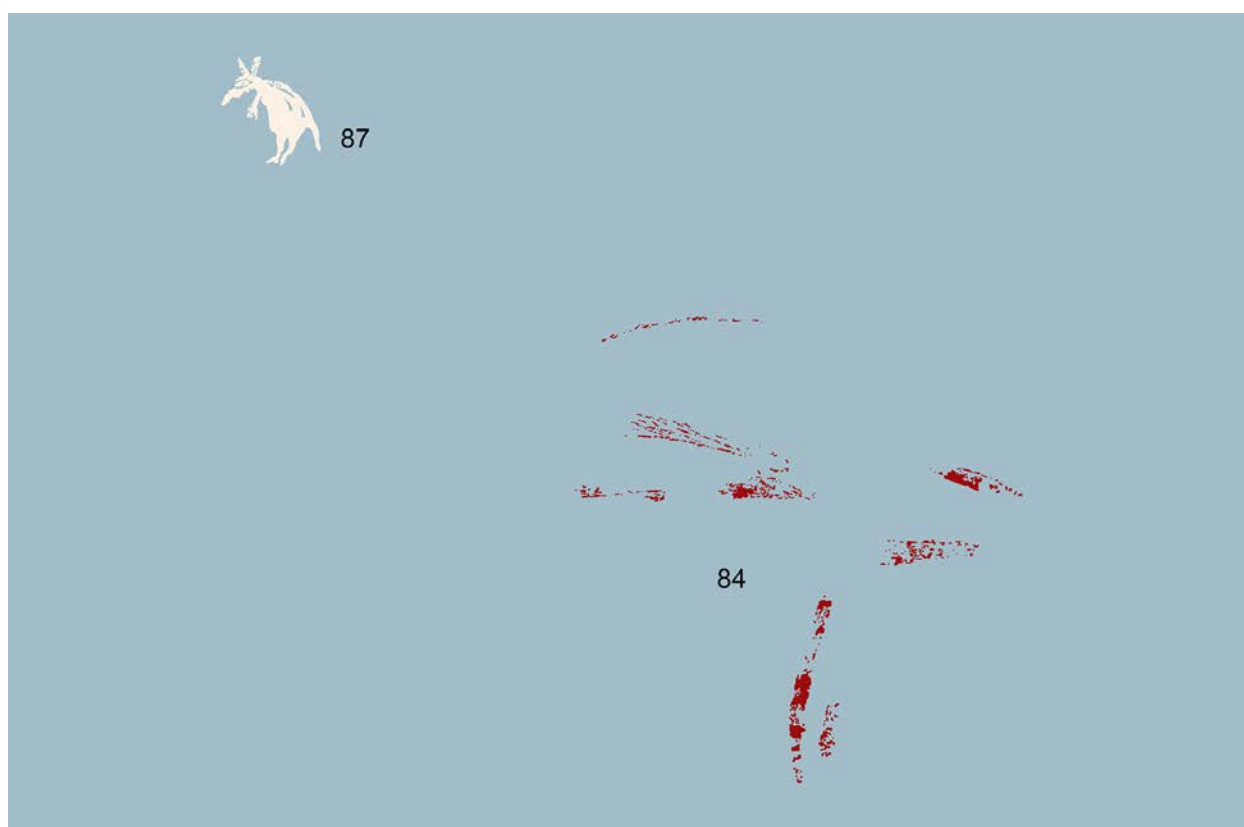


Figure 7.37: Panel A5 motif interpretations (i)

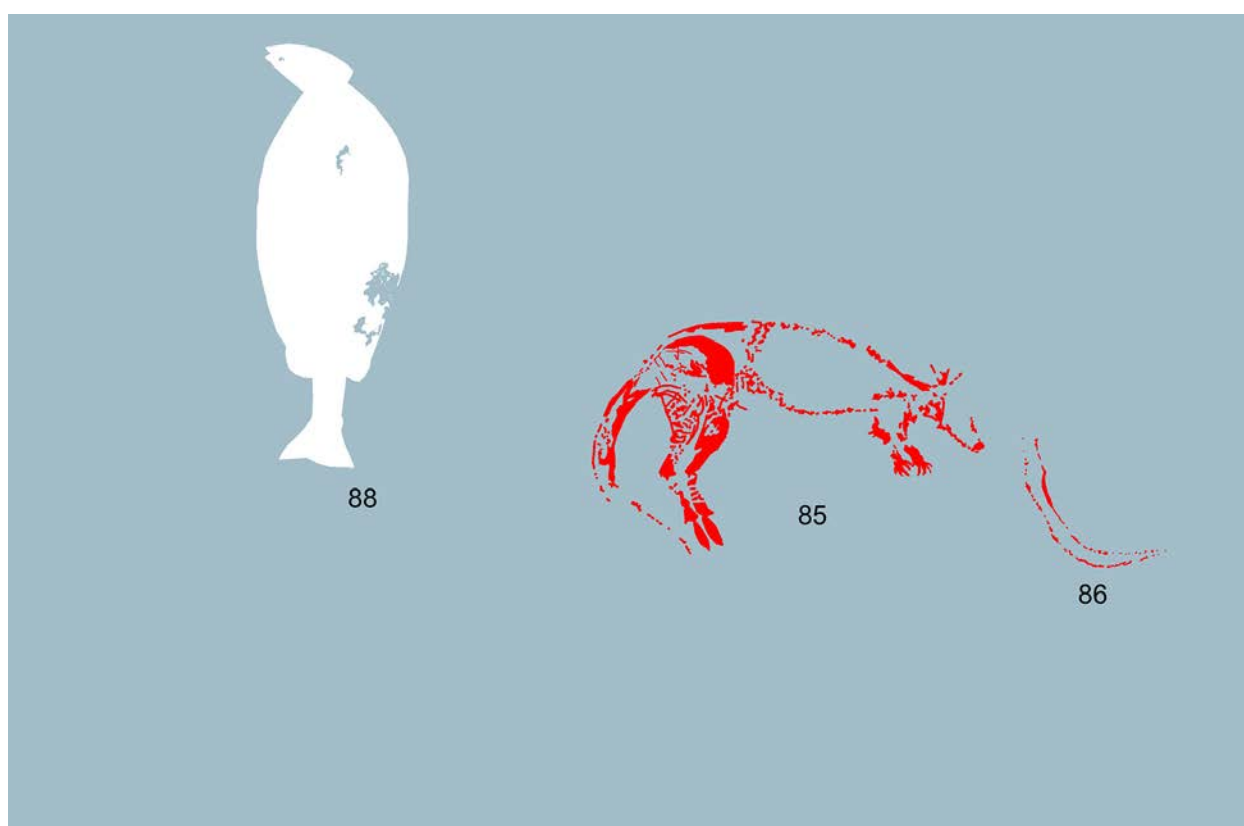


Figure 7.38: Panel A5 motif interpretations (ii)



Figure 7.39: DStretch enhancement of motifs A-85 and A-86
Enhancement: DStretch_yrd10



Figure 7.40: Photo-tracing of motifs A-85 and A-86

Panel A6

Panel A6 (Figures 7.41 and 7.42) is 2.0 × 1.2 m in size and roughly rectangular in shape (Figure 7.43). Although on a flat surface, the panel is scarred by fissure lines and areas of shallow exfoliation. In addition, much of the panel is covered by a thin coating of salts indicative of water damage (Figure 7.43), most probably seeping through the fissures (Thorn 2011: 8-9).

The panel contains 13 motifs (Table 7.6; Figures 7.44 to 7.48), all of which are interpreted to Motif Type. All of these motifs are poorly preserved. Motifs A-93 and A-95 both overlie areas of exfoliation (Figure 7.43).

Motif A-101, an anthropomorph with macropod feet and bone-like thighs (Figure 7.48), was positioned with its hips against those of the earlier female figure (Motif A-9), suggesting a sexual or other manner of

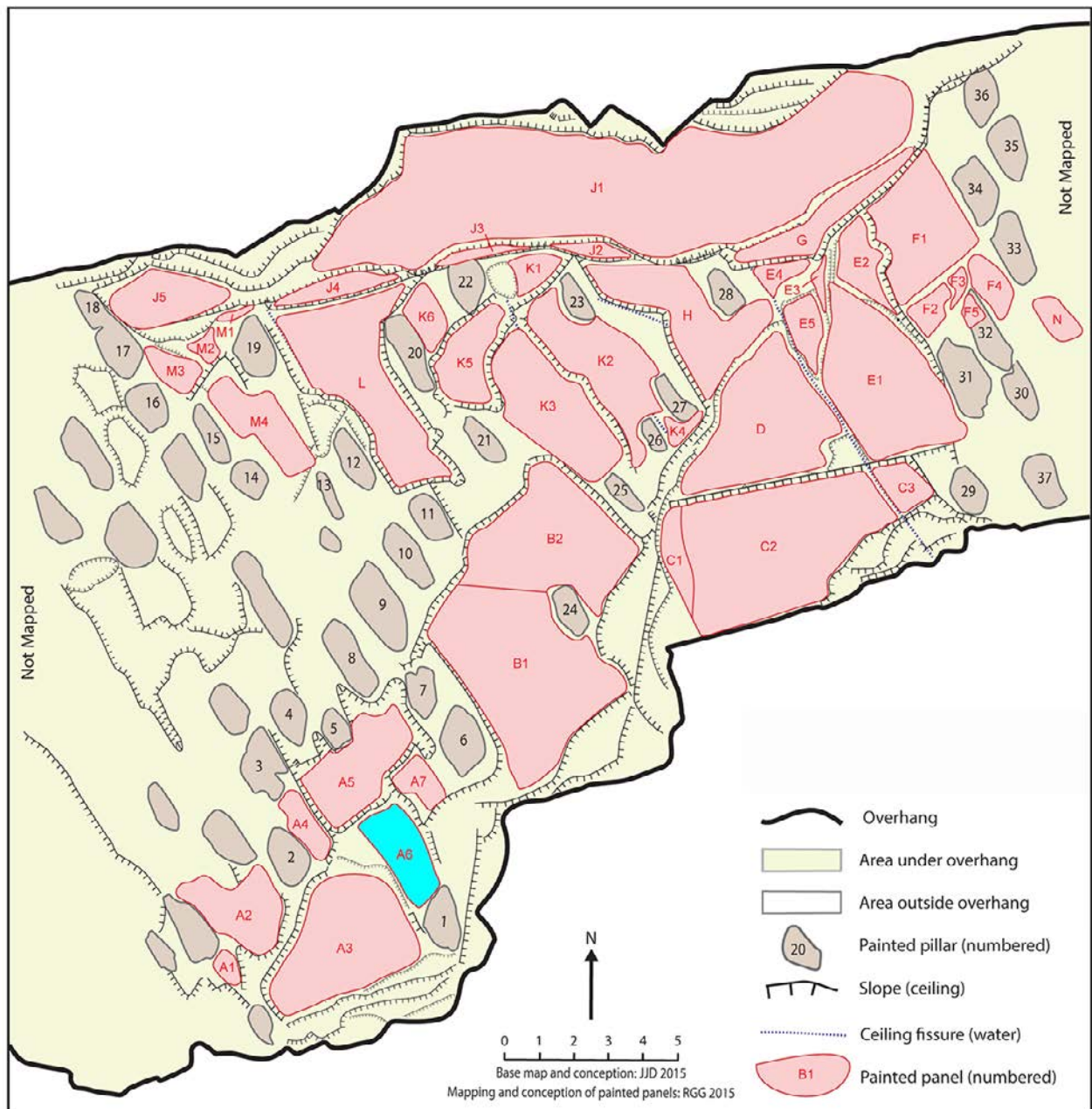


Figure 7.41: Location of Panel A6



Figure 7.42: Location of Panel A6

association by virtue of their placement. The white pigment of Motif A-96 to Motif A-101 is fugitive; it is deteriorating faster than other colours on the panel (Figure 7.49). Anthropomorphs and aquatic fauna are depicted in the predominantly white-based overlying paintings. In contrast, terrestrial and avian fauna are featured in the red and yellow paintings

(Motifs A-89, A-92, A-93 and A-95). The two largest birds (Figure 7.50) are both unidentified, although the heavy-bodied, four-clawed bird may represent a scrubfowl (Motif A-95), and it cannot be determined whether the bill of the spur-legged wader (Motif A-93) is complete or whether it has been destroyed by rock fracturing.



Figure 7.43: Panel A6 photomosaic

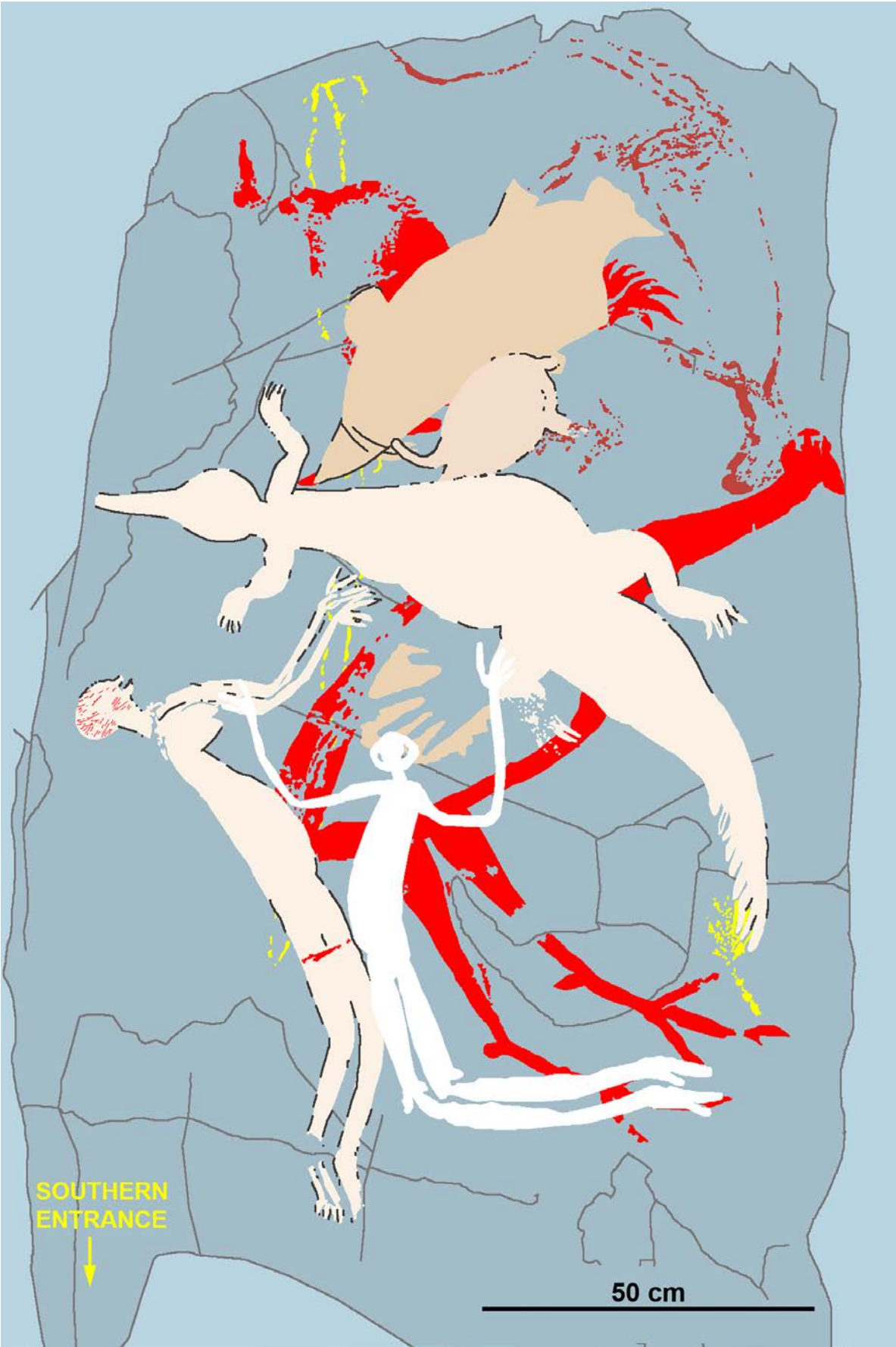


Figure 7.44: Panel A6 photo-tracing

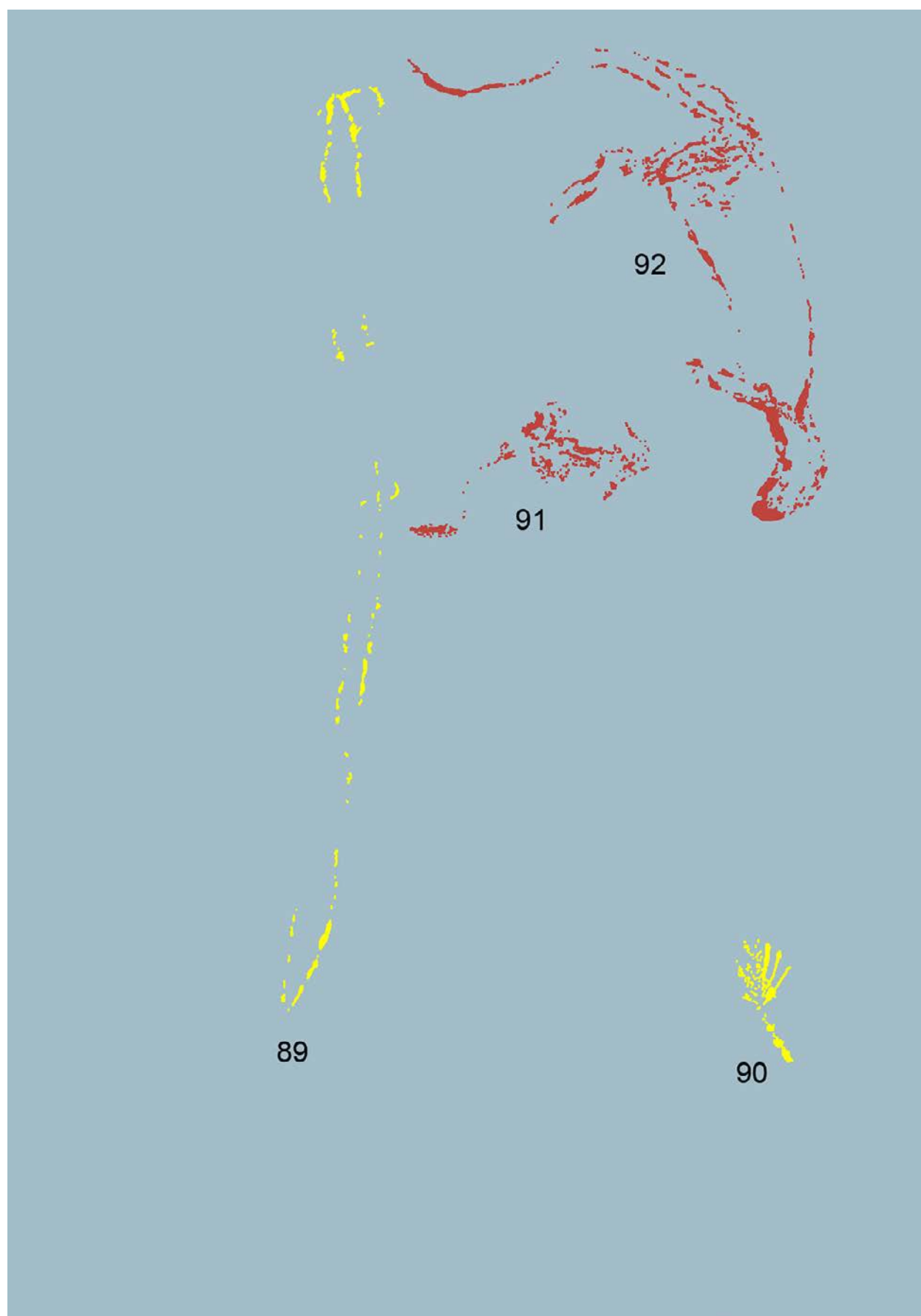


Figure 7.45: Panel A6 motif interpretations (i)

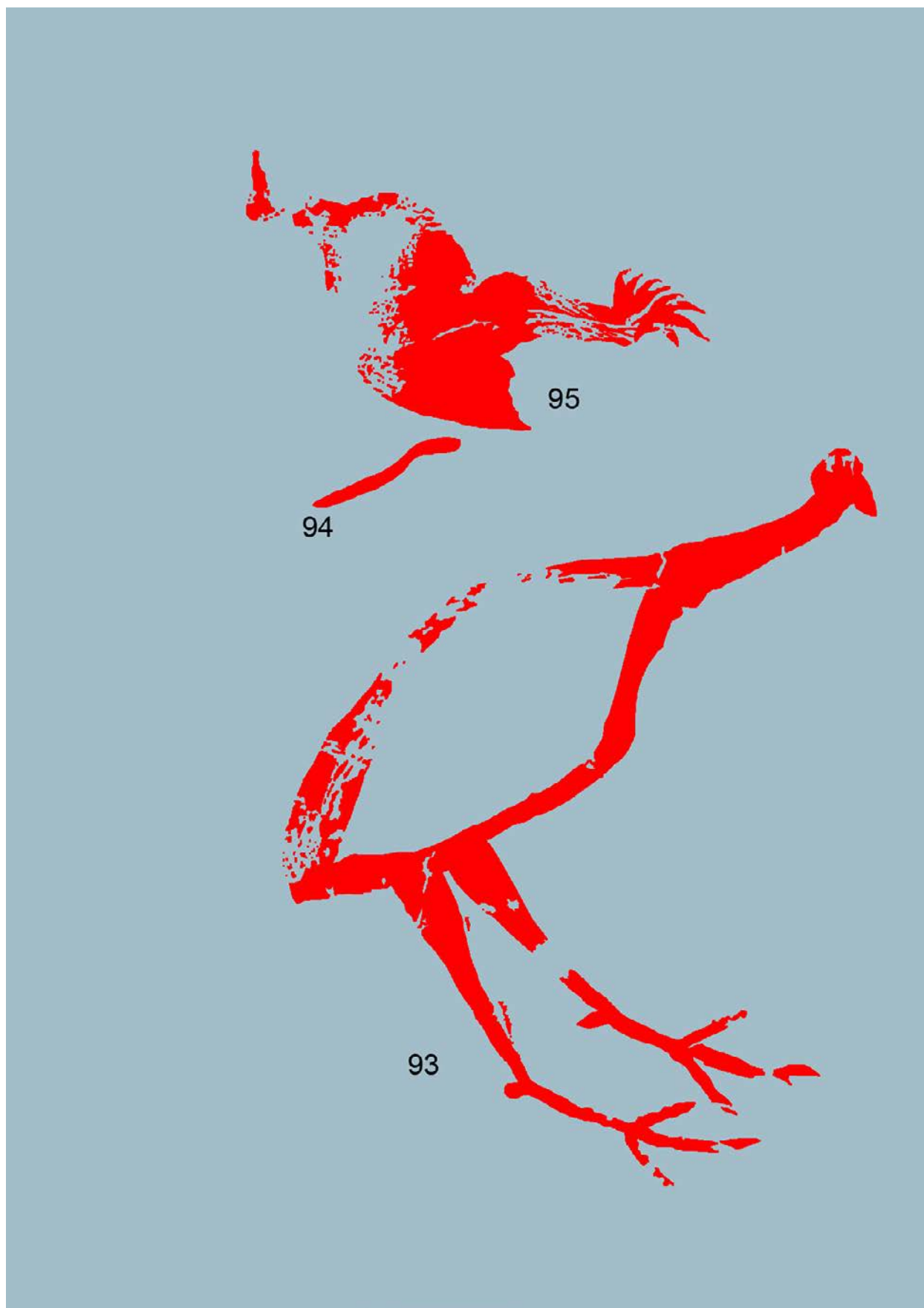


Figure 7.46: Panel A6 motif interpretations (ii)

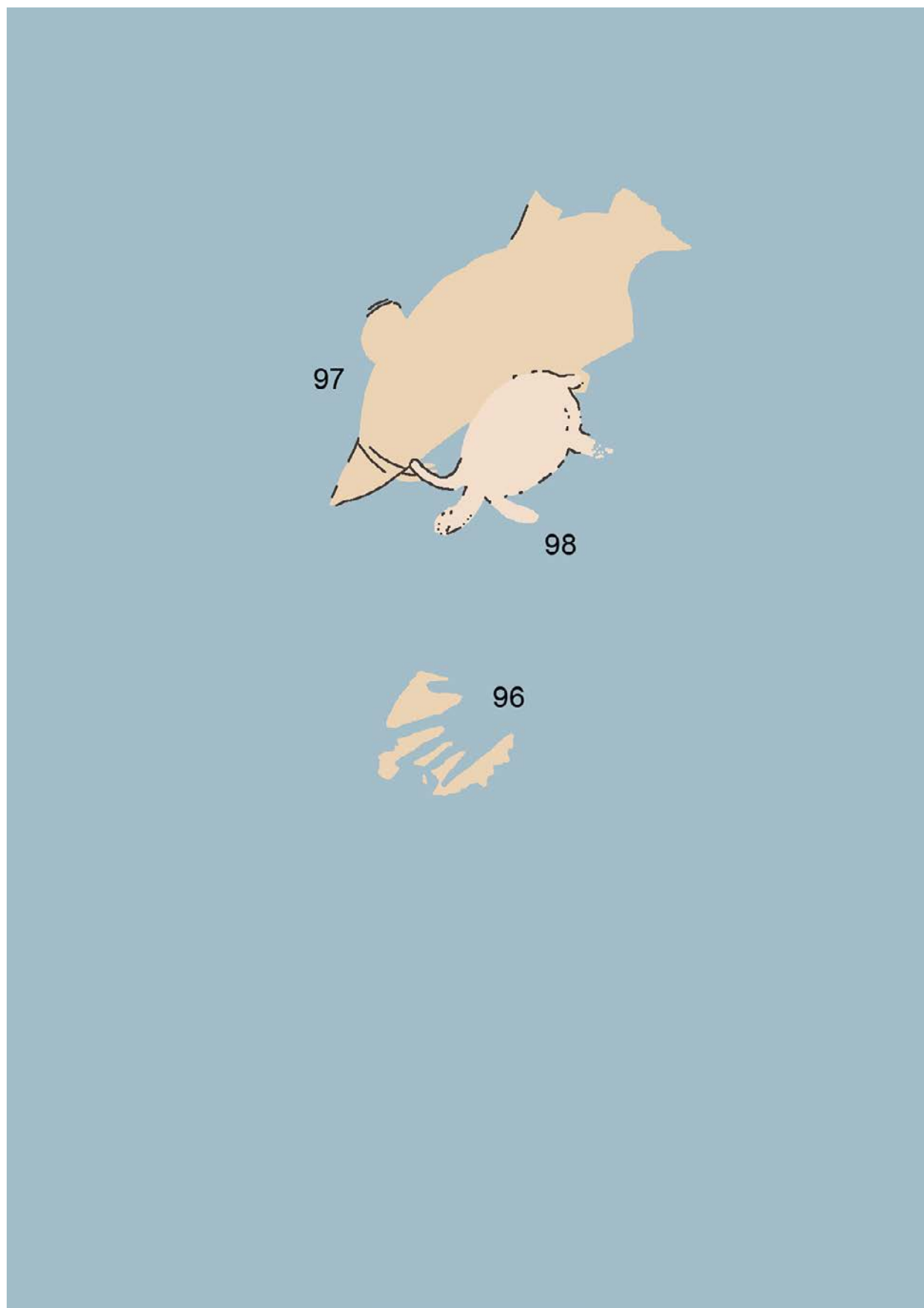


Figure 7.47: Panel A6 motif interpretations (iii)

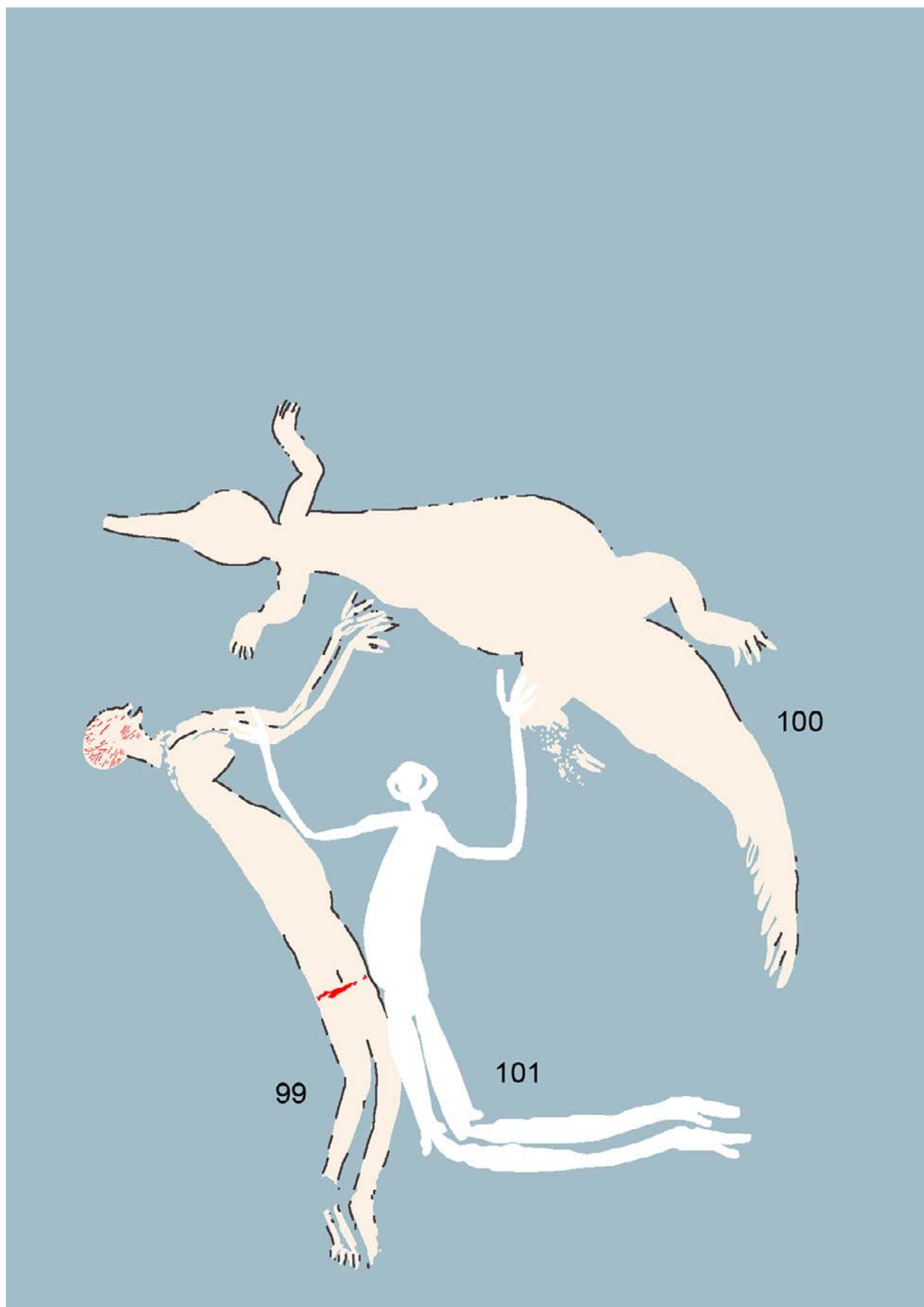


Figure 7.48: Panel A6 motif interpretations (iv)

Table 7.6: Panel A6 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
A-89	yellow	Painting	outline	reptile	Snake	very poor		
A-90	yellow	painting	linear	object	Ritual	very poor		
A-91	red	painting	fragment	fragment	fragment	very poor		
A-92	red	painting	outline+infill	mammal	Macropod	very poor		
A-93	red	painting	outline+solid+linear	bird	Bird	fair	100	78
A-94	red	painting	solid	object	Object	poor		
A-95	red	painting	solid+linear	bird	Bird	poor	63	45
A-96	white	spray	stencil	hand	Left hand	poor		
A-97	white+black	painting	solid+outline+infill	fish	Barramundi	poor		
A-98	white+black	painting	solid+outline	reptile	Turtle short-necked	poor		
A-99	white+black +red	painting	solid+outline+infill	anthropomorph	Anthropomorph female	poor	91	50
A-100	white+black	painting	solid+outline	reptile	Crocodile	poor		
A-101	white	painting	solid+linear	therianthrope	Macropod-footed	fair	69	47



Figure 7.49: Detail of Motif A-101 showing the fugitive nature of the white pigment that overlies the red pigment

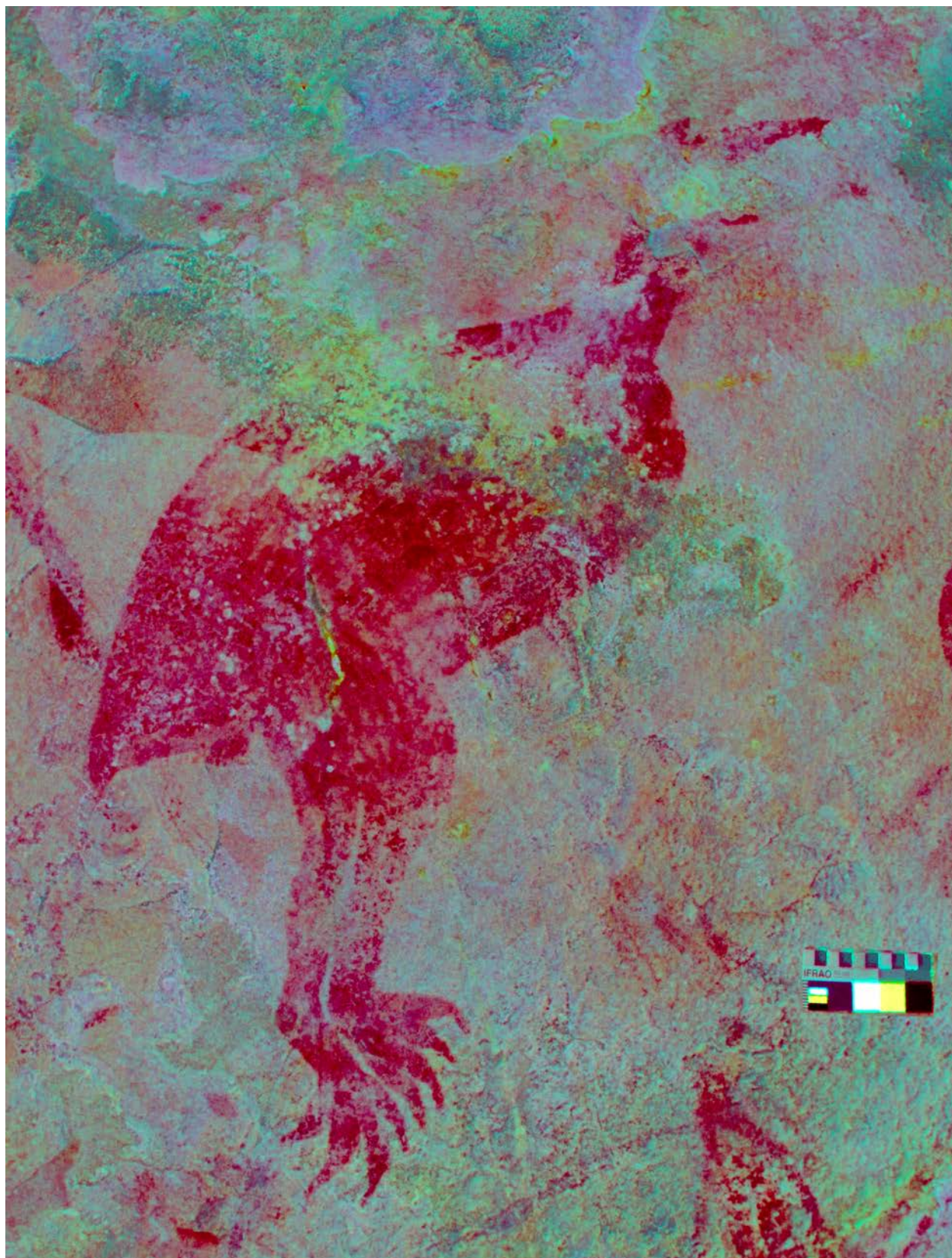


Figure 7.50: Panel A6 detail of bird (Motif A-95)
Enhancement: DStretch_lre10

Panel A7

Panel A7 (Figures 7.51 and 7.52) is 1.2×0.9 m in size and roughly rectangular in shape (Figure 7.53). Its surface is generally flat but contains a fracture line cutting lengthwise along the western side. A small area of salt encrustation and remnant mud-wasp nests are present. Some exfoliation of the rock surface has occurred behind the feet of the larger anthropomorph (Motif A-111).

The panel contains nine paintings and a single spray stencil (Table 7.7; Figures 7.53 to 7.56), five of which are interpreted to Motif Type.

Motif A-111 is the largest and most complex motif on the panel (Figure 7.56). The pigment of this motif is deteriorating rapidly (Figure 7.57); more so than that of the underlying motif (Motif A-110). Furthermore, in the painting of Motif A-111 pigment was (probably unintentionally) removed from Motif A-110. In contrast, the pigment of the earlier Motif A-109, that underlies both Motif A-110 and A-111 was unaffected by the painting of either of the overlying motifs. The upper portion of Motif A-109, however, appears to have suffered partial destruction from the poor adhesion of its pigment onto the underlying salt layer.

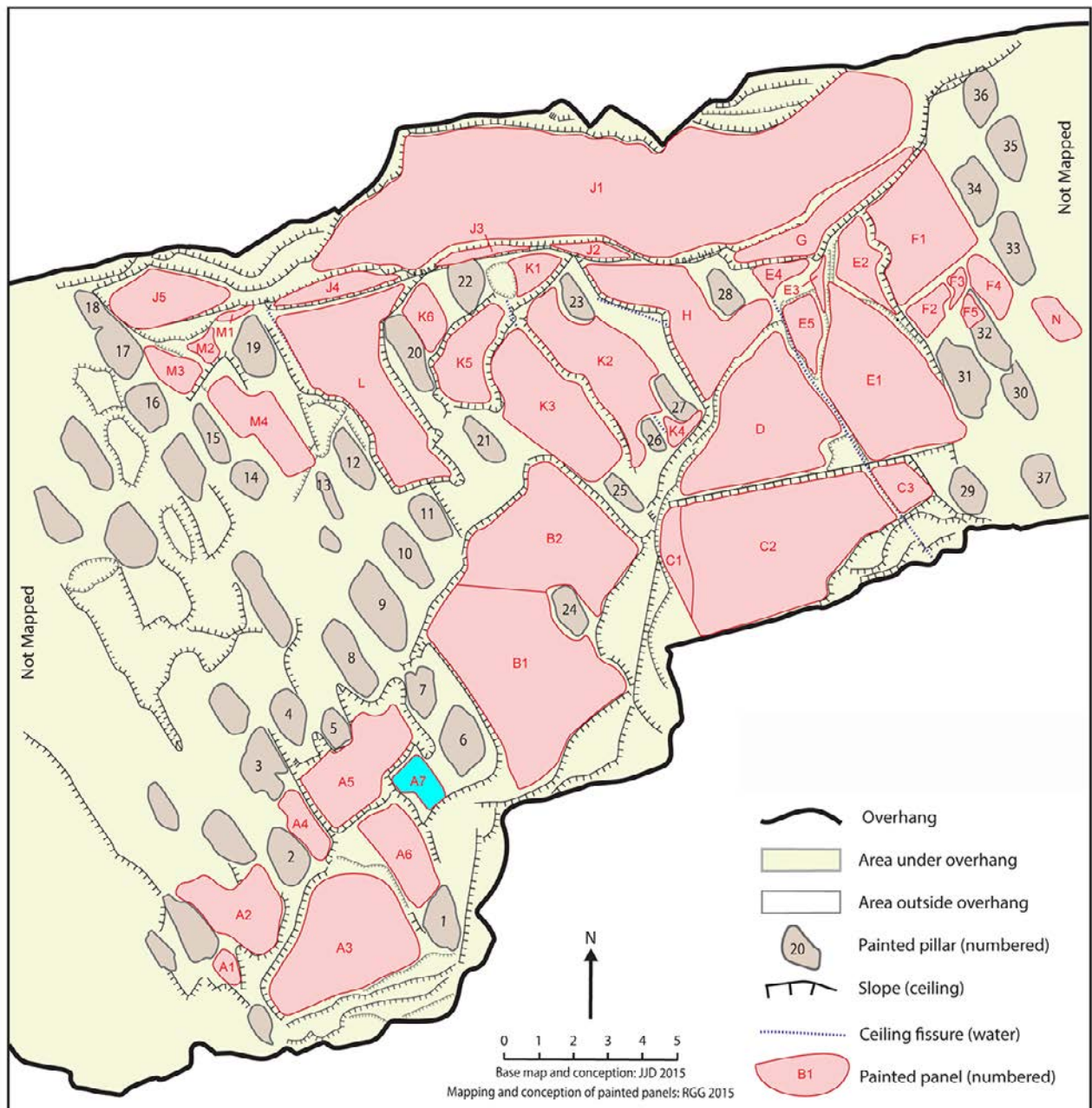


Figure 7.51: Location of Panel A7



Figure 7.52: Location of Panel A7

Table 7.7: Panel A7 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
A-102	red	painting	solid+linear	fragment	fragment	very poor		
A-103	red	painting	trace	trace	trace	very poor		
A-104	red	painting	fragment	fragment	fragment	very poor		
A-105	red	spray	fragment	fragment	fragment	very poor		
A-106	red	painting	fragment	fragment	fragment	very poor		
A-107	red	painting	solid+dot	simple design	Design irregular	poor		
A-108	red	painting	outline	reptile	Goanna	poor	69	
A-109	white	painting	solid+linear	anthropomorph	Anthropomorph	poor		
A-110	white	painting	solid	unknown	Unknown	fair		
A-111	white+red+black	painting	solid+outline+infill	anthropomorph	Anthropomorph female	good	81	60



Figure 7.53: Panel A7

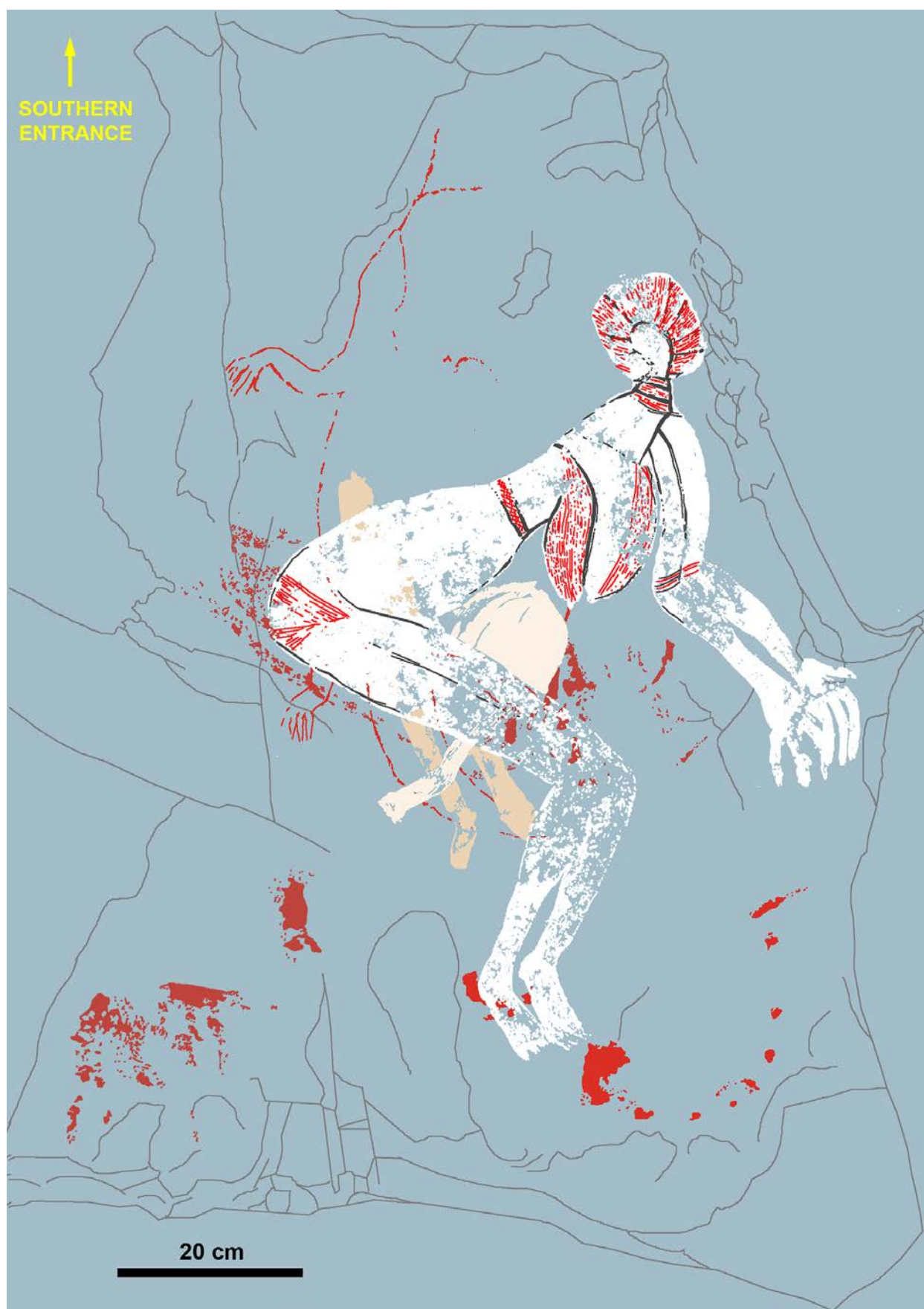


Figure 7.54: Panel A7 photo-tracing

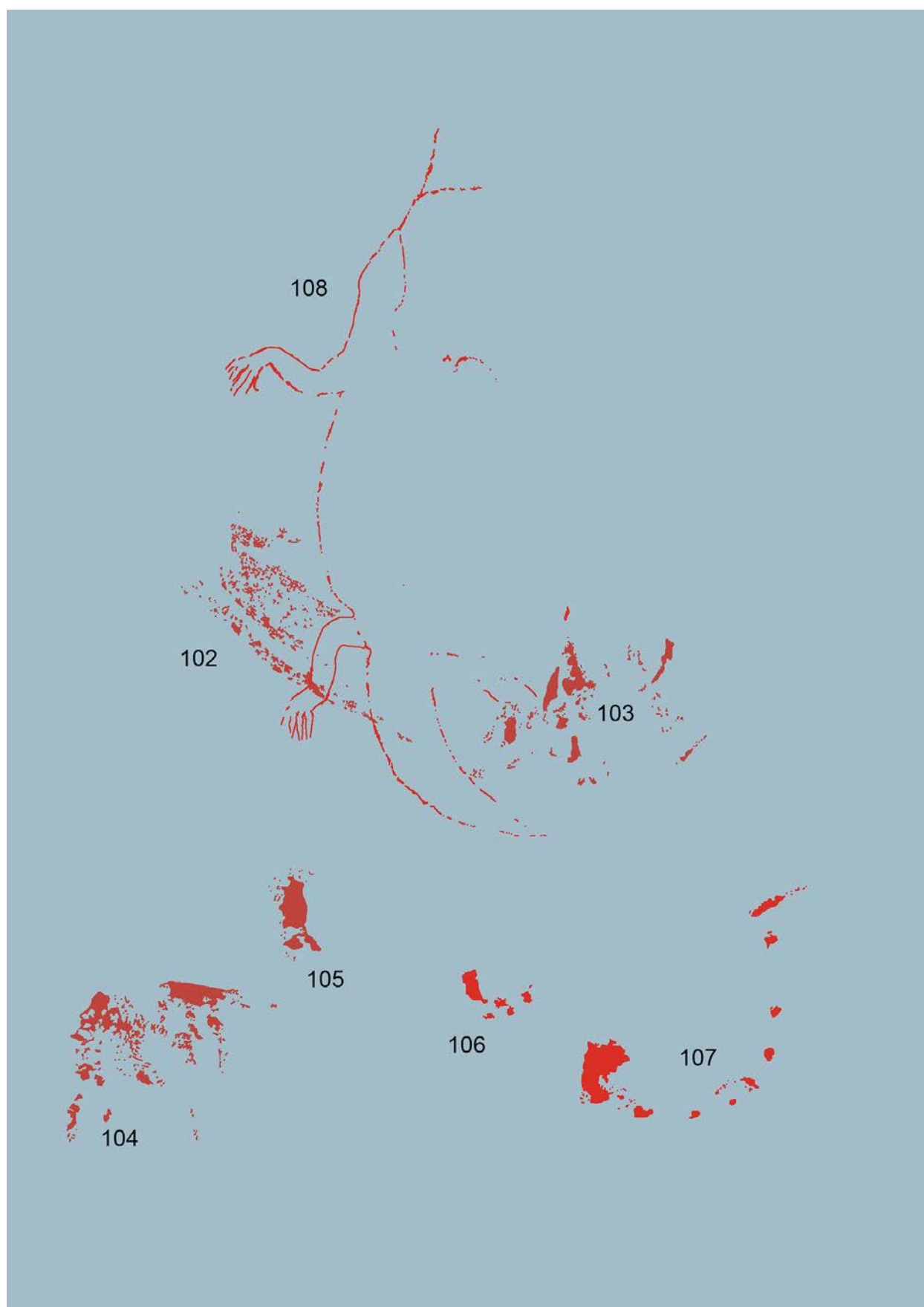


Figure 7.55: Panel A7 motif interpretations (i)

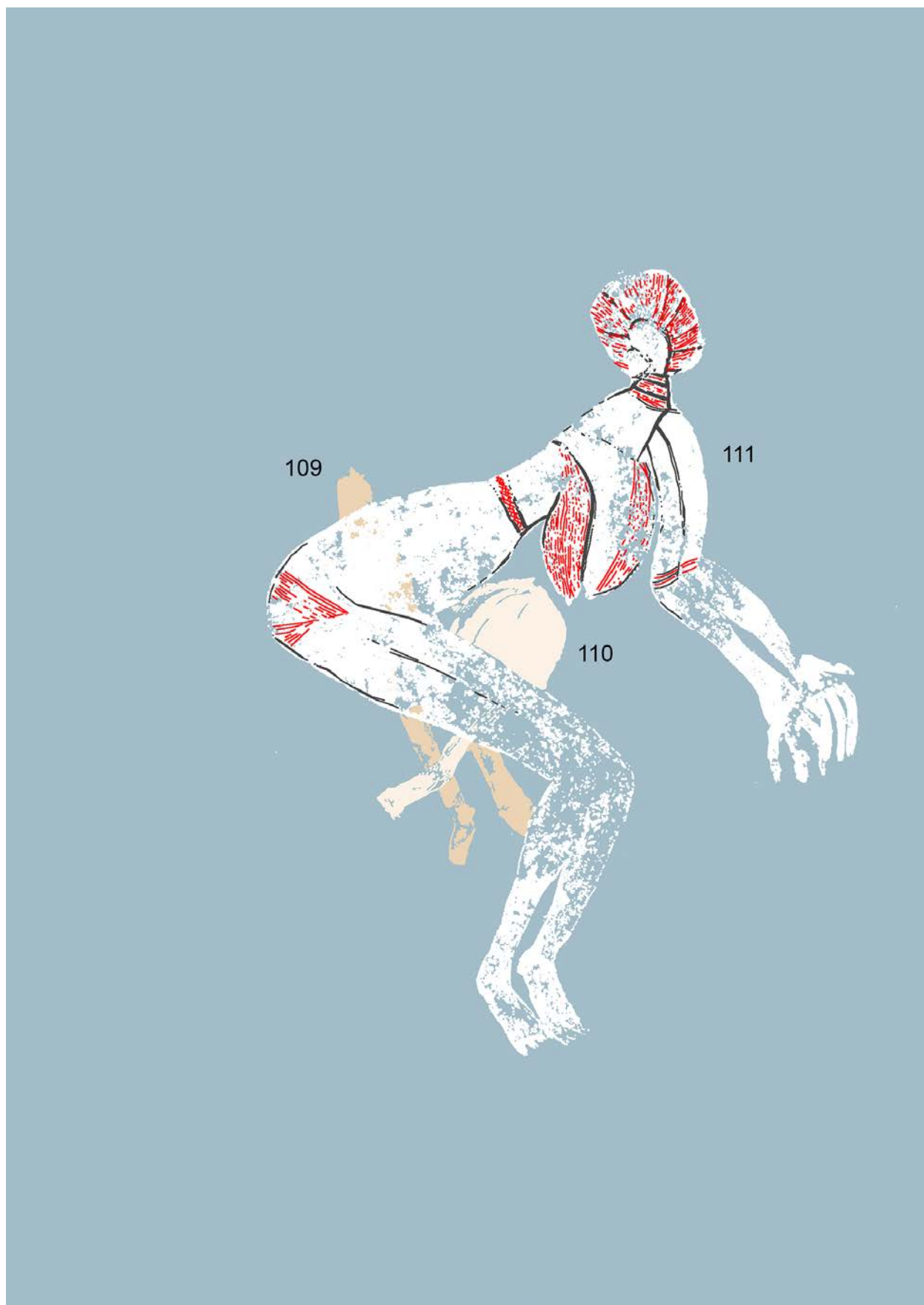


Figure 7.56: Panel A7 motif interpretations (ii)



Figure 7.57: Detail of Motif A-111 showing colour use and pigment deterioration

Panel B1

Panel B1 (Figures 7.58 and 7.59) is roughly triangular in shape and 4.0×3.3 m long along its two major axes (Figure 7.60). The panel has a flat surface, but it is scarred by fractures and areas of shallow exfoliation. Waterborne salts have accumulated around the fracture lines, especially those located towards the interior of the shelter.

Panel B1 contains 47 motifs (Table 7.8; Figures 7.61 to 7.66), of which 28 (62%) are interpreted to Motif Type. Most of the artwork is concentrated towards the outer

edge of the panel. The majority of motifs have their heads orientated towards this outer, southern edge, suggesting that this edge formed the top of the panel for most of these artists.

Motif B-41, a male anthropomorph, overlies Motif B-40, a female therianthrope (Figure 7.67). As both motifs are similar in colour and form (including patterned infill and incomplete outlines), they are treated as a single composition. The male figure has an exaggerated penis and unusual bifurcated headdress. The head form of the female is unclear (either trifurcated headdress or

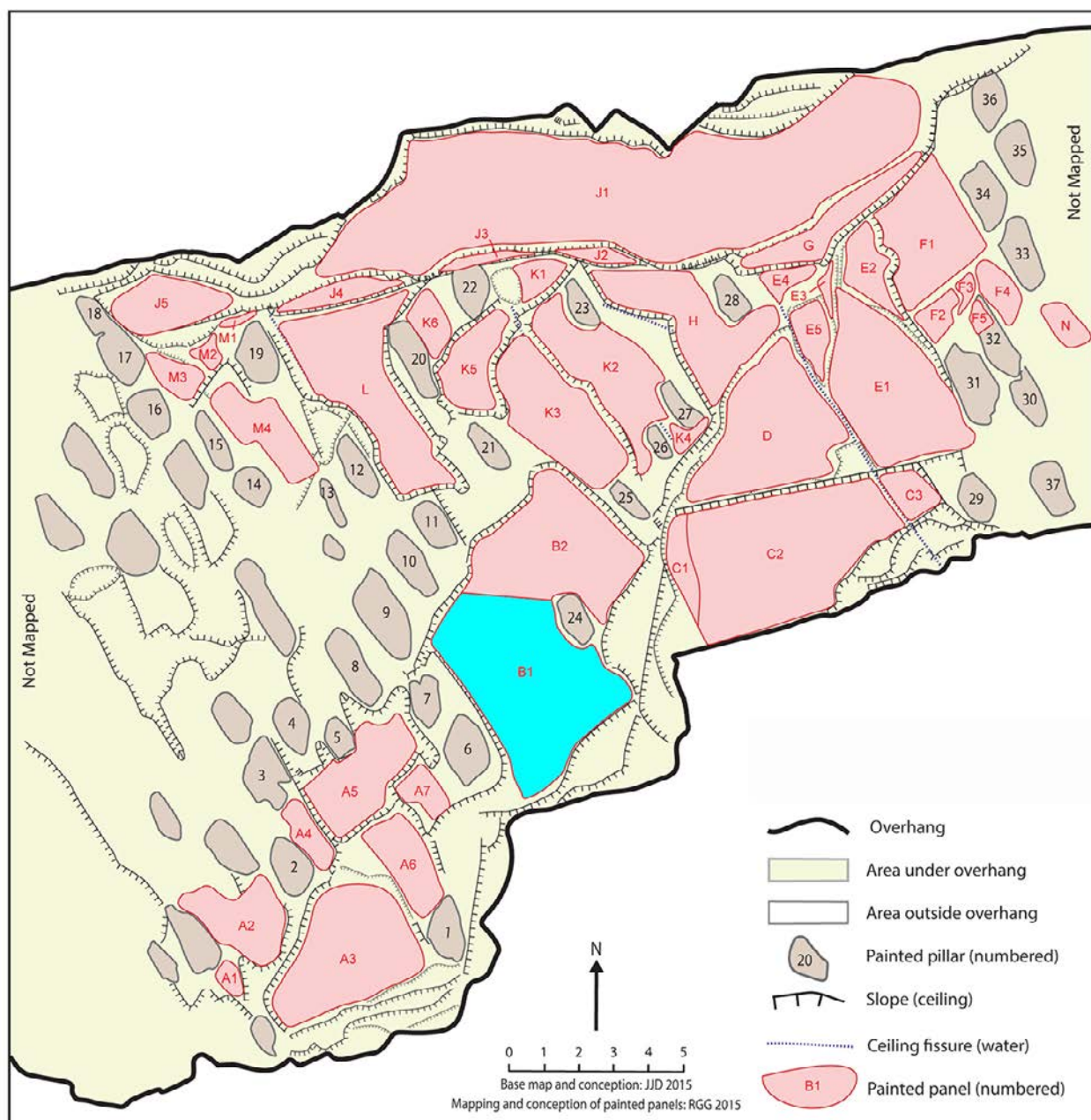


Figure 7.58: Location of Panel B1

divided oval). The female also has breasts, exaggerated pelvic bone, bone-like thighs and macropod-like feet. The attributes of the female therianthrope are similar to those attributes depicted on Motif A-101 on Panel A6.

The two large and opposing (face-to-face) male macropods (Motifs B-42 and B-43; Figures 7.68-69)

also form a visual composition, as both use similar colour combinations (red and black embellishment) and both have internal features in the Jawoyn X-ray form.

Motif B-12, although poorly preserved is a large and well-proportioned motif of an emu.

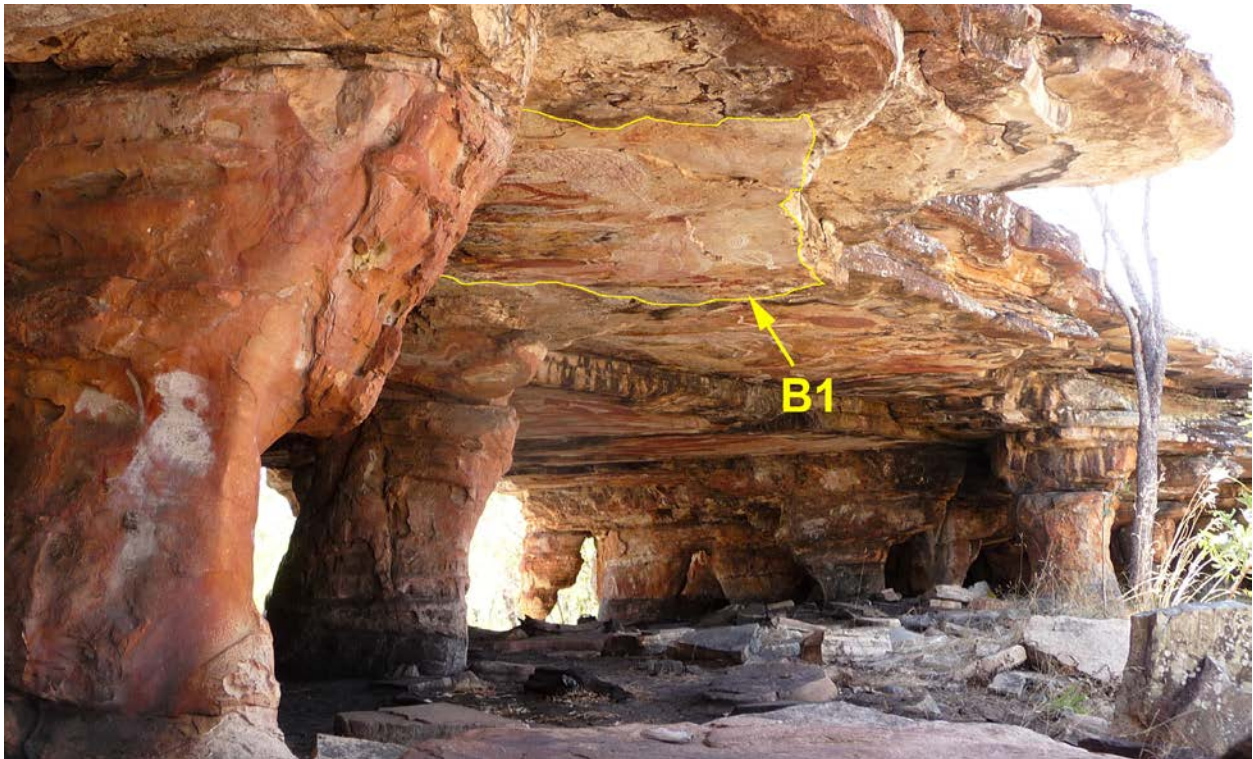


Figure 7.59: Location of Panel B1



Figure 7.60: Panel B1 photomosaic



Figure 7.61: Panel B1 photo-tracing

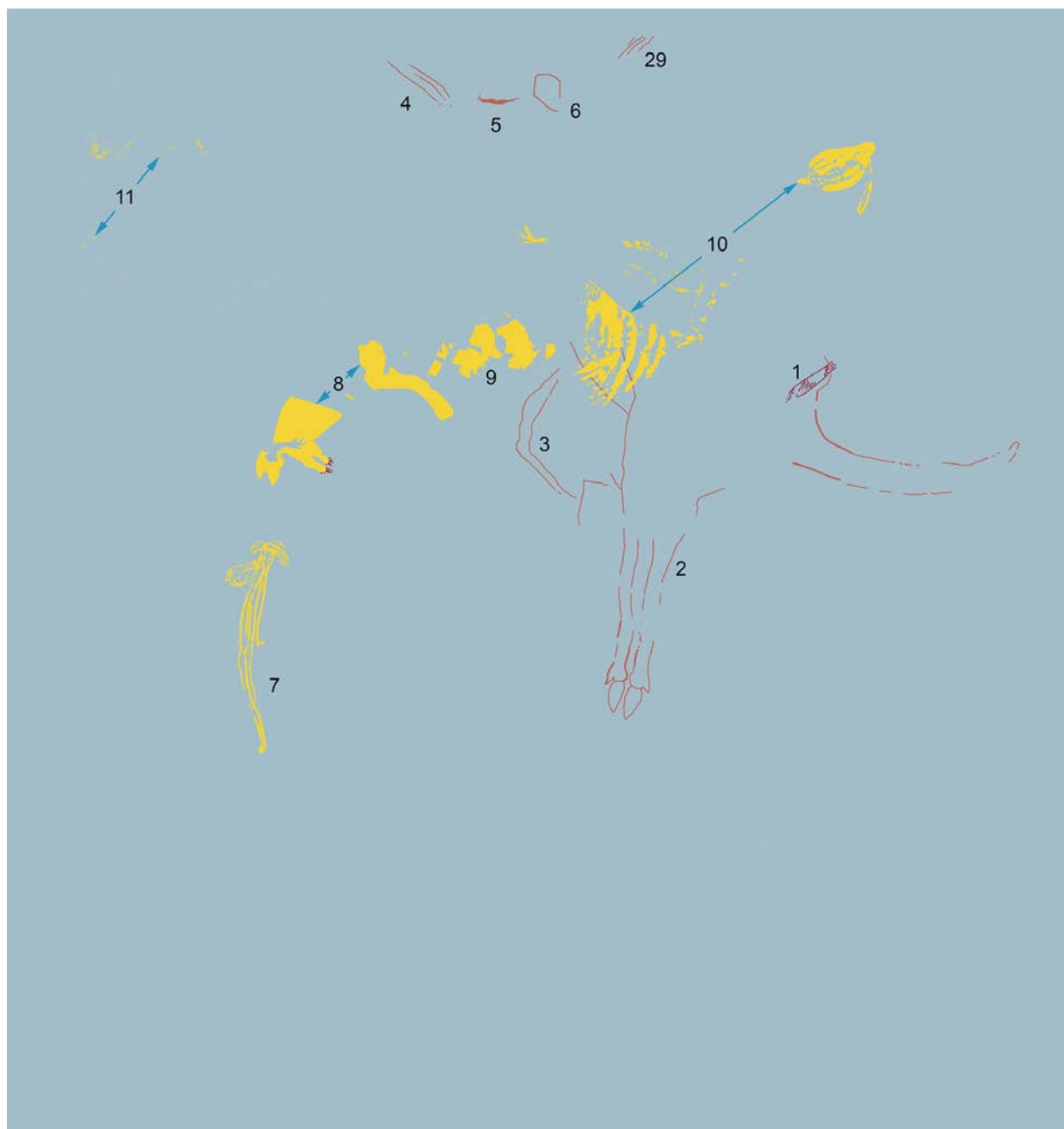


Figure 7.62: Panel B1 motif interpretations (i)



Figure 7.63: Panel B1 motif interpretations (ii)

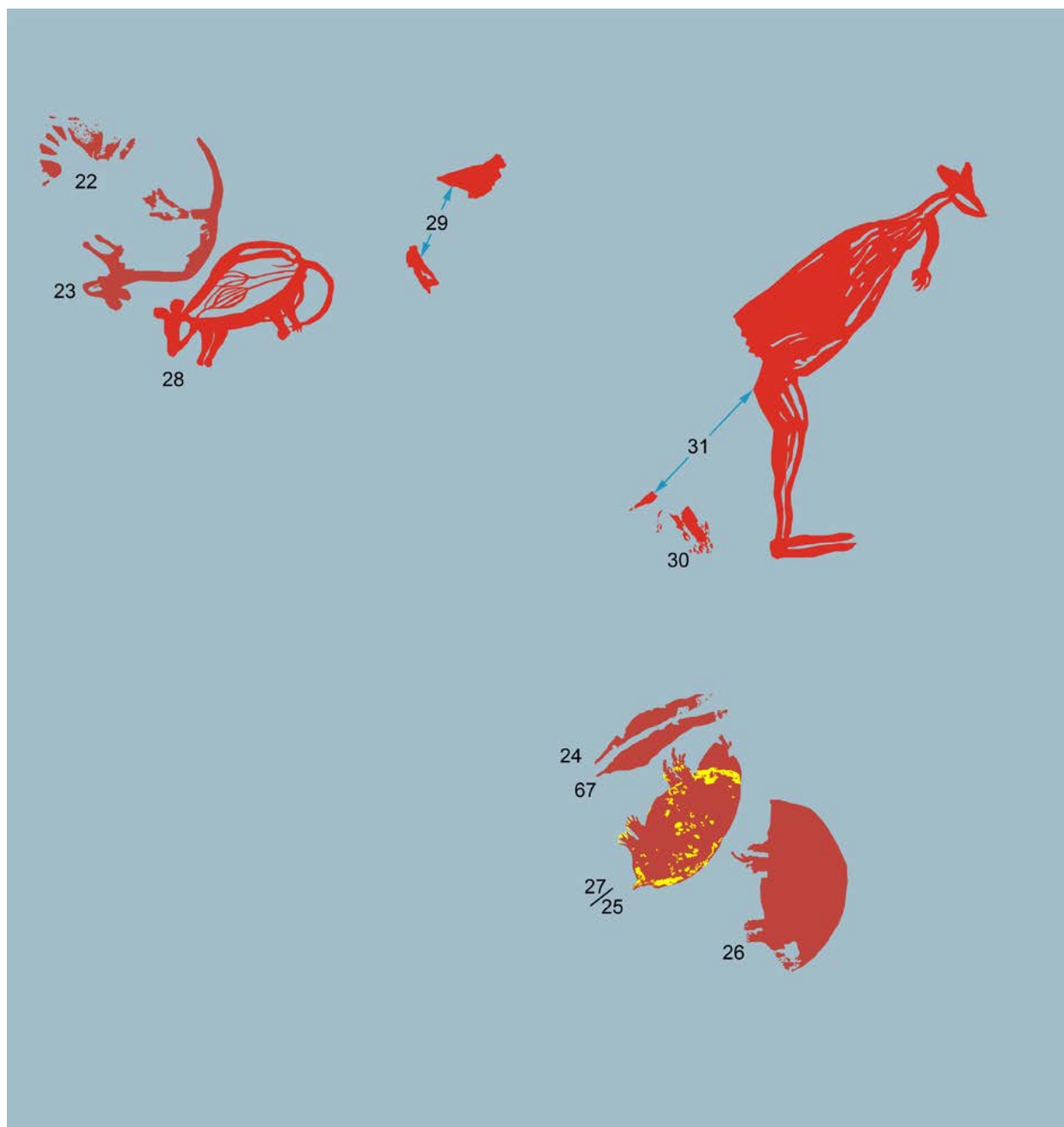


Figure 7.64: Panel B1 motif interpretations (iii)

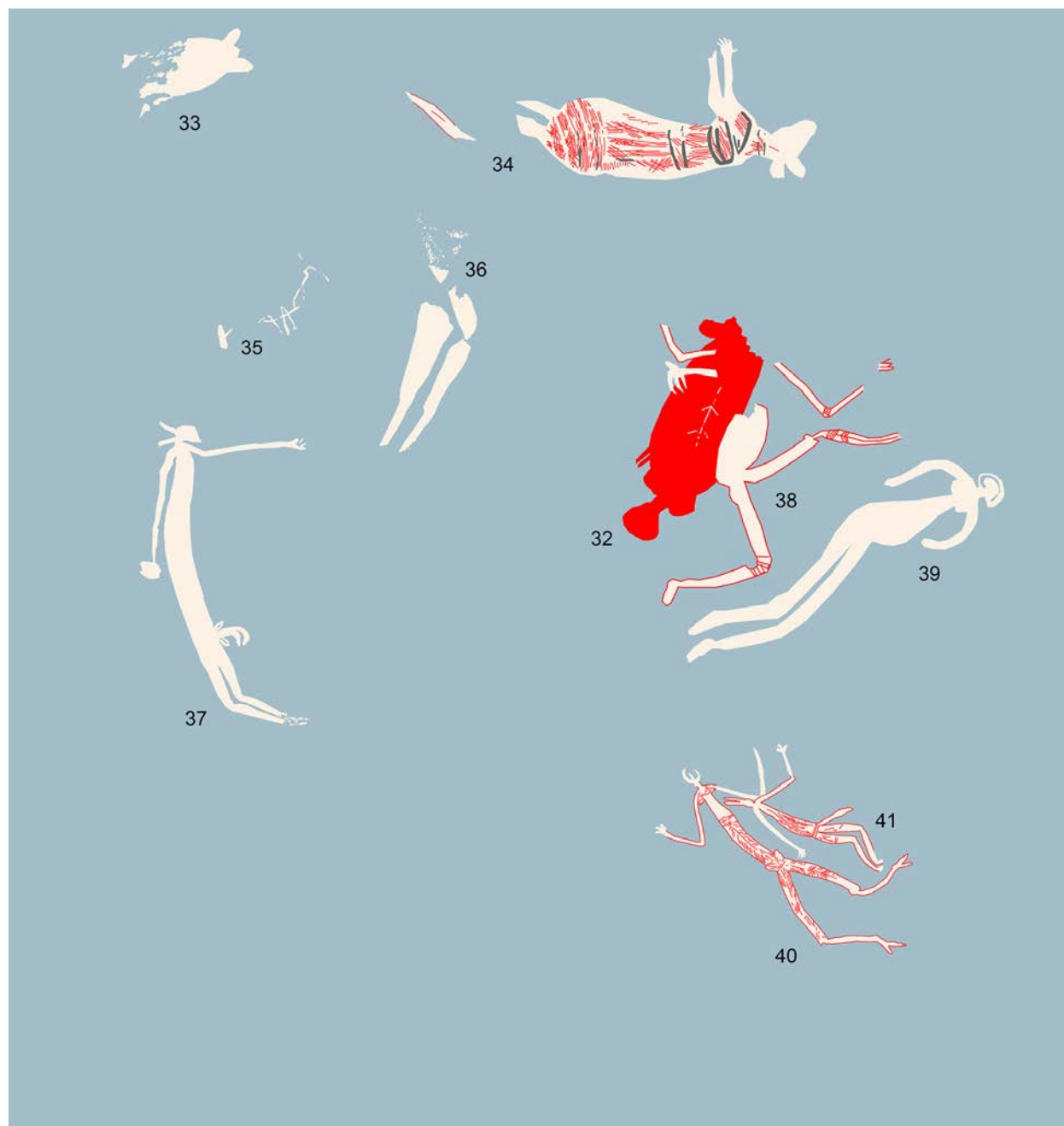


Figure 7.65: Panel B1 motif interpretations (iv)

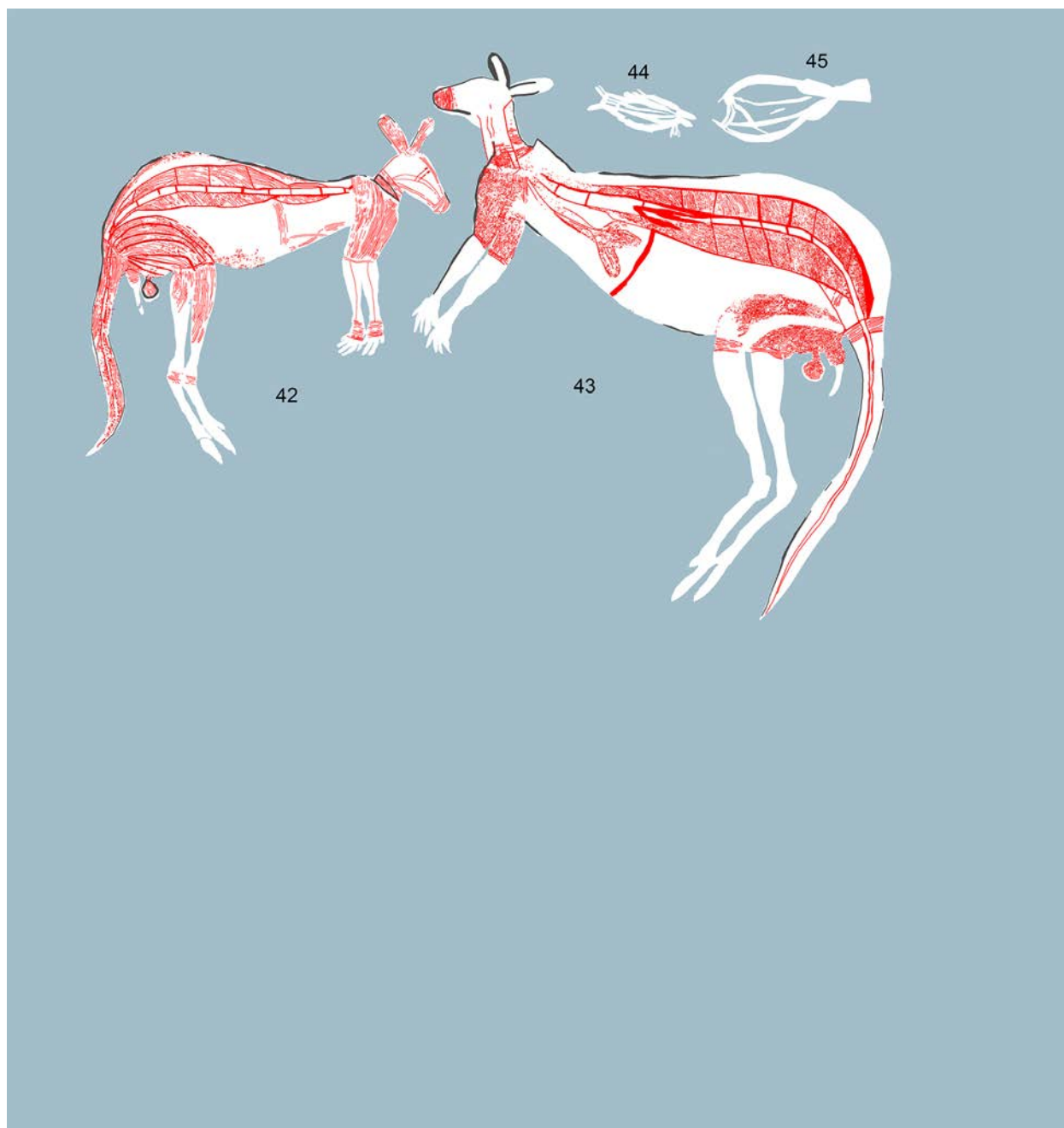


Figure 7.66: Panel B1 motif interpretations (v)

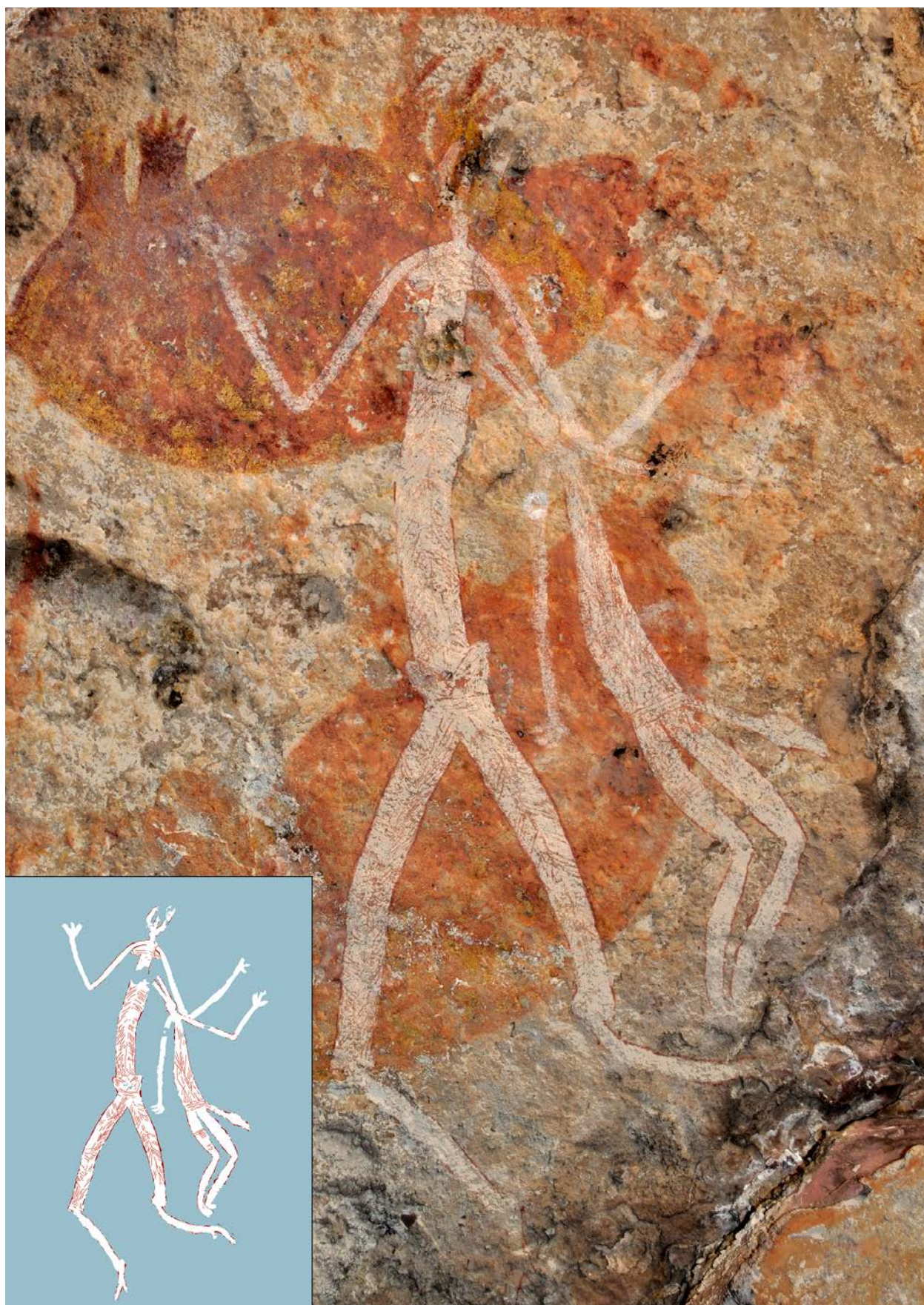


Figure 7.67: Female and male anthropomorph pair (Motifs B-40 and B-41)

Table 7.8: Panel B1 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
B-1	mulberry	painting	outline+infill	fragment	fragment	very poor		
B-2	red	painting	outline	mammal	Macropod	very poor		
B-3	red	painting	fragment	fragment	fragment	very poor		
B-4	red	painting	linear	fragment	fragment	very poor		
B-5	red	painting	fragment	fragment	fragment	very poor		
B-6	red	painting	linear	fragment	fragment	very poor		
B-7	yellow	painting	outline+infill	anthropomorph	Anthropomorph	very poor		
B-8	yellow+red	painting	solid+linear	mammal	Animal	very poor		
B-9	yellow	painting	solid	fragment	fragment	very poor		
B-10	yellow	painting	outline+infill	fragment	fragment	very poor		
B-11	yellow	painting	trace	trace	trace	very poor		
B-12	red	painting	solid	bird	Emu	very poor		
B-13	red	painting	outline+infill	mammal	Animal	very poor		
B-14	red	painting	linear	simple design	Design irregular	very poor		
B-15	red	painting	fragment	fragment	fragment	very poor		
B-16	red	painting	fragment	fragment	fragment	very poor		
B-17	red	painting	fragment	fragment	fragment	very poor		
B-18	red	painting	fragment	fragment	fragment	very poor		
B-19	red	painting	solid	mammal	Macropod	very poor		
B-20	red	painting	fragment	fragment	fragment	very poor		
B-21	red	painting	solid	bird	Emu	very poor		
B-22	red	spray	stencil	hand	Hand right	very poor		
B-23	red	painting	outline	mammal	Possum	very poor	61	42

B-24	red	painting	solid	fish	Fish	very poor		
B-25	red	painting	solid	mammal	Echidna	poor	52	26
B-26	red	painting	solid	mammal	Echidna	poor	68	30
B-27	yellow	painting	solid	mammal	Echidna	very poor	52	26
B-28	red	painting	outline+infill	mammal	Possum	fair	53	29
B-29	red	painting	linear	fragment	fragment	very poor		
B-30	red	painting	fragment	fragment	fragment	very poor		
B-31	red	painting	outline+infill	mammal	Macropod	poor		
B-32	red+white	painting	outline+infill	fish	Fish	poor	86	28
B-33	white	painting	solid	reptile	Turtle short-necked	very poor		
B-34	white+red +black	painting	solid+infill	mammal	Macropod	very poor	110	41
B-35	white	painting	linear	mammal	Possum	very poor		
B-36	white	painting	solid	fragment	fragment	very poor		
B-37	white	painting	solid	anthropomorph	Anthropomorph male	fair	95	60
B-38	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		
B-39	white	painting	solid+outline	anthropomorph	Anthropomorph female	fair	104	26
B-40	white+red	painting	solid+outline+infill	therianthrope	Macropod-footed	fair	83	21
B-41	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	fair	51	23
B-42	white+red	painting	X-ray	mammal	Macropod male	fair	150	94
B-43	white+red	painting	X-ray	mammal	Macropod male	fair	182	111
B-44	white	painting	outline+infill	fish	Fish	good	29	10
B-45	white	painting	outline+infill	fish	Fish	good	44	18
B-67	red	painting	solid	fish	Fish	very poor		
B-68	red	painting	outline+infill	reptile	Snake	very poor		



Figure 7.68: Macropod Motif B-42 with Jawoyn X-ray infill

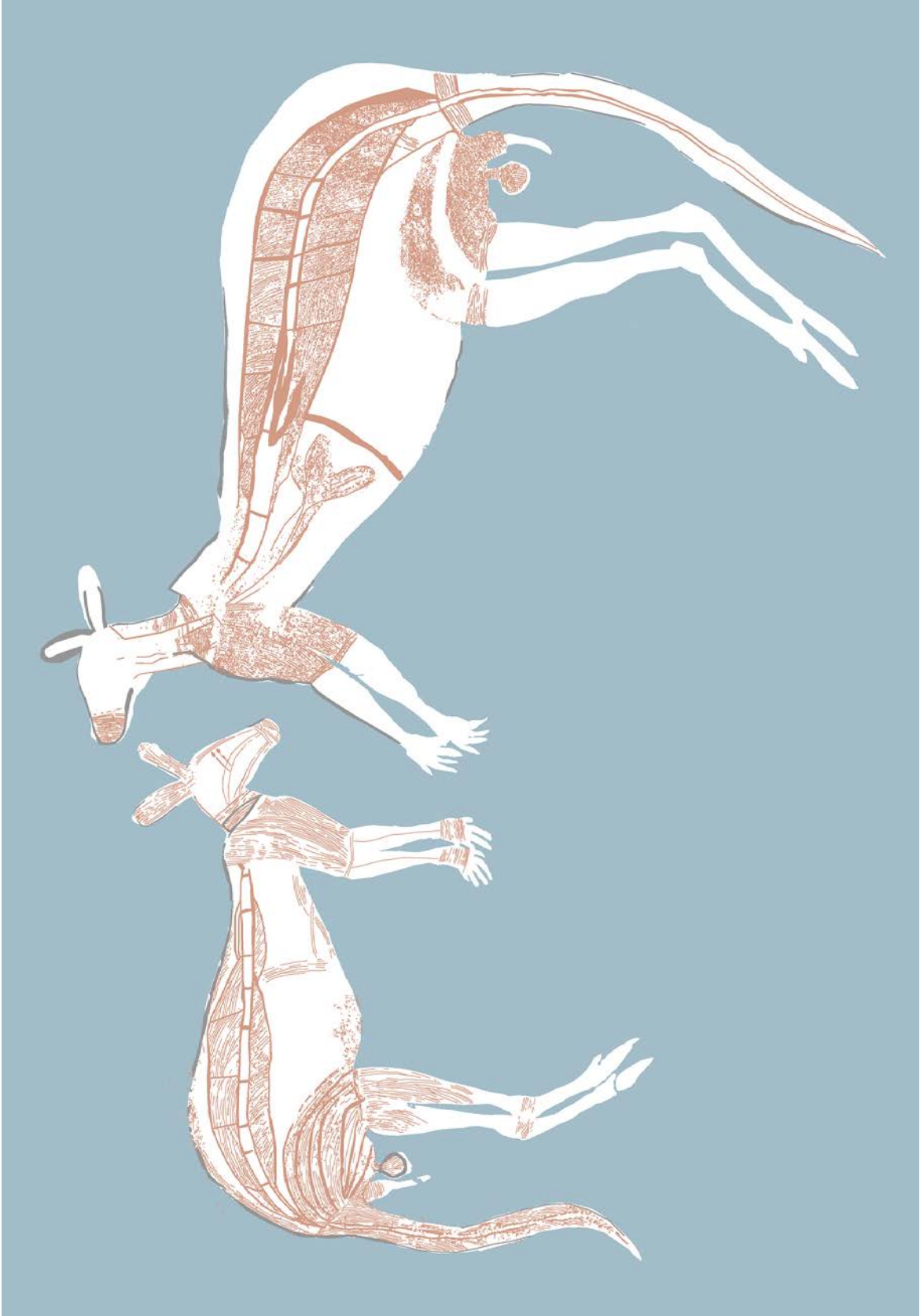


Figure 7.69: Photo-tracing of paired macropods (Motifs B-42 and B-43)

Panel B2

Panel B2 (Figure 7.70 and 7.71) is irregular in shape, with maximum dimensions of 3.1×3.0 m. Its surface is generally flat and appears to be stable. The panel is subdivided into three sections by two near-parallel fractures. Each section is around one metre wide, with the central section being the longest (Figure 7.72). White and black salts encroach onto the panel from these fractures, with Motifs B-58 and B-63 being the most damaged.

Panel B2 contains 21 motifs (Table 7.9; Figure 7.73 to 7.76), 17 of which are interpreted to Motif Type. Three motifs, Motifs B-53, B-59 and B-61, were painted across the two fractures, joining the three sections into a single panel. The other 18 motifs tend to form three distinct motif clusters aligned with one or other of the three panel sections.

Macropods and anthropomorphs occur within each of the three motif clusters. The two large crocodiles (Motifs B-59 and B-64), however, were placed at the

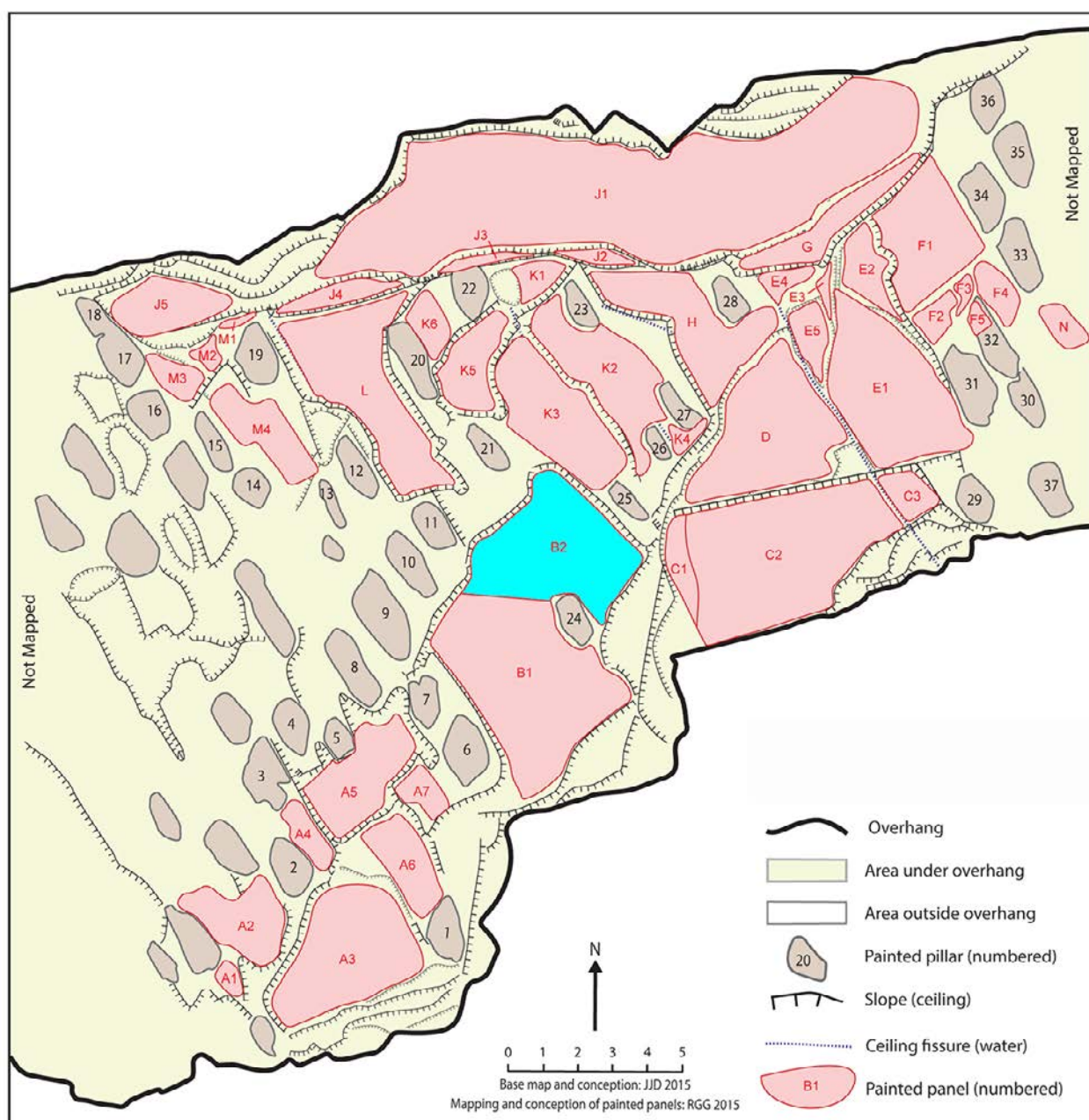


Figure 7.70: Location of Panel B2

rear of the panel within a common motif cluster (Figure 7.73). Both of these crocodiles were positioned such that the shape of their bodies replicates the adjacent curved edge of the rock panel (Figure 7.72).

The best preserved motif on the panel is Motif B-66, a turtle outlined in white (Figure 7.78). The good preservation of this motif can be largely attributed to it having been painted on the panel's least damaged surface. In contrast, the bichrome crocodile figure (Motif B-64), which has similar pigment colour and

consistency to the turtle and was probably painted around the same time, is poorly preserved due to localised damage by salts and mud-wasp nests (Figure 7.77). The front right leg of this crocodile has been re-painted and re-aligned, from forward to backwards, in a clear example of *pentimenti* (Chilvers 2012; Gunn in press). The bichrome female figure (Motif B-61) depicts a pregnant female with two red stick-figures 'in utero' (Figure 7.79). The adjacent male figure, Motif B-62 (Figure 7.76), is painted in the same style as the female figure and is seen as the male member of this couple.



Figure 7.71: Location of Panel B2



Figure 7.72: Panel B2 photomosaic

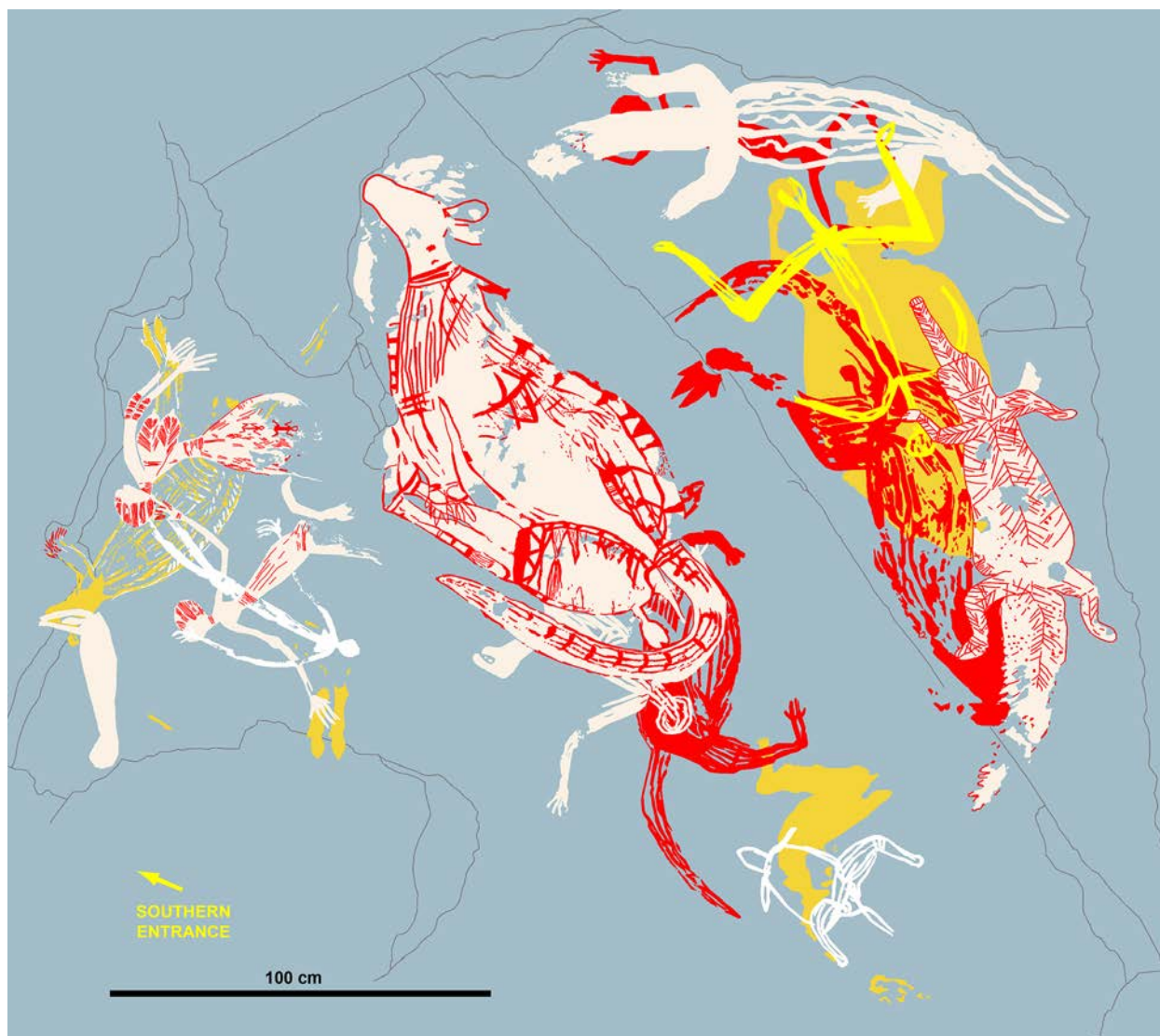


Figure 7.73: Panel B2 photo-tracing

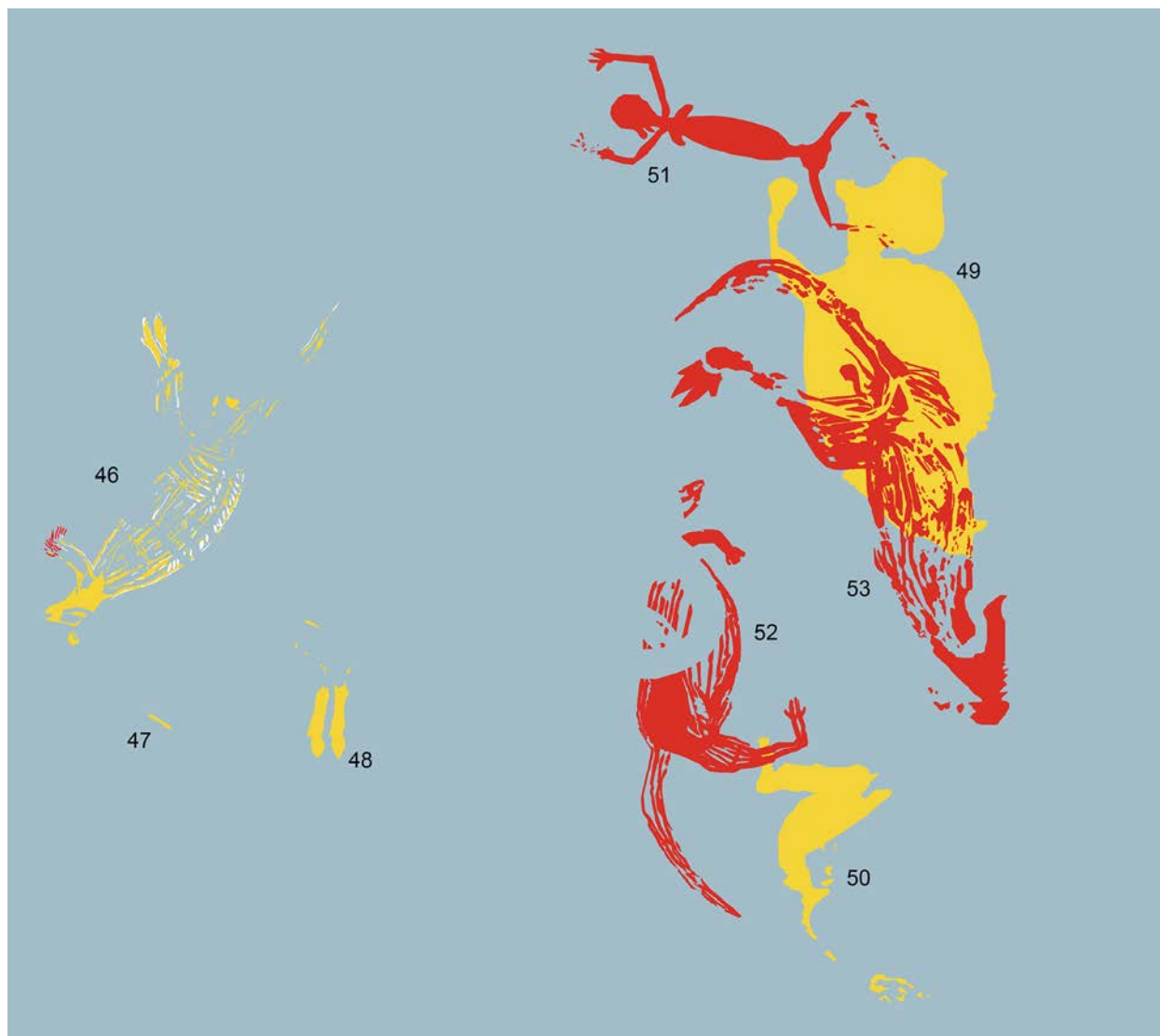


Figure 7.74: Panel B2 motif interpretations (i)

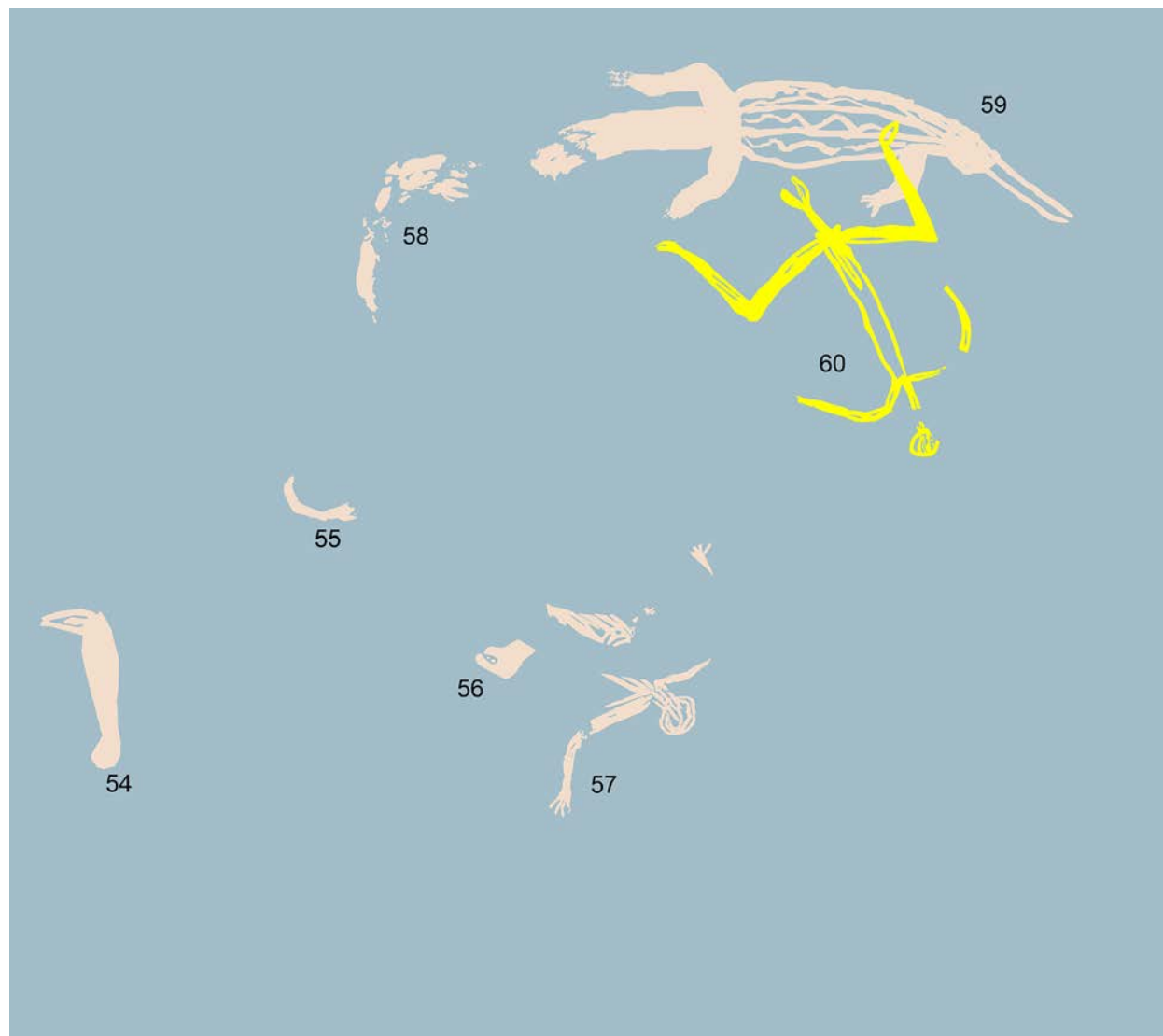


Figure 7.75: Panel B2 motif interpretations (ii)

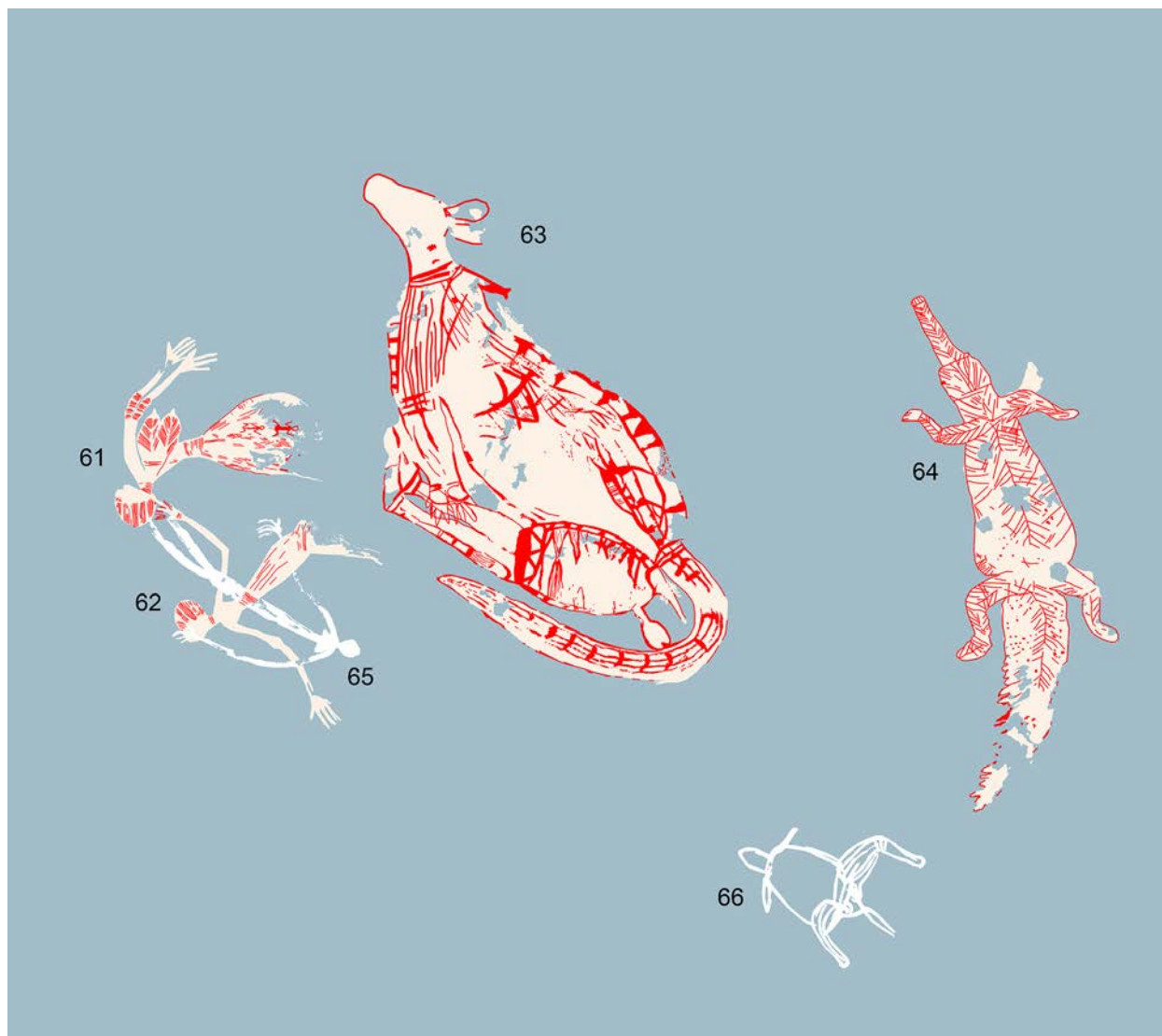


Figure 7.76: Panel B2 motif interpretations (iii)

Table 7.9: Panel B2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
B-46	yellow+white+red	painting	outline+infill	mammal	Macropod	very poor		
B-47	yellow	painting	linear	geometric	Line	poor		
B-48	yellow	painting	solid+outline	mammal	Macropod	very poor		
B-49	yellow	painting	fragment	fragment	fragment	very poor		
B-50	yellow	painting	fragment	fragment	fragment	very poor		
B-51	red	painting	solid	anthropomorph	Anthropomorph female	fair		
B-52	red	painting	outline+infill	mammal	Macropod	fair	136	52
B-53	red	painting	outline+infill	mammal	Macropod male	poor		
B-54	white	painting	solid+linear	unknown	Unknown	fair	49	26
B-55	white	painting	fragment	fragment	fragment	very poor		
B-56	white	painting	fragment	anthropomorph	Anthropomorph	very poor		
B-57	white	painting	outline+infill	anthropomorph	Anthropomorph	poor		
B-58	white	painting	fragment	fragment	fragment	very poor		
B-59	white	painting	solid+outline+infill	reptile	Crocodile	good	152	42
B-60	yellow	painting	solid+outline+infill	anthropomorph	Anthropomorph male	good	88	76
B-61	white+red	painting	solid+infill	anthropomorph	Anthropomorph female	poor	-	58
B-62	white+red	painting	solid+infill	anthropomorph	Anthropomorph female	very poor	-	75
B-63	white+red	painting	X-ray	mammal	Macropod male	very poor	175	83
B-64	white+red	painting	solid+outline+infill	reptile	Crocodile	fair	144	46
B-65	white	painting	solid+linear	anthropomorph	Anthropomorph female	good	72	44
B-66	white	painting	outline+infill	reptile	Turtle short-necked	excellent	55	40



Figure 7.77: Bichrome crocodile (Motif B-64) showing poor pigment preservation and the repainting (p) of the front right leg



Figure 7.78: Well-preserved turtle painting (Motif B-66)

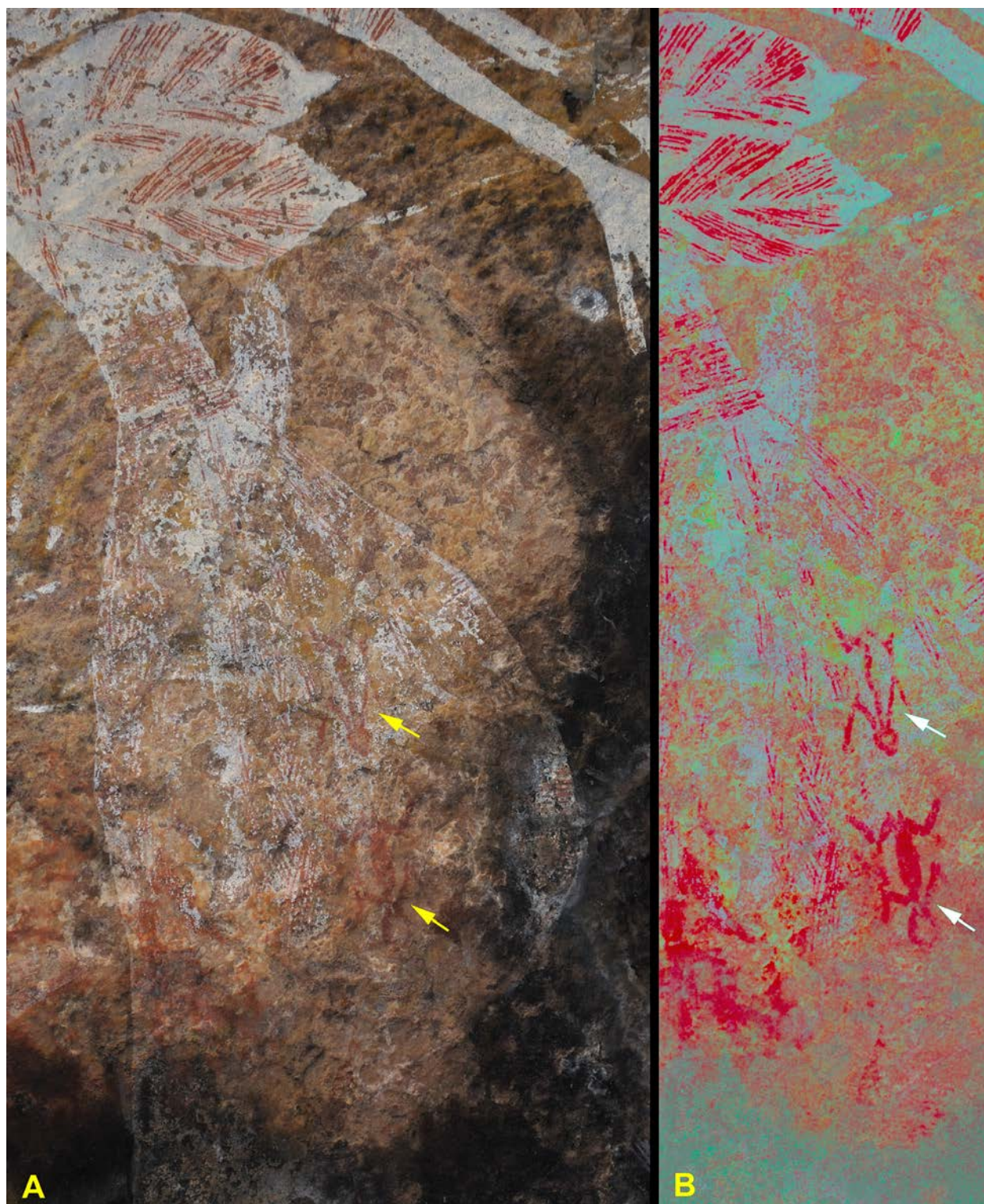


Figure 7.79: Female figure Motif B-61 showing the two small, red, 'in-utero' stick figures
A: Flash photograph B: Enhancement: DStretch_lre10

Panel C1

Panel C1 (Figures 7.80 to 7.83) was reduced to its present small size, 1.7 × 0.5 m, by manual flaking of the rock along its outer step. This flaking may have removed some artwork.

Panel C1 contains five motifs (Table 7.10; Figures 7.84 and 7.85), all of which are interpreted to Motif Type. The orientations of these five motifs tend to be aligned with the long axis of the panel (Figure 7.83).

The red anthropomorph, Motif C-3, holds a short broad spearthrower in one hand and a pair of crossed 'throwing sticks' (cf. Chaloupka 1993: 130) in the other (Figure 7.86A and 7.86B). Motif C-2, although fragmented, appears to be a larger version of the Motif C-3 anthropomorph that overlies it. White striping on the headdress of Motif C-3 is mixed with the red of the figure, and in some areas has weathered away, removing the underlying red pigment; this suggests that the white striping was painted as part of an original bichrome motif (Figure 7.86C).

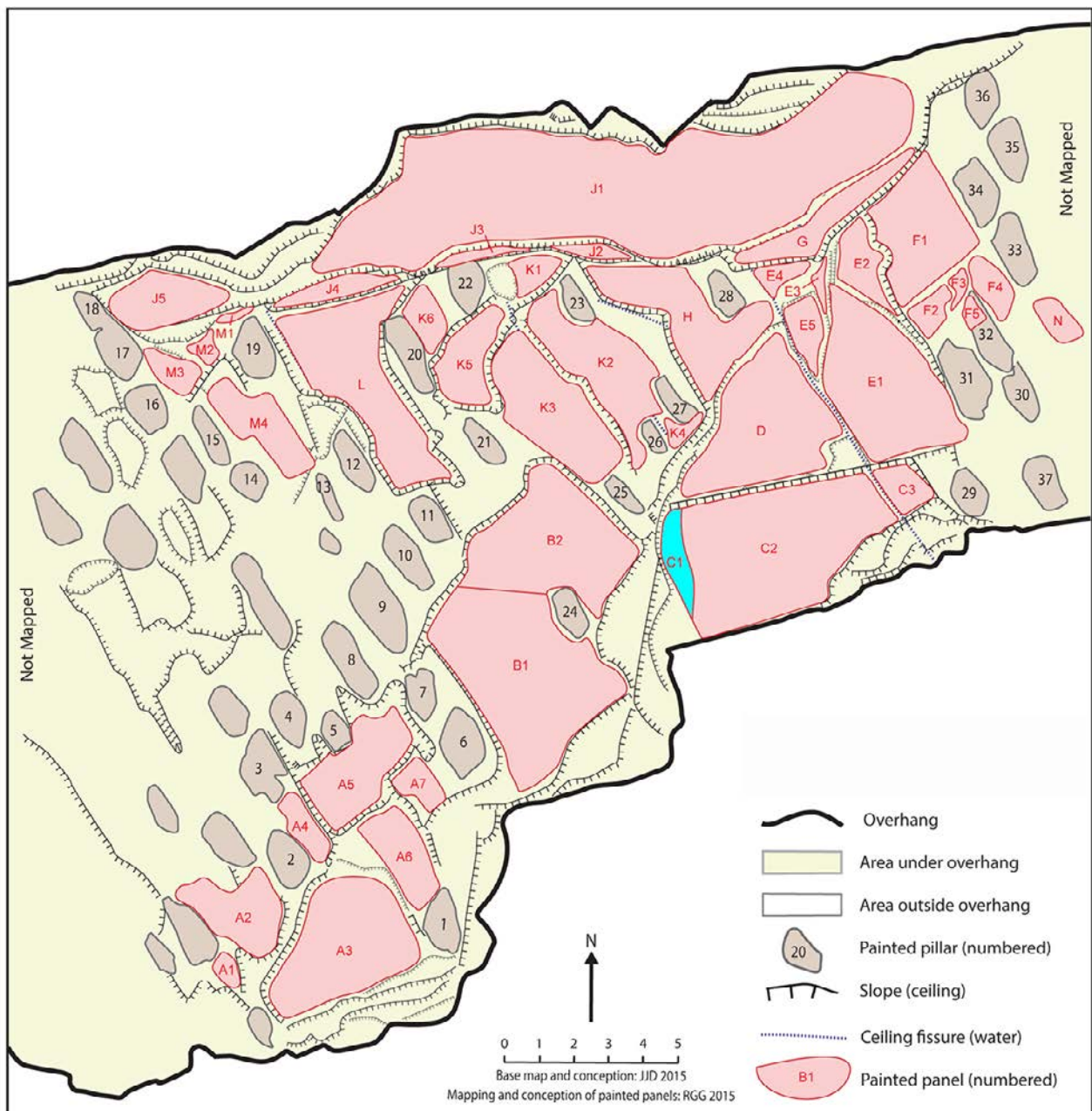


Figure 7.80: Location of Panel C1



Figure 7.81: Location of Panel C1

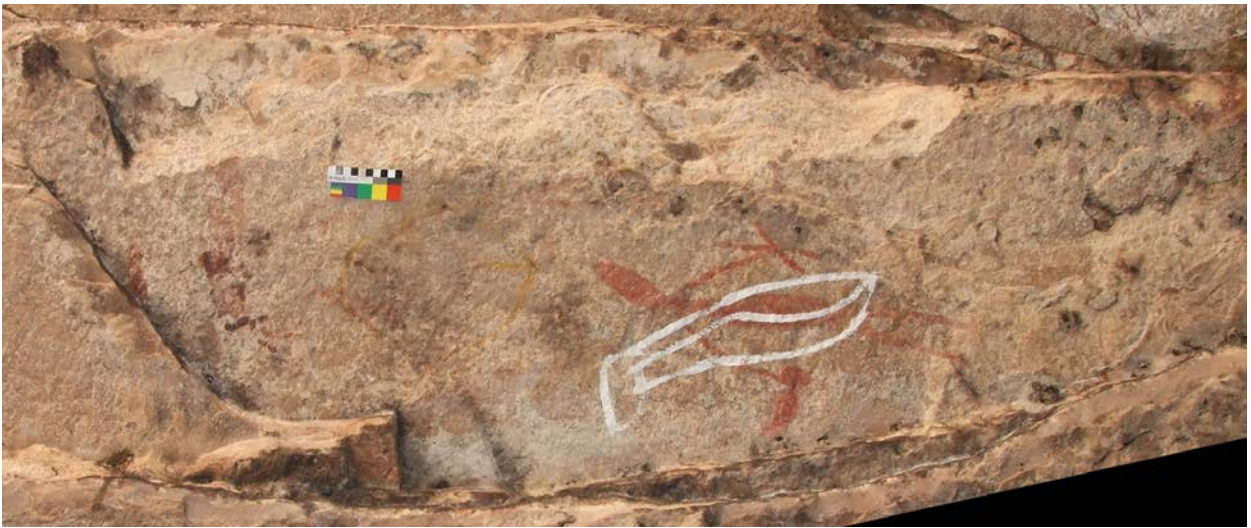


Figure 7.82: Panel C1 photomosaic

Table 7.10: Panel C1 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
C-1	white	spray	stencil	hand	Hand right	very poor		
C-2	red	painting	outline+solid+linear	anthropomorph	Anthropomorph	very poor		
C-3	red	painting	solid+infill	anthropomorph	Anthropomorph	fair	52	28
C-4	yellow	painting	outline+infill	simple design	Design regular	very poor	26	20
C-5	white	painting	outline+infill	fish	Fish	excellent	42	11

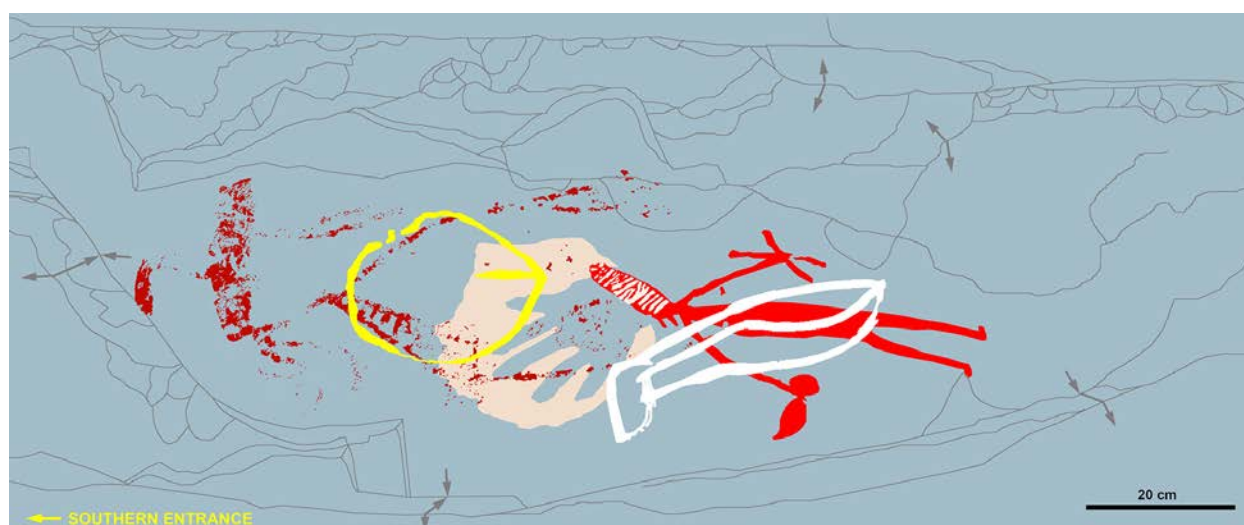


Figure 7.83: Panel C1 photo-tracing

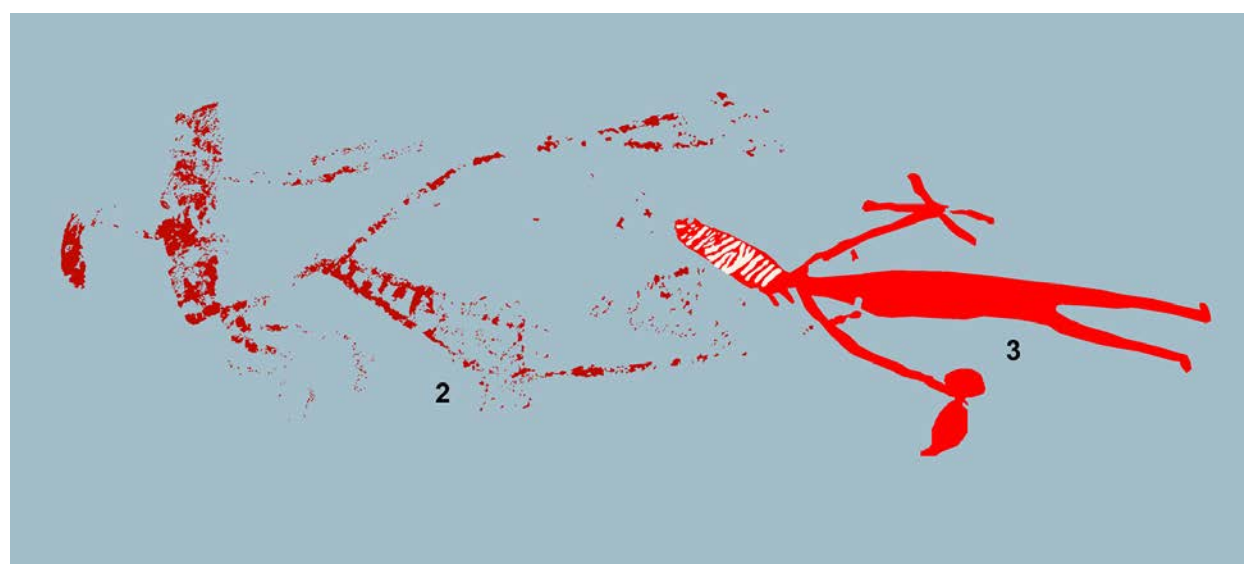


Figure 7.84: Panel C1 motif interpretations (i)

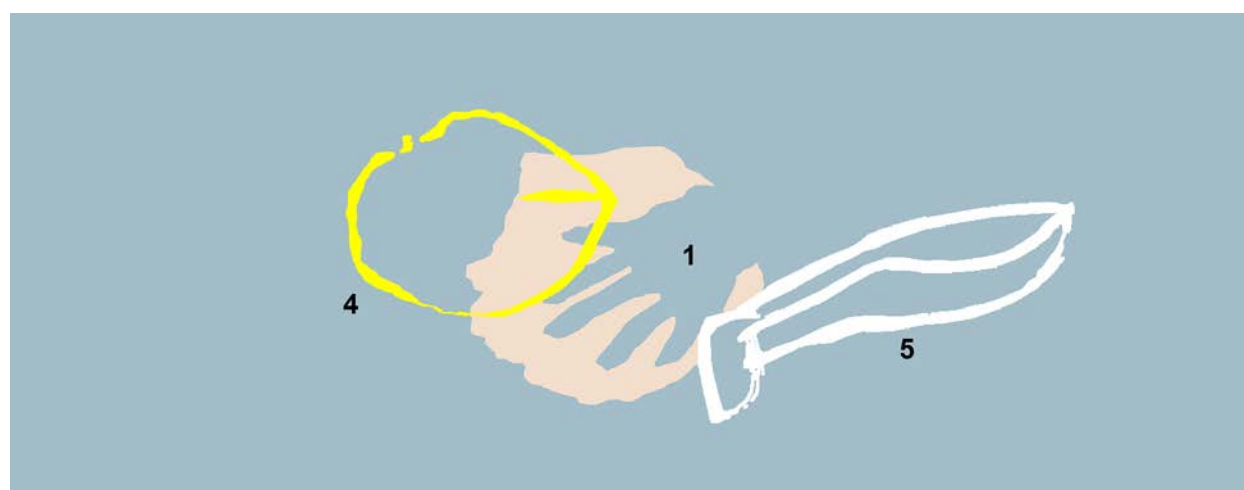


Figure 7.85: Panel C1 motif interpretations (ii)

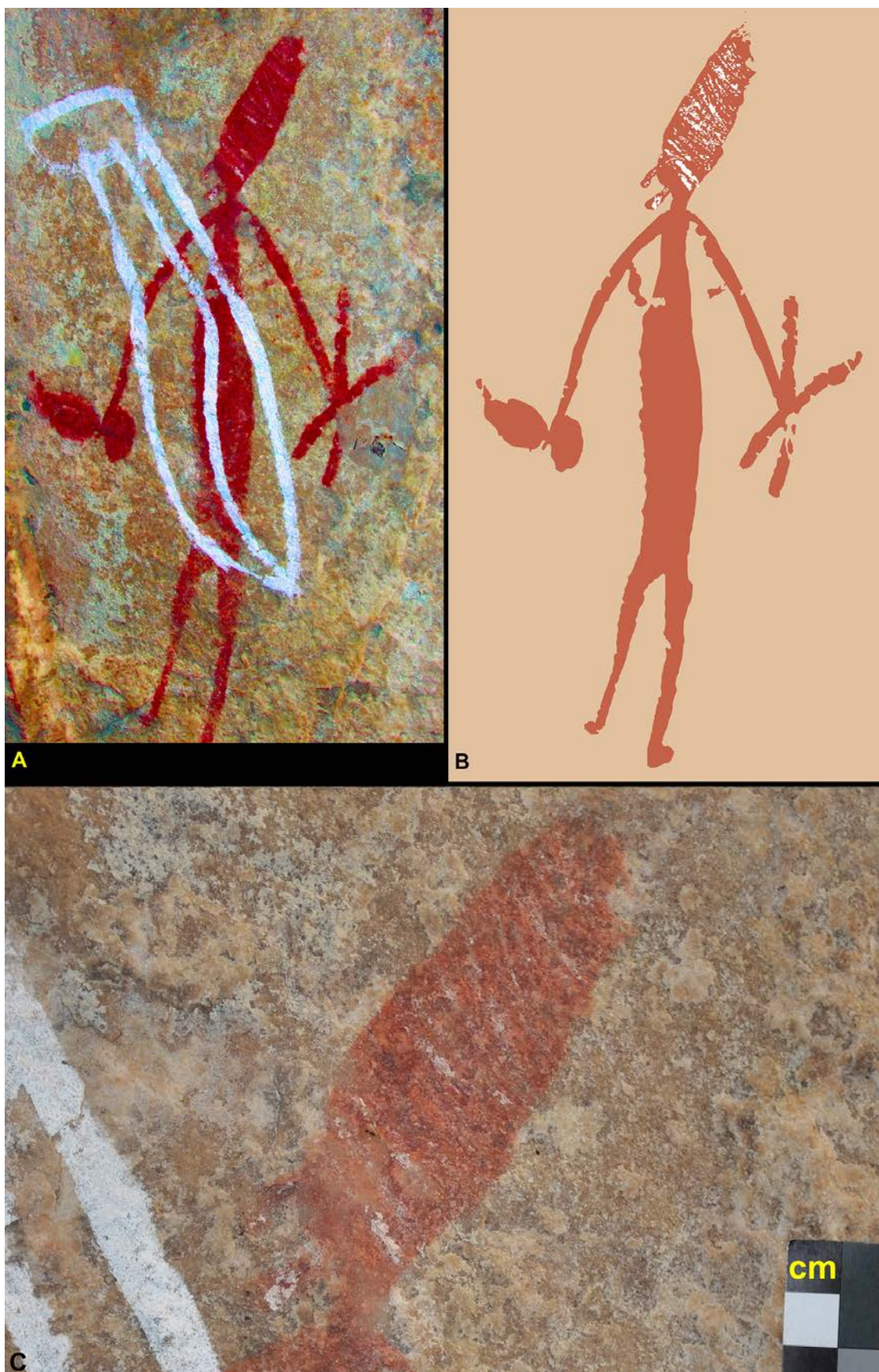


Figure 7.86: Anthropomorph with headdress (Motif C-3)
A: Enhancement: DStretch_lrd10 B: photo-tracing C: Photograph of the headdress

Panel C2

Panel C2 (Figure 7.87) is large, 4.6 × 2.8 m in size, and overhangs the central section of the shelter's southern entrance (Figure 7.88). The panel surface is essentially flat, but with a distinctive diagonal fracture that extends from the inner western end of the panel to its central southern edge (Figure 7.89). This rock fracture was paralleled by the back of a large macropod painting (Motif C-82) and the body line of an underlying red snake (Motif C-55, later repainted in yellow as Motif C-89).

Panel C2 contains 85 motifs (Table 7.11; Figures 7.90 to 7.97), of which 44 (53%) are interpreted to Motif Type. The motifs are distributed over the full surface of the panel; however, while the underlying red motifs tend to be placed at the eastern end of the panel, the larger motifs from all pigment layers are focused towards the inner edge of the panel.

The underlying motifs are mostly fragments but include an outlined figure with protruding tongue (Motif C-18; Figure 7.98), a pose noted at several other

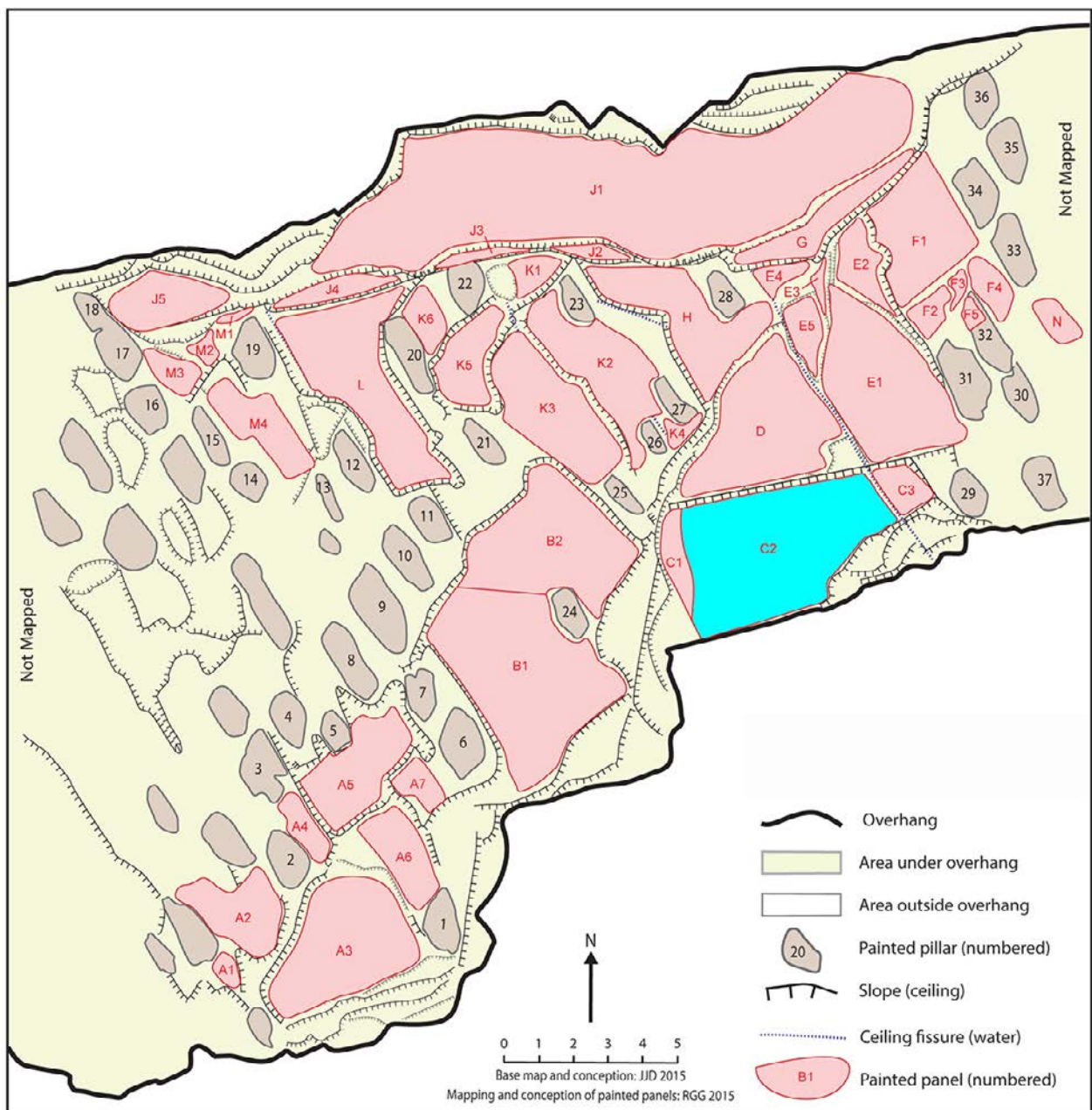


Figure 7.87: Location of Panel C2



Figure 7.88: Location of Panel C2
Photograph: Leigh Douglas

Jawoyn rock art sites (pers. obs.). Similarly, a remnant anthropomorph with striped infill (Motif C-41) has a line joining its fingers and toes; another feature that is repeated in Jawoyn rock art elsewhere.

The large macropod (Motif C-82) is an excellent example of Jawoyn X-ray art. The macropod infill is sparse and concentrates on the stylised backbone and rudimentary limb muscles (Figures 7.97 and 7.99), but rarely with internal organs depicted, and then only in a basic schemata. This contrasts markedly with what I refer to as the 'northern' X-ray form where great detail is given to filling the form with schematised and finely patterned representations of internal bones and organs, and where the prime subjects of X-ray paintings are fish, water-birds and contact motifs (see Chaloupka 1993). In contrast to Motif C-82, the two bichrome macropods, Motifs C-74 and C-76 (Figure 7.96), have more random infill patterns, although the influence of internal features can be detected. Unlike the singular motif of Motif C-82, Motifs C-74 and C-76 together form a composition.

The two Jawoyn Lady motifs on this panel (Motifs C-83 and C-84; Figure 7.97 and 100) also form a compositional pair and both have body patterns carefully painted with fine brushwork.

Red motifs (Motif C-42 to C-48; Figure 7.93) are another group that form a visual composition, although the

mix of fish and snake motifs is unusual. Adjacent to this composition is a large female figure (Motif C-50) depicted frontally, with a smaller figure in profile positioned above her thigh (Motif C-49; Figure 7.93).

The anthropomorph depicted in Motif 41 is a large remnant figure with a striped infill. It also has a distinctive feature in which the hands and feet are connected by a 'string' (Figure 7.93); a feature seen in other motifs within this shelter and elsewhere in Jawoyn rock art.

The best preserved motifs consist of three fish and a short-necked turtle (Motifs C-85 to C-88; Figures 7.97 and 101). Two of the fish (fork-tailed and eel-tailed catfish; Motifs C-85 and C-86) are white and red bichromes, and form another compositional pair. The short-necked turtle and saratoga (Motifs C-87 and C-88) are both polychromes, but otherwise do not form a compositional pair, as they each have distinct differences in colour, paint application and position on the panel.

Note: a complete photomosaic of this panel was not achieved from the available photographic record and, as it was not possible to return to improve the photo-coverage, a composite photomosaic (Figure 7.89) was produced by manually correcting and joining two half mosaics. Additional details were taken from detailed motif photographs and transcribed onto the mosaic drawing.



Figure 7.89: Panel C2 composite photomosaic (X-X' manual alignment)



Figure 7.90: Panel C2 photo-tracing

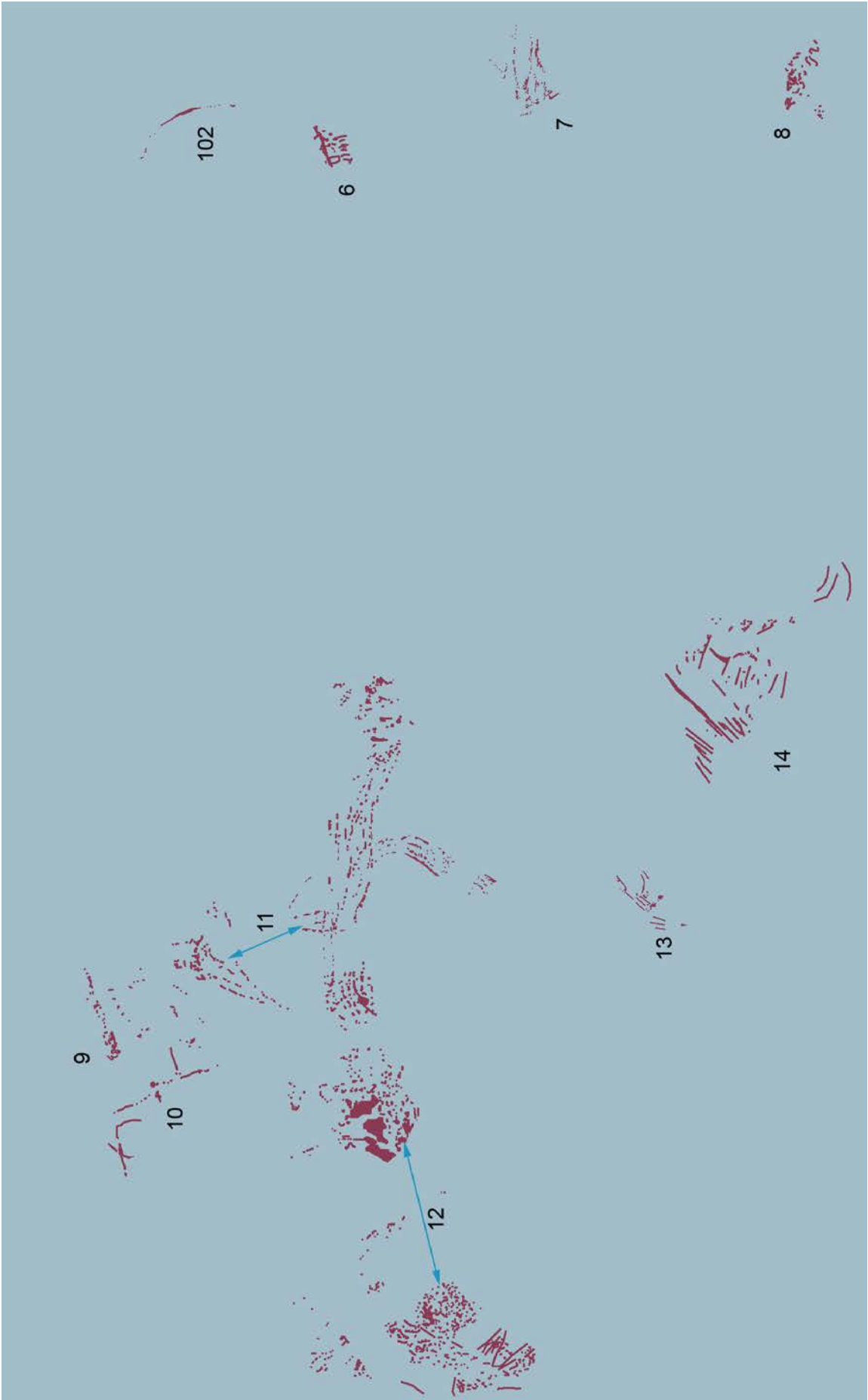


Figure 7.91: Panel C2 motif interpretations (i)



Figure 7.92: Panel C2 motif interpretations (ii)

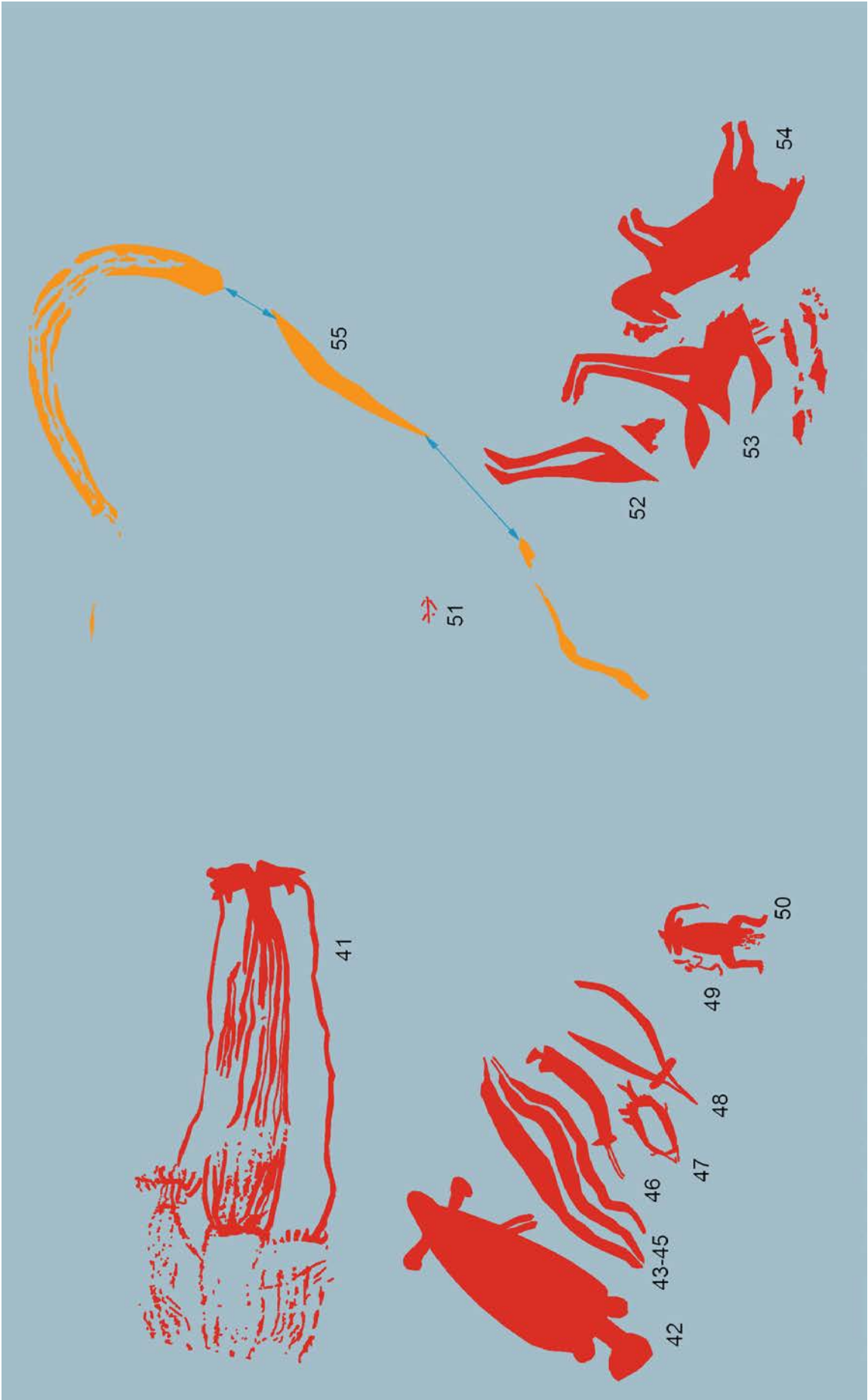


Figure 7.93: Panel C2 motif interpretations (iii)

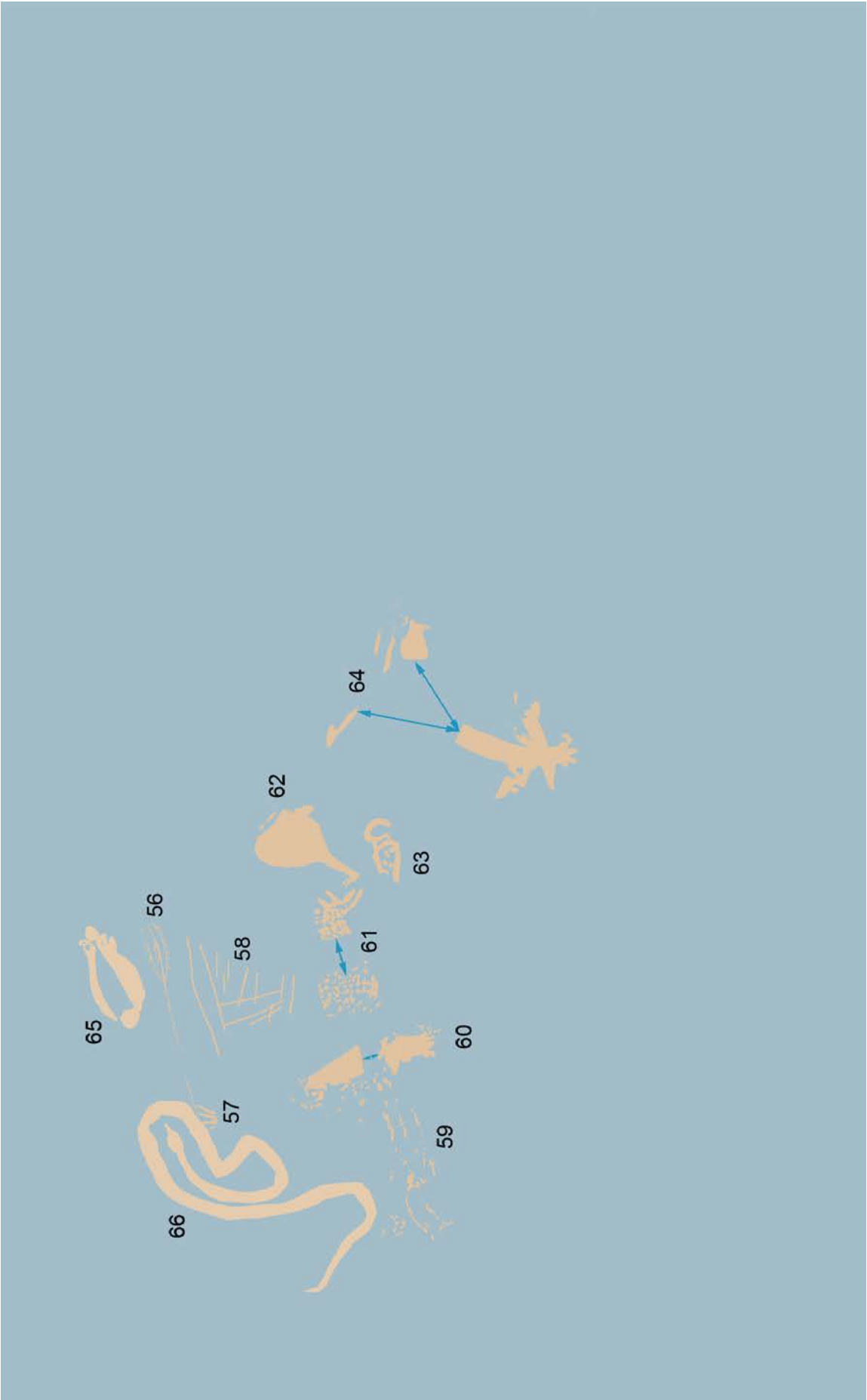


Figure 7.94: Panel C2 motif interpretations (iv)



Figure 7.95: Panel C2 motif interpretations (v)

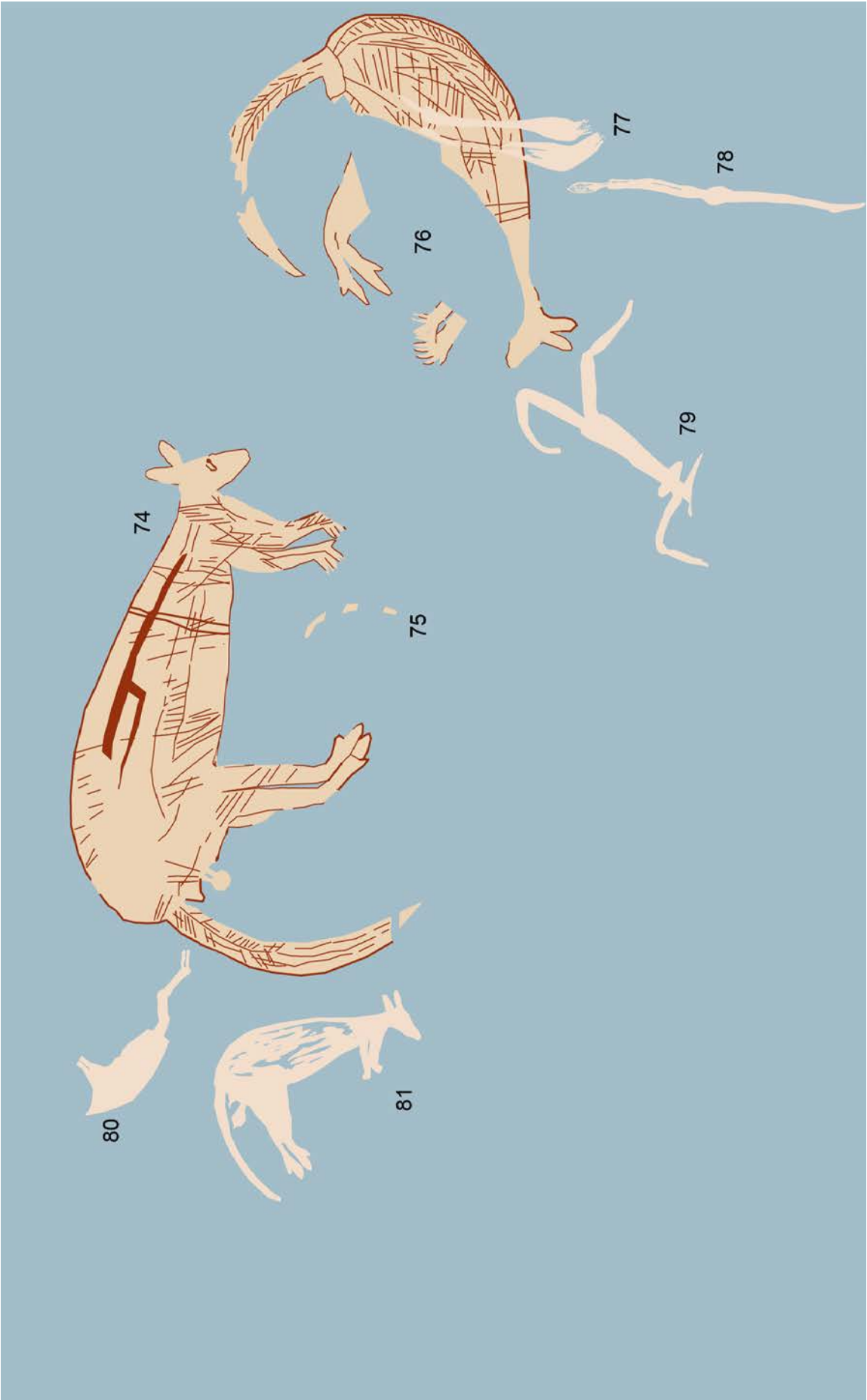


Figure 7.96: Panel C2 motif interpretations (vi)

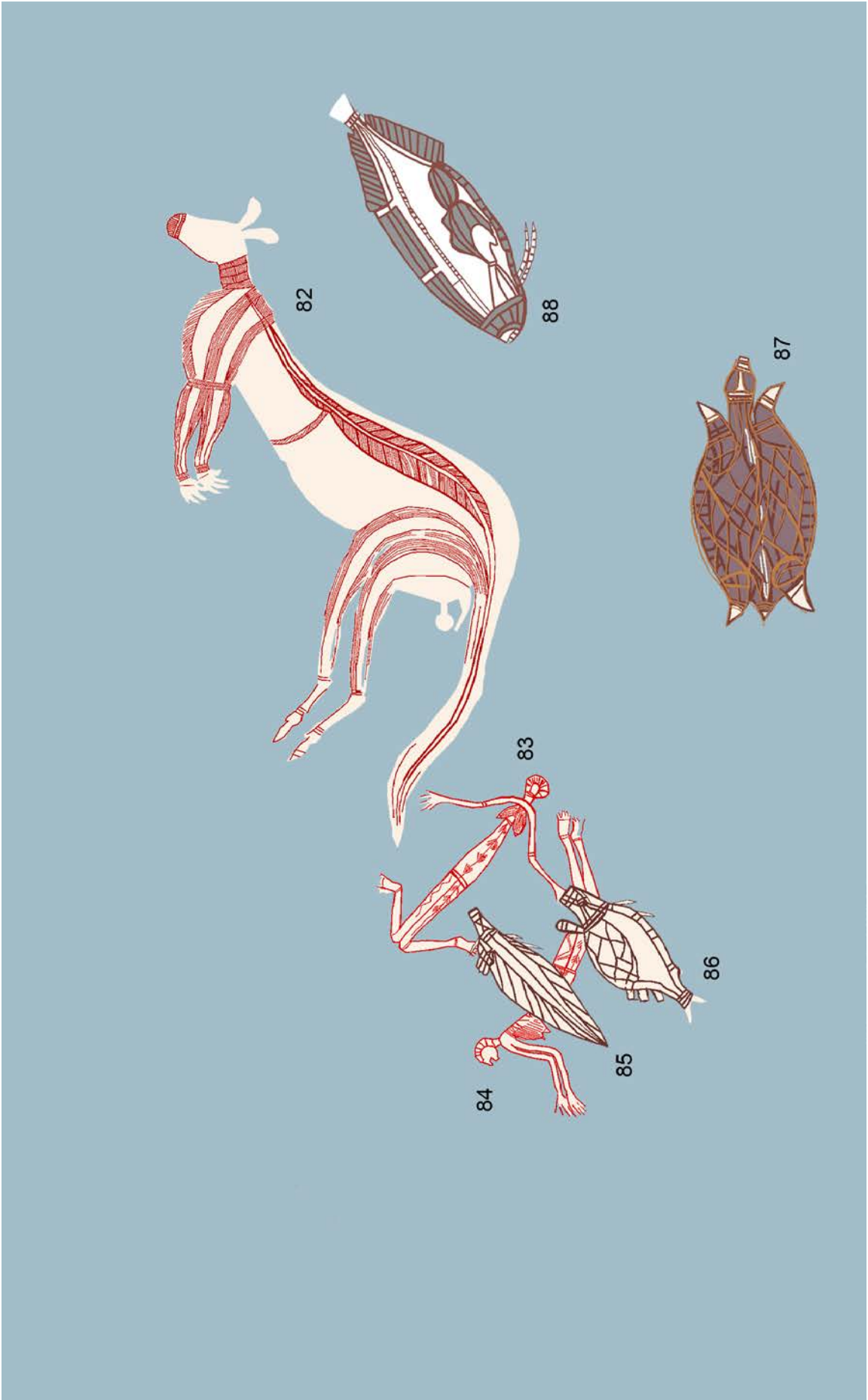


Figure 7.97: Panel C2 motif interpretations (vii)

Table 7.11: Panel C2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
C-6	red	painting	fragment	fragment	fragment	very poor		
C-7	red	painting	fragment	fragment	fragment	very poor		
C-8	red	painting	trace	trace	trace	very poor		
C-9	red	painting	trace	trace	trace	very poor		
C-10	red	painting	linear	fragment	fragment	very poor		
C-11	red	painting	outline+infill	fragment	fragment	very poor		
C-12	red	painting	trace	trace	trace	very poor		
C-13	red	painting	fragment	fragment	fragment	very poor		
C-14	red	painting	fragment	fragment	fragment	very poor		
C-15	red	painting	outline+infill	fragment	fragment	very poor		
C-16	red	painting	fragment	fragment	fragment	very poor		
C-17	red	painting	outline+infill	fragment	fragment	very poor		
C-18	red	painting	outline+infill	anthropomorph	Anthropomorph	very poor		
C-19	red	painting	fragment	fragment	fragment	very poor		
C-20	red	painting	linear	fragment	fragment	very poor		
C-21	red	painting	outline+infill	fragment	fragment	very poor		
C-22	red	painting	fragment	fragment	fragment	very poor		
C-23	red	painting	outline+linear	fragment	fragment	very poor		
C-24	red	painting	outline+infill+linear	fragment	fragment	very poor		
C-25	red	painting	fragment	fragment	fragment	very poor		
C-26	red	painting	fragment	fragment	fragment	very poor		
C-27	red	painting	solid+linear	fragment	fragment	very poor		
C-28	red	painting	linear	fragment	fragment	very poor		
C-29	red	painting	solid	fragment	fragment	very poor		
C-30	red	painting	outline+infill	simple design	Design regular	poor		
C-31	red	painting	linear	fragment	fragment	very poor		
C-32	red	painting	solid+linear	object	Object	very poor		
C-33	red	painting	solid+linear	anthropomorph	Anthropomorph	very poor		

C-34	red	painting	linear	geometric	Line pair	poor		
C-35	red	painting	fragment	fragment	fragment	very poor		
C-36	red	painting	fragment	fragment	fragment	very poor		
C-37	red	painting	fragment	fragment	fragment	very poor		
C-38	red	painting	linear+infill	fragment	fragment	very poor		
C-39	red	painting	fragment	fragment	fragment	very poor		
C-40	red	painting	solid	fragment	fragment	very poor		
C-41	red	painting	outline+infill	anthropomorph	Anthropomorph	poor		
C-42	red	painting	solid	fish	Fish	poor	95	35
C-43	red	painting	solid	reptile	Snake	poor		
C-44	red	painting	solid	reptile	Snake	poor		
C-45	red	painting	solid	reptile	Snake	poor		
C-46	red	painting	solid+linear	fish	Longtom	poor		
C-47	red	painting	outline+infill	fish	Archer	poor		
C-48	red	painting	outline+infill	fish	Fish	poor		
C-49	red	painting	linear	anthropomorph	Anthropomorph	poor		
C-50	red	painting	solid+linear	anthropomorph	Anthropomorph female	poor		
C-51	red	painting	linear	anthropomorph	Anthropomorph male	poor		
C-52	red	painting	solid	fragment	fragment	very poor		
C-53	red	painting	solid	mammal	Macropod	very poor		
C-54	red	painting	solid	mammal	Animal	very poor		
C-55	orange	painting	solid+outline+infill	reptile	Snake	fair	186	142
C-56	white	painting	linear	object	Spear	poor		
C-57	white	painting	linear	fragment	fragment	very poor		
C-58	white	painting	linear	fragment	fragment	very poor		
C-59	white	painting	outline+infill	fragment	fragment	very poor		
C-60	white	painting	solid	fragment	fragment	very poor		
C-61	white	painting	solid+infill	mammal	Animal	very poor		
C-62	white	painting	solid+linear	bird	Bird	poor		
C-63	white	painting	outline+infill	fragment	fragment	very poor		
C-64	white	painting	solid+linear	fragment	fragment	very poor		

C-65	white	painting	solid+outline	fish	Fish	poor		
C-66	white	painting	solid	reptile	Snake	poor	83	65
C-67	yellow	painting	solid	mammal	Animal	poor		
C-68	yellow	painting	fragment	fragment	fragment	very poor		
C-69	yellow	painting	solid	bird	Bird	very poor		
C-70	yellow	painting	solid	bird	Bird	very poor		
C-71	yellow	painting	linear+outline+infill	bird	Emu	poor		
C-72	yellow+white	painting	solid+outline+infill	mammal	Macropod	fair	125	61
C-73	yellow	painting	fragment	fragment	fragment	very poor		
C-74	white+red	painting	solid+outline+infill	mammal	Macropod male	fair	176	96
C-75	white	painting	solid	fragment	fragment	very poor		
C-76	white+red	painting	solid+outline+infill	mammal	Macropod	fair	123	66
C-77	white	painting	solid	mammal	Macropod legs	fair		
C-78	white	painting	solid	mammal	Macropod legs	fair		
C-79	white	painting	solid+linear	anthropomorph	Anthropomorph female	good	c.70	56
C-80	white	painting	solid+linear	bird	Bird	fair	81	25
C-81	white	painting	solid+outline+infill	mammal	Macropod male	fair	78	51
C-82	white+red	painting	X-ray	mammal	Macropod male	good	217	116
C-83	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	good	73	60
C-84	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph female	good	88	36
C-85	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	excellent	62	20
C-86	white+red	painting	X-ray	fish	Catfish fork-tailed	excellent	68	28
C-87	purple+red+white+yellow	painting	solid+outline+infill	reptile	Turtle short-necked	excellent	84	39
C-88	white+red+black	painting	X-ray	fish	Saratoga	good	93	30
C-89	yellow	painting	solid+outline+infill	reptile	Snake	fair	186	142
C-102	red	painting	linear	fragment	fragment	very poor		



Figure 7.98: Examples of the exaggerated tongue convention
 A: Daylight photograph Motif C-18 on Panel C2 B: photo-tracing of Motif C-18
 C and D: Examples from sites ARN-026/A and ARN-029/37 respectively



Figure 7.99: Macropod Motif C-82: detail of patterned spinal infill
 Photograph: Leigh Douglas



Figure 7.100: Jawoyn Lady motif (Motif C-83)
Photograph: David Lee

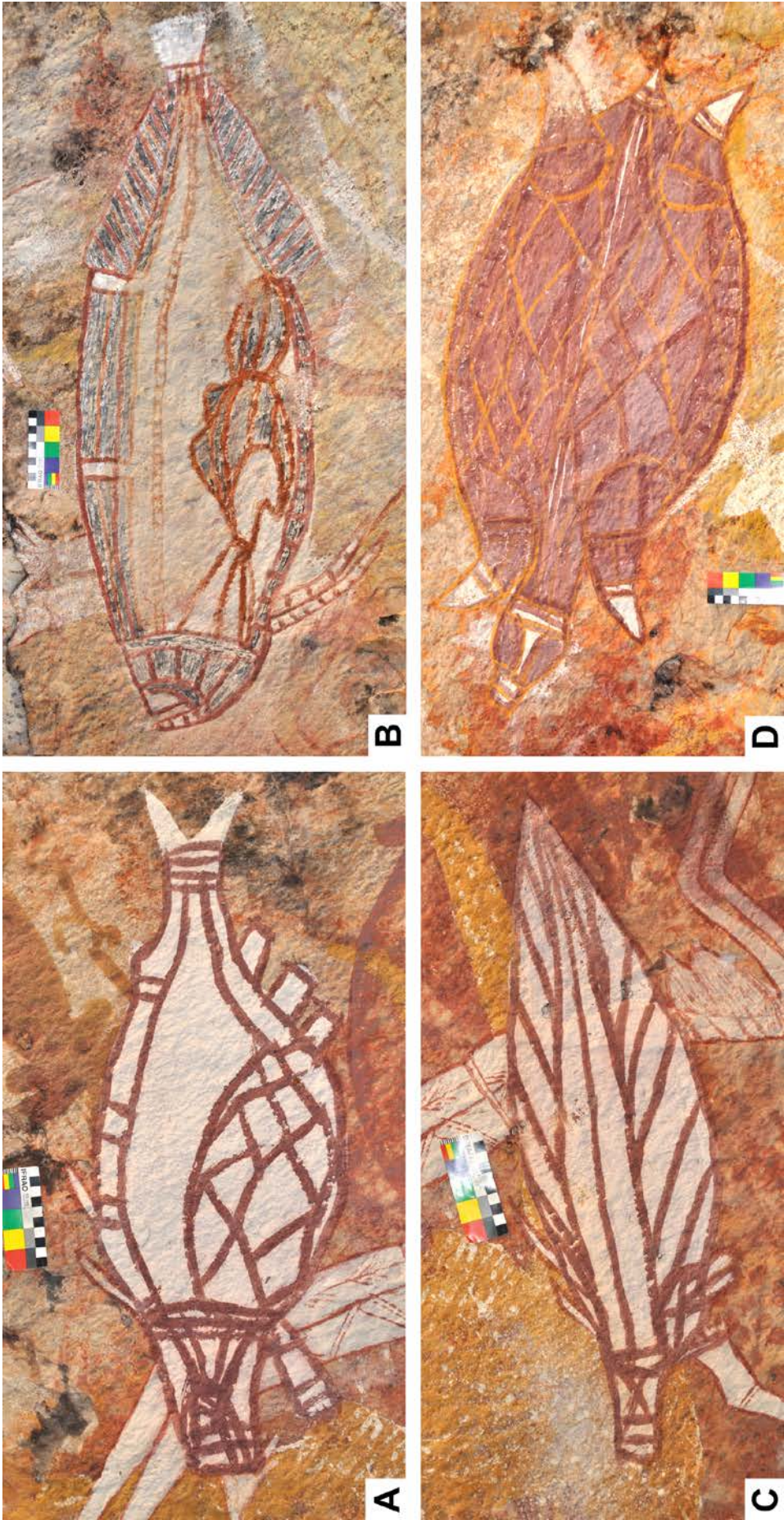


Figure 7.101: The most recent motifs on panel C2
A: Motif C-86 fork-tailed catfish B: Motif C-88 saratoga C: Motif C-85 eel-tailed catfish D: Motif C-87 short-necked turtle
Photographs: Leigh Douglas

Panel C3

Panel C3 (Figures 7.102 and 7.103) is 1.8 × 1.0 m in area, and roughly rectangular in shape (Figures 7.104 and 7.105). The panel surface is flat but extensively damaged by salt encrustation and has been subject to extensive thin, 'leaf' exfoliation. The exfoliation occurred prior to the painting of the surviving artwork. Motif preservation is poor throughout, and worse towards the central area of the panel.

Panel C3 contains 12 motifs (Table 7.12; Figures C-105 to C-108), 10 of which are interpreted to Motif Type.

A white copulating couple (Motif C-100; Figure 7.108), a white fragment (Motif C-101), and two white macropods

(Motifs C-98 and C-99) are the best preserved motifs on the panel.

The two white macropods, Motifs C-98 and C-99, form a compositional pair (Figure 7.108), as do a yellow spear set (Motif C-91) and anthropomorph (Motif C-92) (Figures 7.107 and 7.109). The yellow anthropomorph (Motif C-92) has what appears to be a tassel headdress.

A large area of fragmented red pigment underlying the other motifs is designated as Motif C-90 as it appears to have a tapering form from left to right (Figure 7.106). The remnants are too poorly preserved to now determine whether it represents a single painting, or a number of distinct or overlapping motifs.

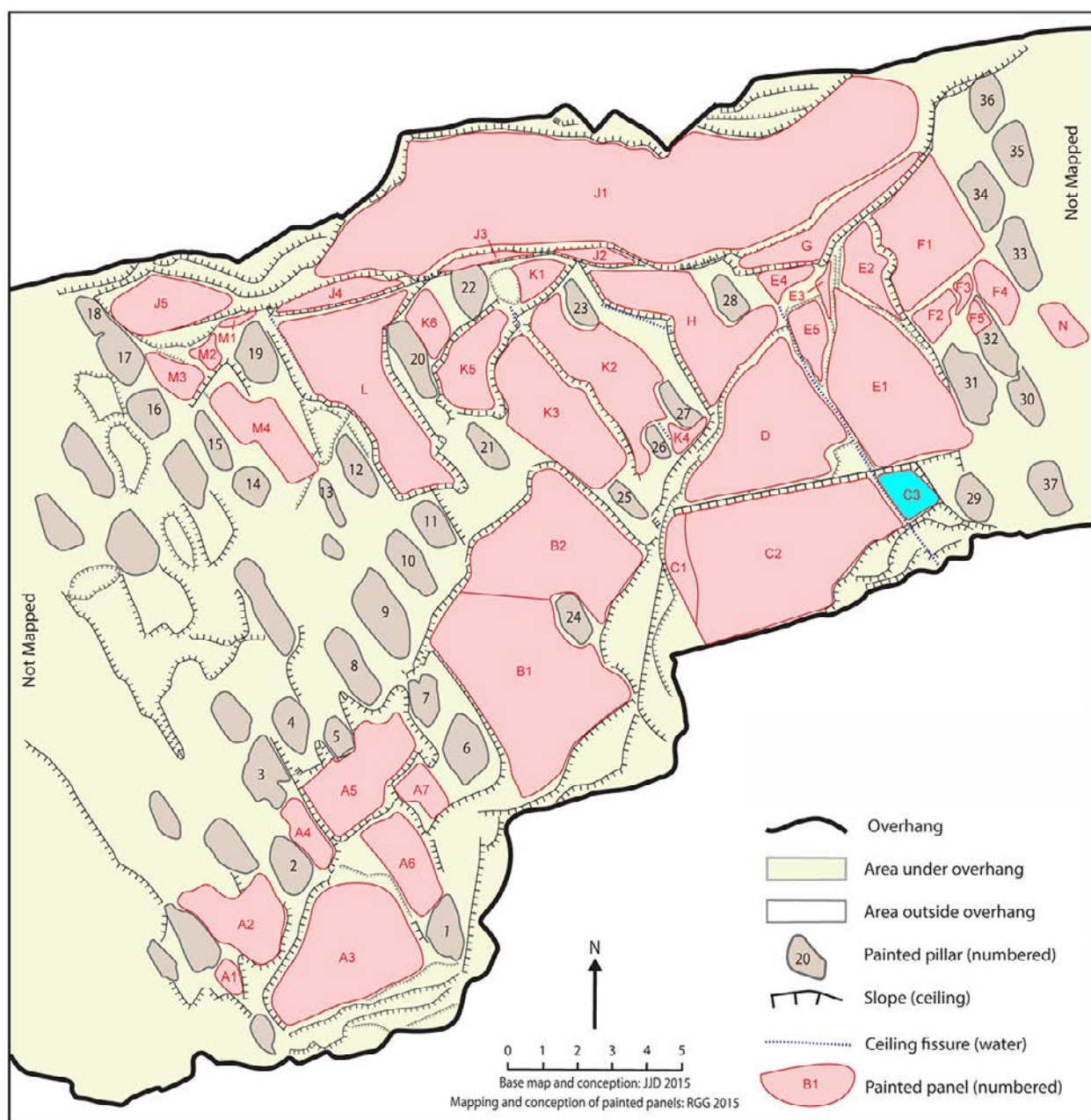


Figure 7.102: Location of Panel C3

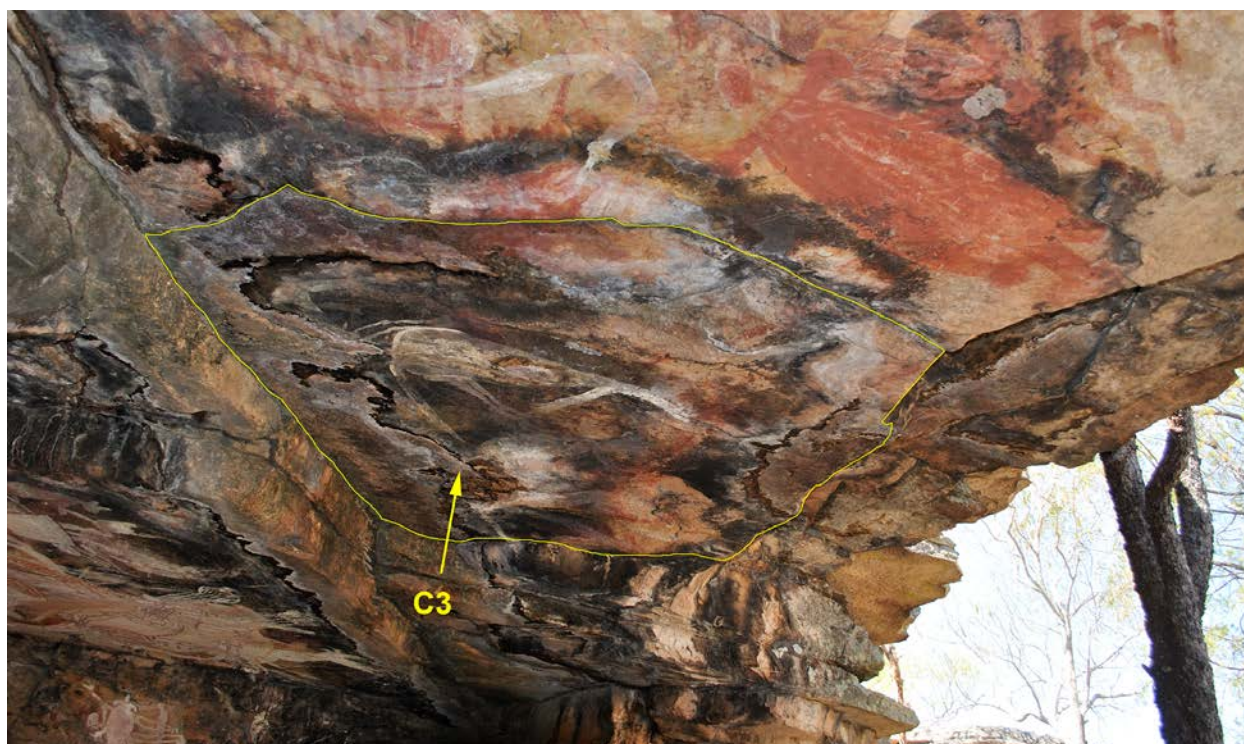


Figure 7.103: Location of Panel C3



Figure 7.104: Panel C3 photograph
Photograph: Leigh Douglas

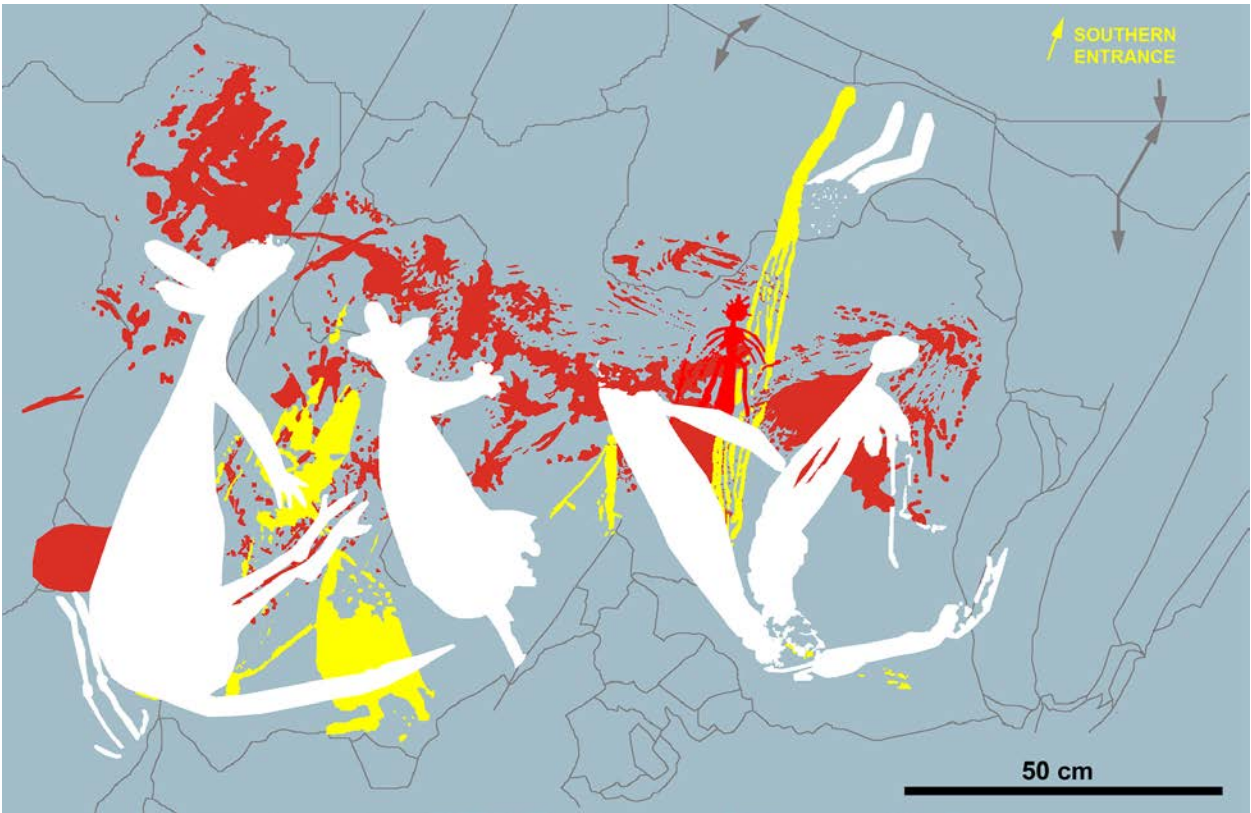


Figure 7.105: Panel C3 photo-tracing



Figure 7.106: Panel C3 motif interpretations (i)

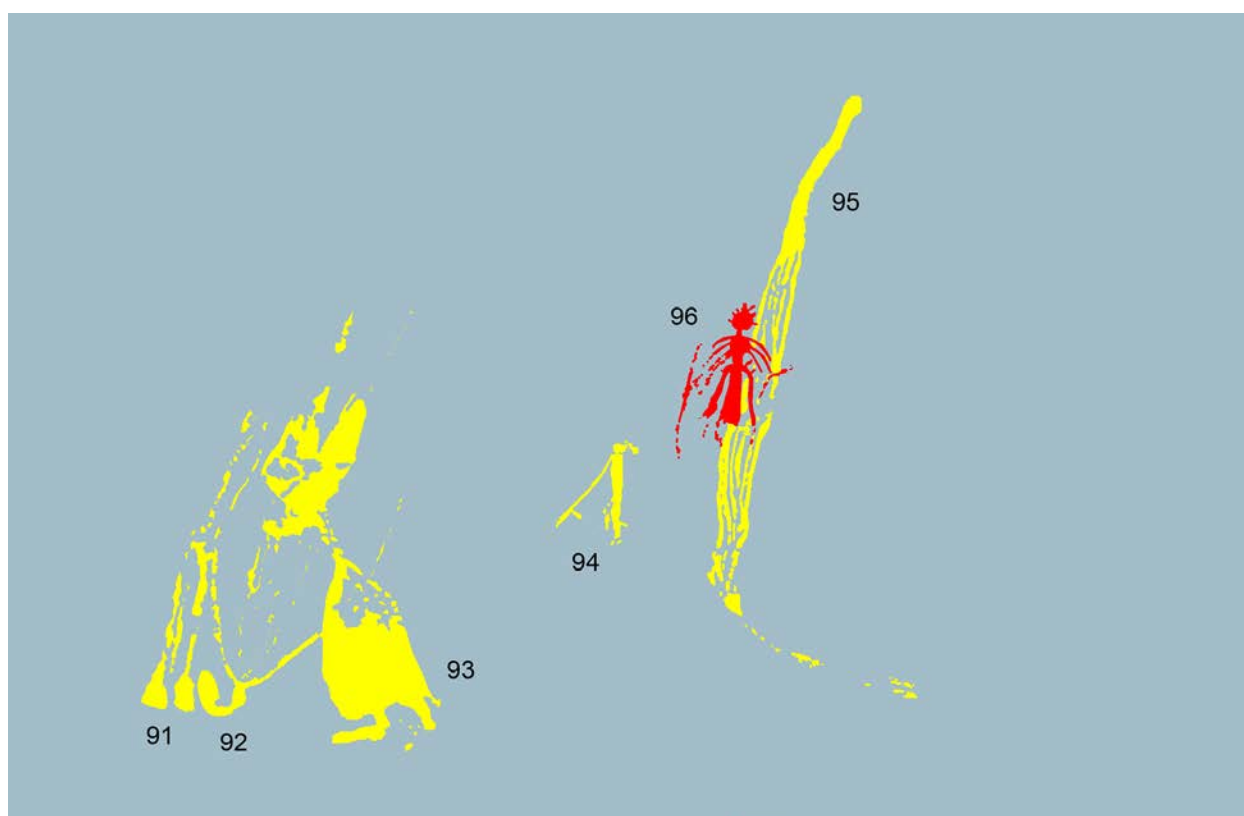


Figure 7.107: Panel C3 motif interpretations (ii)

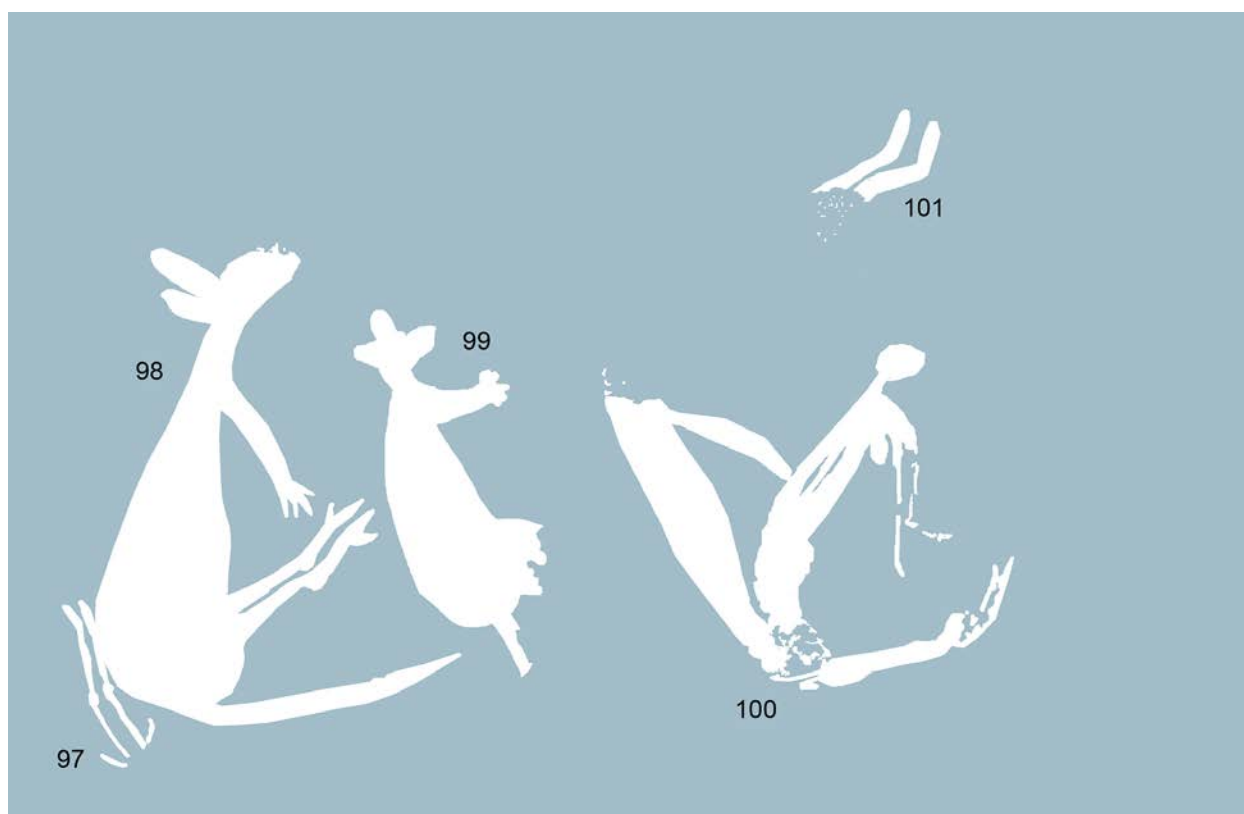


Figure 7.108: Panel C3 motif interpretations (iii)

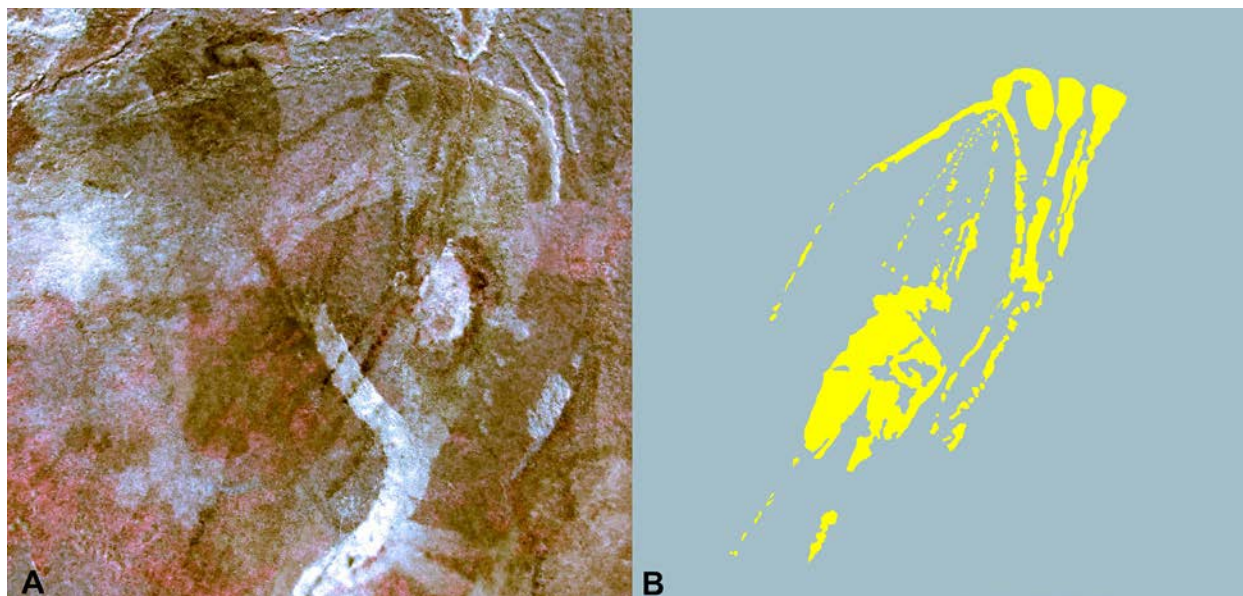


Figure 7.109: Interpretation of Motifs C-91 and C-92
A: DStretch_lye10 B: photo-tracing

Table 7.12: Panel C3 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
C-90	red	painting	trace	trace	trace	very poor		
C-91	yellow	painting	linear	object	Spear set	very poor		
C-92	yellow	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
C-93	yellow	painting	solid+linear	bird	Bird	very poor		
C-94	yellow	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
C-95	yellow	painting	outline+infill	reptile	Snake	poor		
C-96	red	painting	solid+linear	anthropomorph	Anthropomorph	poor		
C-97	white	painting	linear	anthropomorph	Anthropomorph	very poor		
C-98	white	painting	solid	mammal	Macropod female	poor	94	65
C-99	white	painting	solid	mammal	Macropod	very poor		
C-100	white	painting	solid+linear	anthropomorph	Copulating couple	very poor		
C-101	white	painting	solid	fragment	fragment	very poor		

Panel D

Panel D (Figures 7.110 and 7.111) is the only panel within this Group. It is the central panel of the shelter ceiling and is one of the most decorated and visually striking of all of the site's art panels (Figure 7.112). The panel is roughly triangular in shape and measures 4.7×3.3 m across its maximum dimensions. The surface is flat but lightly textured by bedrock ripple marks towards the northern margin of the panel.

Panel D contains 66 motifs (Table 7.13; Figures 7.113 to 7.121), 38 (58%) of which are interpreted to Motif Type.

The artwork is spread across the full surface area, with no particular point of concentration. The motifs are not orientated in any one direction, suggesting that the various artists did not recognise any single standpoint from which to view the panel.

The most prominent and impressive motifs on the panel are a series of eight fish (Motifs D-59 to D-66), painted as either bichrome or polychrome motifs; all have complex infill designs in the Northern X-ray manner (Figures 7.121 to 7.128). They range in length from 86 cm to 210 cm, and all but one (Motif D-64) have white as a base colour that adds to their visual prominence. The

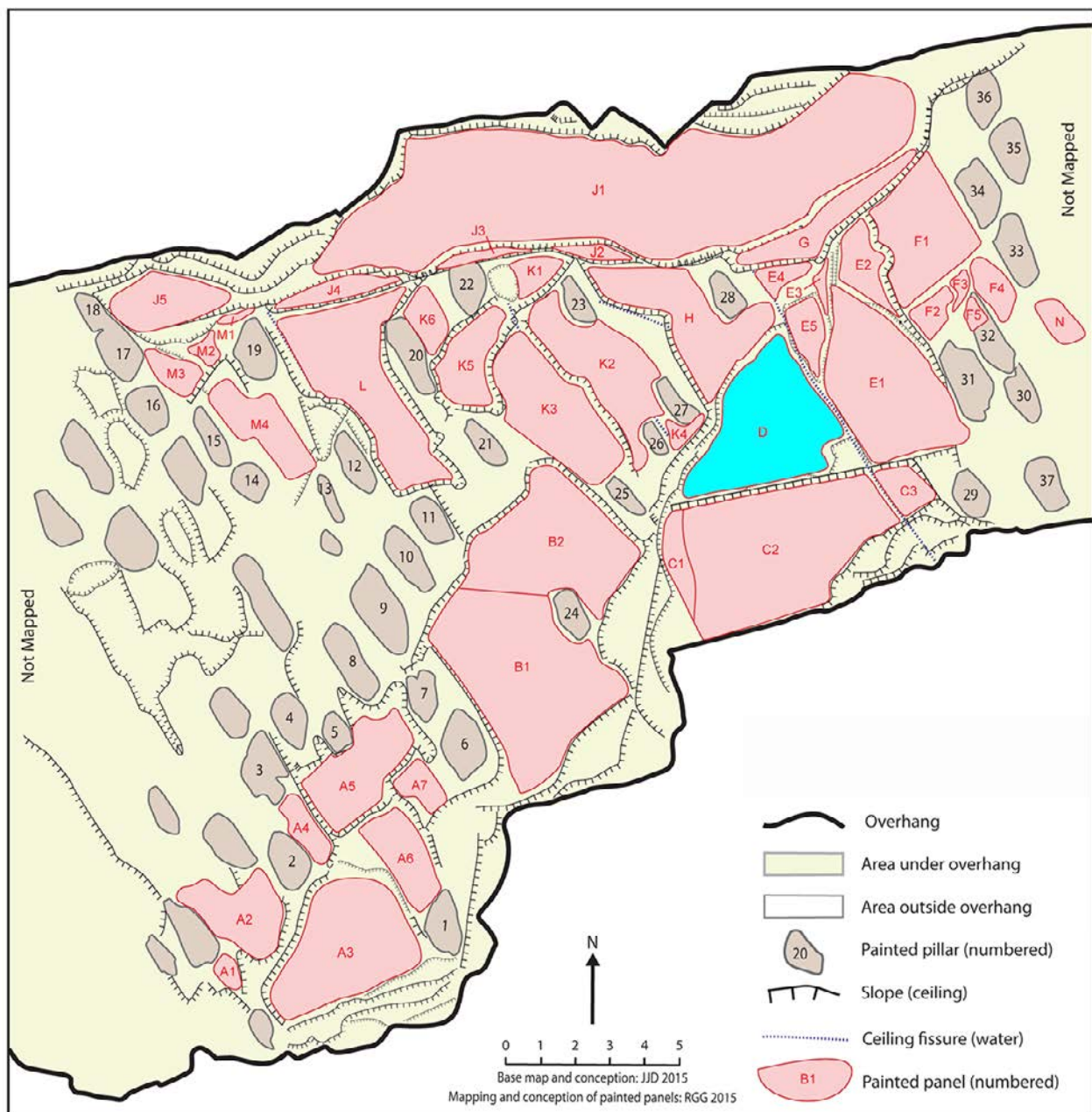


Figure 7.110: Location of Panel D



Figure 7.111: Location of Panel D

largest of the fish paintings (Motifs D-59, D-62 and D-66) were painted with a variety of painting practices (broad areas, coarse line-work, fine-line patterned infill) as well as utilising a range of different hues and tones (Figure 7.122 to 7.125). Sometime after their initial painting, both Motifs D-62 and D-66 were embellished by re-outlining, the elaboration of existing features, and the addition of new features (such as the placement of a small fish within the body of Motif D-62; Figure 7.122). The use of yellow, red and black on the Longtom motif (Motif D-64; Figure 7.128) is unusual at this site, as is the depiction of the Longtom itself, suggesting that the inclusion of this motif had a somewhat different motivation to that of the other fish paintings.

Of particular significance Panel D is the painting of a horse (Motif D-48). The motif is exceptionally large, 3.47×2.36 m in size, and occupies the greater portion of the panel area (Figures 7.119 and 7.129). It is one of the largest paintings at Nawarla Gabarnmang and has been retouched at least twice. Hence, the motif was of

some importance to artists in the shelter on at least two different occasions. The motif is also important for rock art research as it provides a maximum age for its production: it must post-date AD 1845, as this is when horses were first introduced onto the plateau (see Chapter 9).

An interesting example of repainting occurs on an anthropomorph (Motif D-45). At some time after the original faceless figure was painted, a bearded face was added to the back of the head (Figure 7.130). This modification notably alters the original design, but whether this was done as a casual aside or as an attempt to correct the original motif to a later template is unknown.

The partially hidden anthropomorph, Motif D-54 (Figure 7.120), of which only the legs and feet are now visible due to overpainting, has unusual feet in that they are not a matching pair: one is solid with individual toes, the other is outlined and rounded and without toes.



Figure 7.112: Panel D wide-angle daylight photograph



Figure 7.113: Panel D stitched and corrected photomosaic

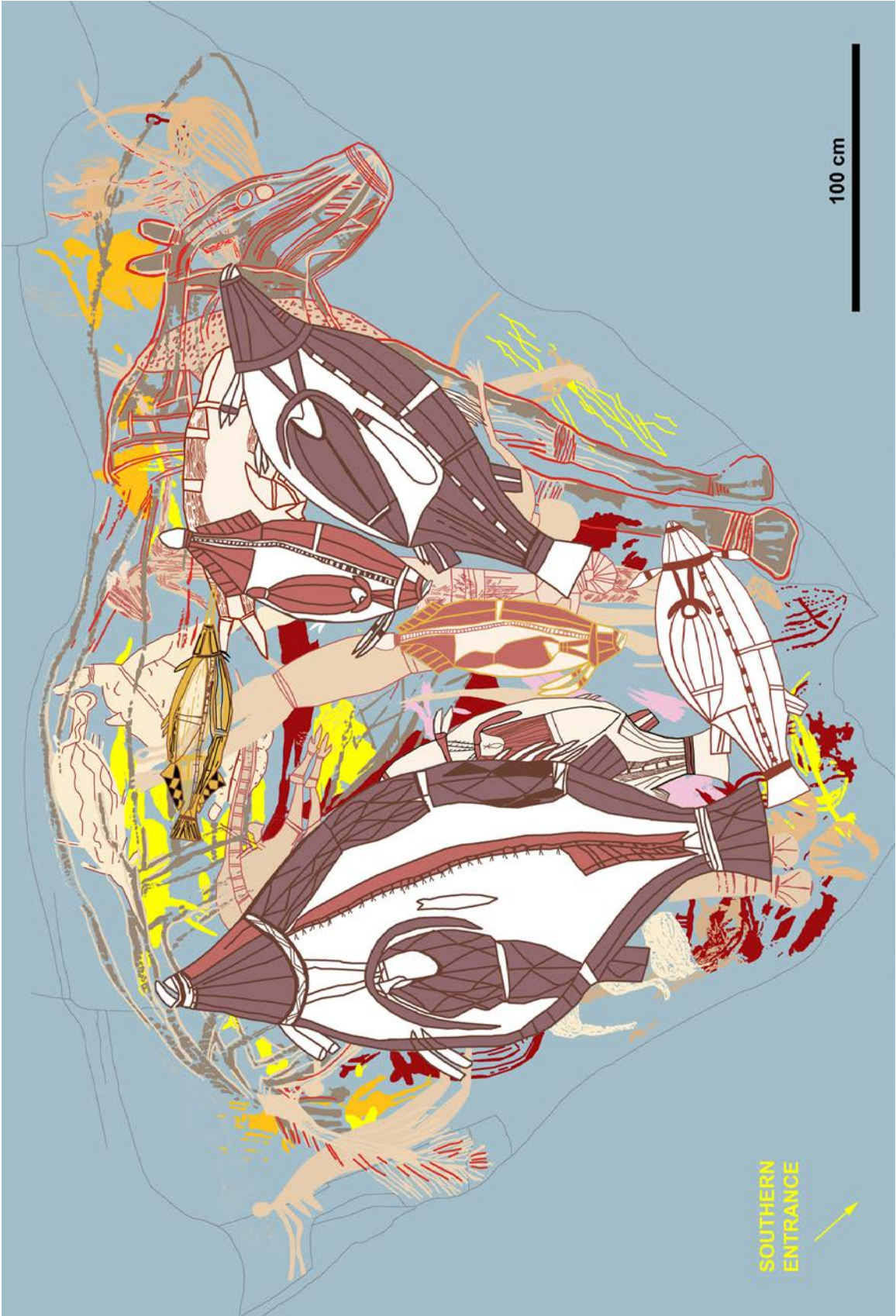


Figure 7.114: Panel D photo-tracing

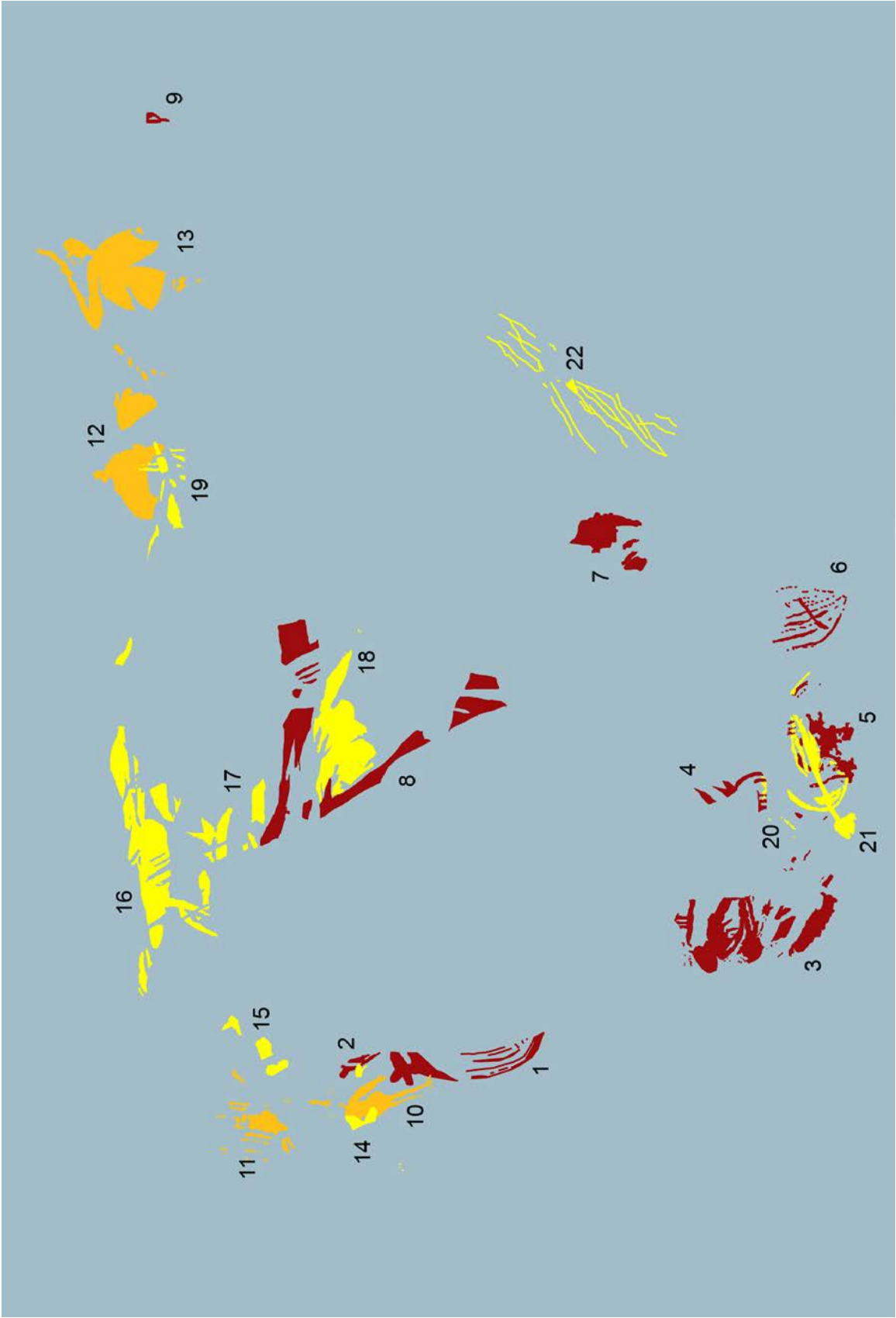


Figure 7.115: Panel D motif interpretations (i)



Figure 7.116: Panel D motif interpretations (ii)

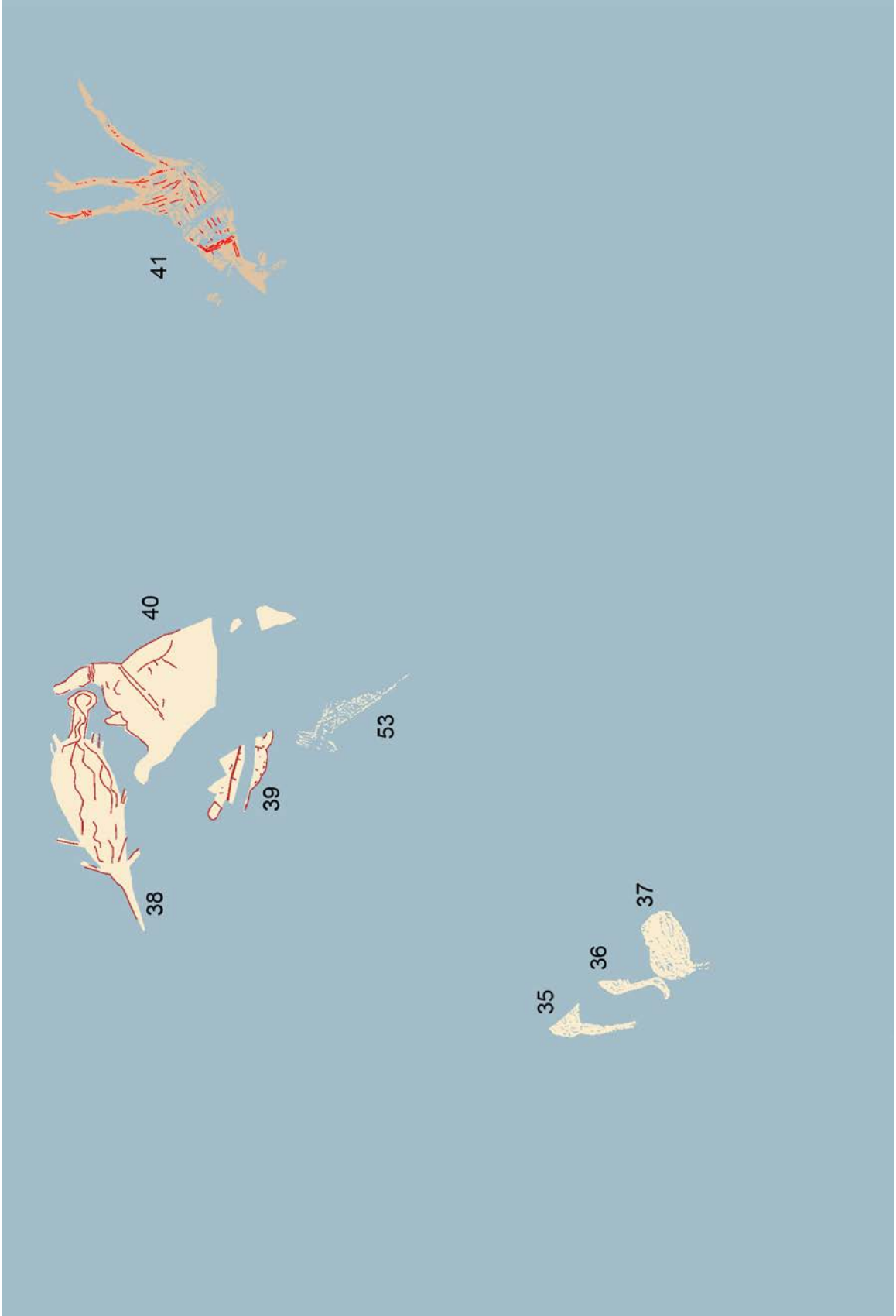


Figure 7.117: Panel D motif interpretations (iii)

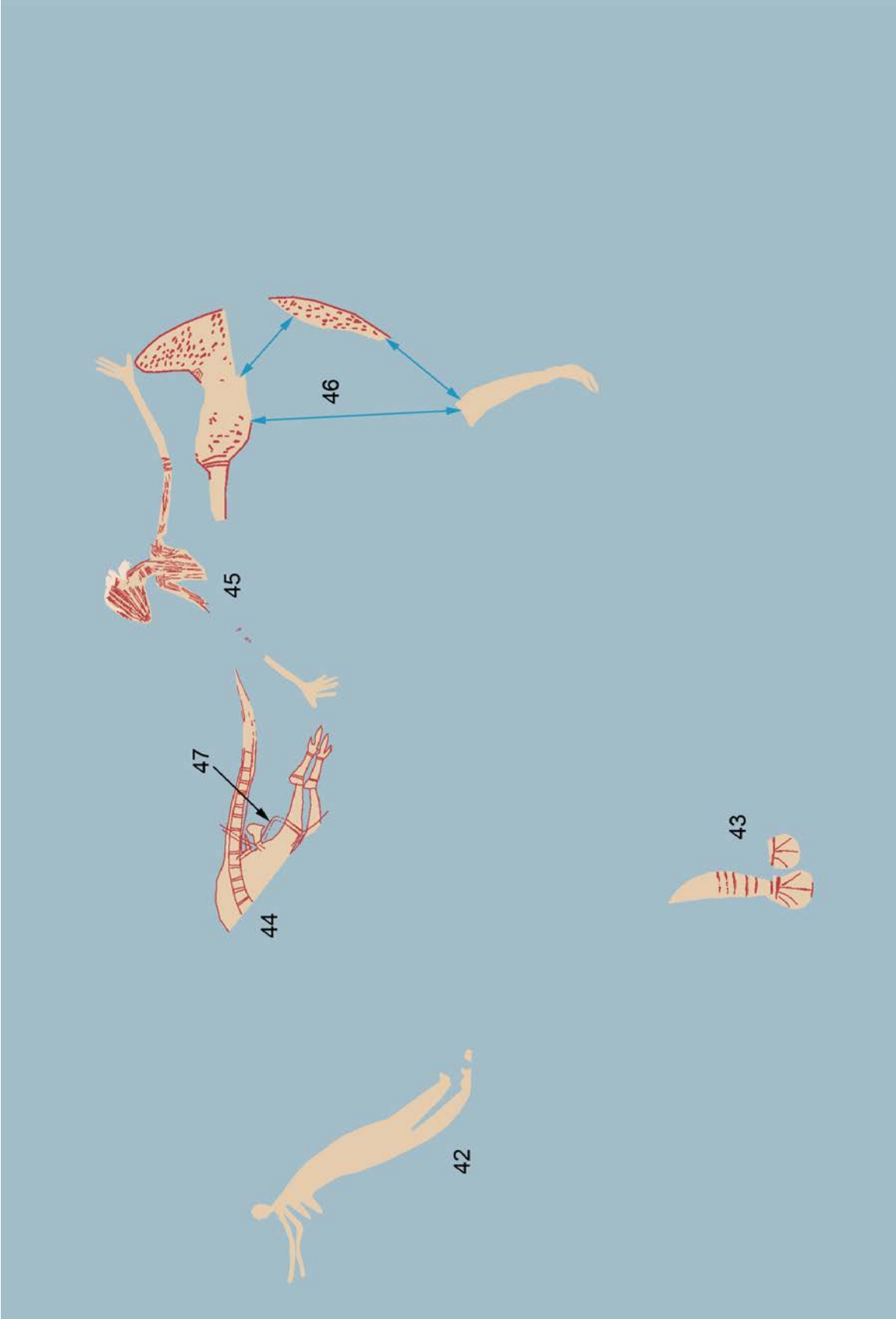


Figure 7.118: Panel D motif interpretations (iv)

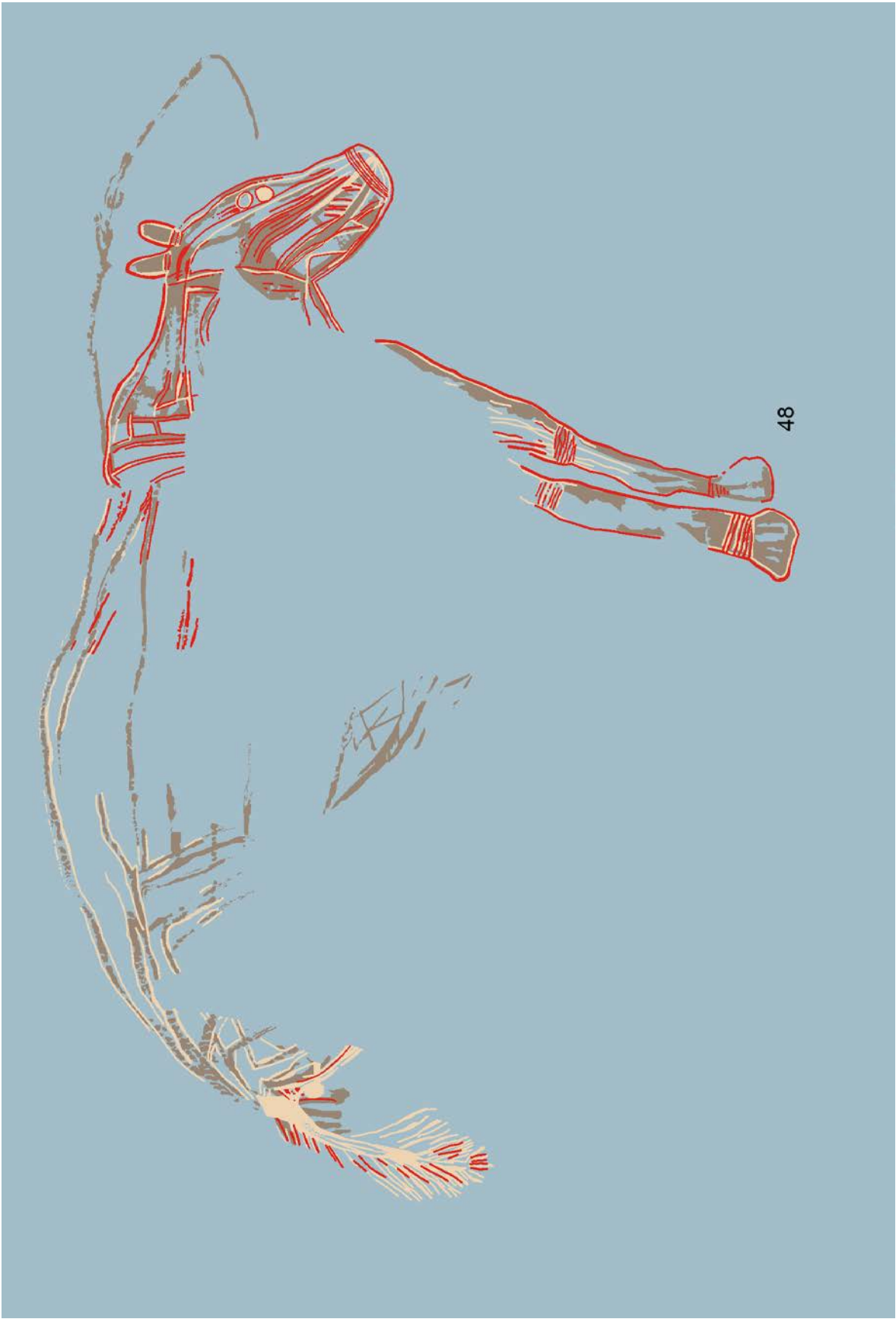


Figure 7.119: Panel D motif interpretations (v)

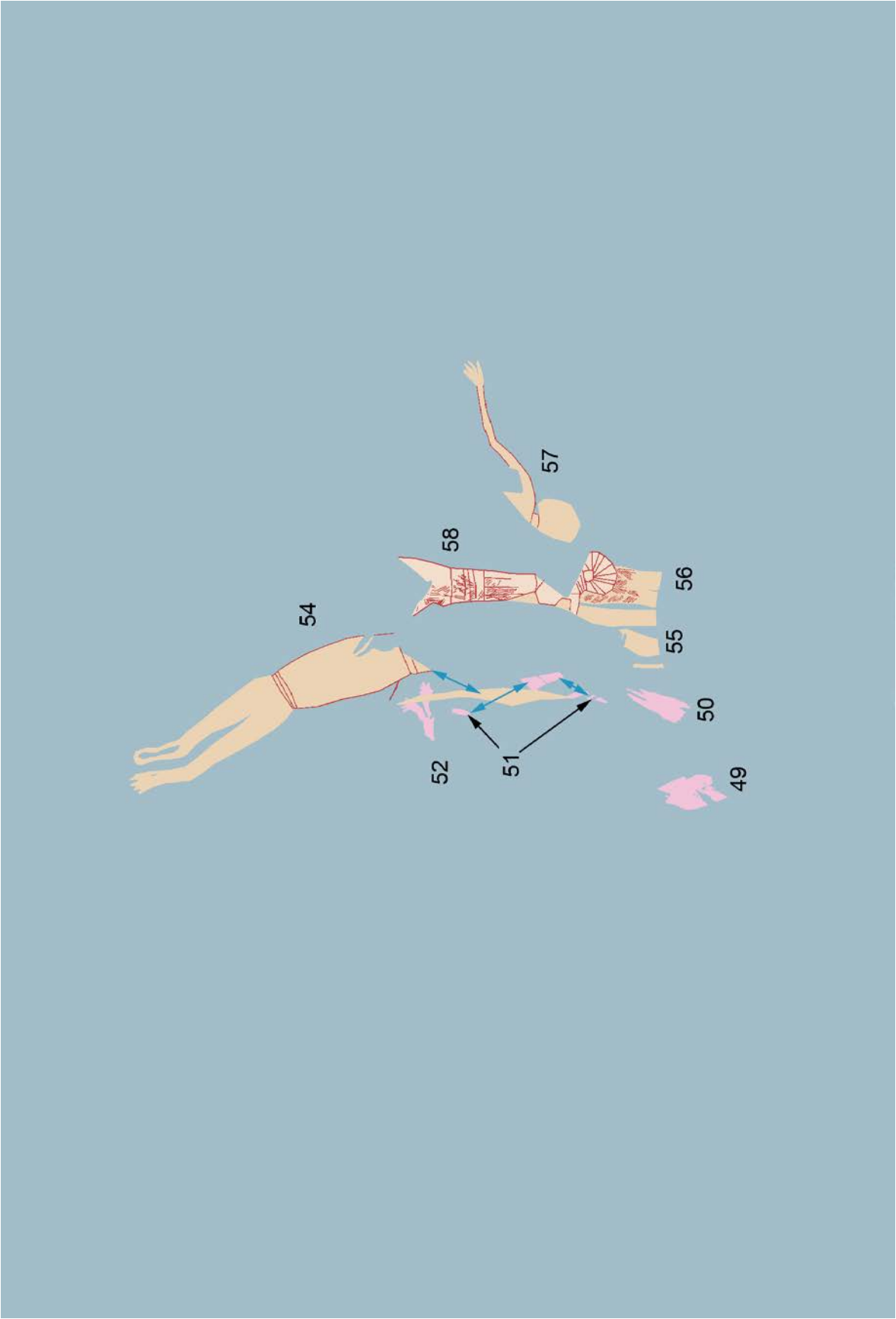


Figure 7.120: Panel D motif interpretations (vi)

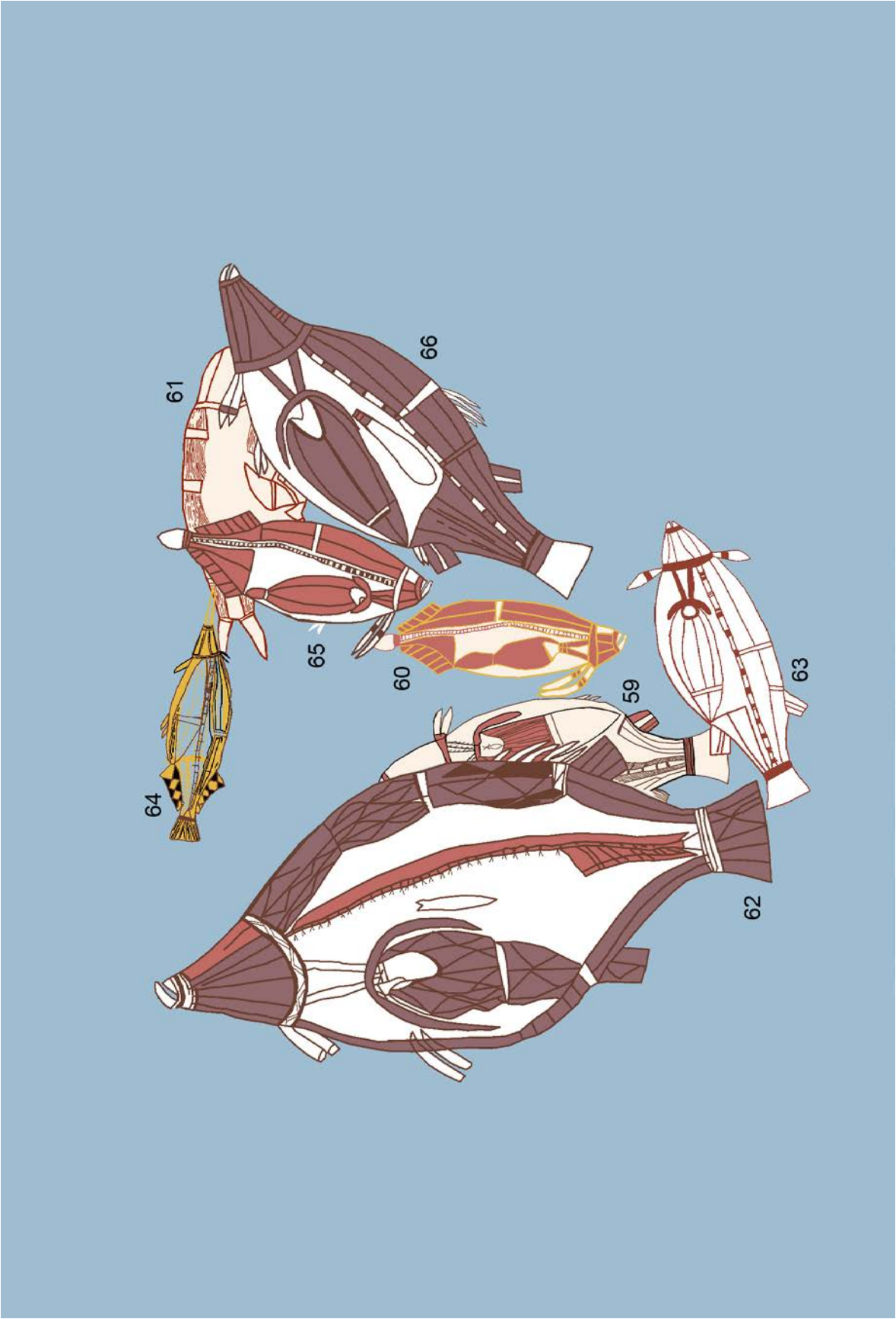


Figure 7.121: Panel D motif interpretations (vii)

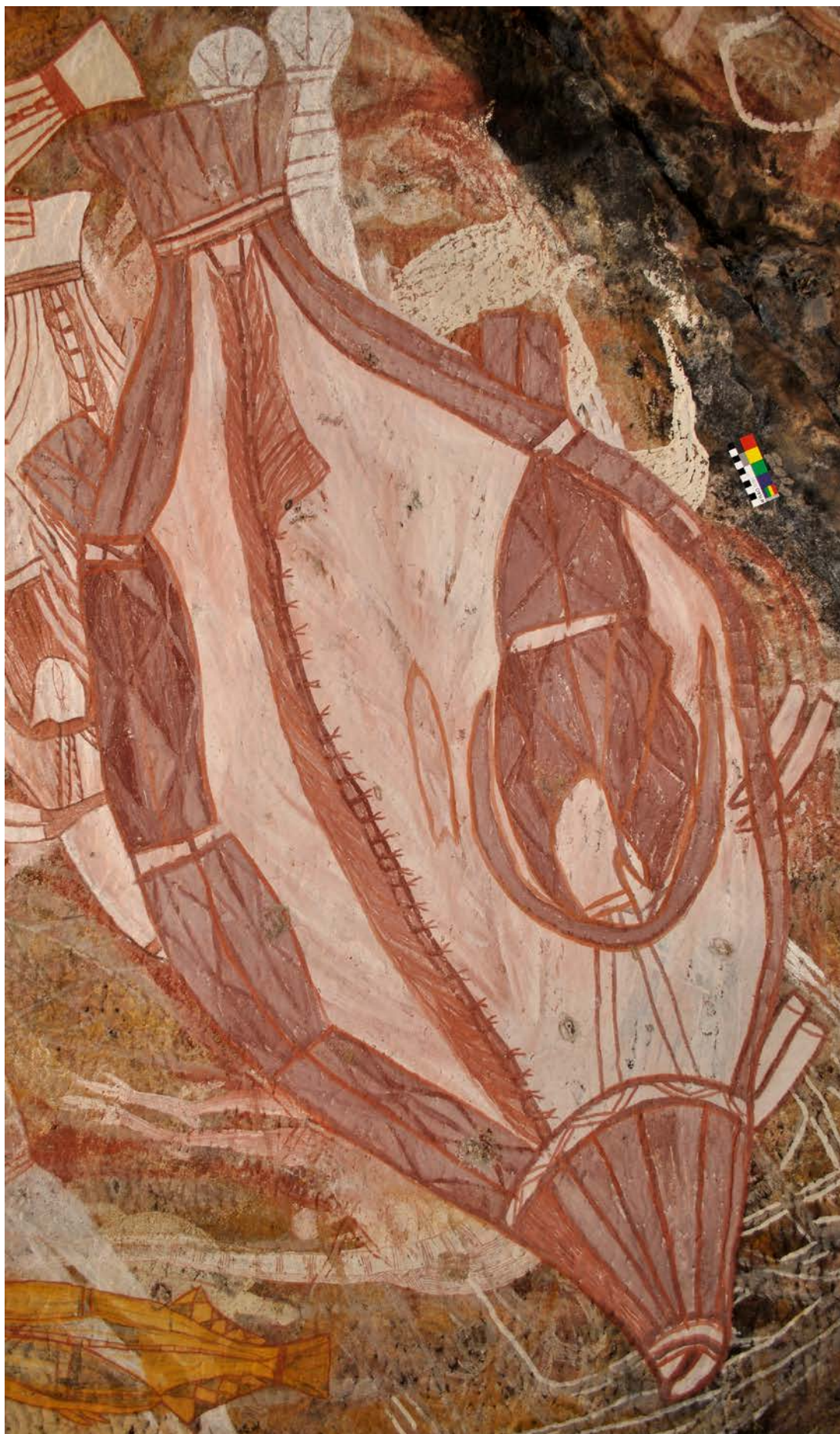


Figure 7.122: Motif D-62 polychrome X-ray barramundi (Northern X-ray form)

Table 7.13: Panel D motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
D-1	red	painting	solid+outline+infill	mammal	Macropod	very poor		
D-2	red	painting	fragment	fragment	fragment	very poor		
D-3	red	painting	fragment	fragment	fragment	very poor		
D-4	red	painting	fragment	fragment	fragment	very poor		
D-5	red	painting	trace	trace	trace	very poor		
D-6	red	painting	outline+infill	simple design	Design regular	very poor		
D-7	red	painting	trace	trace	trace	very poor		
D-8	red	painting	fragment	fragment	fragment	very poor		
D-9	red	painting	fragment	fragment	fragment	very poor		
D-10	yellow	painting	solid+linear	unknown	Unknown	very poor		
D-11	yellow	painting	linear	fragment	fragment	very poor		
D-12	yellow	painting	fragment	fragment	fragment	very poor		
D-13	yellow	painting	solid	anthropomorph	Anthropomorph female	very poor		
D-14	yellow	painting	fragment	fragment	fragment	very poor		
D-15	yellow	painting	fragment	fragment	fragment	very poor		
D-16	yellow	painting	fragment	fragment	fragment	very poor		
D-17	yellow	painting	fragment	fragment	fragment	very poor		
D-18	yellow	painting	fragment	fragment	fragment	very poor		
D-19	yellow	painting	fragment	fragment	fragment	very poor		
D-20	yellow	painting	fragment	fragment	fragment	very poor		
D-21	yellow	painting	solid+linear	anthropomorph	Anthropomorph female	poor		
D-22	yellow	painting	linear	simple design	Design irregular	very poor		
D-23	white	painting	fragment	fragment	fragment	poor		
D-24	white	painting	fragment	fragment	fragment	very poor		
D-25	white	painting	outline+infill	mammal	Macropod	poor		
D-26	white	drawing	outline+infill	simple design	Design irregular	fair		
D-27	white	spray	stencil	hand	Hand left	fair	mf 8.6	
D-28	white	spray	stencil	hand	Hand left	very poor		
D-29	white	painting	outline+infill	fragment	fragment	very poor		
D-30	white	painting	fragment	fragment	fragment	poor		
D-31	white	painting	fragment	fragment	fragment	very poor		

D-32	white	drawing	outline+infill	simple design	Design irregular	poor		
D-33	white	painting	solid	mammal	Animal	poor		
D-34	white	painting	outline+infill	mammal	Macropod	poor		
D-35	cream	painting	solid	mammal	Macropod	fair		
D-36	cream	painting	solid	bird	Bird	fair		
D-37	cream	painting	solid	mammal	Animal	fair		
D-38	cream+red	painting	solid+outline+infill	fish	Longtom	fair	79	19
D-39	cream+red	painting	solid+outline+infill	reptile	Turtle	fair		
D-40	cream+red	painting	solid+outline+infill	reptile	Turtle	poor	c.100	39
D-41	white+red	painting	solid+outline+infill	mammal	Macropod	fair	c.83	53
D-42	white	painting	solid+linear	anthropomorph	Anthropomorph female	good	91	32
D-43	white+red	painting	solid+infill	unknown	Unknown	fair		
D-44	white+red	painting	solid+outline+infill	mammal	Macropod male	fair		
D-45	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	fair		
D-46	white+red	painting	solid+outline+infill	bird	Emu	fair		
D-47	red	painting	outline	fragment	fragment	poor		
D-48	grey+white+red	painting	outline+infill	mammal	Horse	poor	347	236
D-49	pink	painting	fragment	fragment	fragment	poor		
D-50	pink	painting	trace	trace	trace	very poor		
D-51	pink	painting	fragment	fragment	fragment	poor		
D-52	pink	painting	fragment	fragment	fragment	poor		
D-53	white	painting	outline+infill	mammal	Macropod	poor		
D-54	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	fair		
D-55	white	painting	solid	fragment	fragment	poor		
D-56	white+red	painting	solid+infill	fragment	fragment	poor		
D-57	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	poor		
D-58	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	poor		
D-59	white+red+black	painting	X-ray	fish	Barramundi	good	116	
D-60	white+red+yellow	painting	X-ray	fish	Saratoga	good	85	32
D-61	white+red	painting	X-ray	fish	Fish	good		
D-62	white+red+purple	painting	X-ray	fish	Barramundi	excellent	210	99
D-63	white+red	painting	X-ray	fish	Fish	good	99	35
D-64	yellow+red+black	painting	X-ray	fish	Longtom	good	86	23
D-65	white+red+purple	painting	X-ray	fish	Saratoga	excellent	89	36
D-66	white+red+purple	painting	X-ray	fish	Barramundi	excellent	159	59

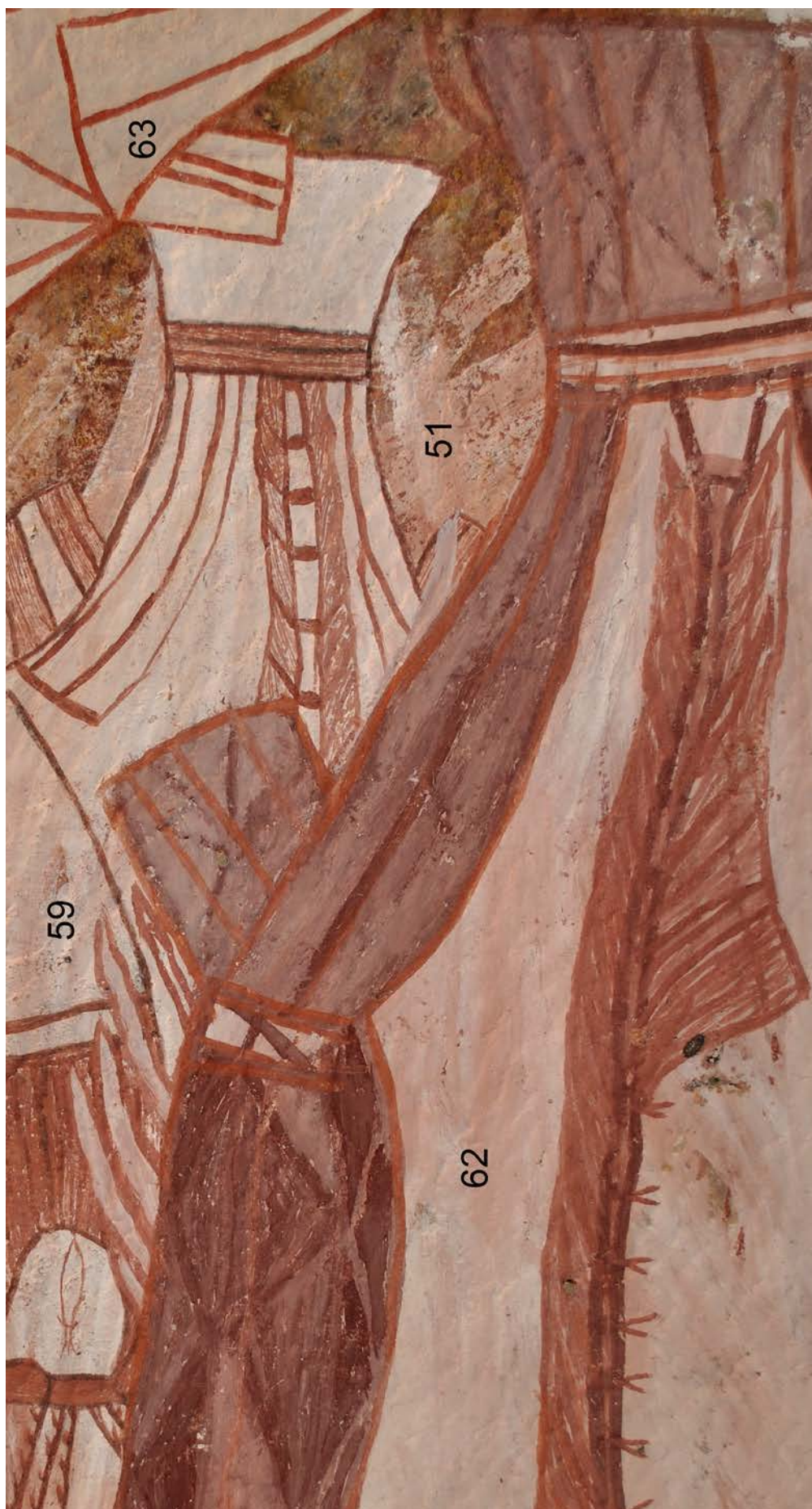


Figure 7.123: Detail of colour use, painting technique, and superimpositioning of Motif D-62

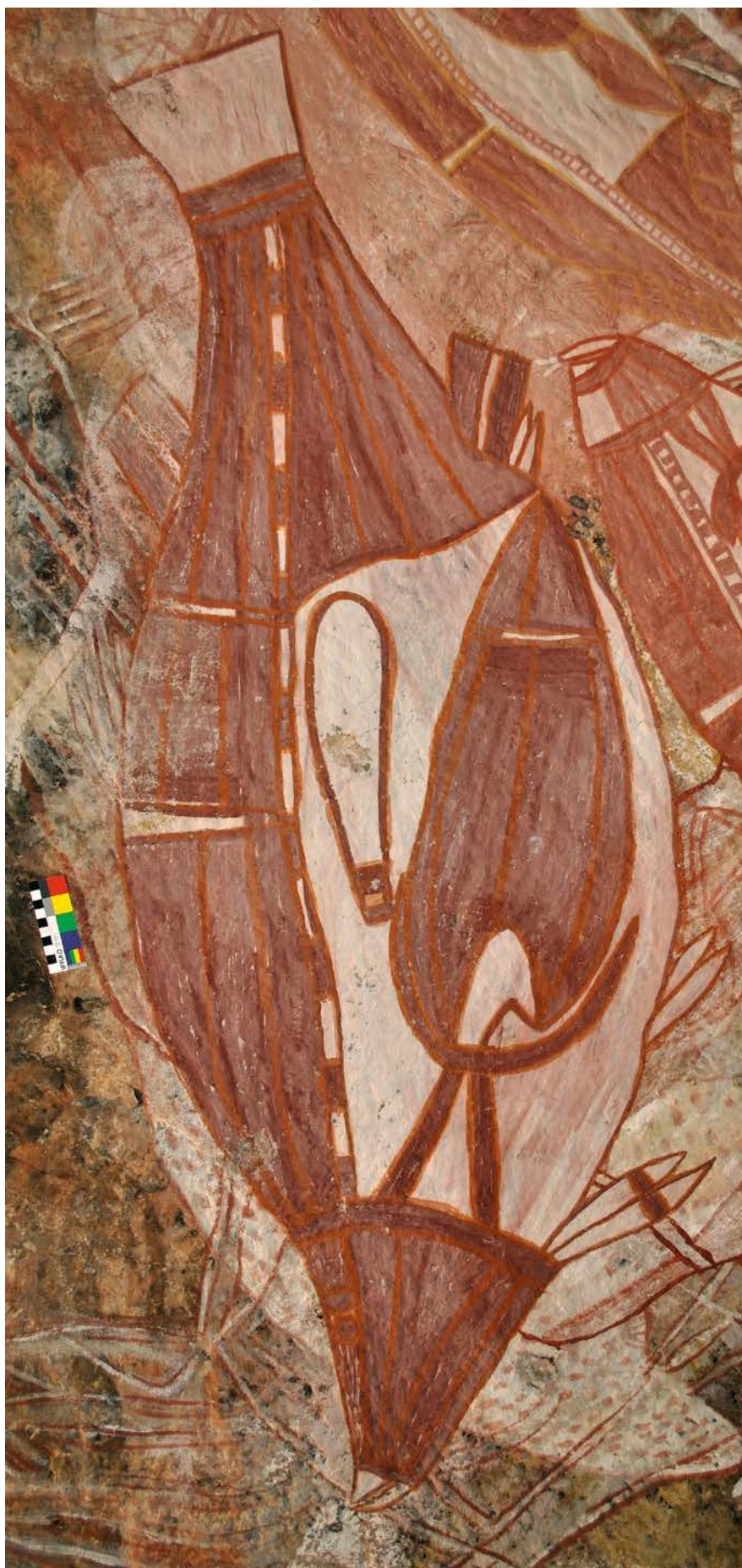


Figure 7.124: Motif D-66 polychrome X-ray barramundi (Northern X-ray form)

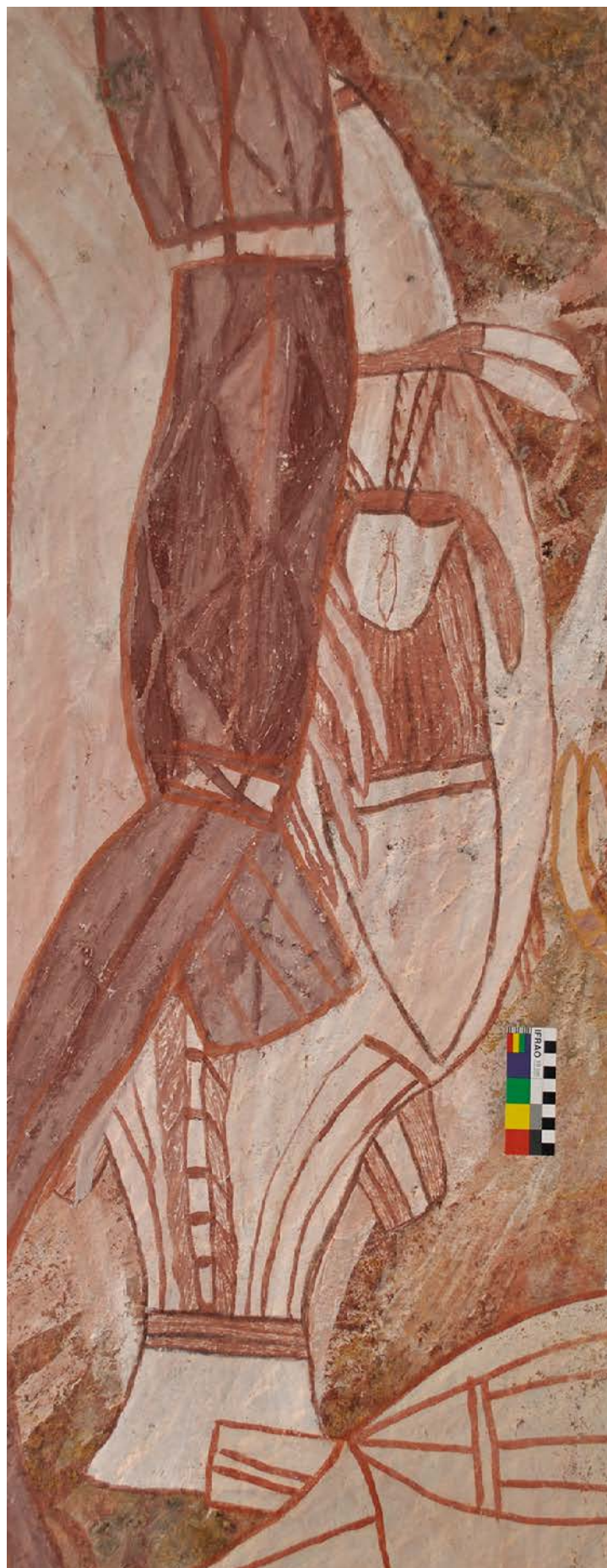


Figure 7.125: Motif D-59 polychrome X-ray barramundi (Northern X-ray form) overlain by Motif D-62



Figure 7.126: Bichrome X-ray bony-breast (Motif D-63; Jawoyn X-ray form)



Figure 7.127: Polychrome X-ray saratoga (Northern X-ray form)
A: Motif D-65 B: Motif D-60



Figure 7.128: Polychrome X-ray garfish (Motif D-64, Northern X-ray form)



Figure 7.129: Detail of the head of the horse motif (Motif D-48)

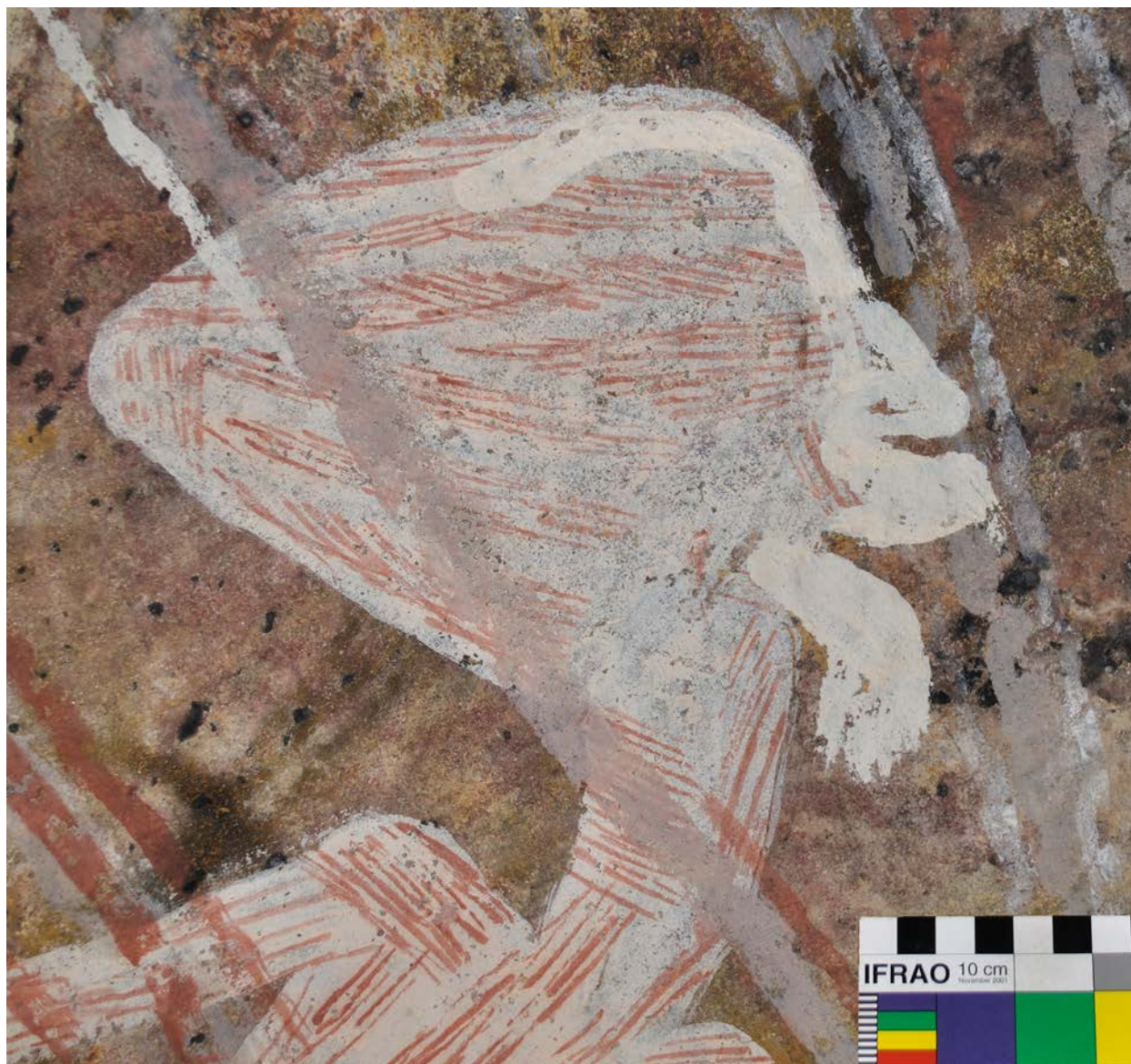


Figure 7.130: Modification of Motif D-45, adding a bearded face to the back of the head of an earlier faceless anthropomorph

Panel E1

Panel E1 (Figures 7.131 and 7.132) is another large and densely decorated panel. It is roughly triangular in shape and measures 5.4×2.4 m across its longest axes (Figures 7.133 and 7.134). The panel surface is flat but with small and shallow ripple marks providing a light texture.

The panel has 82 motifs (Table 7.14; Figures 7.134 to 7.140), 44 (54%) of which are interpreted to Motif Type. The artwork, like that on the adjacent Panel D, tends to be widely distributed across the panel.

The extensive superimpositioning of several large overlying motifs has virtually obliterated many of the more centrally positioned underlying motifs (Figure 7.133). While most of the larger motifs also occur towards the centre, a large snake motif (Motif E-11), in excess of three metres long, follows the western edge of the panel. Despite Panel E1 abutting the eastern edge of the shelter, there is no consistency in the motif alignment.

Two monochrome red motifs (Motifs E-11 and E-15) have simple X-ray features. Motif E-11, the long red snake mentioned above, has a stylised backbone,

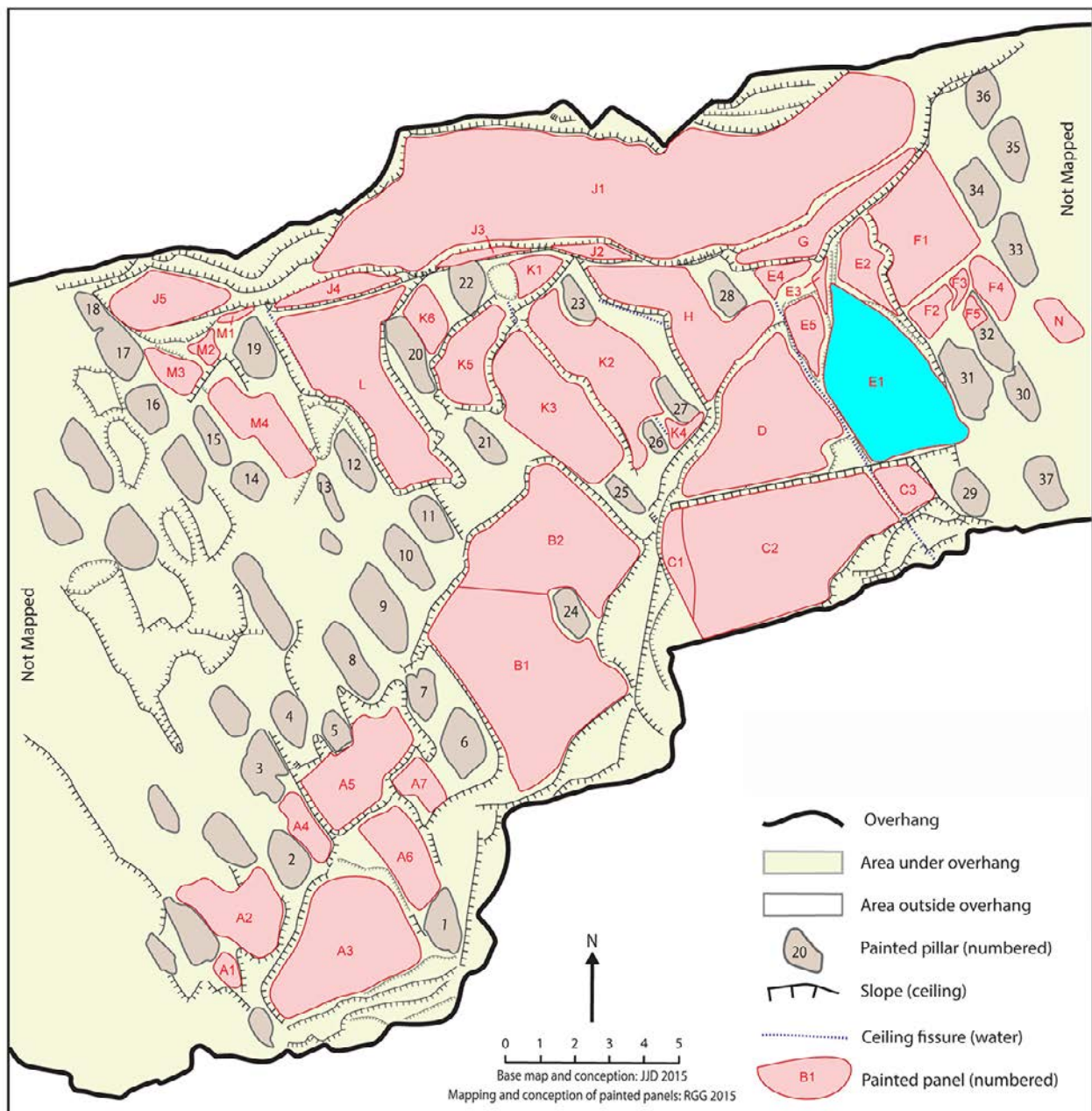


Figure 7.131: Location of Panel E1

ribs and eggs depicted within its body cavity (Figure 7.135). Motif E-15 is a fish of unknown taxon with stylised backbone and ribs (Figures 7.135 and 7.141). The representation of such X-ray features in monochrome motifs is uncommon in western Arnhem Land rock art.

The white monochrome motifs and white silhouette bichrome motifs do not occur in discrete layers but are intermixed through the upper layers. The bichrome paintings include two Jawoyn Lady motifs (Motif E-57 and E-58) and a large fish with patterned infill (Motif E-56) (Figures 7.138 and 7.142).

Several large and dramatic motifs occur on Panel E1:

- A large painting of an undetermined fish species in white with a finely painted red outline and infill (Motif E-56; Figure 7.138). This motif is largely superimposed by the overlying Motif E-75;
- A short-necked turtle (Motif E-75; Figure 7.143) in white with bold orange-red outline and striped X-ray infill;
- A starkly graphic painting of a white macropod with purple outline and an unusual form of X-ray infill (Motif E-76; Figure 7.144); and

- Two large polychrome X-ray barramundi (Motifs E-77 and E-78; Figures 7.145 and 7.146), both of which have been retouched several times.

A painting of a barramundi (Motif E-79; Figure 7.147) appears to have been left incomplete. This fish was painted on a prepared surface smear and then partially covered by a second smeared area (Motif E-80). In a similar manner, Motifs E-76 (macropod) and E-77 (barramundi) were also painted over a prepared surface. Whether or not the smears were painted as preparation for the overlying motifs is unclear.

The quality of brushwork varies noticeably, from fine to broader line-work and smeared areas (Figures 7.148 and 7.149). Motif E-78 has been partially retouched, where a mesh-design in orange was placed unconformably over the pattern beneath, and then the pattern compartments have been unevenly painted in purple (Figure 7.148).

Of the polychrome fish with complex X-ray form within the shelter, the barramundi (Motif E-77), at 239 × 86 cm in size, is the largest (Figure 7.145). The other large barramundi, Motif E-78 at 171 × 73 cm (Figure 7.146), is the fourth largest on the panel. Other similarly large paintings of barramundi with complex X-ray infill occur on nearby Panels D and H.

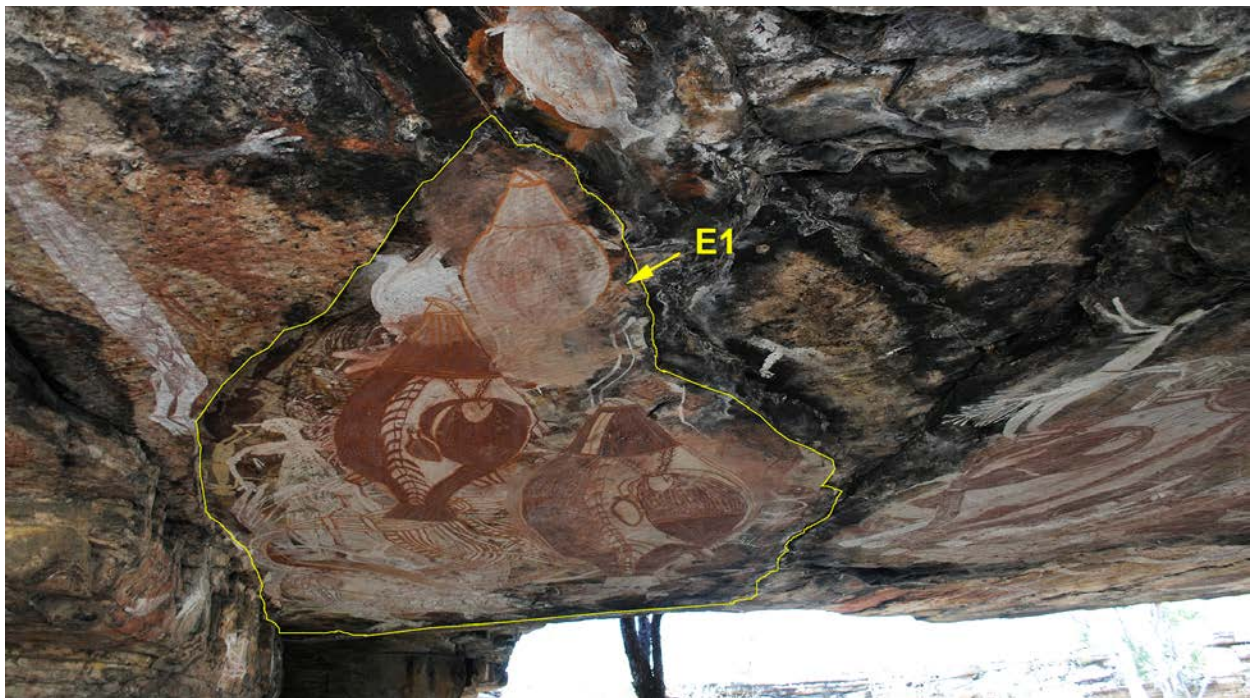


Figure 7.132: Location of Panel E1 within the centre ceiling

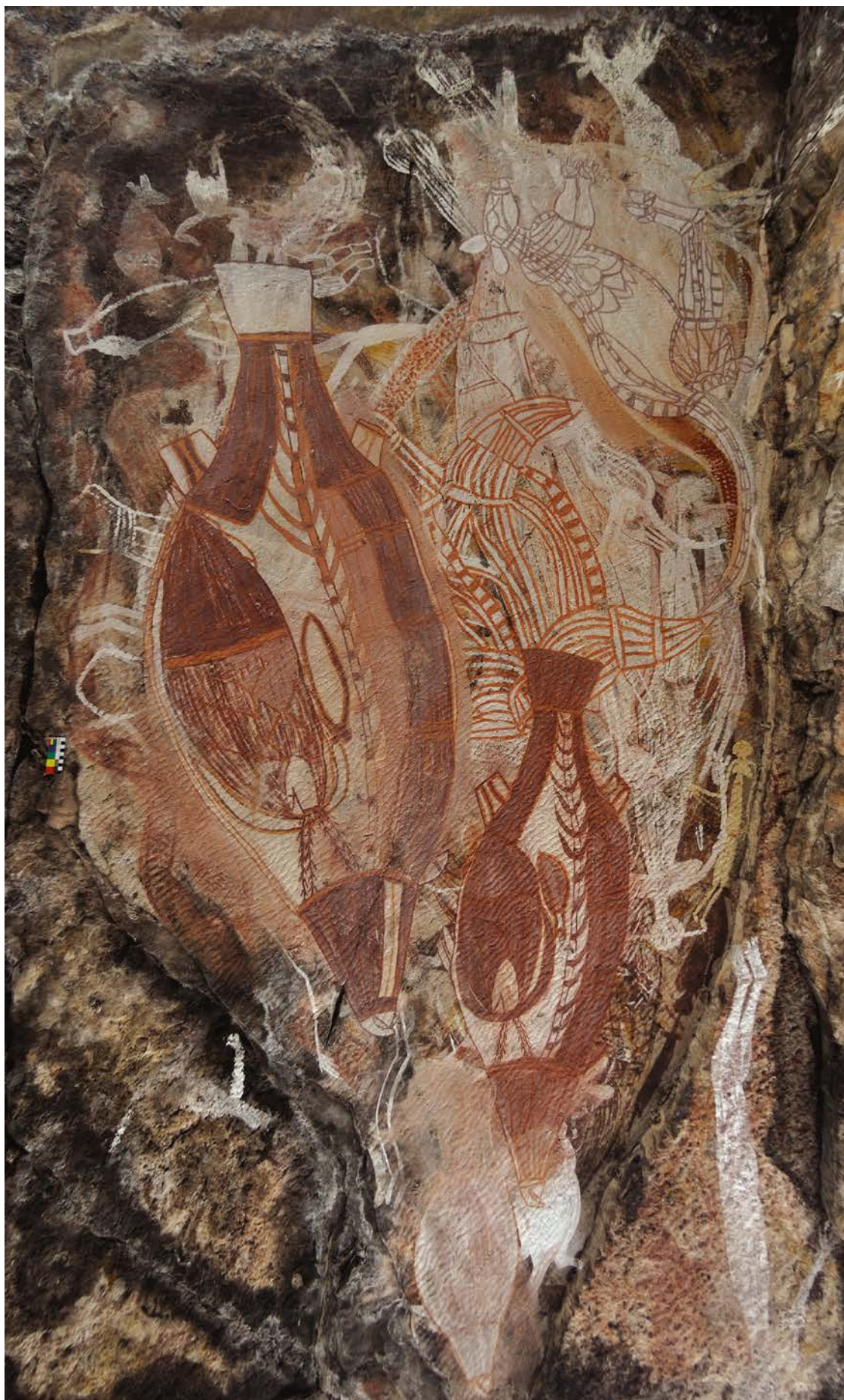


Figure 7.133: Panel E1 photograph

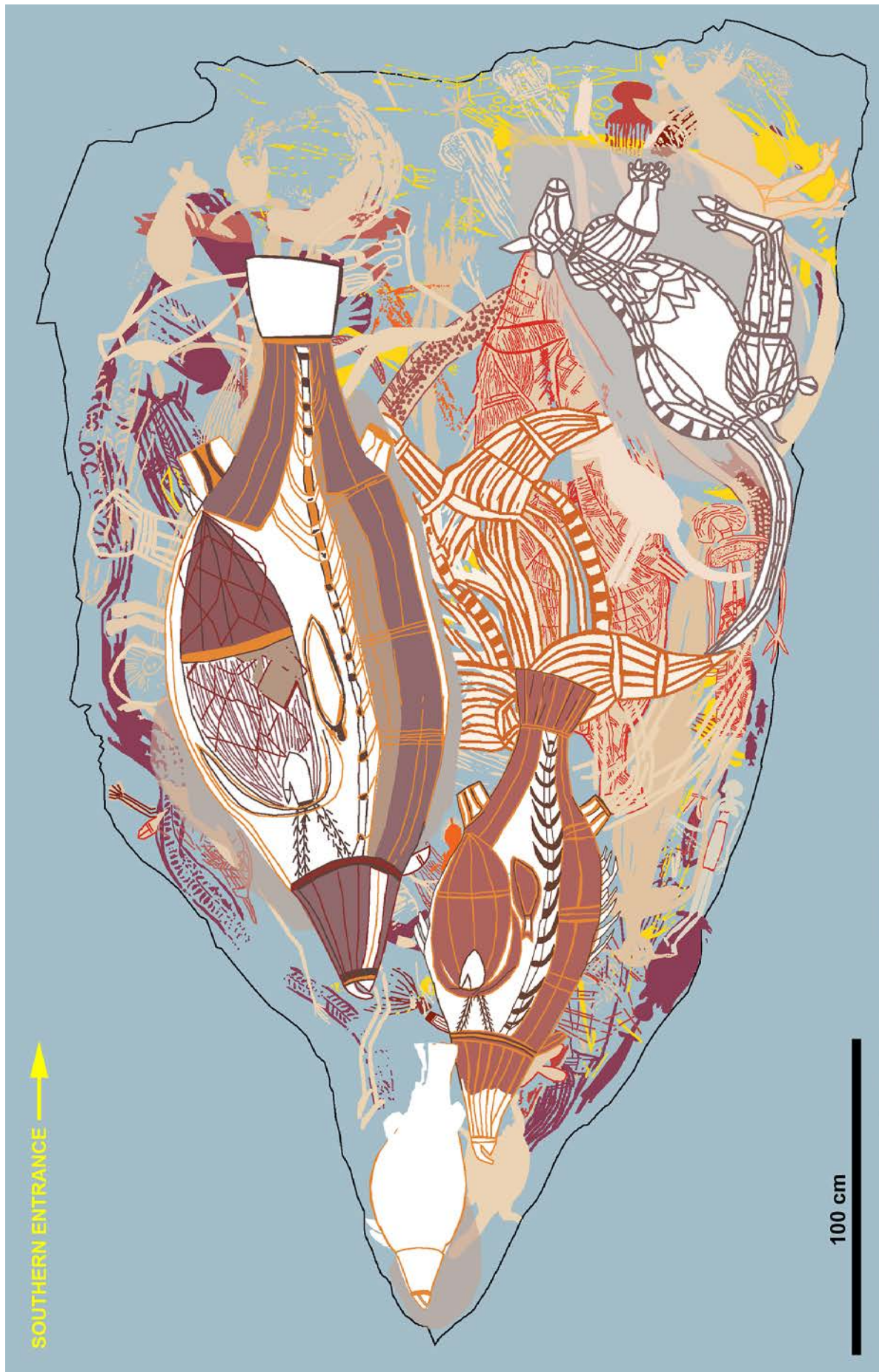


Figure 7.134: Panel E1 photo-tracing



Figure 7.135: Panel E1 motif interpretations (i)

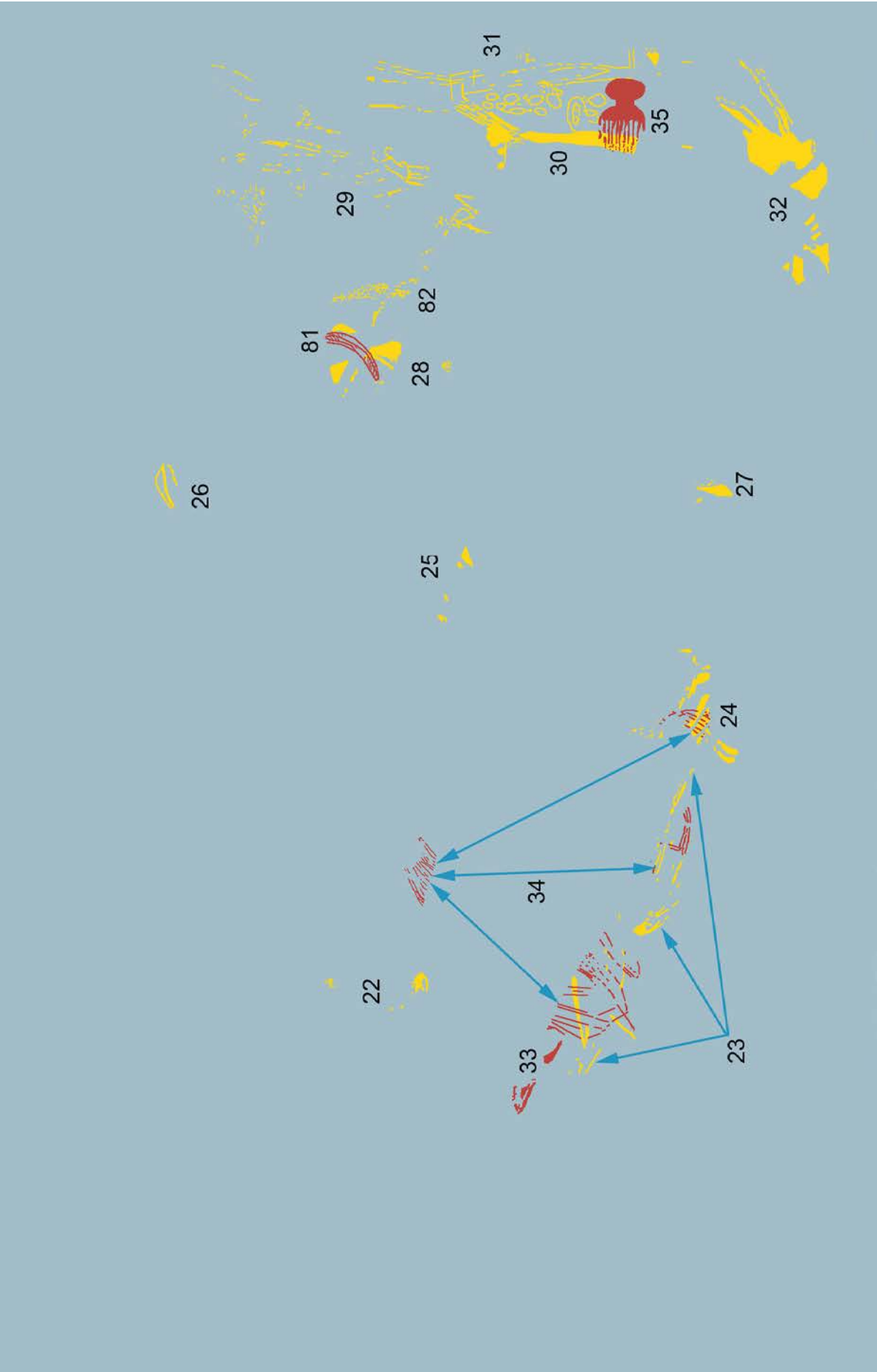


Figure 7.136: Panel E1 motif interpretations (ii)

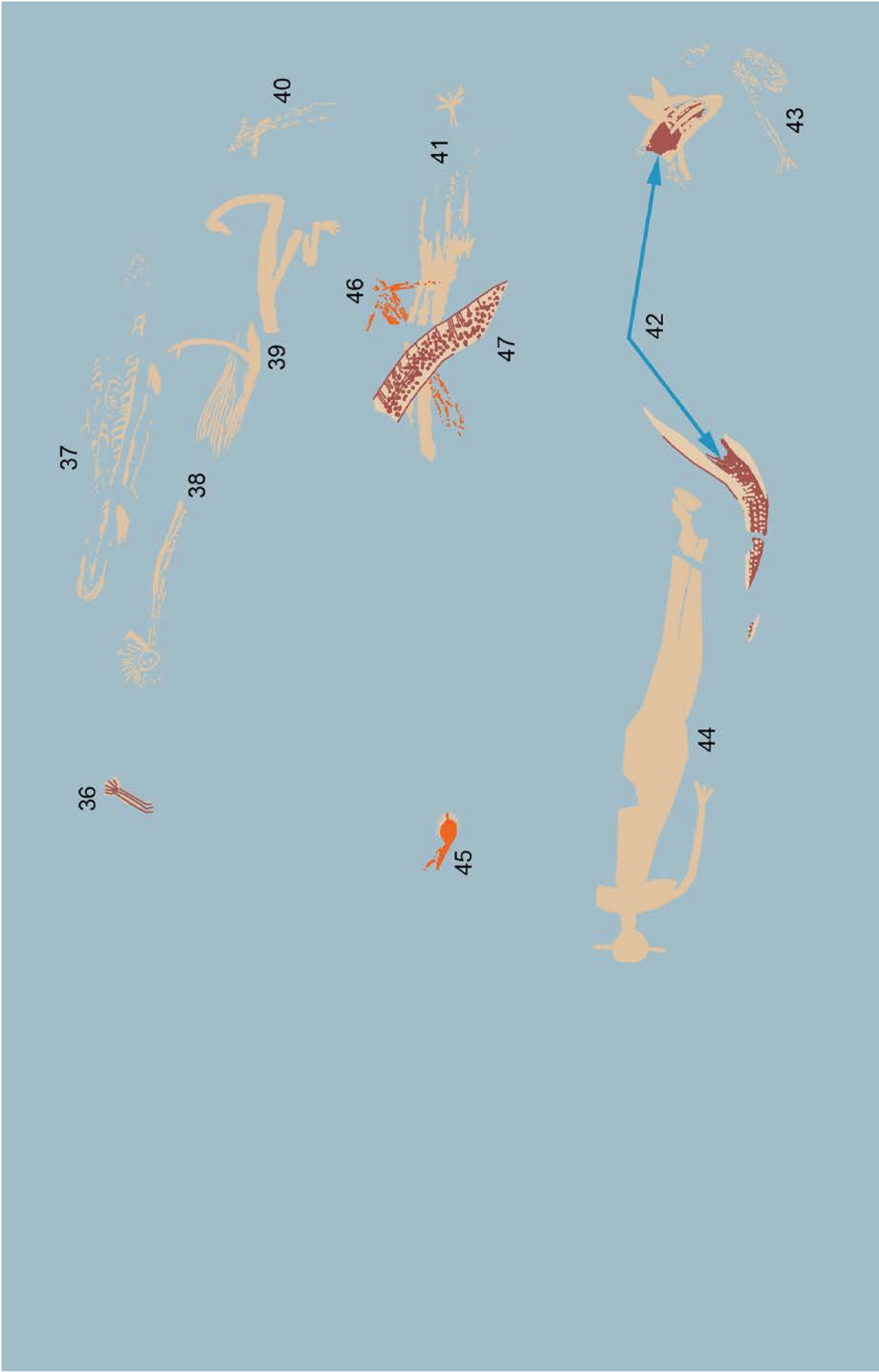


Figure 7.137: Panel E1 motif interpretations (iii)

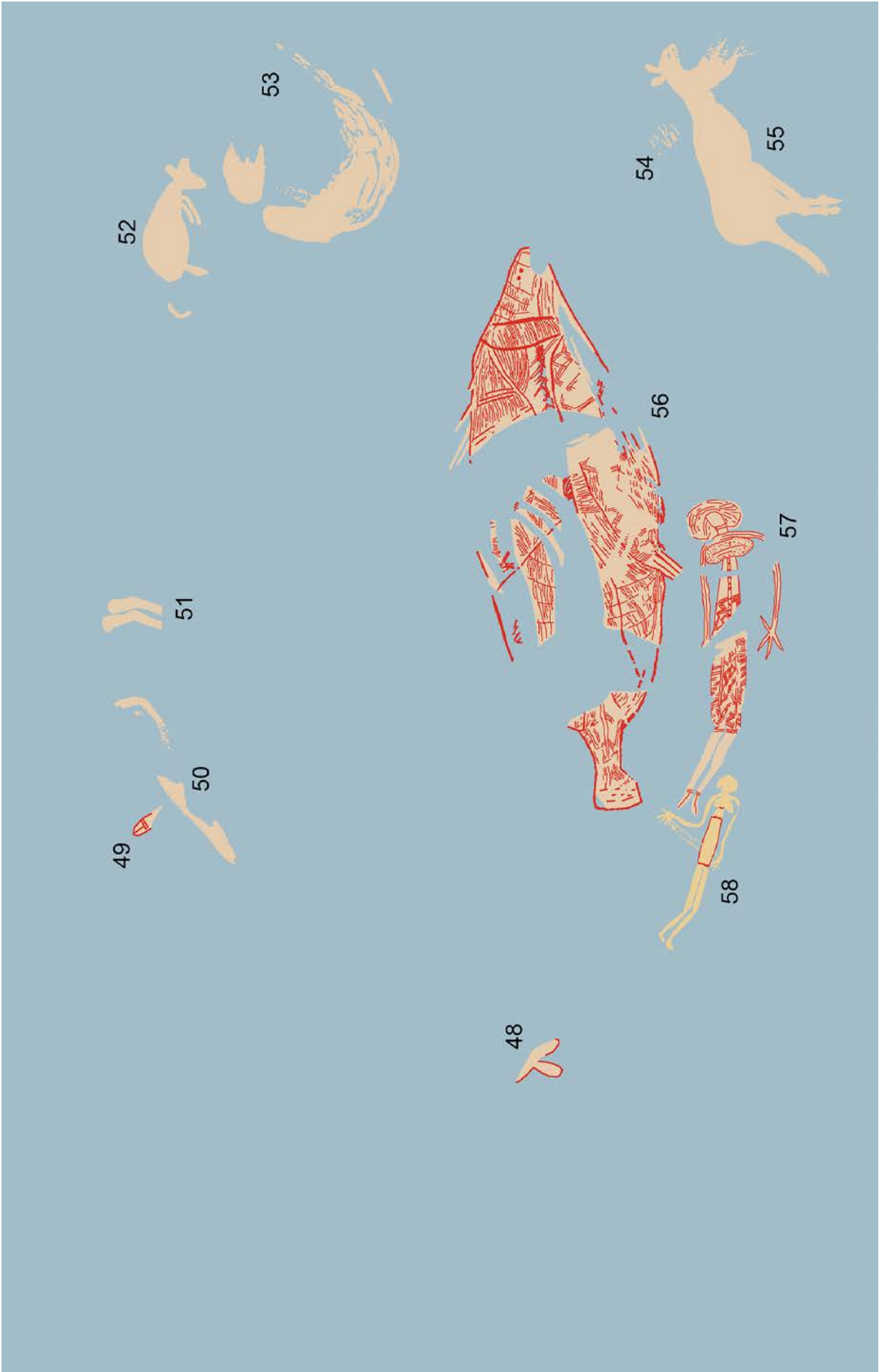


Figure 7.138: Panel E1 motif interpretations (iv)

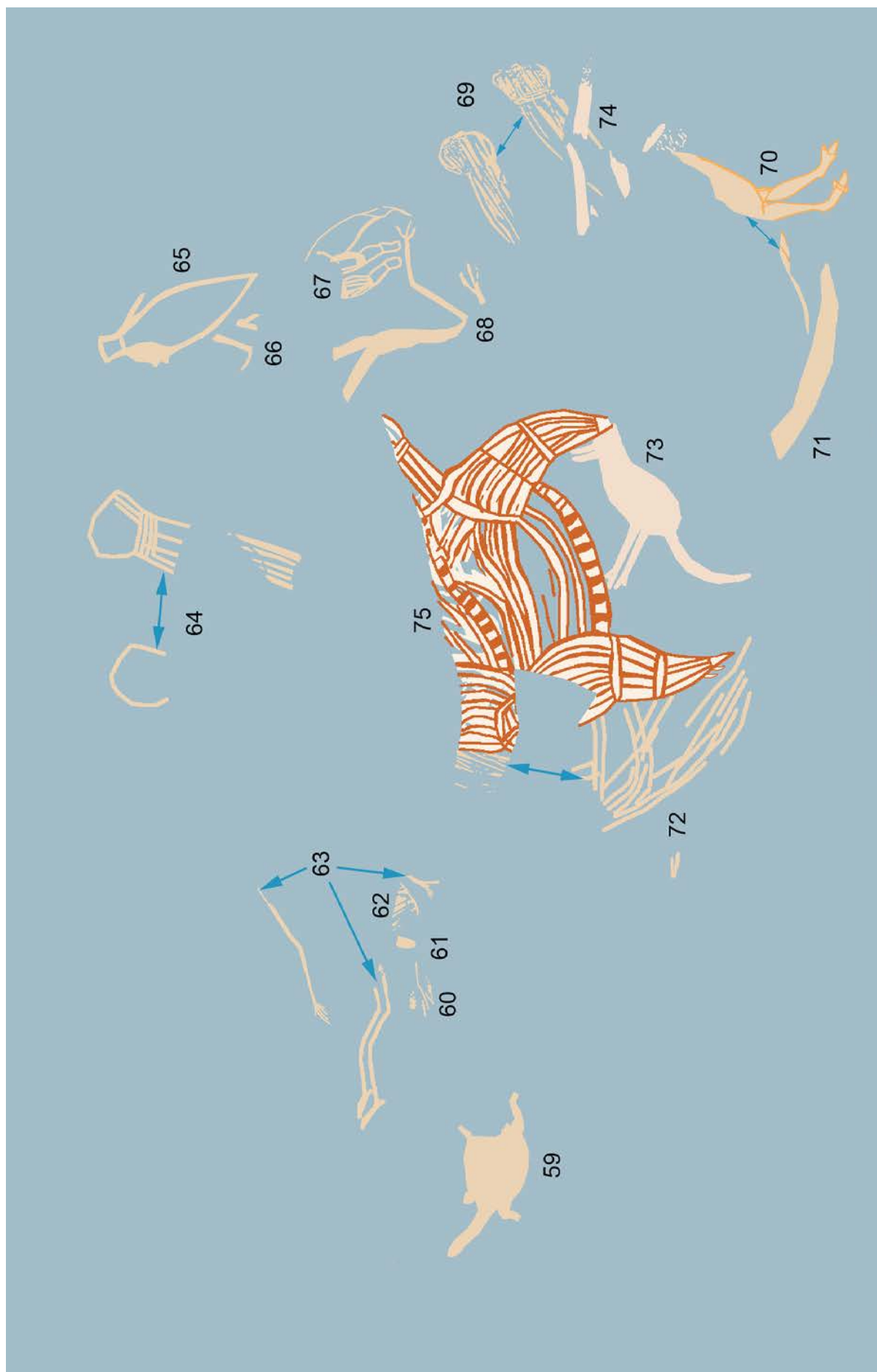


Figure 7.139: Panel E1 motif interpretations (v)

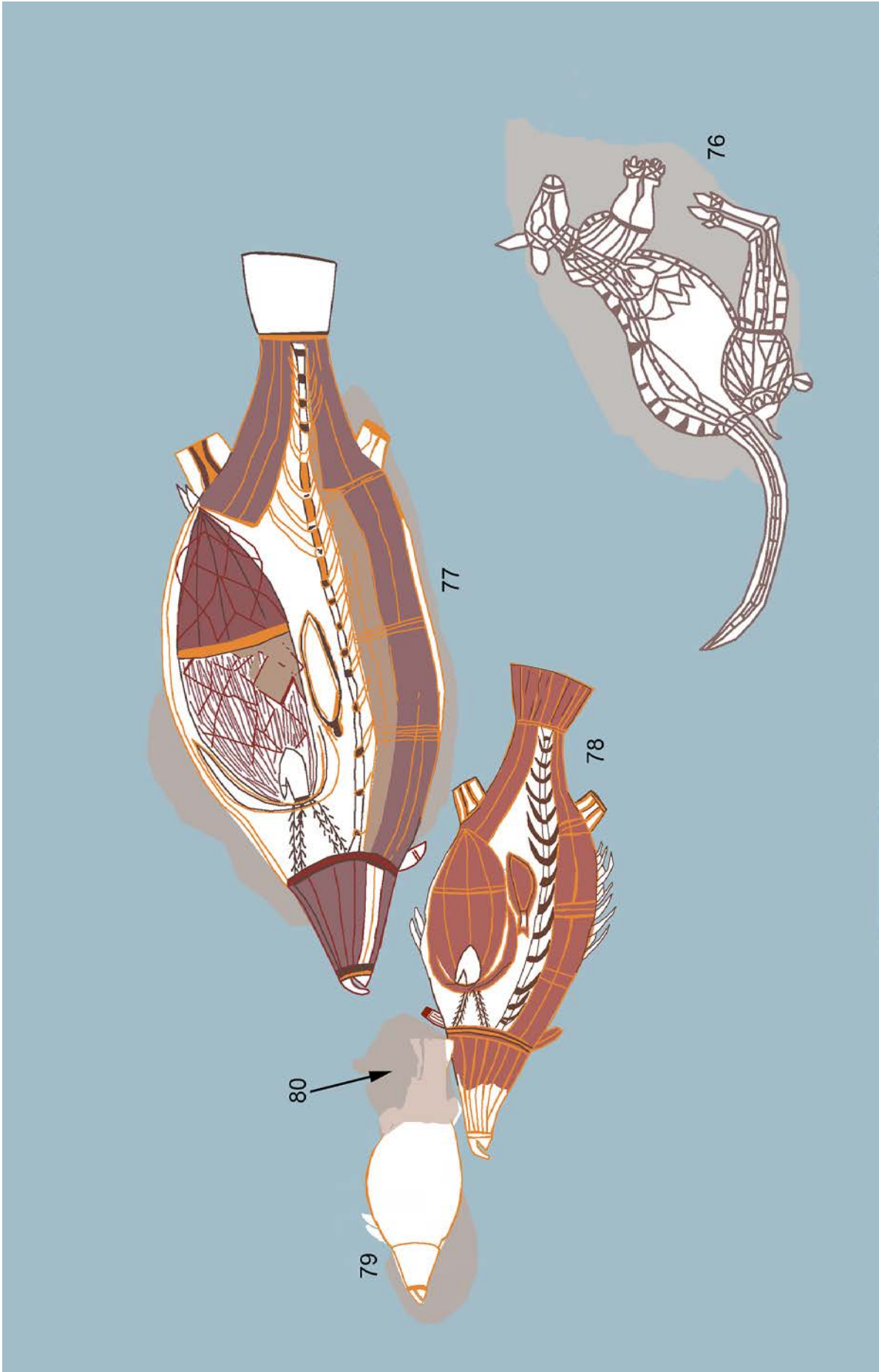


Figure 7.140: Panel E1 motif interpretations (vi)

Table 7.14: Panel E1 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
E-1	red	painting	solid	fish	Longtom	good	38	5
E-2	red	painting	solid	fish	Saratoga	good	48	12
E-3	red	painting	outline+infill	fragment	fragment	very poor		
E-4	red	painting	fragment	fragment	fragment	very poor		
E-5	red	painting	fragment	fragment	fragment	very poor		
E-6	red	painting	solid	fish	Fish	good		
E-7	red	painting	solid	fish	Fish	good	13	4
E-8	red	painting	fragment	fragment	fragment	very poor	9	5
E-9	red	painting	fragment	fragment	fragment	very poor		
E-10	red	painting	solid	fragment	fragment	very poor		
E-11	red	painting	outline+infill	reptile	Snake	poor		
E-12	red	painting	outline+infill	fragment	fragment	poor		
E-13	red	painting	solid	fragment	fragment	poor		
E-14	red	painting	outline+infill	fragment	fragment	fair		
E-15	red	painting	X-ray	fish	Fish	fair		
E-16	red	painting	solid	fish	Fish	poor		
E-17	red	painting	fragment	fragment	fragment	poor		
E-18	red	painting	solid	fragment	fragment	very poor		
E-19	red	painting	solid	anthropomorph	Anthropomorph	fair		
E-20	red	painting	solid	unknown	Unknown	very poor		
E-21	red	spray	stencil	hand	Hand right	poor		
E-22	yellow	painting	trace	trace	trace	very poor		
E-23	yellow	painting	linear	fragment	fragment	very poor		
E-24	yellow	painting	fragment	fragment	fragment	very poor		
E-25	yellow	painting	trace	trace	trace	very poor		
E-26	yellow	painting	outline+infill	fragment	fragment	very poor		
E-27	yellow	painting	trace	trace	trace	very poor		
E-28	yellow	painting	trace	trace	trace	very poor		

E-29	yellow	painting	fragment	fragment	fragment	fragment	very poor		
E-30	yellow	painting	solid	fragment	fragment	fragment	poor		
E-31	yellow	painting	outline+infill	simple design	Design irregular	Design irregular	poor		
E-32	yellow	painting	solid	fragment	fragment	fragment	poor		
E-33	red	painting	solid	fragment	fragment	fragment	very poor		
E-34	red	painting	outline+infill	fragment	fragment	fragment	very poor		
E-35	red	painting	solid+outline+infill	fragment	fragment	fragment	poor		
E-36	white+red	painting	outline+infill	anthropomorph	Anthropomorph	Anthropomorph	very poor		
E-37	white	painting	outline+infill	fish	Fish	Fish	very poor		
E-38	white	painting	outline+infill	anthropomorph	Anthropomorph	Anthropomorph	poor		
E-39	white	painting	solid	anthropomorph	Anthropomorph	Anthropomorph	poor		
E-40	white	painting	fragment	fragment	fragment	fragment	very poor		
E-41	white	painting	fragment	fragment	fragment	fragment	very poor		
E-42	white+red	painting	outline+infill	mammal	Macropod	Macropod	poor		
E-43	white	painting	solid+linear	bird	Emu	Emu	poor	54	50
E-44	white	painting	solid+linear	anthropomorph	Anthropomorph female	Anthropomorph female	fair	159	55
E-45	orange+white	painting	solid+linear	anthropomorph	Anthropomorph	Anthropomorph	poor		
E-46	orange	painting	solid+linear	anthropomorph	Anthropomorph	Anthropomorph	very poor		
E-47	white+red	painting	outline+infill	reptile	Snake	Snake	fair		
E-48	white+red	painting	solid+outline	mammal	Animal	Animal	very poor		
E-49	white+red	painting	fragment	fragment	fragment	fragment	very poor		
E-50	white	painting	fragment	fragment	fragment	fragment	very poor		
E-51	white	painting	fragment	fragment	fragment	fragment	poor		
E-52	white	painting	solid+linear	mammal	Possum	Possum	fair		
E-53	white	painting	solid+linear	unknown	Unknown	Unknown	fair		
E-54	white	painting	fragment	fragment	fragment	fragment	poor		
E-55	white	painting	solid	mammal	Macropod	Macropod	good	110	53
E-56	white+red	painting	solid+outline+infill	fish	Fish	Fish	fair	186	57
E-57	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	Jawoyn Lady	fair	105	31
E-58	cream+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	Jawoyn Lady	good	65	27
E-59	white	painting	solid	reptile	Turtle long-necked	Turtle long-necked	fair	56	25

E-60	white	painting	fragment	fragment	fragment	fragment	very poor		
E-61	white	painting	fragment	fragment	fragment	fragment	very poor		
E-62	white	painting	fragment	fragment	fragment	fragment	very poor		
E-63	white	painting	linear	anthropomorph	anthropomorph	Anthropomorph	fair		
E-64	white	painting	outline+infill	unknown	unknown	Unknown	poor		
E-65	white	painting	outline+infill	fish	fish	Catfish eel-tailed	good	50	19
E-66	white	painting	fragment	fragment	fragment	fragment	very poor		
E-67	white	painting	outline+infill	reptile	reptile	Goanna	poor		
E-68	white	painting	solid+linear	anthropomorph	anthropomorph	Anthropomorph	poor		
E-69	white	painting	outline+infill	unknown	unknown	Unknown	poor		
E-70	white+orange	painting	solid+outline+infill	mammal	mammal	Macropod	poor		
E-71	white	painting	solid	fragment	fragment	fragment	poor		
E-72	white	painting	outline+infill	fragment	fragment	fragment	poor		
E-73	white	painting	solid+linear	mammal	mammal	Macropod	good	71	38
E-74	white	painting	fragment	fragment	fragment	fragment	very poor		
E-75	white+orange	painting	X-ray	reptile	reptile	Turtle short-necked	good	135	110
E-76	white+purple	painting	X-ray	mammal	mammal	Macropod male	excellent	150	112
E-77	white+red+ orange+purple	painting	X-ray	fish	fish	Barramundi	excellent	239	86
E-78	white+red+ orange+purple	painting	X-ray	fish	fish	Barramundi	excellent	171	73
E-79	white+orange	painting	solid+outline+infill	fish	fish	Barramundi	good	96	32
E-80	cream	painting	solid	area	area	Smear	excellent		
E-81	red	painting	outline+infill	simple design	simple design	Design regular	fair		
E-82	yellow	painting	fragment	fragment	fragment	fragment	very poor		

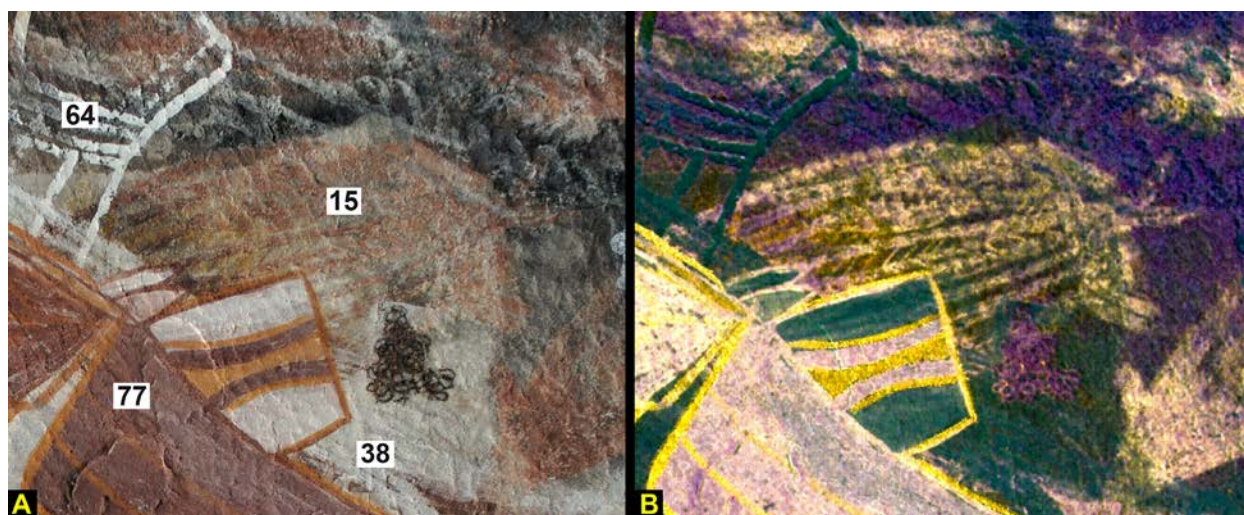


Figure 7.141: Detail of the monochrome X-ray fish (Motif E-15)
A: flash photograph B: DStretch_labi10

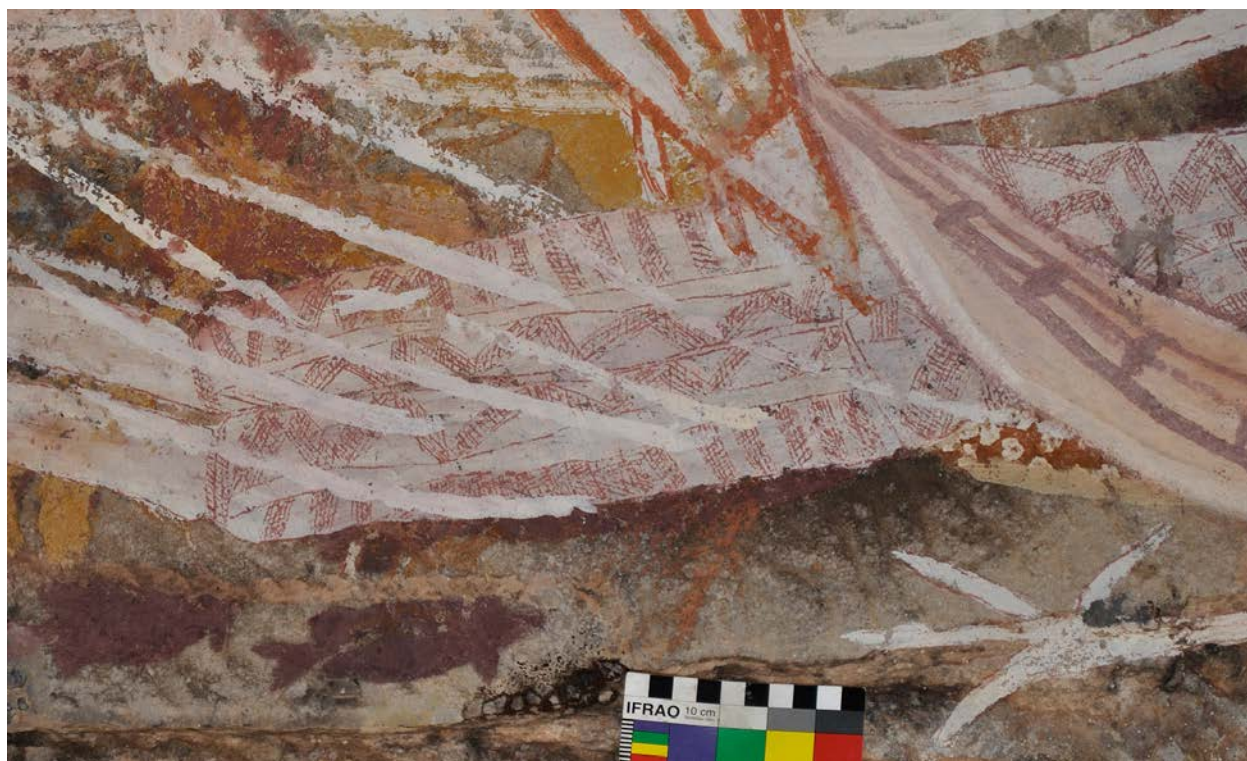


Figure 7.142: Detail of the body decoration of the Jawoyn Lady Motif E-57



Figure 7.143: Turtle motif in bold white and orange (Motif E-75)



Figure 7.144: X-ray macropod in an unusual style (Motif E-76)



Figure 7.145: Large barramundi in the Northern X-ray form (Motif E-77: 239 × 86 cm)



Figure 7.146: Polychrome barramundi in the Northern X-ray form (Motif E-78: 171 × 73 cm)



Figure 7.147: Motif E-79 painted on a smeared background (B) and subsequently partially over-painted by a second smear (A; Motif E-80)

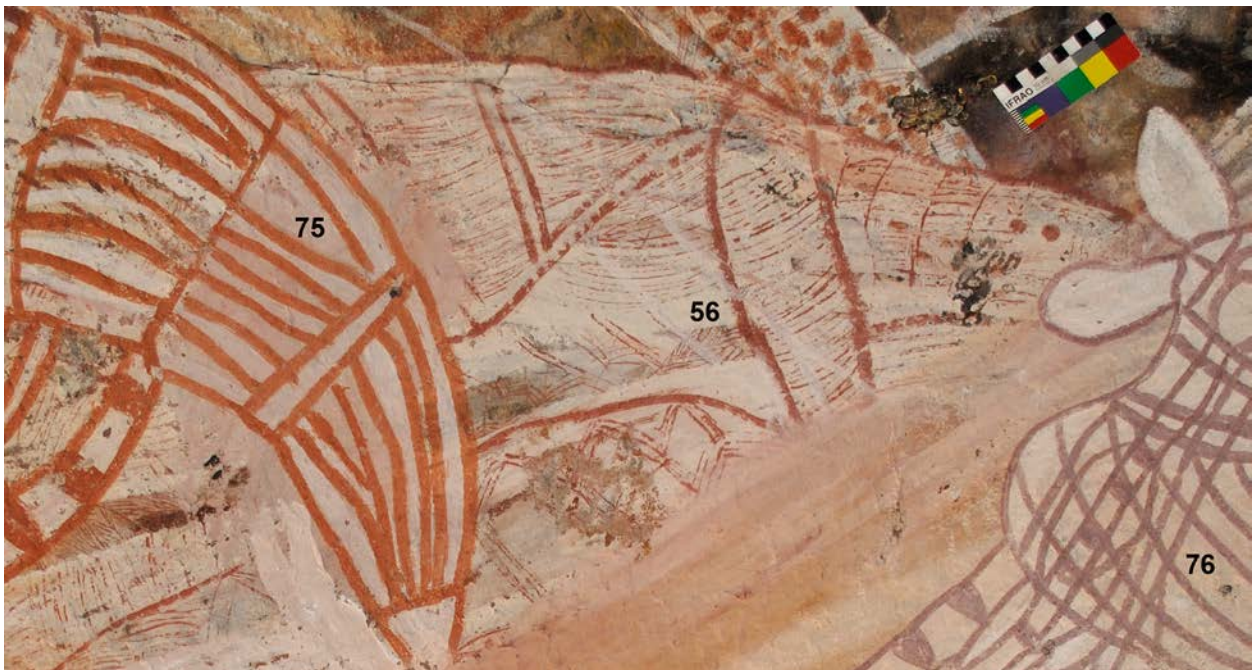


Figure 7.148: Contrasting the differences in technique between the underlying fine brushwork of Motif E-56 and broad brushwork of Motifs E-75 and E-76.



Figure 7.149: Detail of the painting quality of Motif E-78

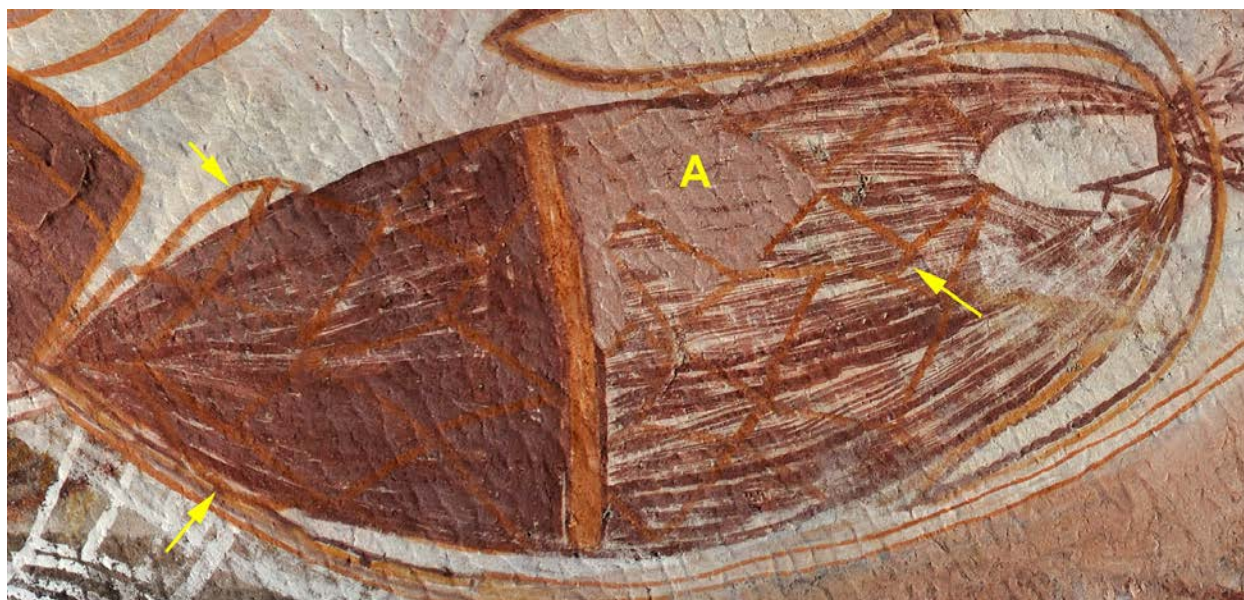


Figure 7.150: Detail of the retouching over the stomach pattern of Motif E-78
A = purple over-paint; arrows highlight underlying orange mesh pattern

Panel E2

Panel E2 (Figures 7.151 and 7.152) measures 2.9×1.3 m across its maximum dimensions, but it is irregular in shape and tapers towards the interior of the shelter (Figures 7.153 and 7.154). The panel is only lightly textured but with a fracture in the rock that subdivides the panel. The southern outer end of the panel is badly affected by water flow and deposited salts. At the northern end, a small area has been exposed by the detachment of a piece of bedrock from the adjacent Panel F1 (Figures 7.153). As paintings occur on this exposed area of Panel E2, the rock detachment from Panel F1 must have occurred prior to the decoration of the exposed area.

The panel (Panel E2) contains 28 motifs (Table 7.15; Figures 7.154 to 7.158), 19 of which are interpreted to Motif Type. The artwork is concentrated towards the eastern side of the panel where the rock surface is less water-damaged. The motifs are orientated at various angles across the panel, suggesting no preferential viewing place for the panel as a whole.

The largest motif on the panel is a centrally placed Jawoyn Lady (Motif E-110) whose form tends to follow the tapering shape of the panel (Figures 7.153 and 7.158). The figure is in striking contrast to the smaller size of the other motifs on this panel, and is the only bichrome motif on the panel. The size of the motif is on a similar scale to an adjacent female figure on panel F1 (see below).

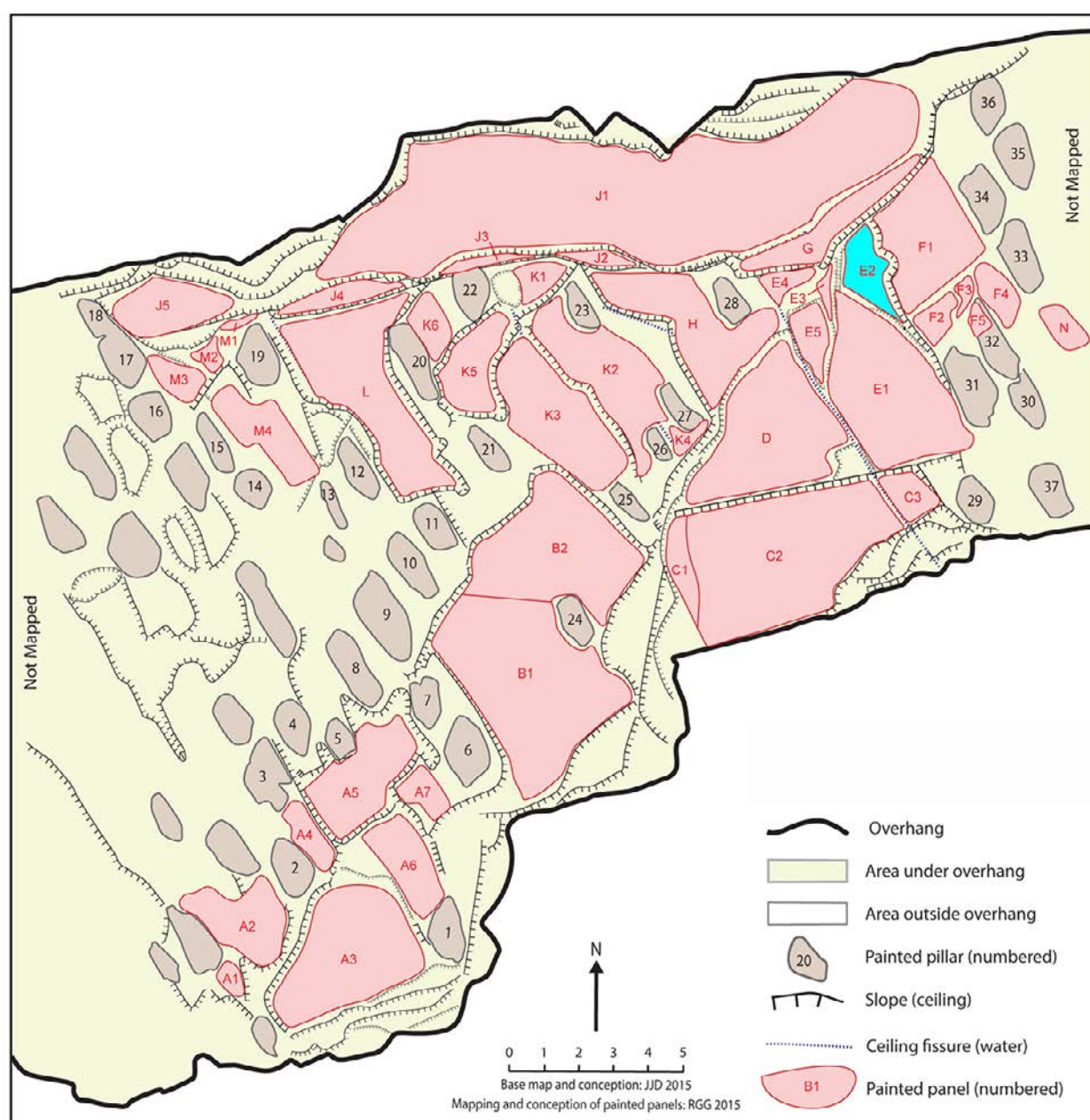


Figure 7.151: Location of Panel E2

A beeswax pellet (Motif E-83) marks the centre of a red painted, star-shaped, radial design (Motif E-93) (Figures 7.155 and 7.156). Beeswax pellets are positioned at the centre of similar red designs on Panels F1 and J1 (see below). In all cases, the pellets underlie the red paintings (e.g. Figure 7.159).

Motifs E-99, E-100 and E-101 appear to form a composition involving three anthropomorphs. This group extends onto the panel section exposed by the partial detachment of the rock surface bearing Panel F1 mentioned above (Figure 7.154) and hence, must post-date the damage to Panel F1. Motif E-95 (a red

anthropomorph; Figure 7.156) has a hook-shaped head similar to a form Chaloupka termed 'hooked-faced' figures (Chaloupka 1993: 148). Illustrations in Mountford (1956) and Lewis (1988) show that hooked-faced figures are common in the art of the northern part of the Arnhem Land plateau. Motif E-102, a red female anthropomorph, that overlies Motif E95 is a good example of a profile female figure carrying a digging stick and wearing a dillybag from the head (Figure 7.157 and 7.160); another common motif in some of the earlier phases of Jawoyn rock art. Motif E-89 is the feet of a macropod on the adjacent Panel E3 (see Panel E3 below).

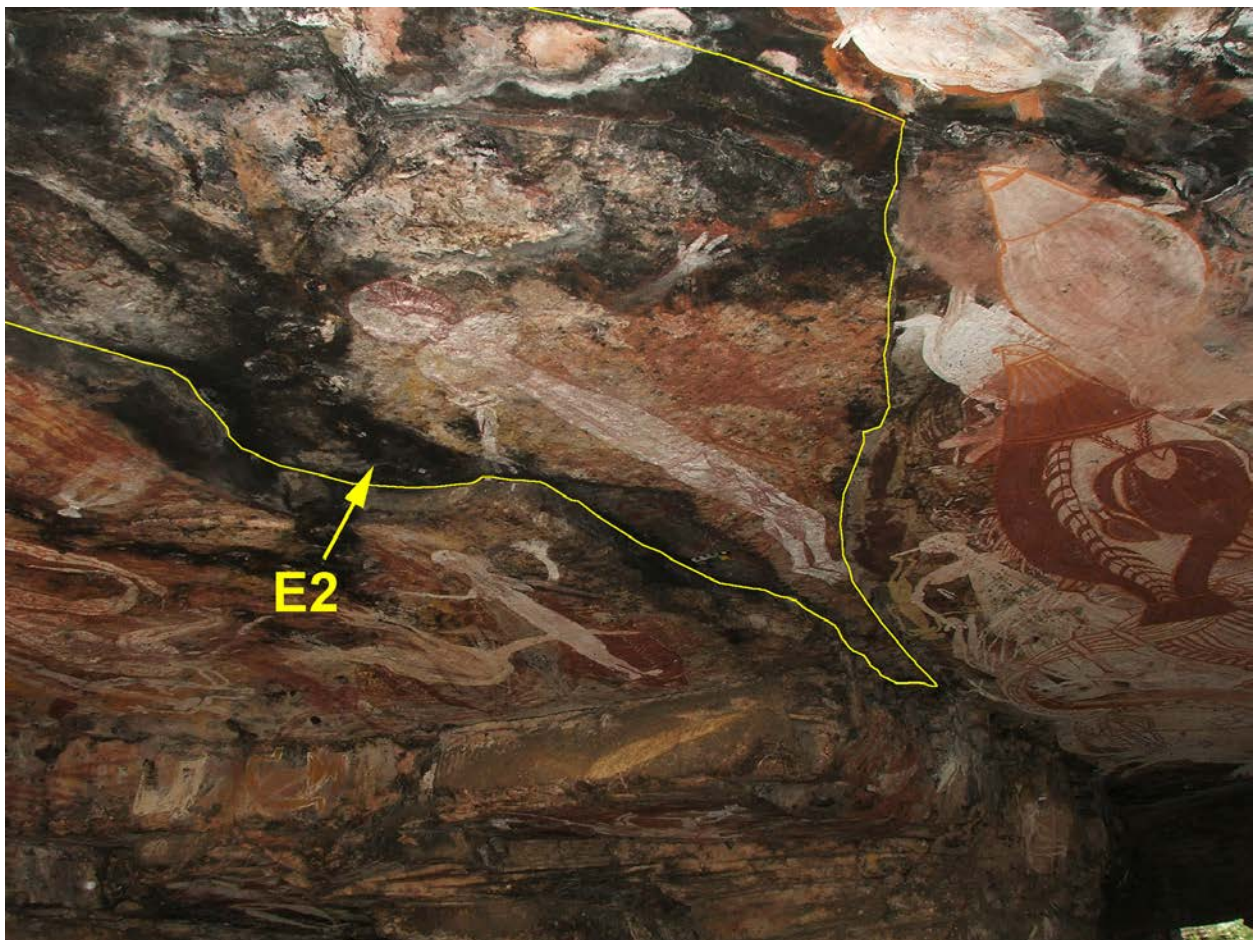


Figure 7.152: Location of Panel E2 within the centre ceiling

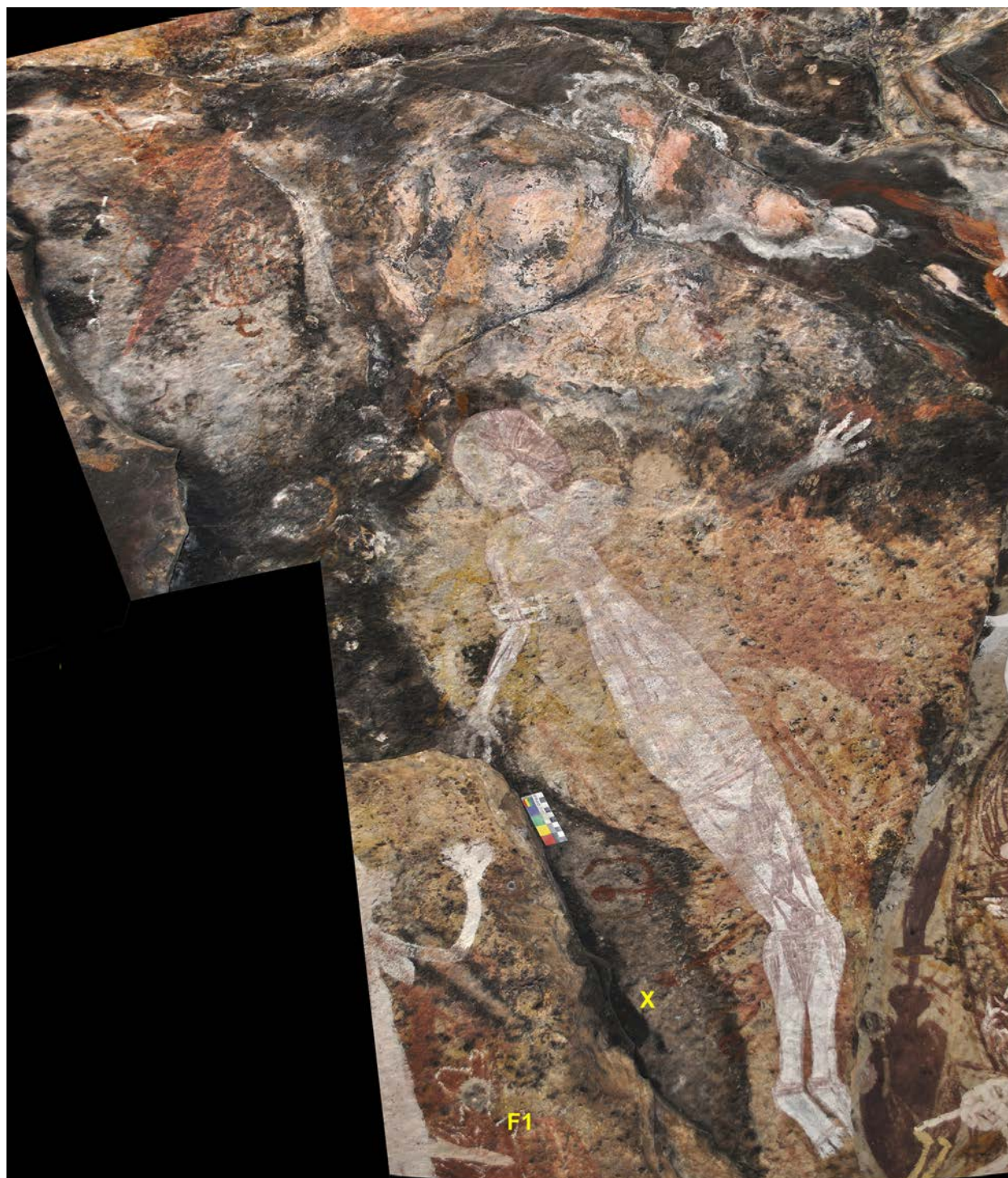


Figure 7.153: Panel E2 photomosaic
Position of panel F1 indicated at lower left.
X indicates the grey area exposed by partial destruction of panel F1



Figure 7.154: Panel E2 photo-tracing

Table 7.15: Panel E2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
E-83	black	appliqué	solid	geometric	Dot	fair		
E-84	yellow	painting	outline+infill	fragment	fragment	very poor		
E-85	yellow	painting	outline+infill	fragment	fragment	very poor		
E-86	yellow	painting	outline+infill	fragment	fragment	very poor		
E-87	yellow	painting	fragment	fragment	fragment	very poor		
E-88	red	painting	solid	fragment	fragment	very poor		
E-89*	red	painting	solid+outline+infill	mammal	Macropod	very poor		
E-90	red	painting	solid+linear	mammal	Macropod	very poor		
E-91	red	painting	fragment	fragment	fragment	very poor		
E-92	red	painting	solid	fragment	fragment	very poor		
E-93	red	painting	linear	complex design	Design radial	very poor		
E-94	red	painting	fragment	fragment	fragment	very poor		
E-95	red	painting	linear	anthropomorph	Anthropomorph	fair		
E-96	red	painting	solid	fragment	fragment	very poor		
E-97	red	painting	outline+infill+solid	mammal	Macropod	poor		
E-98	mulberry	painting	outline+infill+solid	bird	Emu	poor		
E-99	red	painting	linear	anthropomorph	Anthropomorph	fair		
E-100	red	painting	linear	anthropomorph	Anthropomorph	poor		
E-101	red	painting	solid+linear	anthropomorph	Anthropomorph	poor		
E-102	red	painting	solid+linear	anthropomorph	Anthropomorph female	fair		
E-103	red	painting	solid+linear	anthropomorph	Anthropomorph	poor		
E-104	yellow	painting	linear	anthropomorph	Anthropomorph	very poor		
E-105	yellow	painting	solid+linear	anthropomorph	Anthropomorph female	poor		
E-106	yellow	painting	outline+infill+linear	reptile	Turtle short-necked	poor		
E-107	yellow	painting	outline+infill+linear	reptile	Turtle long-necked	very poor		
E-108	white	painting	linear	simple design	Design irregular	poor		
E-109	white	spray	stencil	hand	Hand	poor		
E-110	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	good	157	95

* the body of this macropod is on panel E3 (see below)

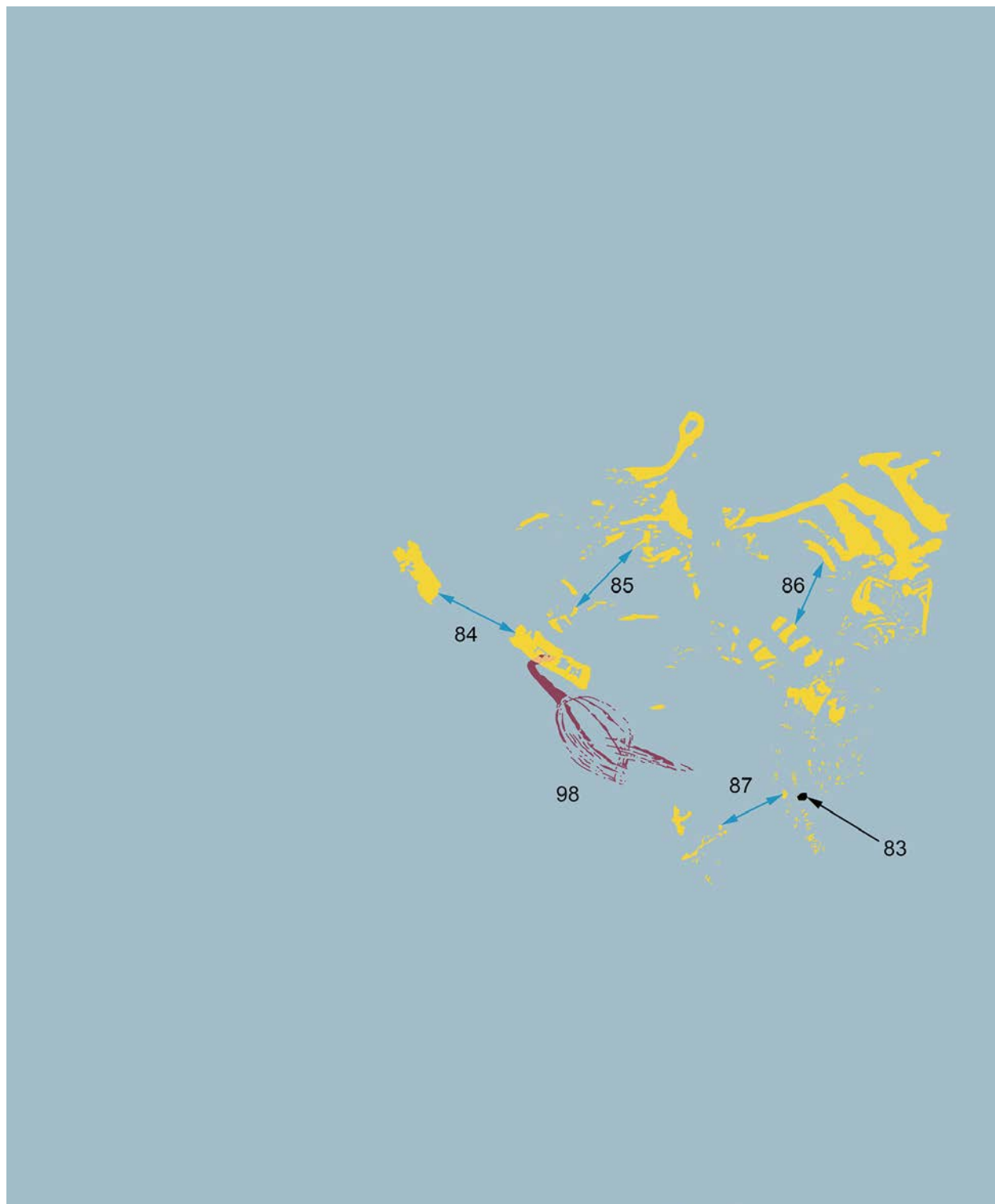


Figure 7.155: Panel E2 motif interpretations (i)

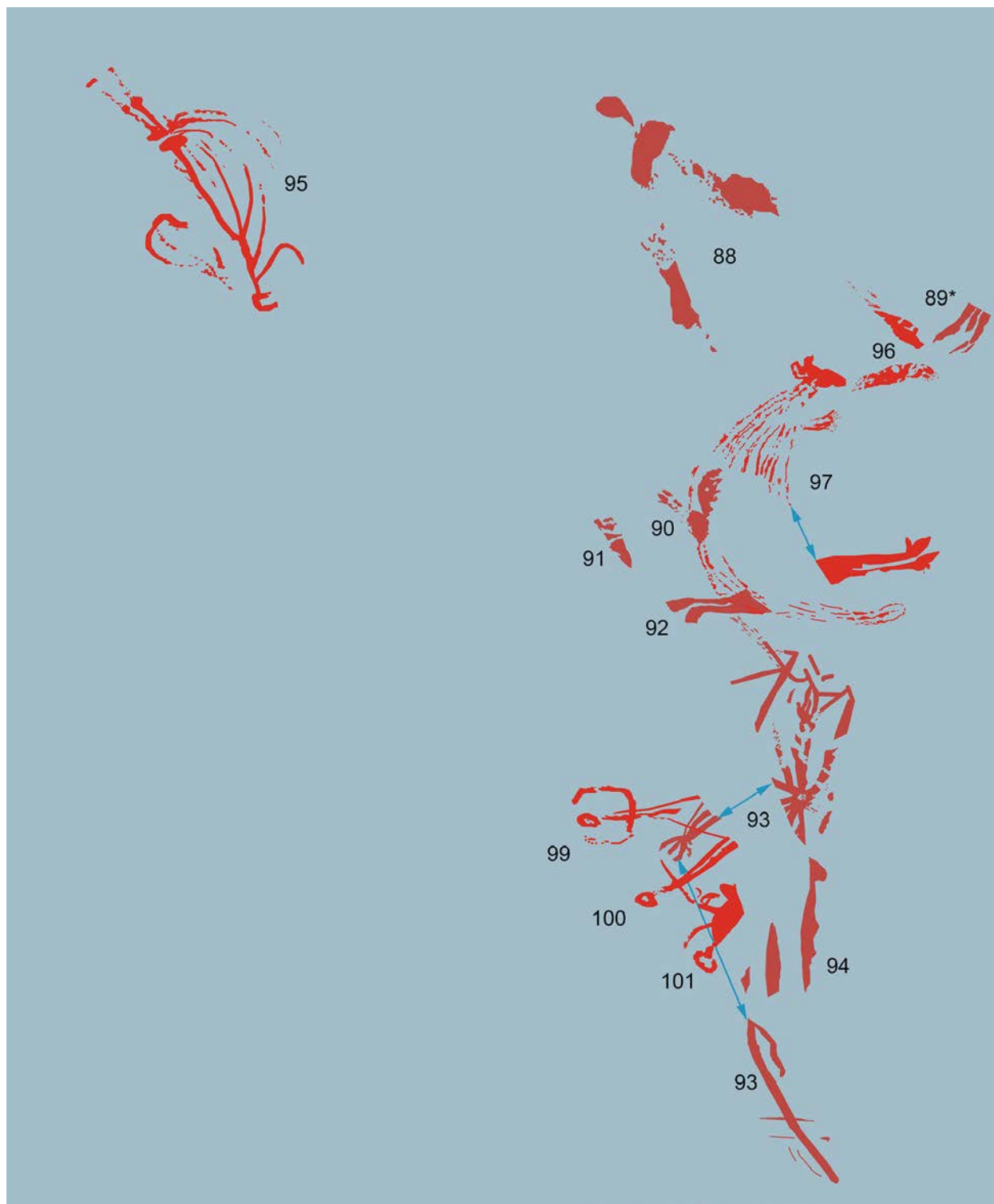


Figure 7.156: Panel E2 motif interpretations (ii)

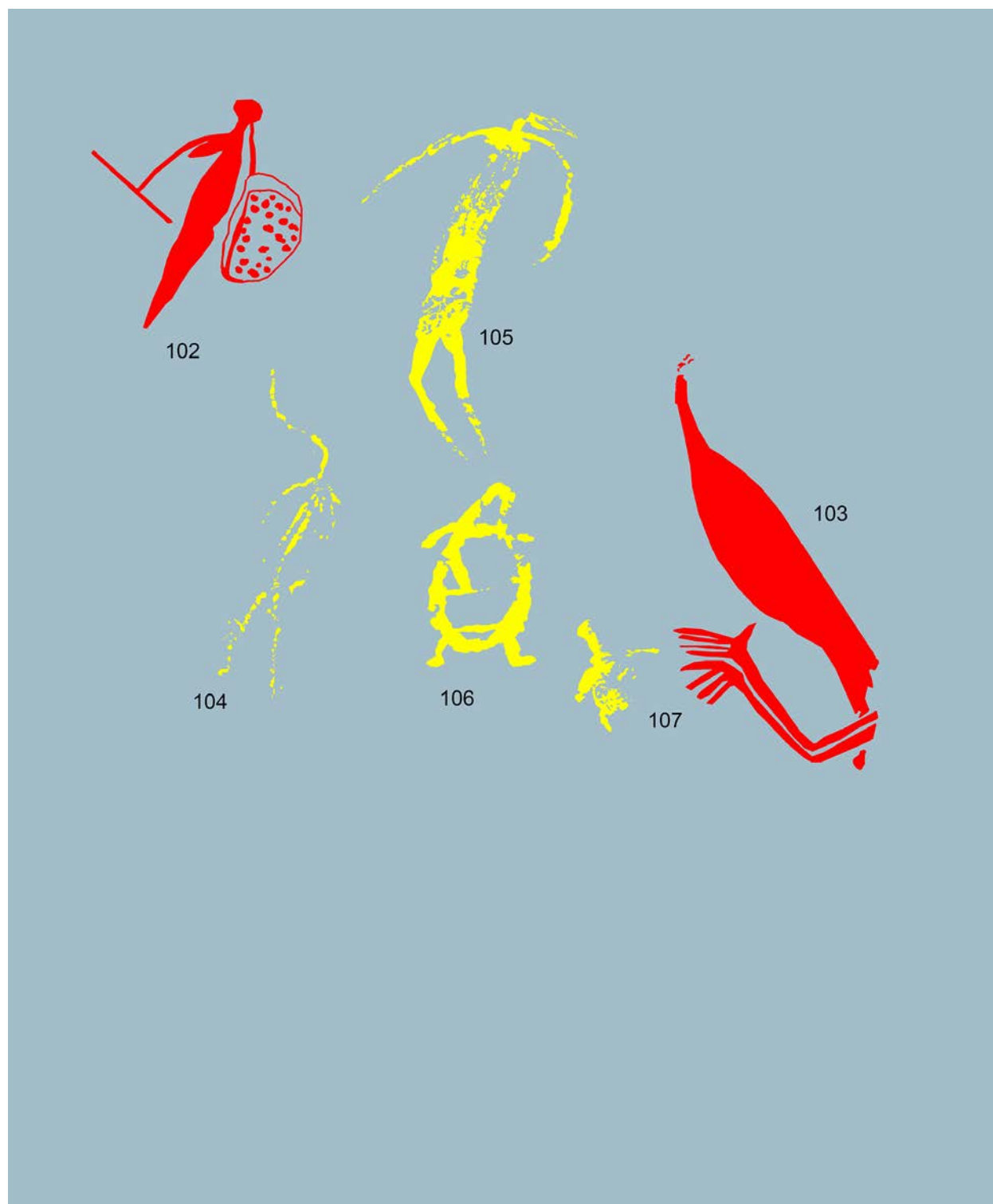


Figure 7.157: Panel E2 motif interpretations (iii)

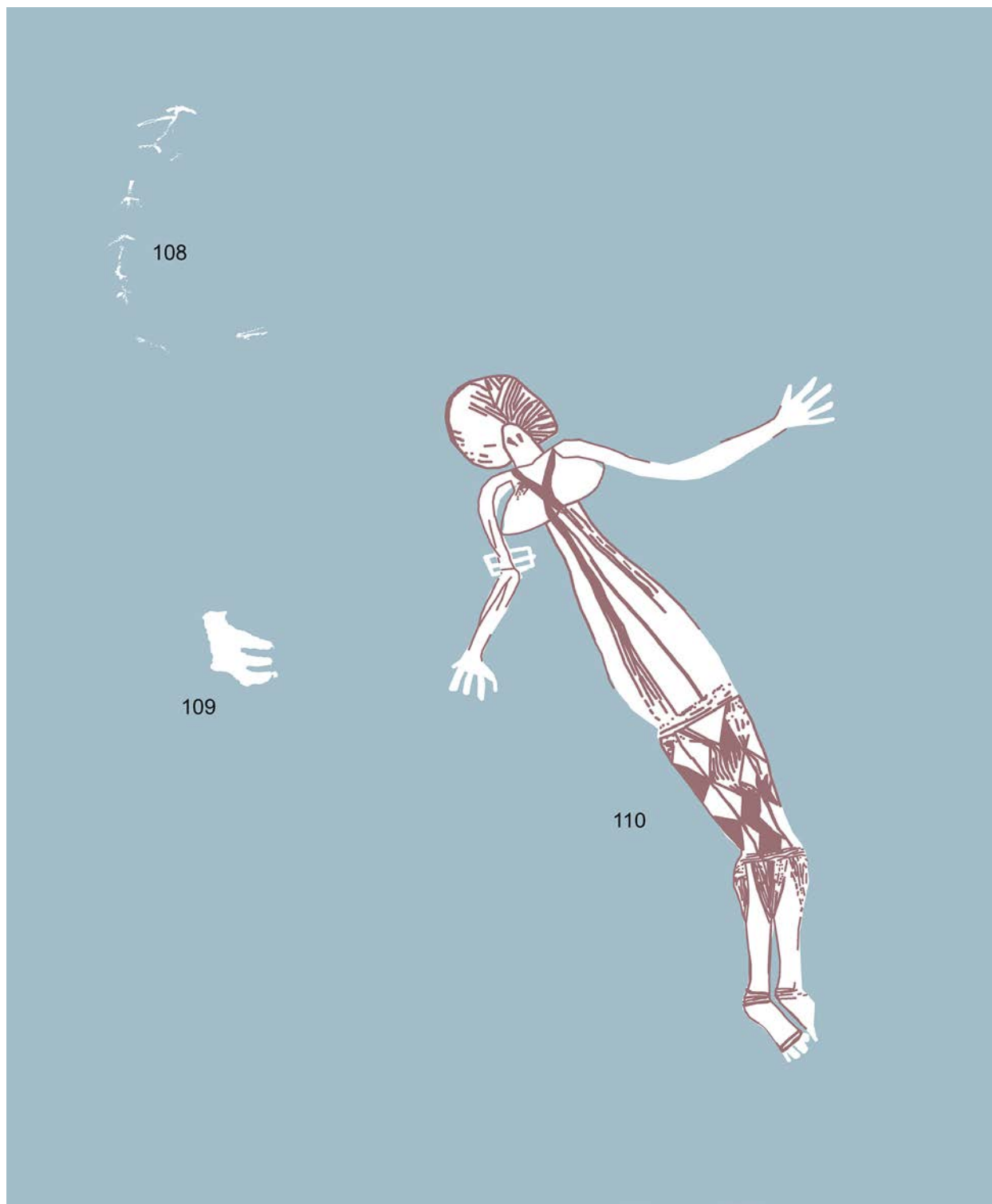


Figure 7.158: Panel E2 motif interpretations (iv)

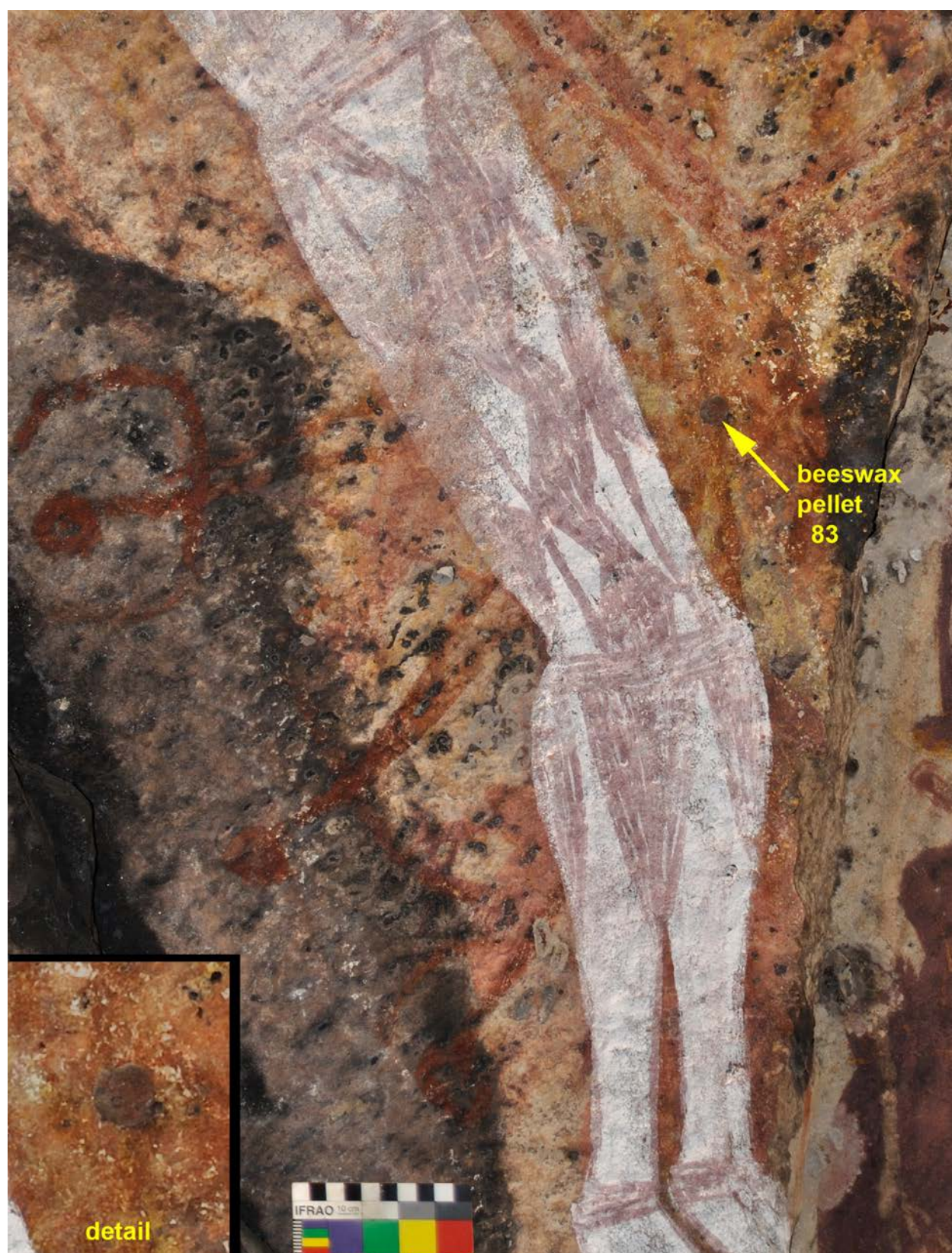


Figure 7.159: Location of E2 beeswax pellet (Motif E-83)

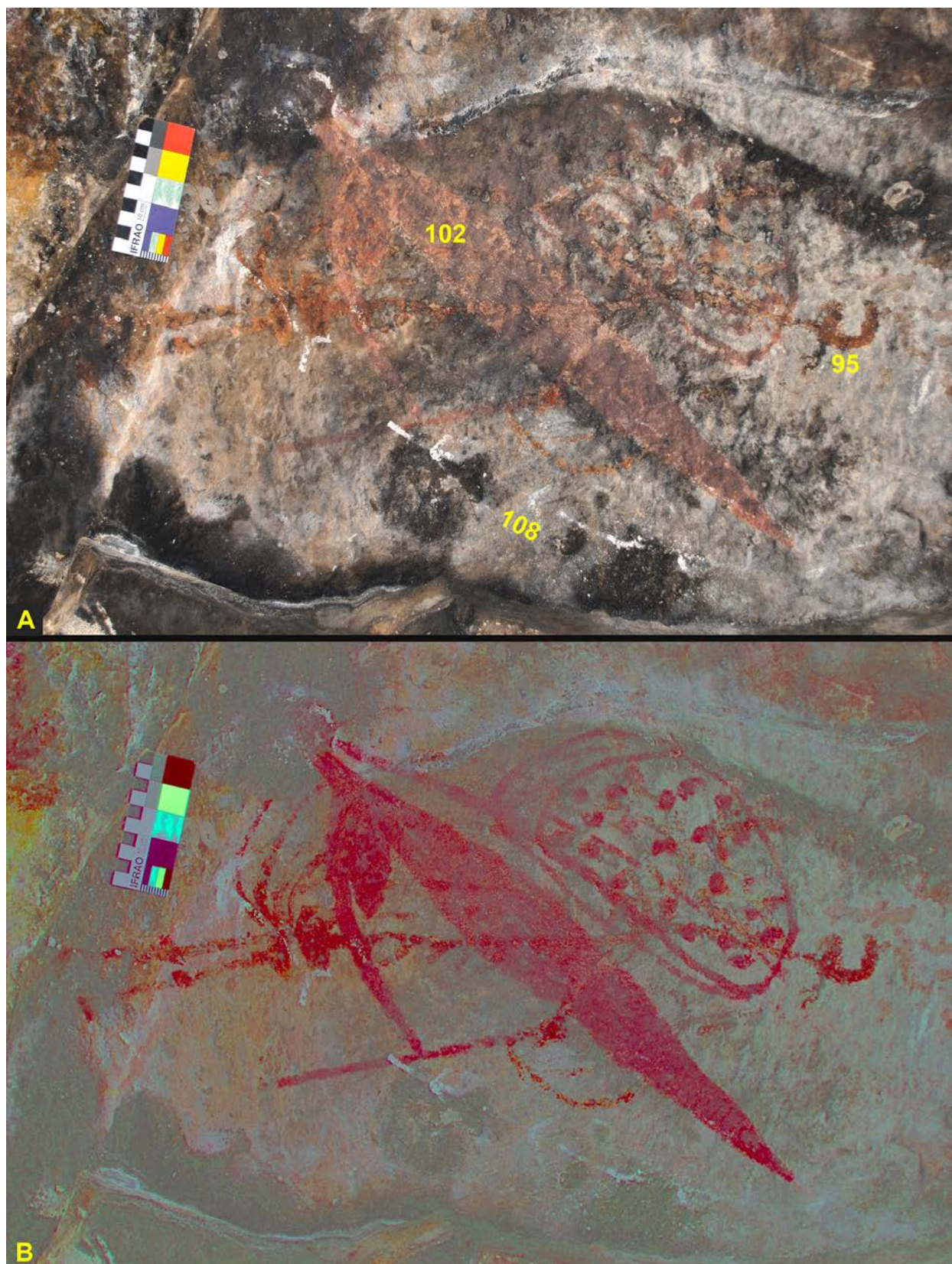


Figure 7.160: Woman with dillybag and digging stick (Motif E-102) overlying hooked-faced figure (Motif E-95)
A: photograph B: DStretch_lre10

Panel E3

Panel E3 (Figures 7.161 and 7.162) is small and lens-shaped, measuring 1.6×0.4 m, and tapers towards each end. The rock surface is smooth but badly affected by water-wash and deposited salts (Figure 7.163).

Panel E3 has nine motifs (Figures 7.164 to 7.166), three of which were interpreted to Motif Type. The artwork is concentrated within the central and widest area of the panel.

The most conspicuous painting is that of a black bream (grunter) in white (Motif E-118; Figures 7.166 and 7.167). A white drawn line (Motif E-117) roughly parallels the belly-line of Motif E-118 and may represent part of a preliminary sketch or guideline for the painting.

A small macropod in red (Motif E-89; Figures 7.164 and 7.165) was positioned to utilise most of the area of the panel, however, its legs broach over onto the adjacent Panel E1 and its front paws onto the adjacent Panel E2.

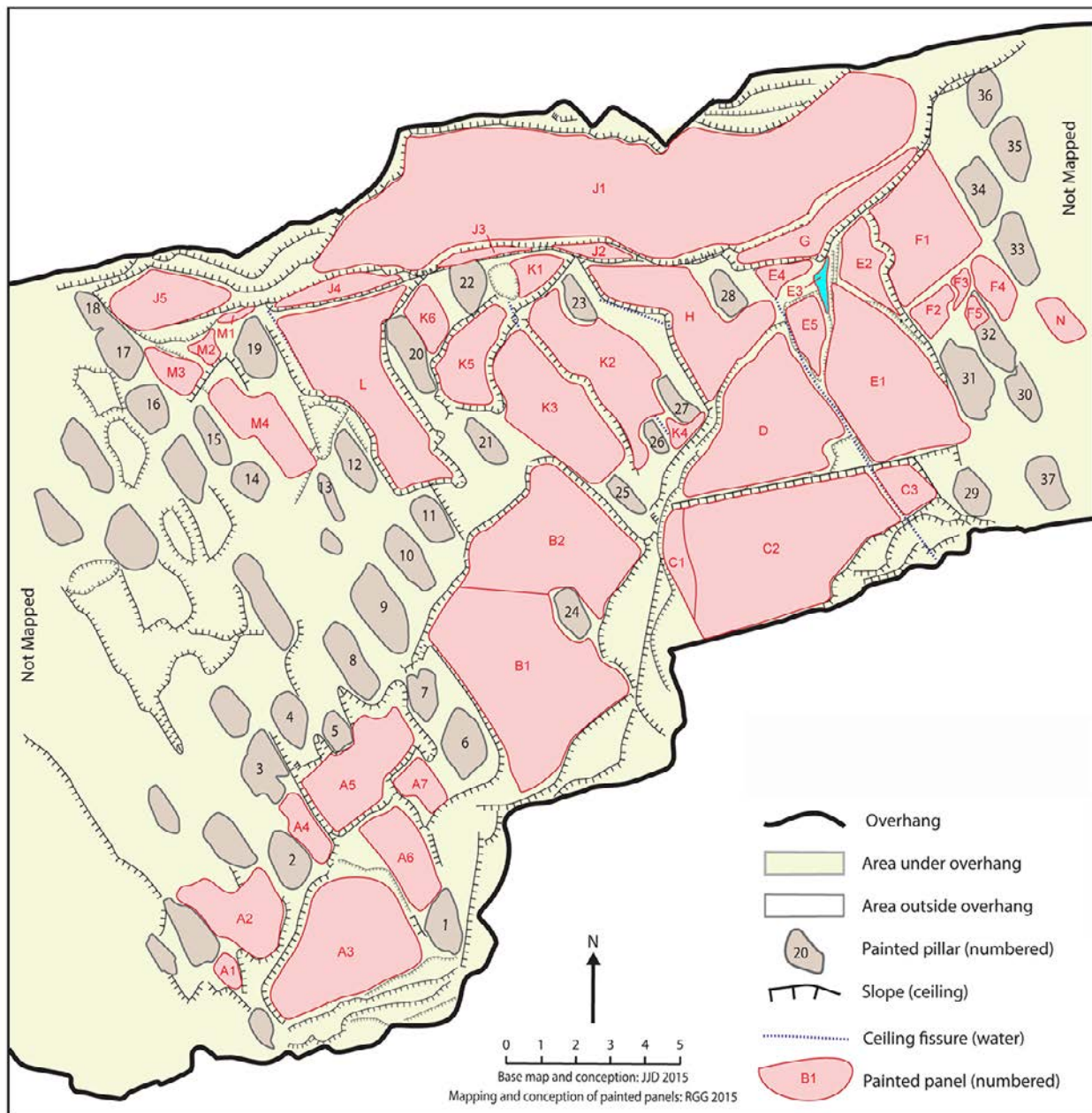


Figure 7.161: Location of Panel E3



Figure 7.162: Location of Panel E3 within the centre ceiling



Figure 7.163: Panel E3 photograph

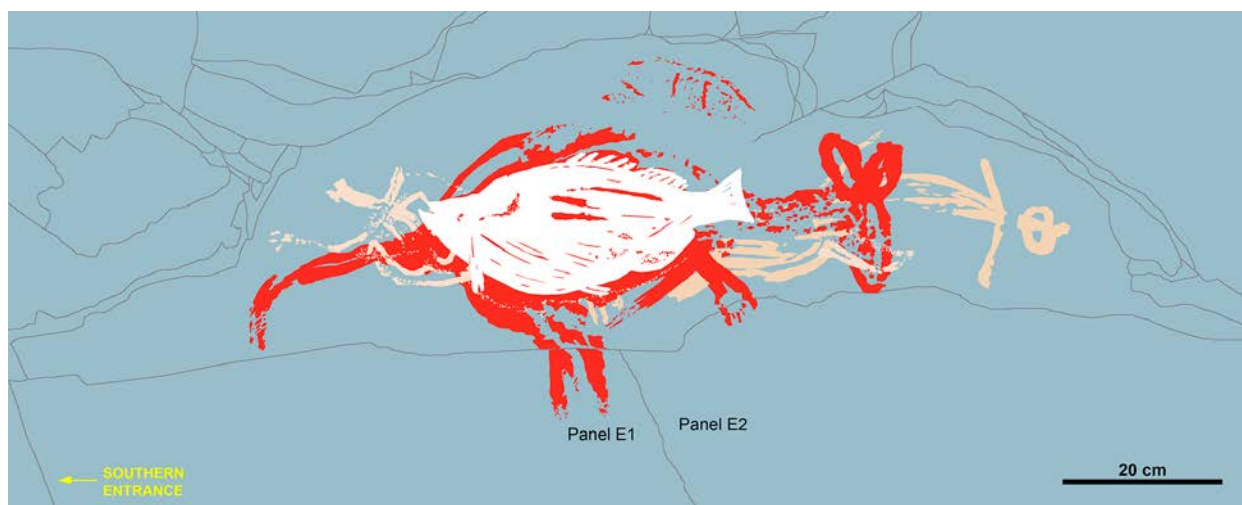


Figure 7.164: Panel E3 photo-tracing

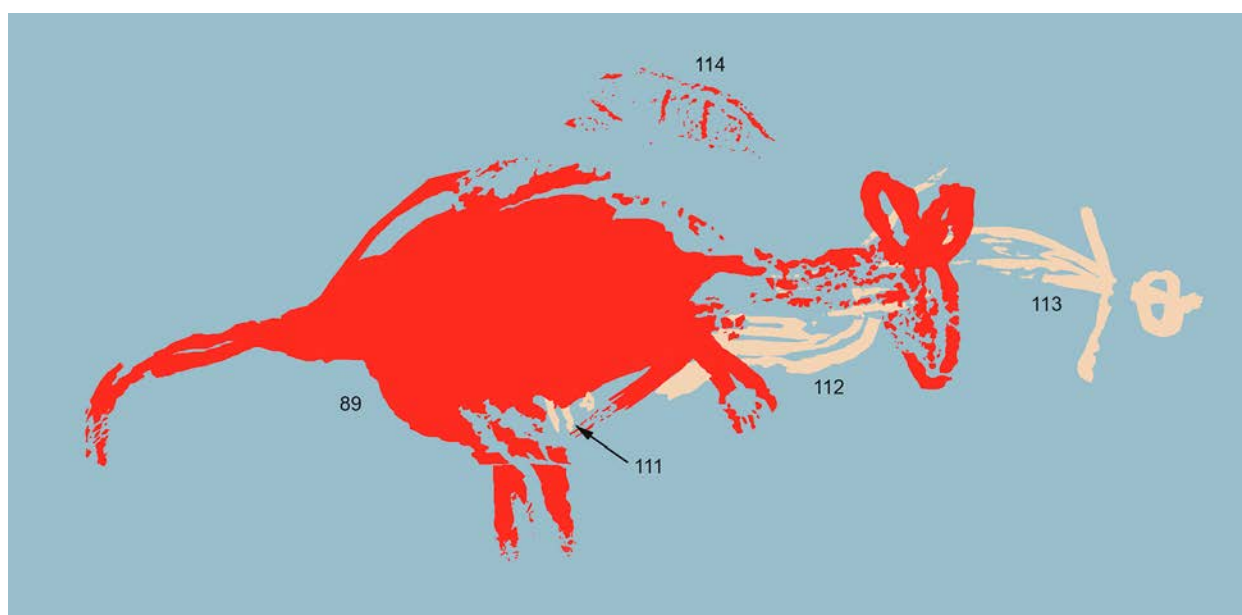


Figure 7.165: Panel E3 motif interpretations (i)
Note overlap of Motif 89 onto adjacent panels E1 and E2

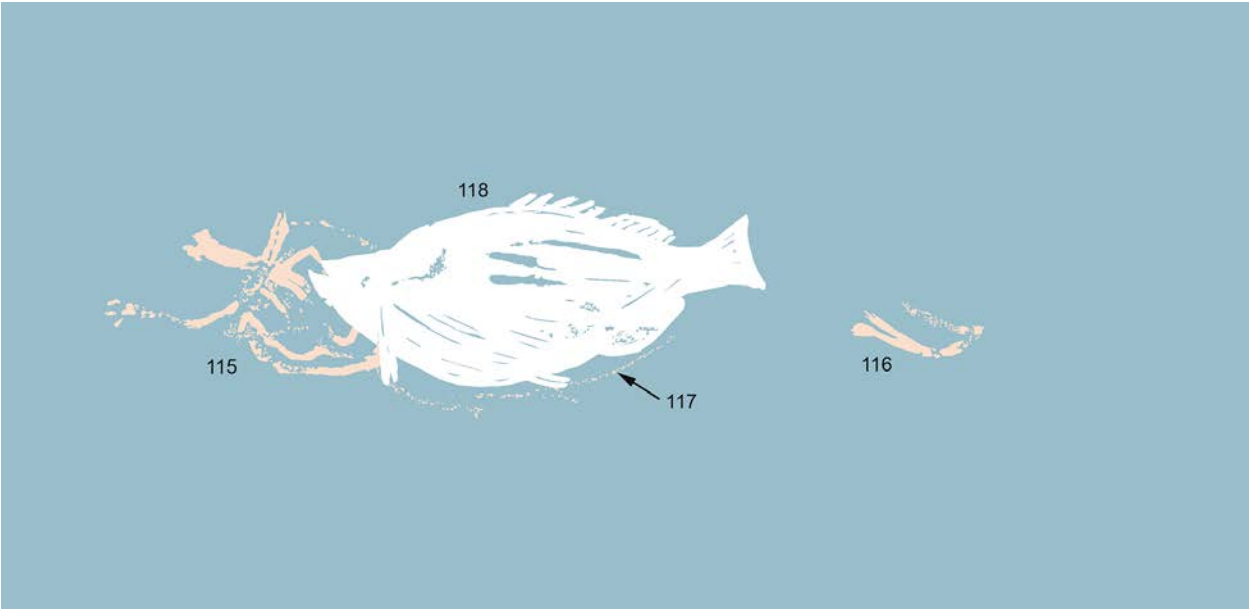


Figure 7.166: Panel E3 motif interpretations (ii)



Figure 7.167: The white painted bream (Motif E-118) and underlying line drawn in white (Motif E-117)

Table 7.16: Panel E3 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
E-111	white	painting	fragment	fragment	fragment	very poor		
E-112	white	painting	outline+linear	fragment	fragment	very poor		
E-113	white	painting	outline+linear	anthropomorph	Anthropomorph	very poor		
E-114	red	painting	solid+outline+infill	fragment	fragment	fair		
E-115	red	painting	fragment	fragment	fragment	very poor		
E-116	white	painting	linear+outline+infill	fragment	fragment	very poor		
E-117	white	drawing	linear	unknown	Unknown	fair	85	39
E-118	white	painting	solid+linear	fish	Bream	good	41	18

Panel E4

Panel E4 (Figures 7.168 and 7.169) is small, measuring c. 1.1 × 0.6 m, roughly rectangular in shape and abutting the eastern side of Pillar 28. The surface is stepped and with a central shallow depression (Figures 7.170 and 7.171). Both the rock surface and the artwork are badly affected by waterborne salts entering through the depression and ceiling fractures.

Panel E4 has six motifs (Table 7.17; Figures 7.171 to 7.173), four of which are interpreted to Motif Type.

The motifs are all aligned towards the northern entrance of the shelter, suggesting they were painted from a common standpoint under the overhang looking out.

The only readily visible motif is of a white outlined anthropomorph in profile (Motif E-124; Figure 7.172). A less-clear motif is of a long-necked turtle in red with a striped carapace (Motif E-122; Figure 7.173). At some later date, the carapace was re-painted in orange (Motif E-123).

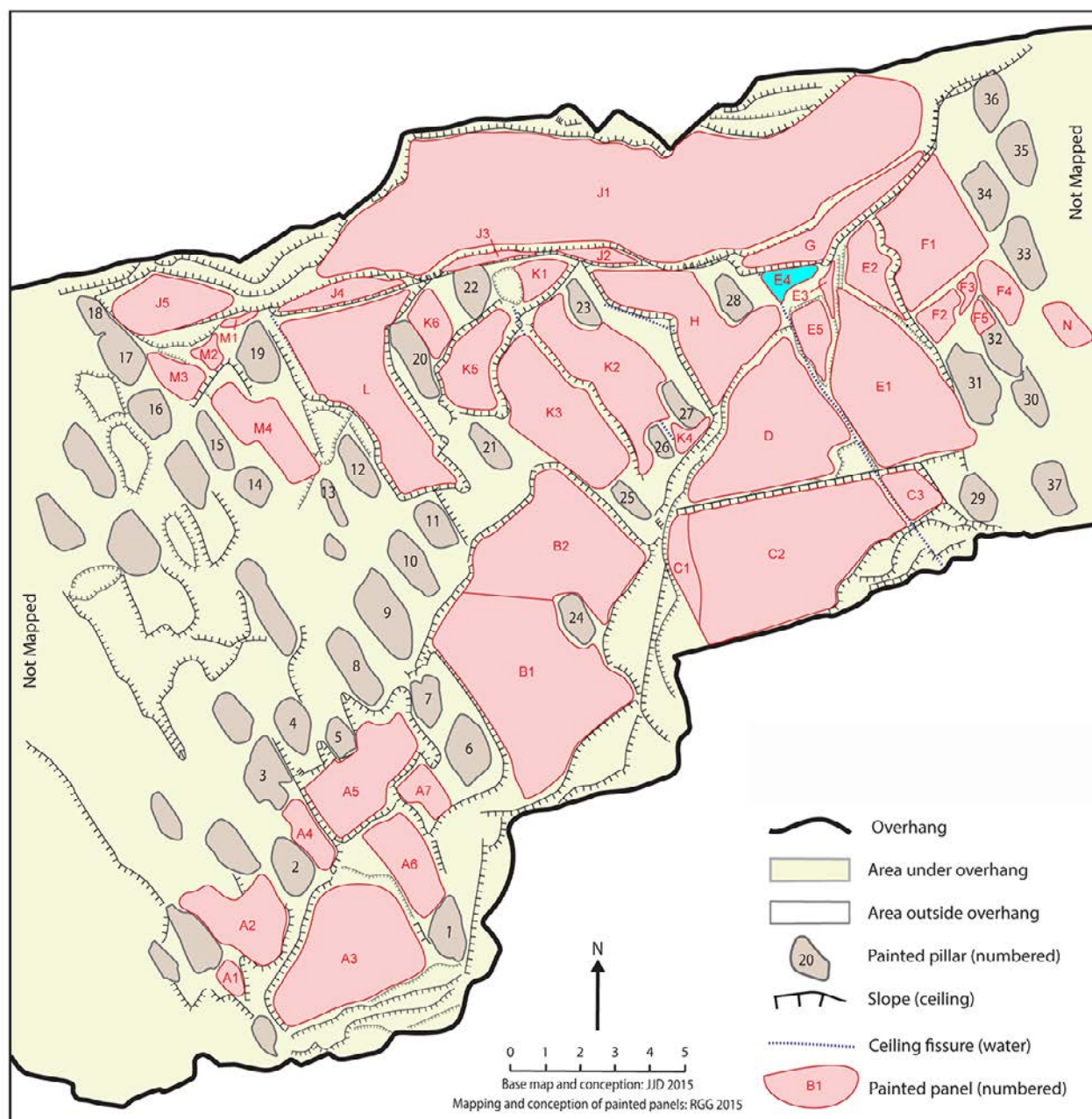


Figure 7.168: Location of Panel E4

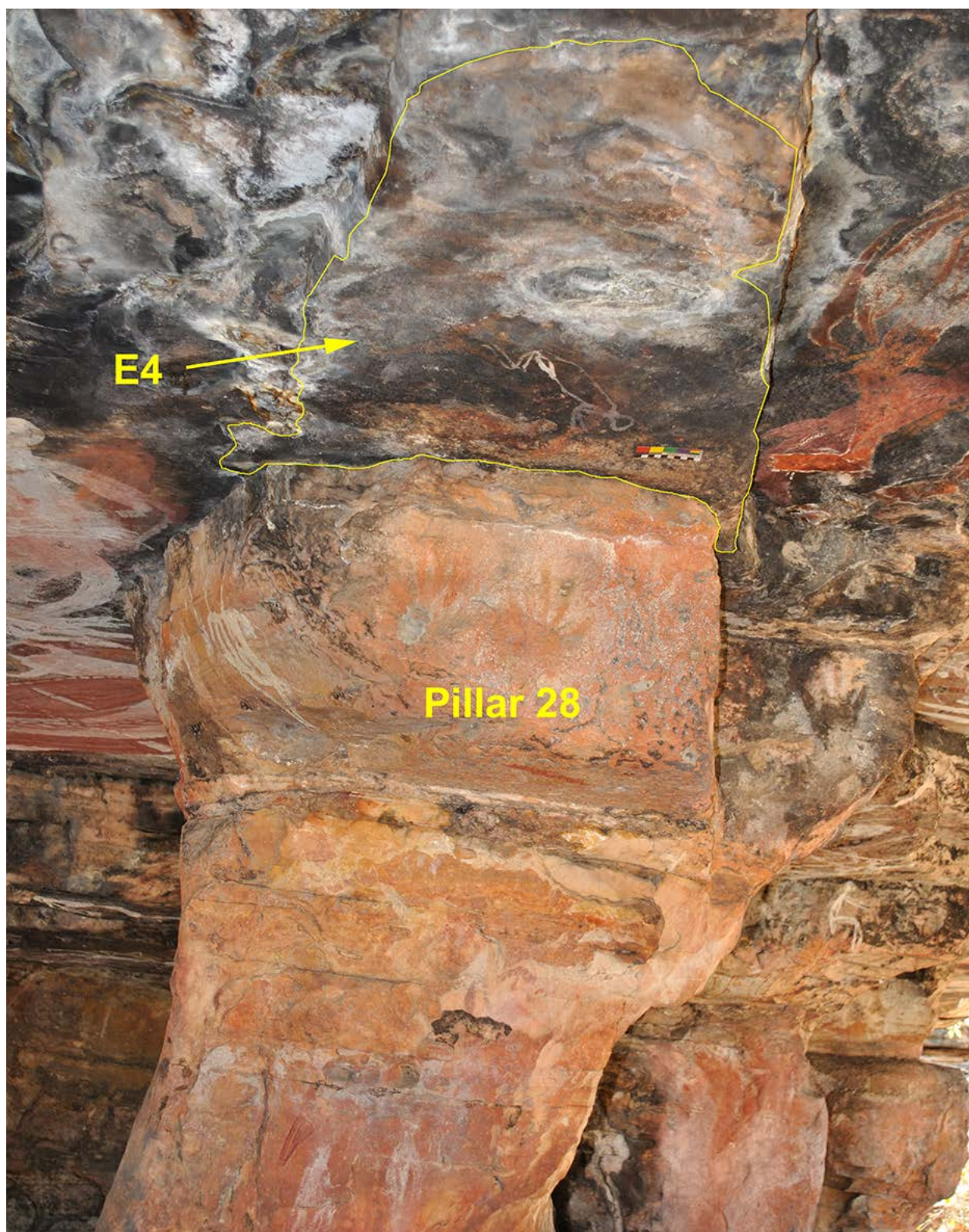


Figure 7.169: Location of Panel E4



Figure 7.170: Panel E4 photograph

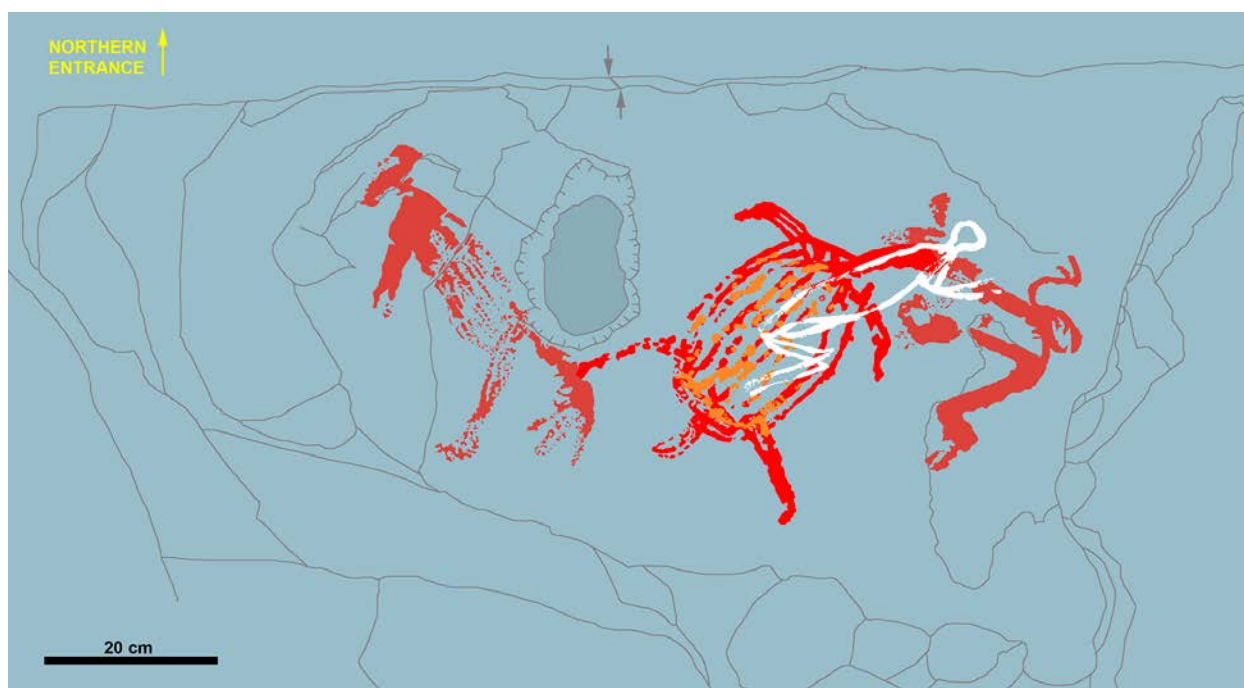


Figure 7.171: Panel E4 photo-tracing

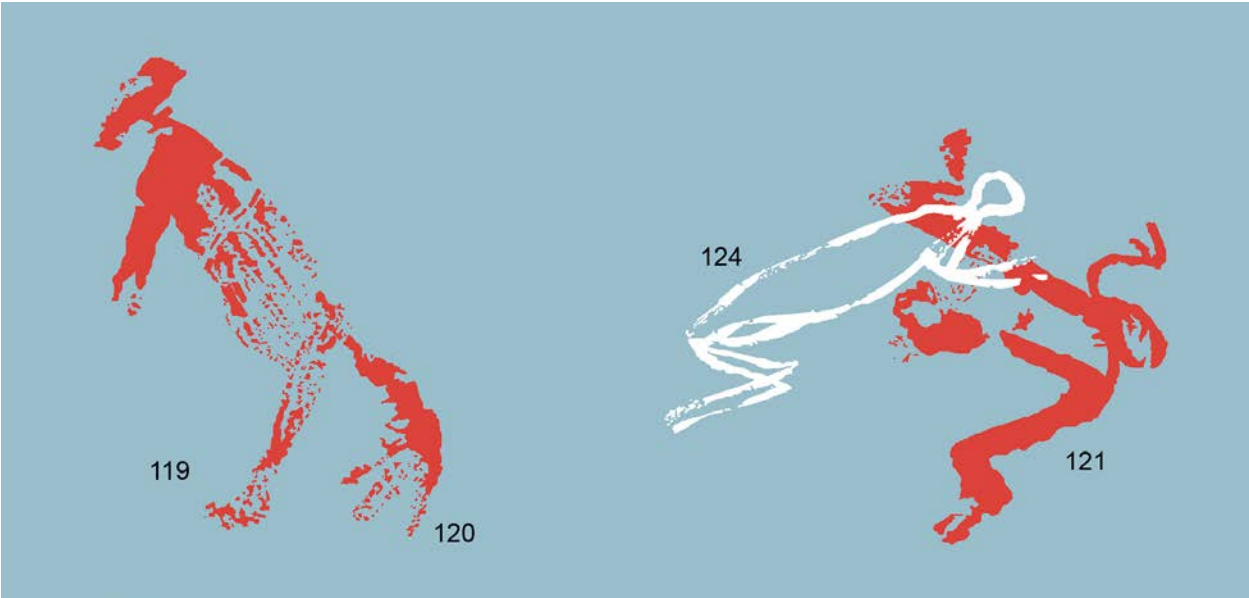


Figure 7.172: Panel E4 motif interpretations (i)

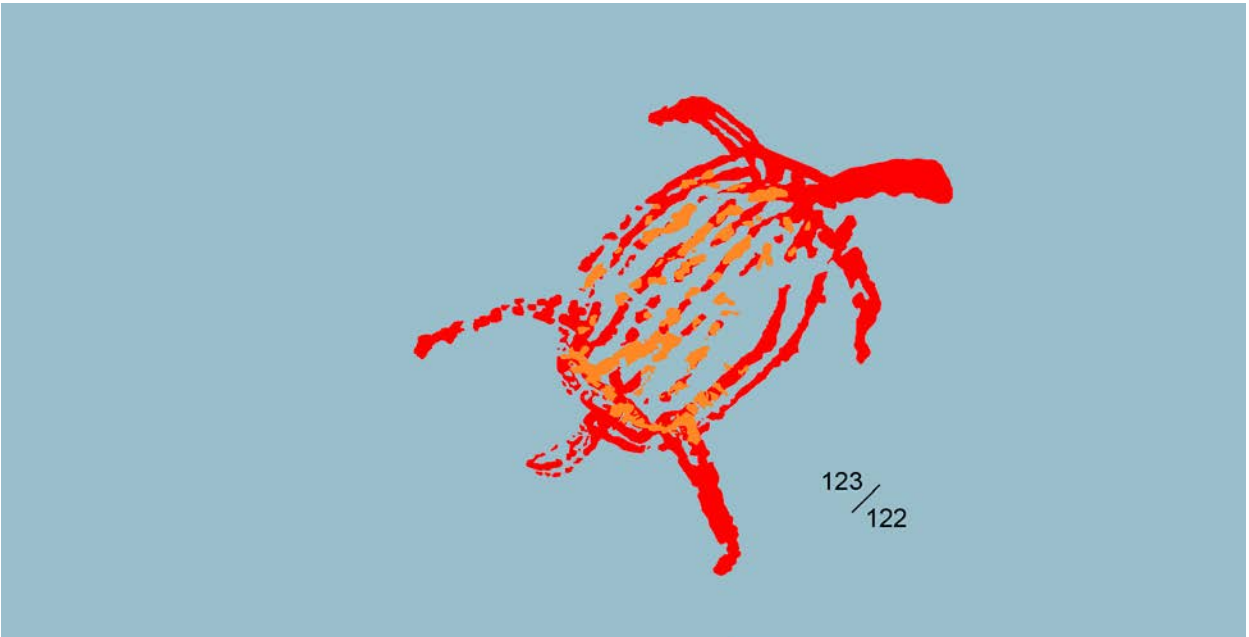


Figure 7.173: Panel E4 motif interpretations (ii)

Table 7.17: Panel E4 motif list

Motif No.	Colour	Tech.	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
E-119	red	painting	solid+outline+infill	mammal	Macropod	very poor		
E-120	red	painting	fragment	fragment	fragment	very poor		
E-121	red	painting	solid+linear	unknown	Unknown	very poor		
E-122	red	painting	solid+outline+infill	reptile	Turtle long-necked	poor		
E-123	orange	painting	outline+infill	infill	Infill #E-122	poor		
E-124	white	painting	linear+outline+infill	anthropomorph	Anthropomorph	fair	34	9

Panel E5

Panel E5 (Figures 7.174 and 7.175) is small and roughly rectangular in shape, measuring 1.6×0.5 m (Figures 7.176 and 7.177). The panel surface is flat but with a very pock-marked surface. The margins of the panel are discoloured by black salts.

Panel E5 has three motifs (Table 7.18; Figure 7.177), but only one which could be interpreted to Motif Type: Motif E-127, an irregular simple design in white.

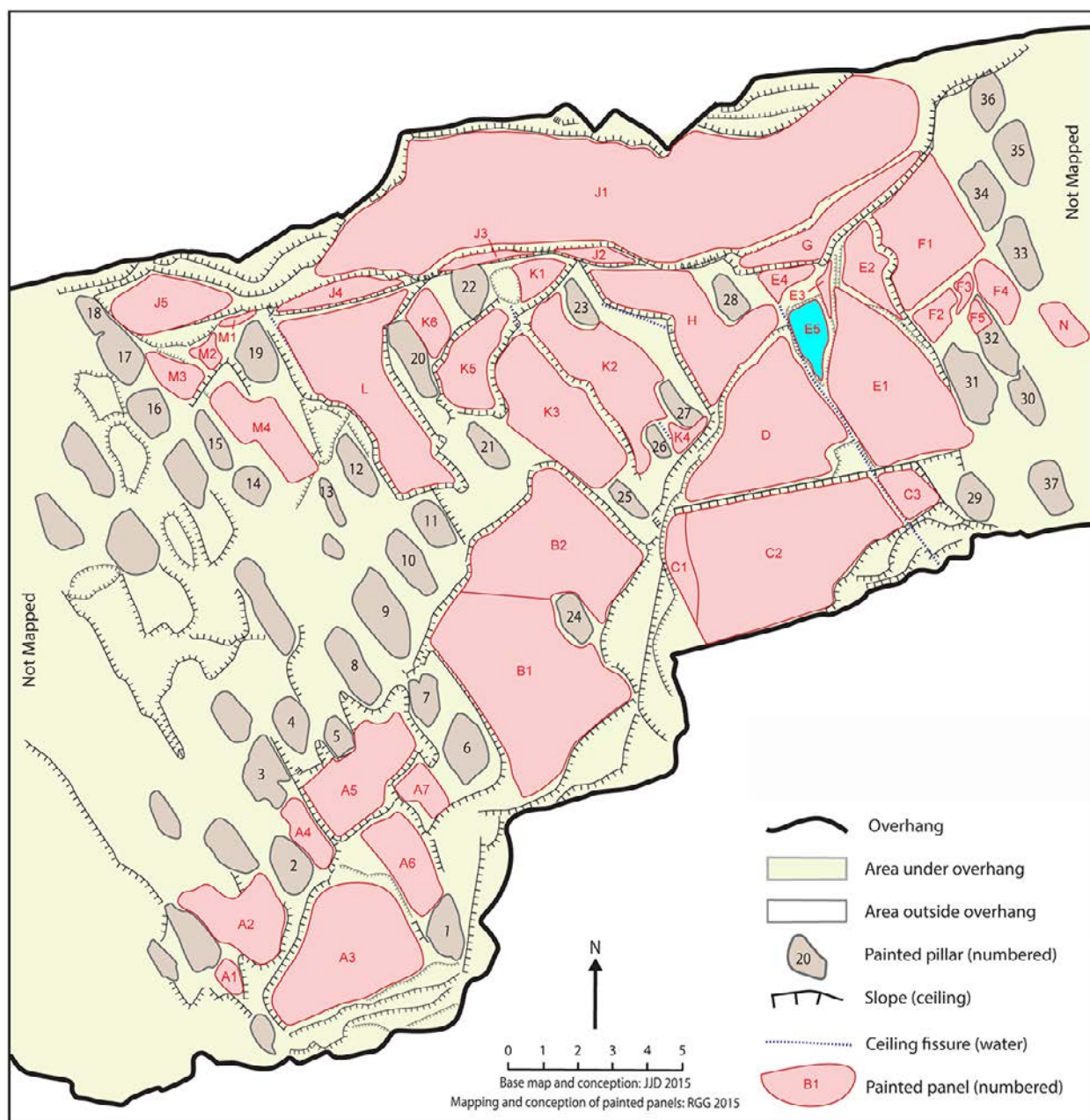


Figure 7.174: Location of Panel E5

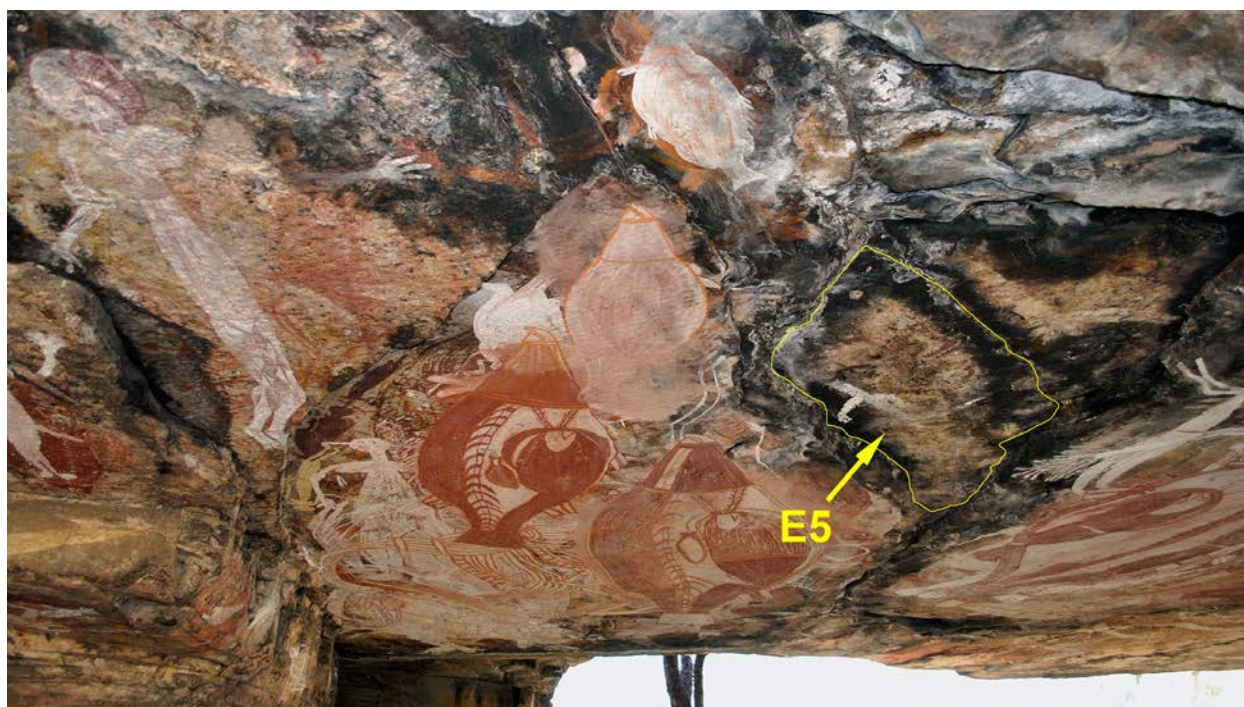


Figure 7.175: Location of Panel E5



Figure 7.176: Panel E5 photomosaic



Figure 7.177: Panel E4 photo-tracing and interpretation

Table 7.18: Panel E5 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
E-125	red	painting	fragment	fragment	fragment	very poor		
E-126	yellow	painting	fragment	fragment	fragment	very poor		
E-127	white	painting	linear	simple design	Design irregular	fair	40	38

Panel F1

Panel F1 (Figures 7.178 and 7.179) is large and generally rectangular in shape, measuring 3.8×2.7 m. The surface is flat with slight undulations, and it is sectioned by several minor fractures; a fracture on the eastern side of the panel in particular has allowed a black deposit to accumulate, damaging several motifs (Figure 7.180). A small number of mud-wasp nests occur both on top of and beneath paintings.

Panel F1 has 126 motifs (Table 7.19; Figures 7.181 to 7.193), 98 (78%) of which are interpreted to Motif Type.

The artwork is widely distributed across the panel and most of the motifs are involved in superimpositioning (see Chapter 9). The motifs have no common orientation, but the majority are aligned with the long axis of the panel.

Unlike most of the bigger panels in the shelter, Panel F1 does not have any large and visually dominating motifs, as most of its motifs are less than one metre in length. The only visually prominent motif is that of a curled snake, in white and red and with simple X-ray features, that was placed at the very centre of the panel (Motif F-122; Figures 7.180 and 7.194). Even this motif,

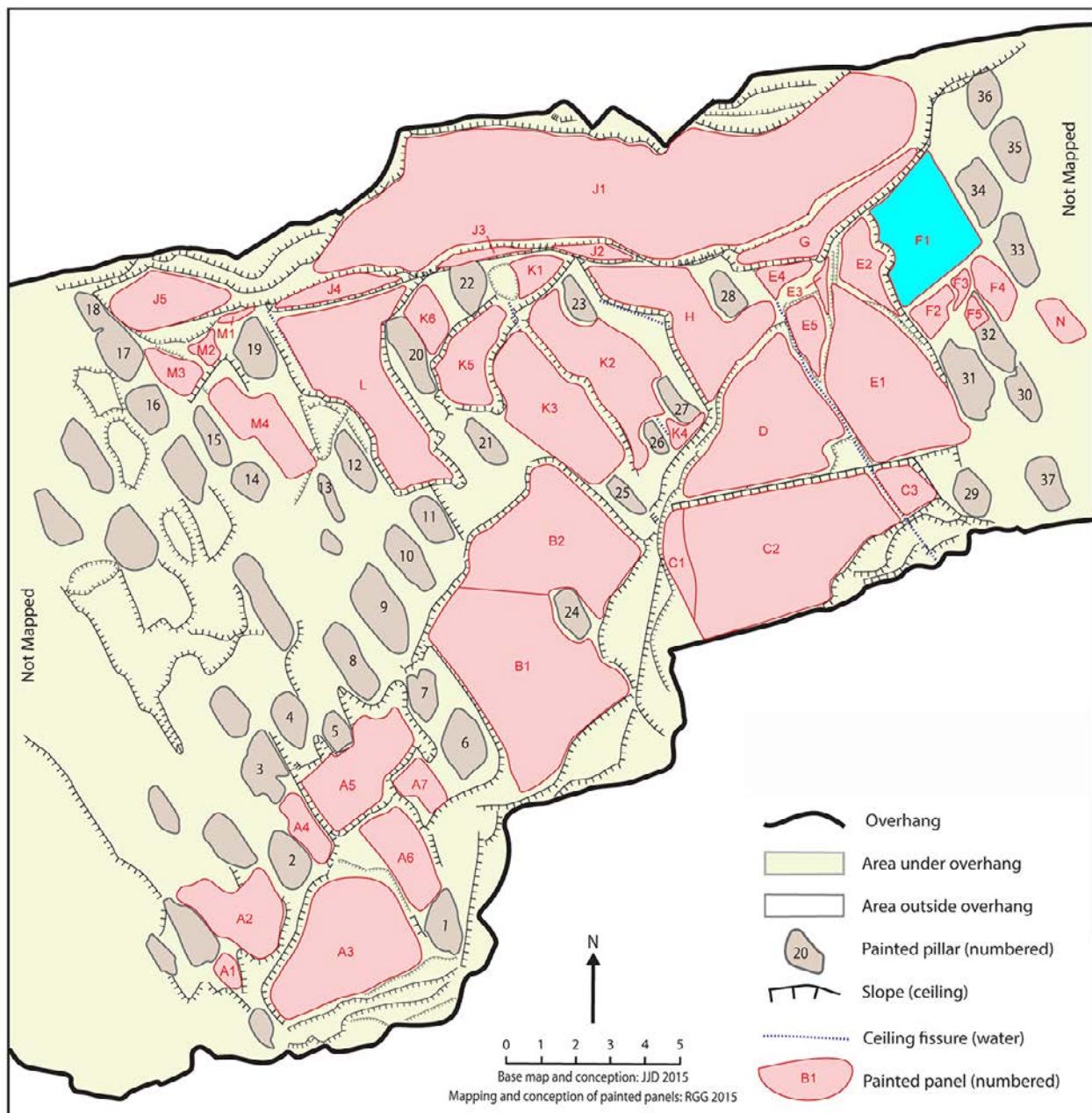


Figure 7.178: Location of Panel F1

however, could have been more prominent had it been painted larger. The panel's largest motif, a yellow snake with a small area of red fine patterning near the tail (Motif F-110; Figure 7.186), is 192 cm long and extends most of the length of the panel. However, being narrow and mostly yellow, it has little visual impact. Similarly, a striped snake that partially encircles the panel (Motif F-12; Figure 7.182), and that has a total length exceeding six metres, is mostly difficult to interpret due to its very poor preservation. This snake (Motif F-12) begins at the southern end of the panel and extends onto the two adjacent Bridges (B9 and B10) on the western side of Panel F1 and that are at right angles to the plane of the panel (Figure 7.179).

The only other prominent motifs are three female figures in white (Motifs F-103, F-120 and F-121) (Figure 7.195), and one of a pair of white macropods with red linear infill (Motif F-85; Figure 7.196). Two of the white female figures (Motifs F-120 and F-121) have similar poses to each other, and are of similar size and orientation, although they are positioned at opposite corners of the panel (Figure 7.193). The other white female figure (Motif F-103) forms a composition with an overlying ithyphallic male figure, also in white (Figure 7.195)

A single example of simple X-ray form (cf. Brandl 1973: 27) is present on a fish motif (Motif F-72). The red silhouette of the fish has been embellished with a white infill design that suggests a skeletal pattern (Figure 7.197).

Beeswax pellets have been added to five paintings. On the basis of their preservation and distribution, these pellets form two groups: Motifs F-27 to F-30, and Motifs F-105 to F-108. Motifs in the first group (Motifs F-27 to F-30) consist of individual beeswax dots central to red painted radial designs (Figures 7.198 to 7.199). These pellets are now lightly crazed and grey-black in colour. A similar association of beeswax central to radial designs occurs on Panels E2 and J1 (see above and below respectively). Motifs in the second group (Motifs F-105 to F-108), consist of nine beeswax pellets appended to a white painted figure carrying two dillybags (Figures 7.200 and 7.201). The individual pellets are affixed to the ends of the figure's feet, while rows of three and four pellets respectively have been attached to the upper body below the arms, indicative of breasts. These pellets are black and are not crazed. Similar embellishment of painted female figures has been documented in the rock art of the north-west Arnhem Land plateau (Chaloupka 1993: 159), although no other such examples are known from art sites within the Jawoyn Lands.

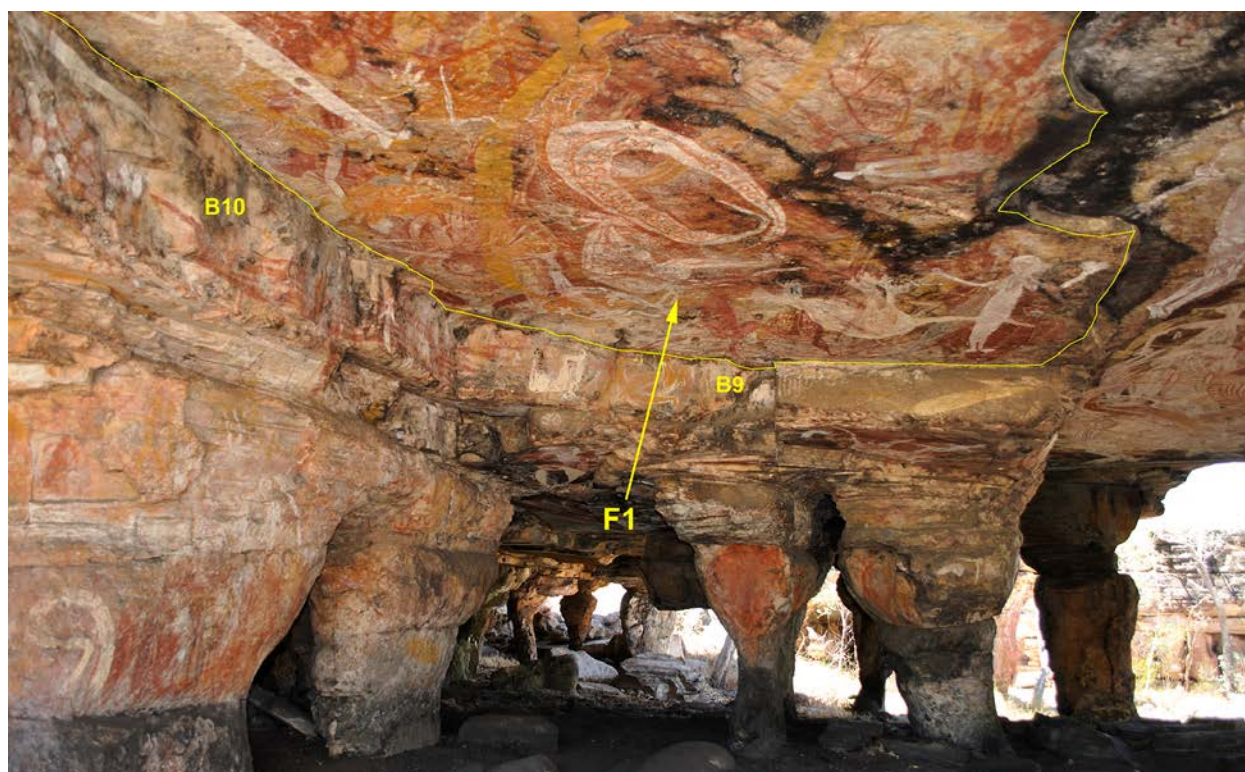


Figure 7.180: Panel F1 photomosaic

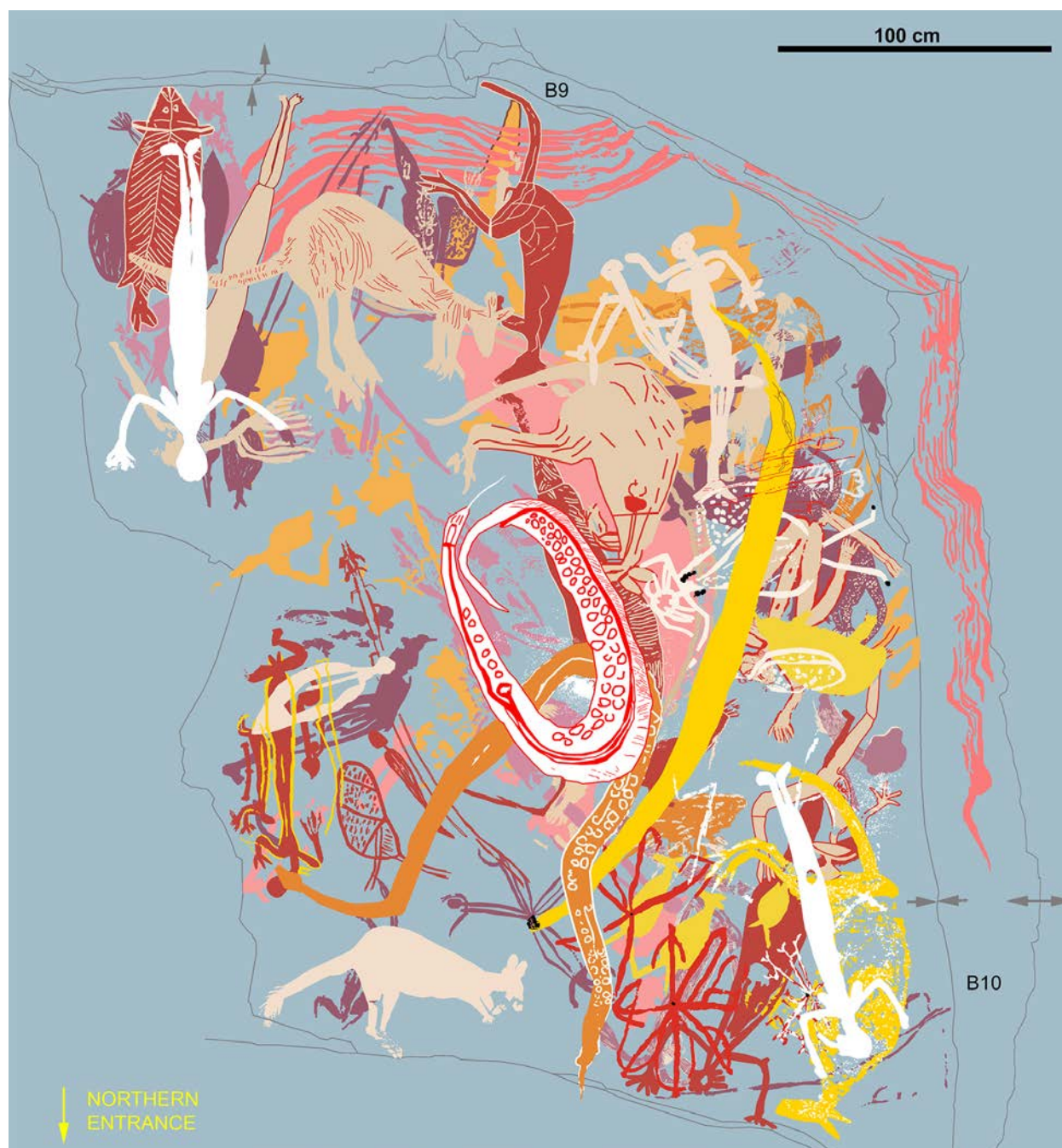


Figure 7.181: Panel F1 photo-tracing
Note overlap onto Bridges B9 and B10



Figure 7.182: Panel F1 motif interpretations (i)

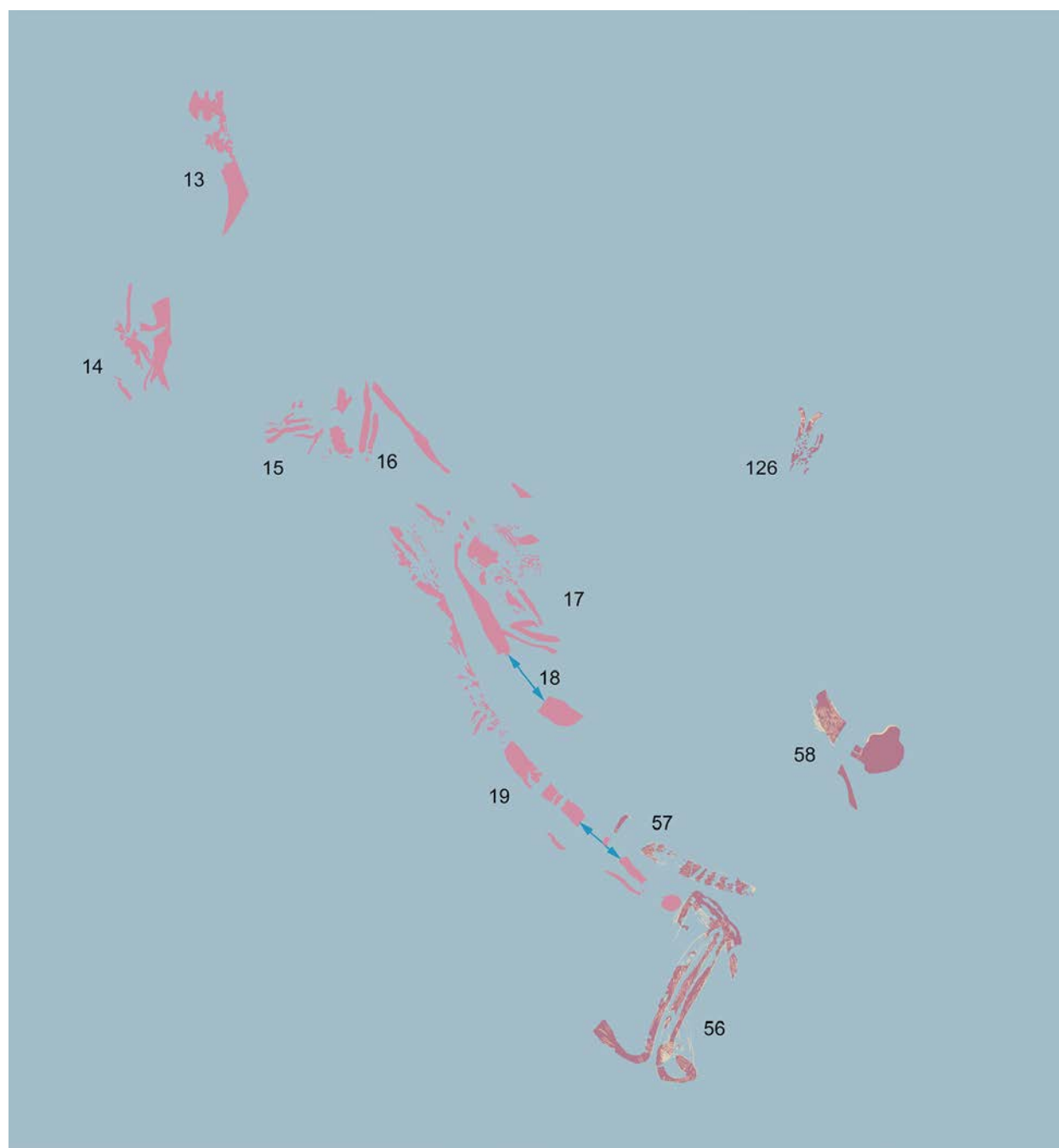


Figure 7.183: Panel F1 motif interpretations (ii)

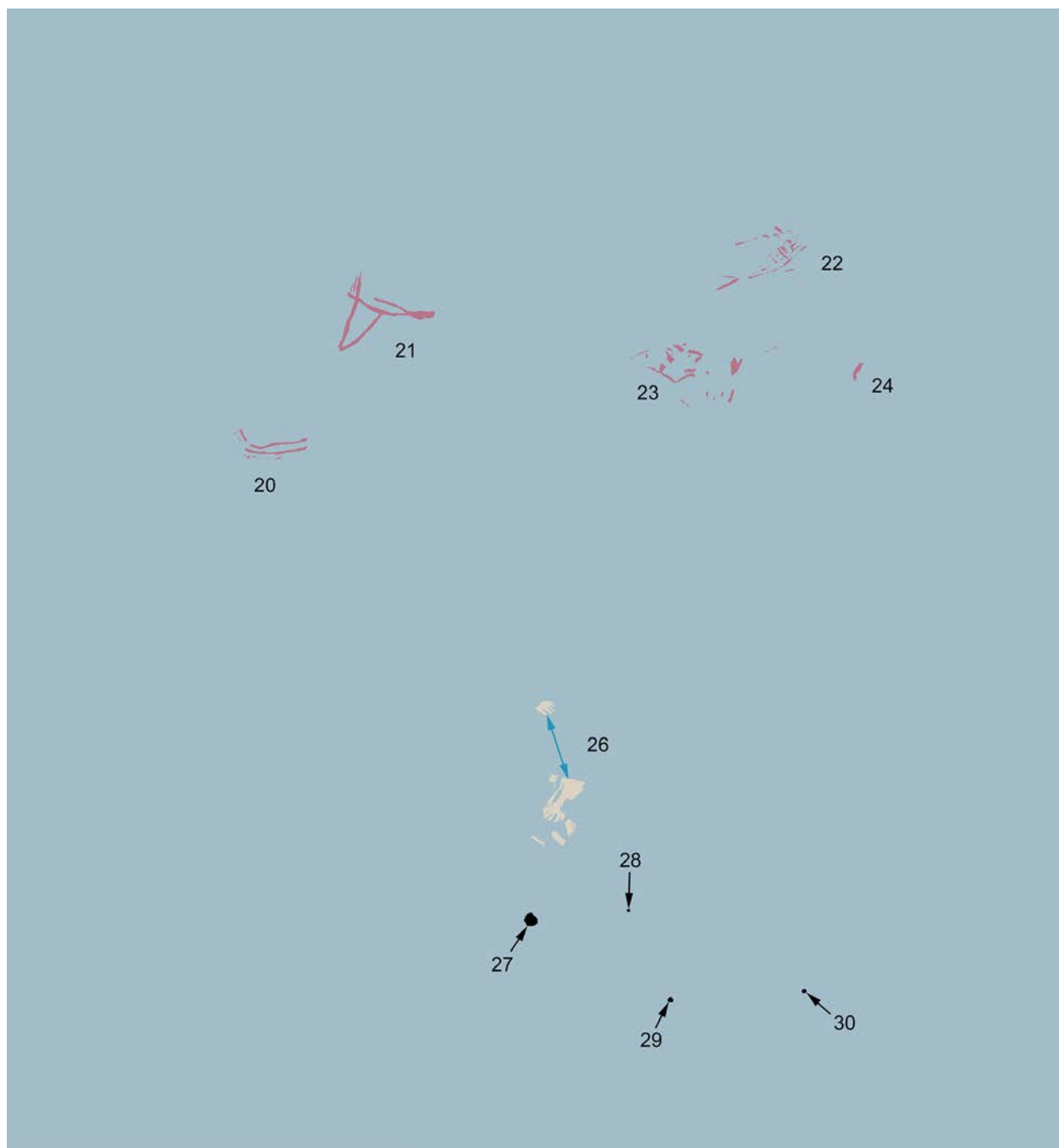


Figure 7.184: Panel F1 motif interpretations (iii)

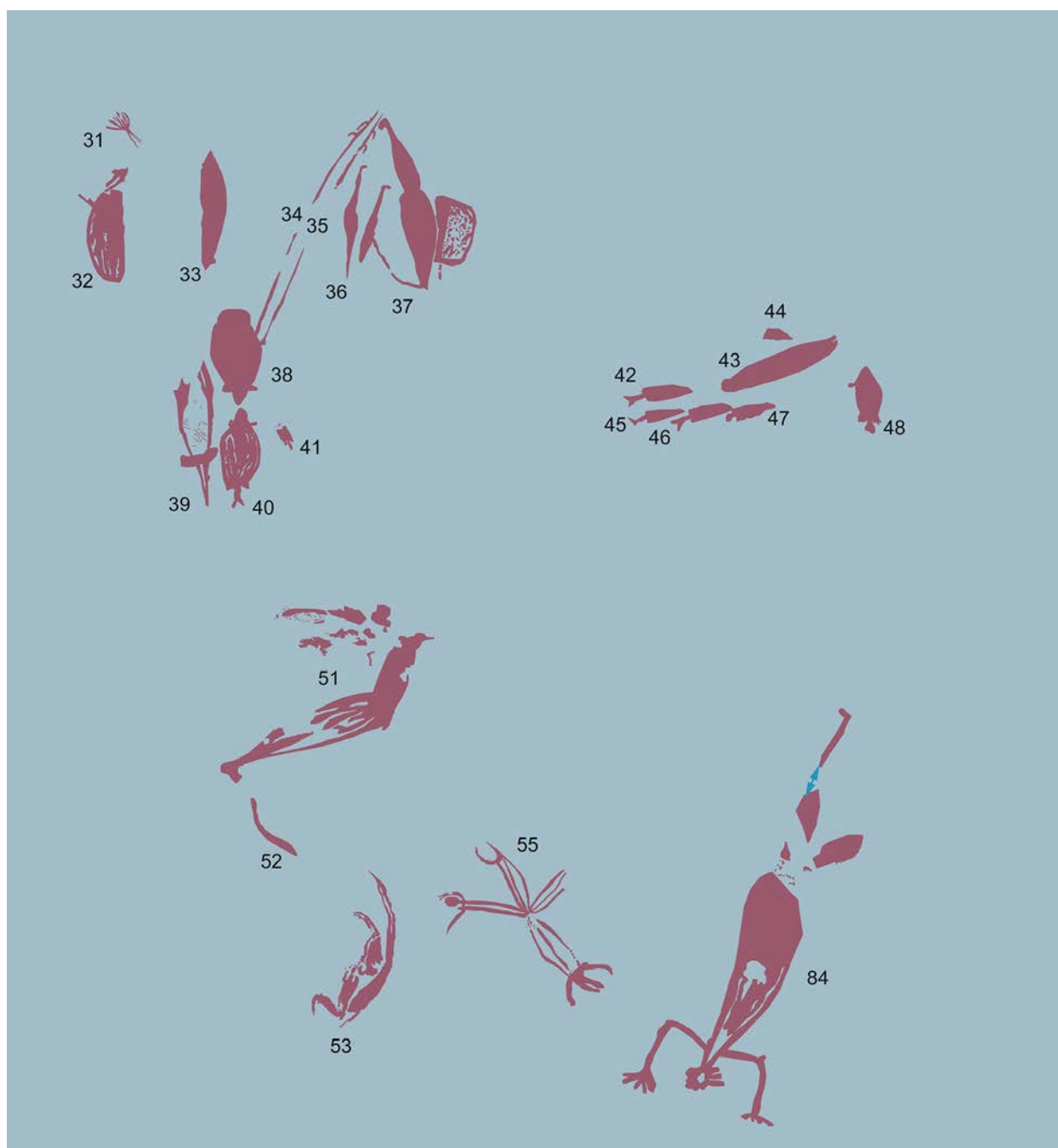


Figure 7.185: Panel F1 motif interpretations (iv)

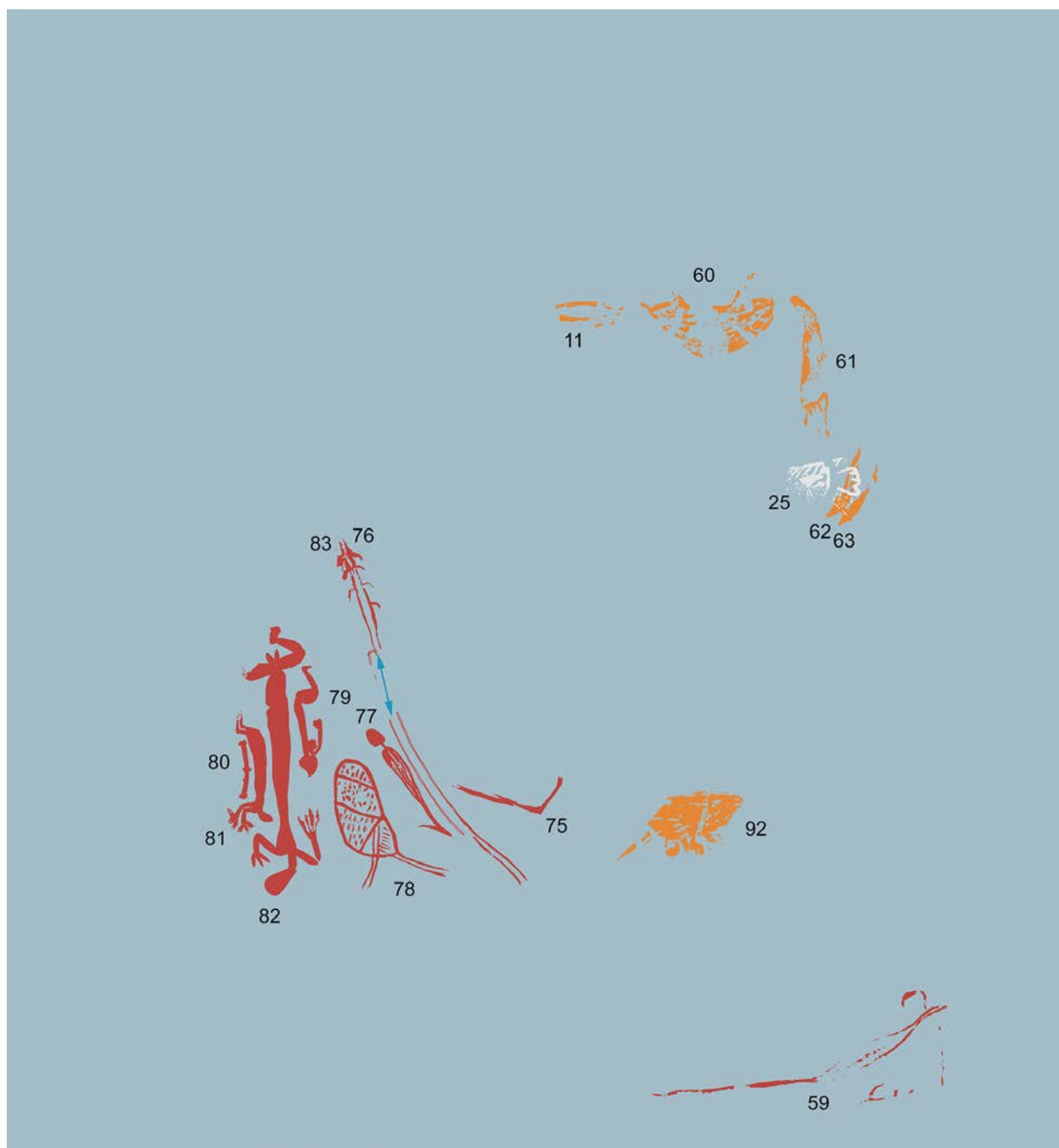


Figure 7.186: Panel F1 motif interpretations (v)

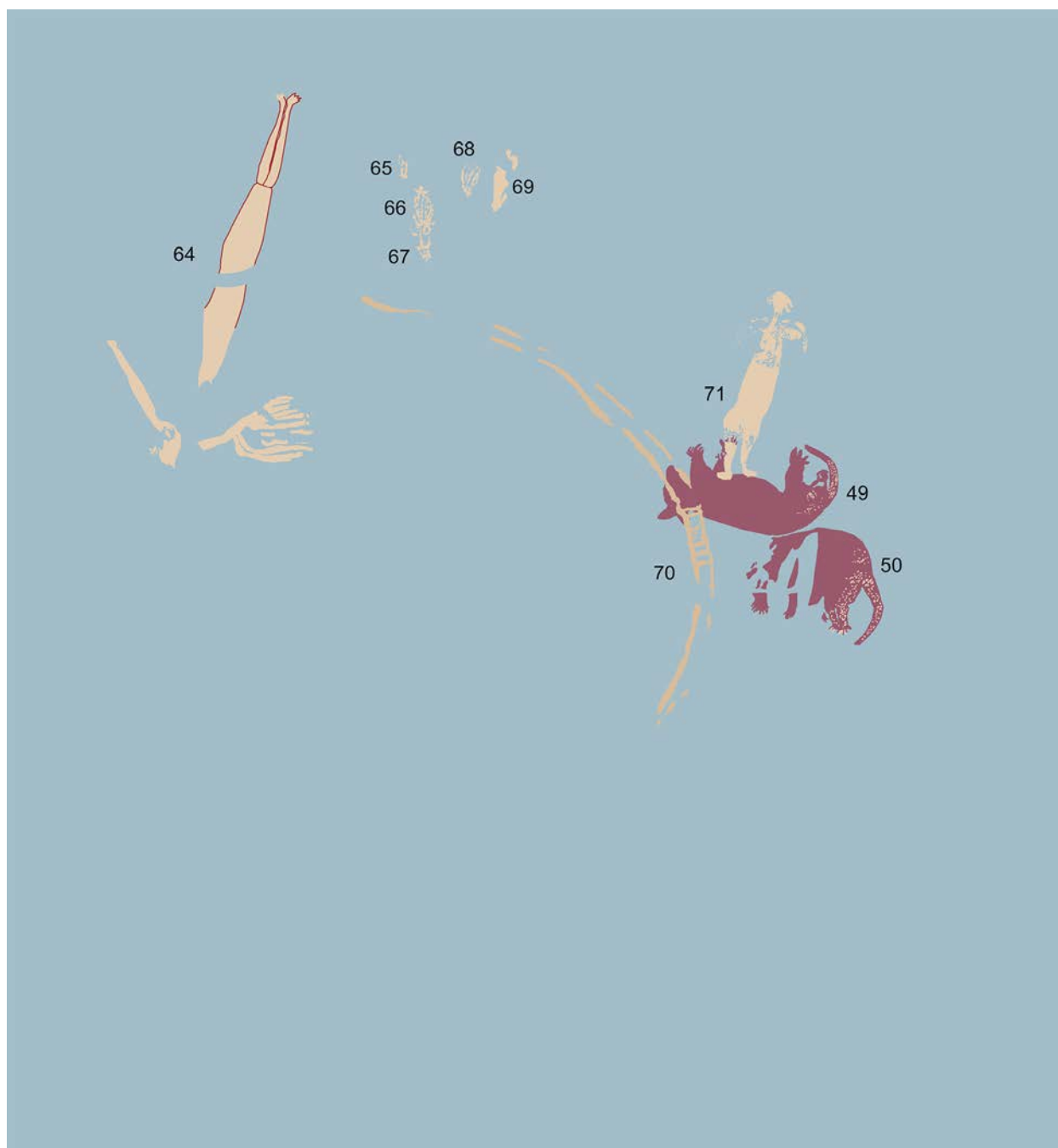


Figure 7.187: Panel F1 motif interpretations (vi)

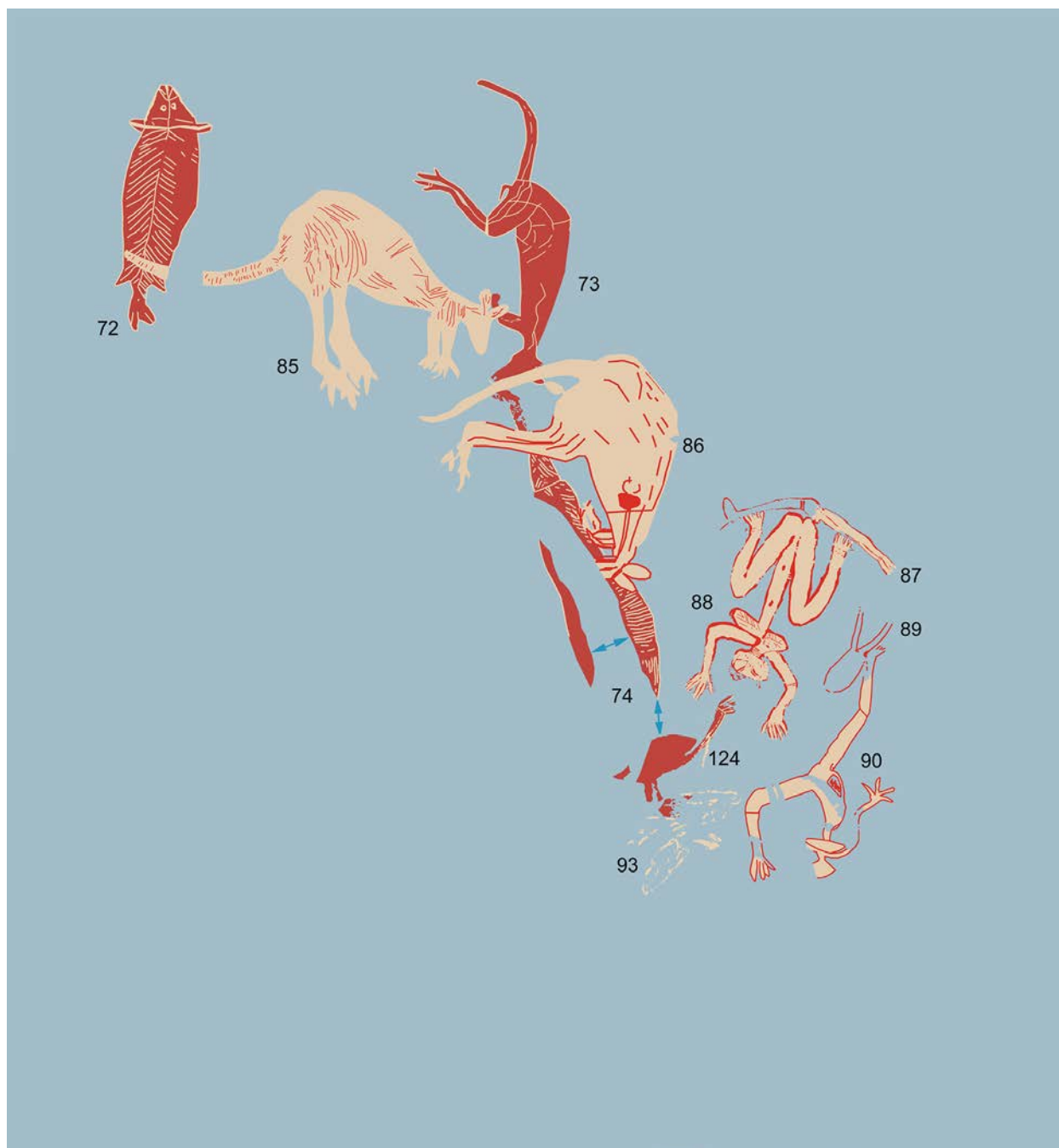


Figure 7.188: Panel F1 motif interpretations (vii)

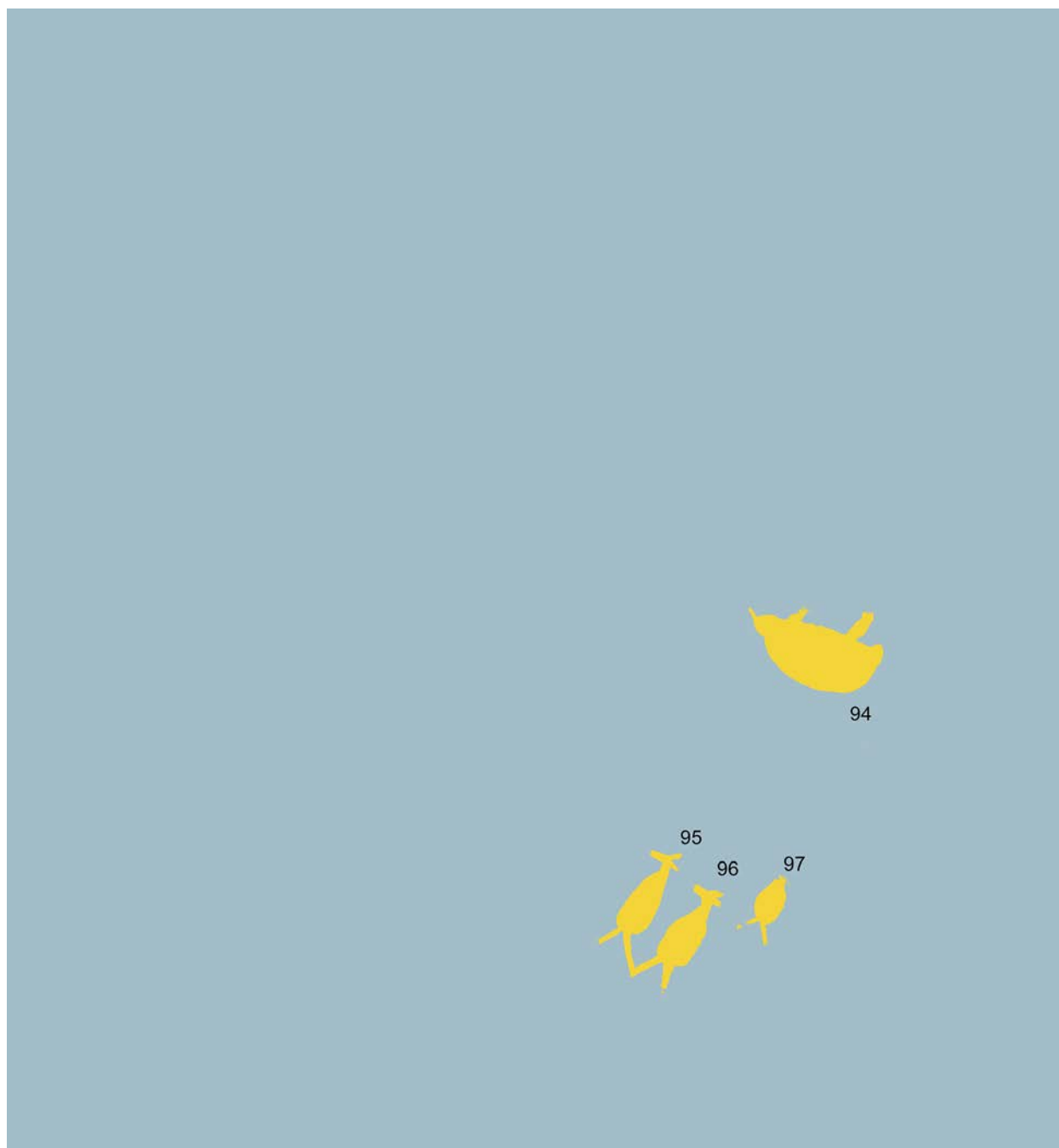


Figure 7.189: Panel F1 motif interpretations (viii)

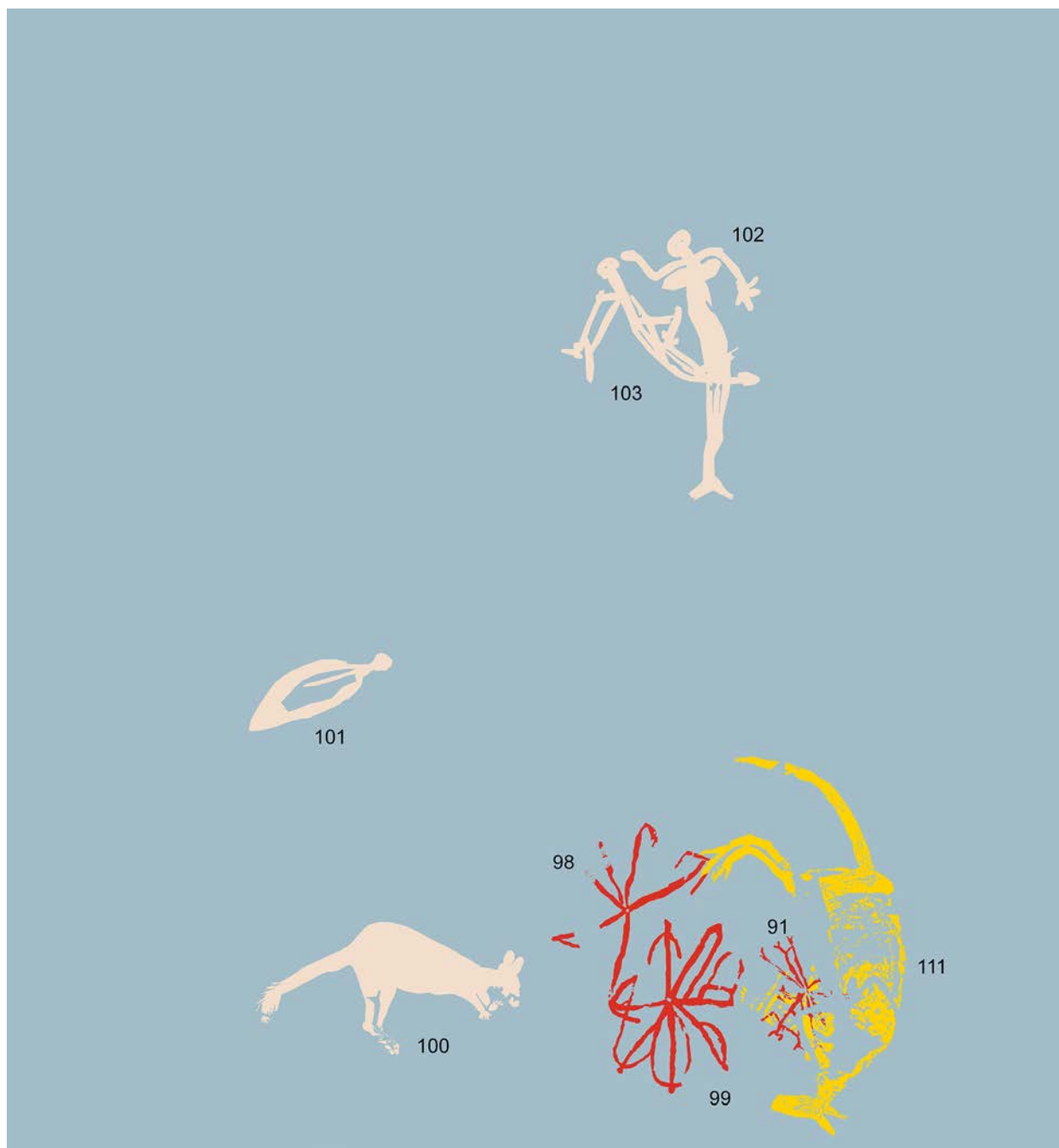


Figure 7.190: Panel F1 motif interpretations (ix)

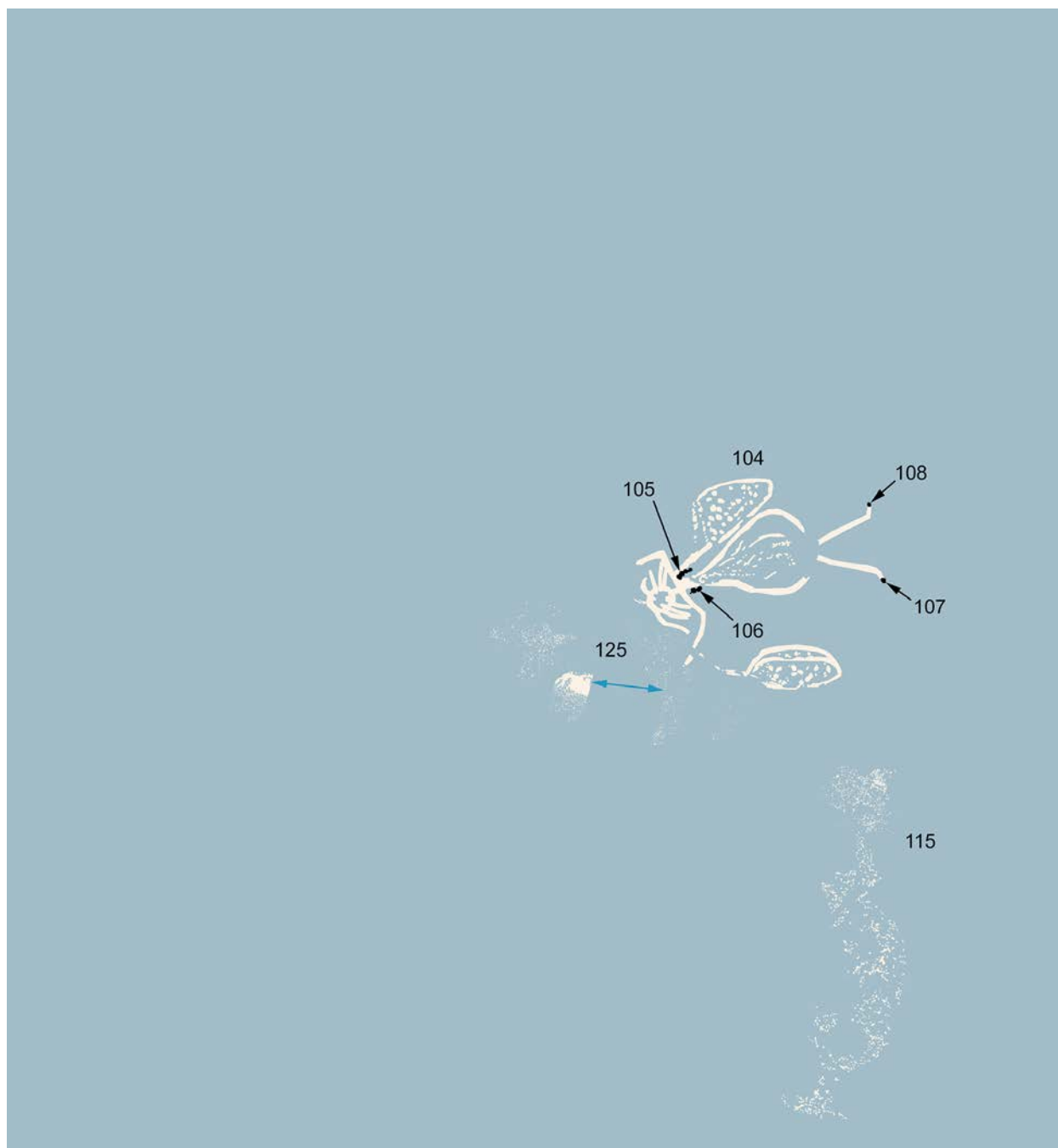


Figure 7.191: Panel F1 motif interpretations (x)

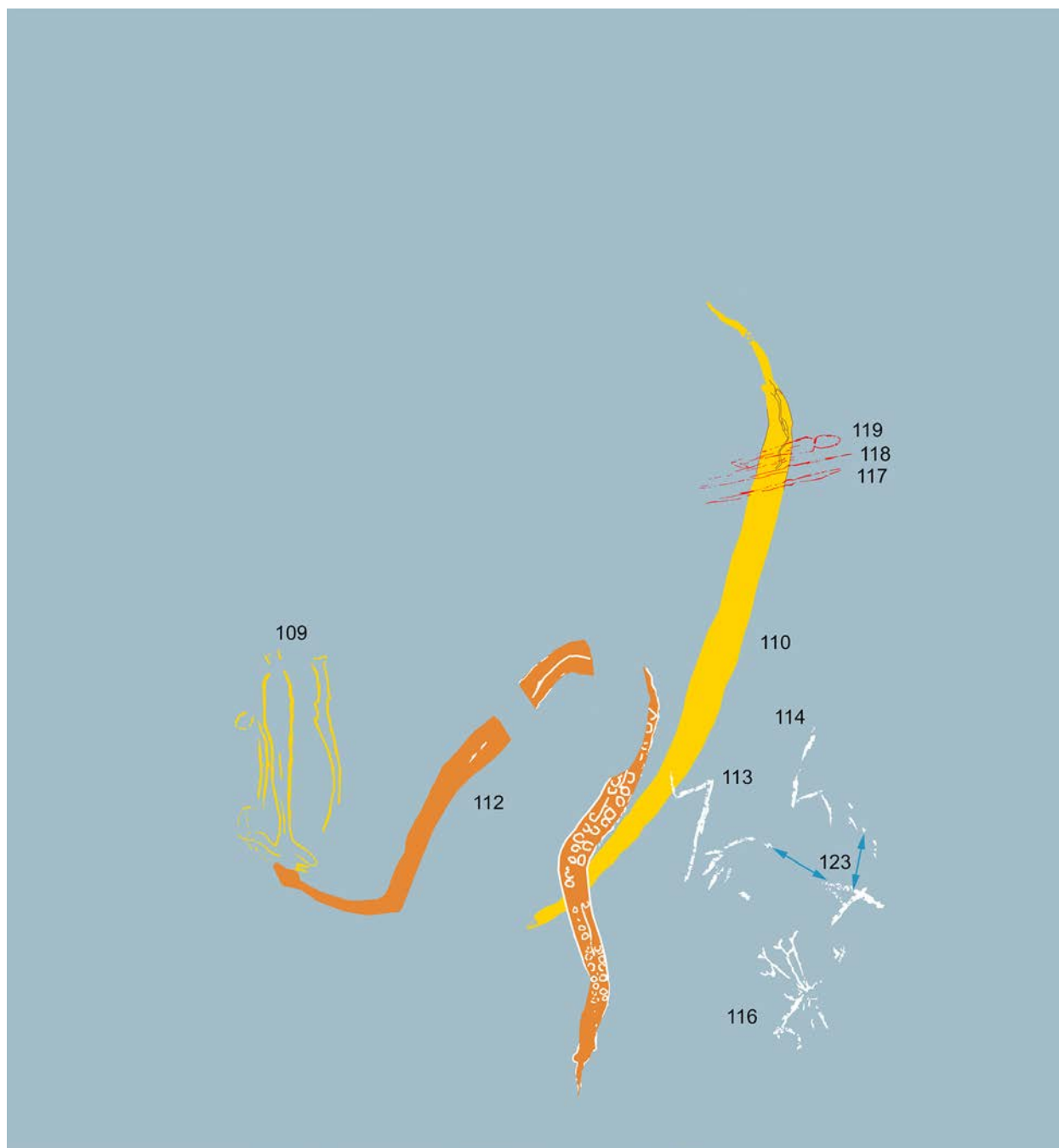


Figure 7.192: Panel F1 motif interpretations (xi)

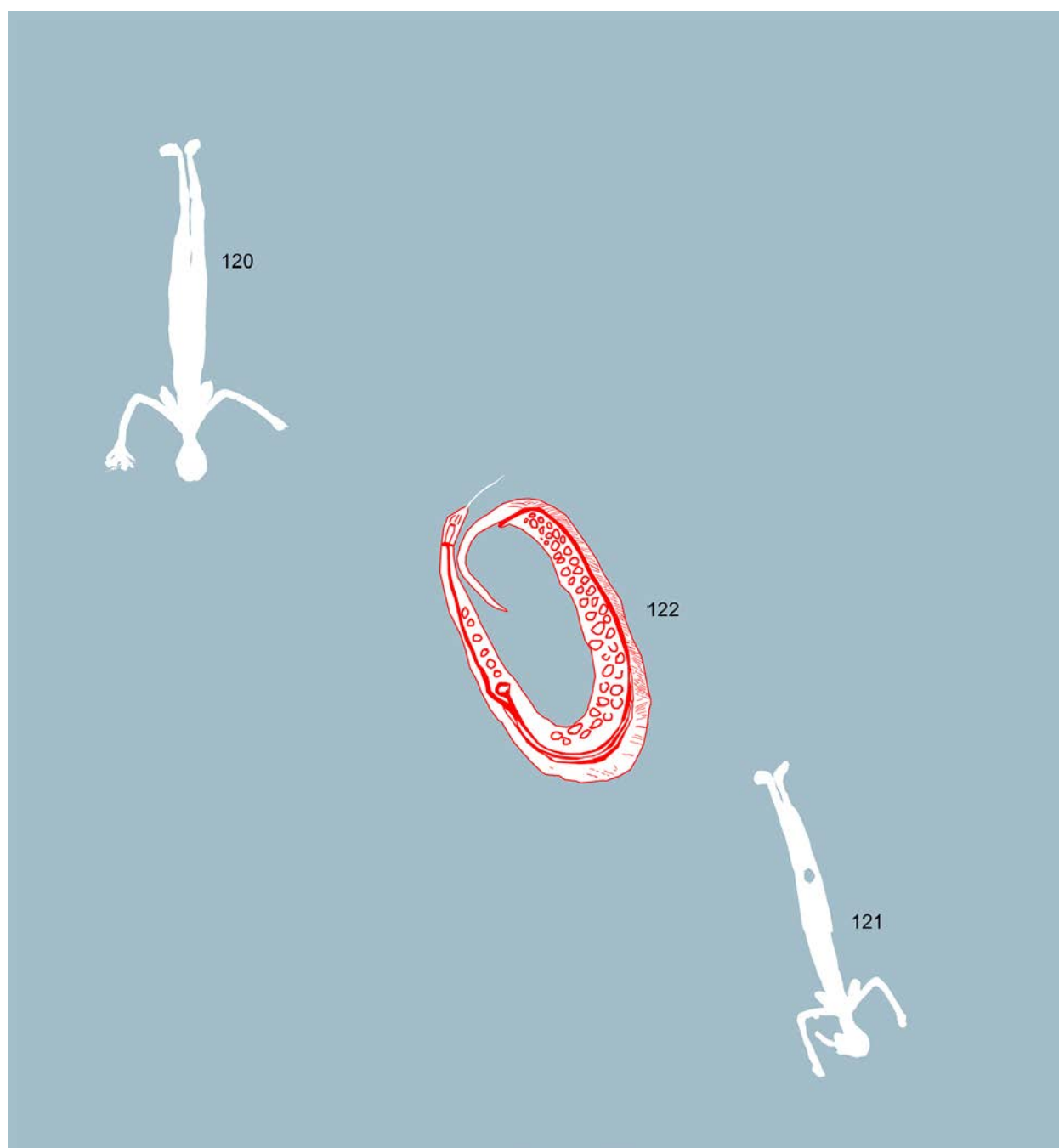


Figure 7.193: Panel F1 motif interpretations (xii)

Table 7.19: Panel F1 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
F-1	yellow	painting	trace	trace	trace	very poor		
F-2	yellow	painting	fragment	fragment	fragment	very poor		
F-3	yellow+red	painting	solid+outline	mammal	Animal	very poor		
F-4	yellow	painting	fragment	fragment	fragment	very poor		
F-5	yellow	painting	fragment	fragment	fragment	very poor		
F-6	red	painting	fragment	fragment	fragment	very poor		
F-7	red	painting	fragment	fragment	fragment	very poor		
F-8	red	painting	fragment	fragment	fragment	very poor		
F-9	red	painting	fragment	fragment	fragment	very poor		
F-10	red	painting	solid+linear	fragment	fragment	very poor		
F-11	orange	painting	fragment	fragment	fragment	very poor		
F-12	red	painting	outline+infill	reptile	Snake	poor		
F-13	red	painting	fragment	fragment	fragment	very poor		
F-14	red	painting	fragment	fragment	fragment	very poor		
F-15	red	painting	fragment	fragment	fragment	very poor		
F-16	red	painting	fragment	fragment	fragment	very poor		
F-17	red	painting	fragment	fragment	fragment	very poor		
F-18	red	painting	fragment	fragment	fragment	very poor		
F-19	red	painting	solid+linear	anthropomorph	Anthropomorph	poor		
F-20	red	painting	linear	fragment	fragment	very poor		
F-21	red	painting	linear	simple design	Design irregular	poor		
F-22	red	painting	outline+infill	fragment	fragment	very poor		
F-23	red	painting	fragment	fragment	fragment	very poor		
F-24	red	painting	fragment	fragment	fragment	very poor		
F-25	white	painting	outline+infill	fragment	fragment	very poor		
F-26	white	painting	fragment	fragment	fragment	very poor		
F-27	black	appliqué	solid	geometric	Dot	good		
F-28	black	appliqué	solid	geometric	Dot	good		
F-29	black	appliqué	solid	geometric	Dot	good		

F-30	black	appliqué	solid	geometric	Dot	good		
F-31	red	painting	fragment	fragment	fragment	fair		
F-32	red	painting	outline+infill	unknown	Unknown	poor		
F-33	red	painting	solid	fish	Fish	poor		
F-34	red	painting	linear	object	Spear	fair		
F-35	red	painting	linear	object	Spear	fair		
F-36	red	painting	solid+linear	object	Spearthrower	poor		
F-37	red	painting	solid+linear	anthropomorph	Anthropomorph	poor		
F-38	red	painting	solid	fish	Fish	poor		
F-39	red	painting	outline+infill	fish	Fish	poor		
F-40	red	painting	outline+infill	fish	Fish	fair	30	11
F-41	red	painting	solid	fish	Fish	poor		
F-42	red	painting	solid	fish	Fish	poor		
F-43	red	painting	solid	fish	Fish	fair		
F-44	red	painting	solid	fish	Fish	poor		
F-45	red	painting	solid	fish	Fish	poor		
F-46	red	painting	solid	fish	Fish	fair		
F-47	red	painting	solid	fish	Fish	poor		
F-48	red	painting	solid	fish	Fish	good		
F-49	red	painting	solid+infill	mammal	Possum	poor		
F-50	red+white	painting	solid+infill	mammal	Possum	very poor		
F-51	red	painting	outline+infill	anthropomorph	Anthropomorph	very poor		
F-52	red	painting	solid	fragment	fragment	fair		
F-53	red	painting	solid	mammal	Macropod	poor		
F-54	yellow	painting	solid	mammal	Animal	poor		
F-55	red	painting	outline+infill	simple design	Design radial	poor		
F-56	red+white	painting	solid+infill	complex design	Design regular	poor		
F-57	red+white	painting	solid+infill	fragment	fragment	very poor		
F-58	red+white	painting	solid+infill	anthropomorph	Anthropomorph	very poor		
F-59	red	painting	linear	fragment	fragment	very poor		
F-60	orange	painting	solid	mammal	Echidna	very poor		
F-61	orange	painting	fragment	fragment	fragment	very poor		

F-62	orange	painting	solid	fish	Catfish eel-tailed	fair		
F-63	orange	painting	solid	fish	Catfish eel-tailed	fair		
F-64	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		
F-65	white	painting	outline	unknown	Unknown	very poor		
F-66	white	painting	outline+infill	reptile	Turtle short-necked	poor		
F-67	white	painting	outline+infill	unknown	Unknown	very poor		
F-68	white	painting	outline+infill	simple design	Design apex	poor		
F-69	white	painting	solid	fragment	fragment	poor		
F-70	white	painting	outline+infill	reptile	Snake	very poor		
F-71	white	painting	solid	anthropomorph	Anthropomorph female	poor		
F-72	red+white	painting	X-ray	fish	Fish	good	65	23
F-73	red+white	painting	X-ray	mammal	Macropod male	poor	78	44
F-74	red+white	painting	solid+outline+infill	anthropomorph	Anthropomorph female	very poor		
F-75	red	painting	linear	object	Object	very poor		
F-76	red	painting	linear	object	Spear	poor		
F-77	red	painting	outline+infill	object	Spearthrower	fair	40	4
F-78	red	painting	outline+infill+linear	object	Dillybag	fair	47	15
F-79	red	painting	solid+linear	anthropomorph	Anthropomorph female	fair	26	7
F-80	red	painting	solid+linear	object	Object	poor		
F-81	red	painting	solid+linear	anthropomorph	Anthropomorph	poor	40	12
F-82	red	painting	solid+linear	anthropomorph	Anthropomorph female	poor	82	16
F-83	red	painting	linear	object	Spear	poor		
F-84	red	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		
F-85	white+red	painting	solid+outline+infill	mammal	Macropod	good	106	68
F-86	white+red	painting	X-ray	mammal	Macropod male	fair	75	70
F-87	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		
F-88	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	poor		
F-89	white+red	painting	outline	object	Dillybag	poor		
F-90	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph female	fair	70	45
F-91	red	painting	outline+infill	simple design	Design radial	fair		
F-92	orange	painting	solid	unknown	Unknown	poor		
F-93	white	painting	outline+infill+linear	simple design	Design irregular	fair		

F-94	yellow	painting	solid	mammal	Echidna	fair		
F-95	yellow	painting	solid	mammal	Flying fox	fair		
F-96	yellow	painting	solid	mammal	Flying fox	fair		
F-97	yellow	painting	solid	mammal	Flying fox	poor		
F-98	red	painting	linear	simple design	Design radial	fair		
F-99	red	painting	linear+outline	simple design	Design radial	fair		
F-100	white	painting	solid	mammal	Macropod	poor		
F-101	white	painting	solid+outline+infill	fish	Fish	poor	42	14
F-102	white	painting	solid+linear	anthropomorph	Anthropomorph male	very good	74	40
F-103	white	painting	solid+linear	anthropomorph	Anthropomorph female	very good	56	26
F-104	white	painting	outline+infill	anthropomorph	Anthropomorph female	fair		
F-105	black	appliqué	solid	geometric	Line	good		
F-106	black	appliqué	solid	geometric	Line	good		
F-107	black	appliqué	solid	geometric	Dot	good		
F-108	black	appliqué	solid	geometric	Dot	good		
F-109	yellow	painting	outline	simple design	Design irregular	fair		
F-110	yellow	painting	solid	reptile	Snake	good	192	9
F-111	yellow	painting	solid+outline+infill	mammal	Macropod	poor	113	27
F-112	orange+white	painting	solid+outline+infill	reptile	Snake	fair	112	7
F-113	white	painting	linear	simple design	Zigzag	very good		
F-114	white	painting	linear	simple design	Zigzag	poor		
F-115	white	spray	spray	infill	Infill #111	fair		
F-116	white	painting	linear	simple design	Design radial	good		
F-117	red	painting	outline	object	Spear	good		
F-118	red	painting	outline	object	Spear	good		
F-119	red	painting	outline	object	Spearthrower	good		
F-120	white	painting	solid	anthropomorph	Anthropomorph female	good	92	52
F-121	white	painting	solid	anthropomorph	Anthropomorph female	very good	84	31
F-122	white+red	painting	solid+outline+infill	reptile	Snake	very good	94	48
F-123	white	painting	linear	infill	Infill #111	good		
F-124	white	painting	linear	geometric	Y-shape	fair		
F-125	white	spray	spray	area	area	poor		
F-126	red+white	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		

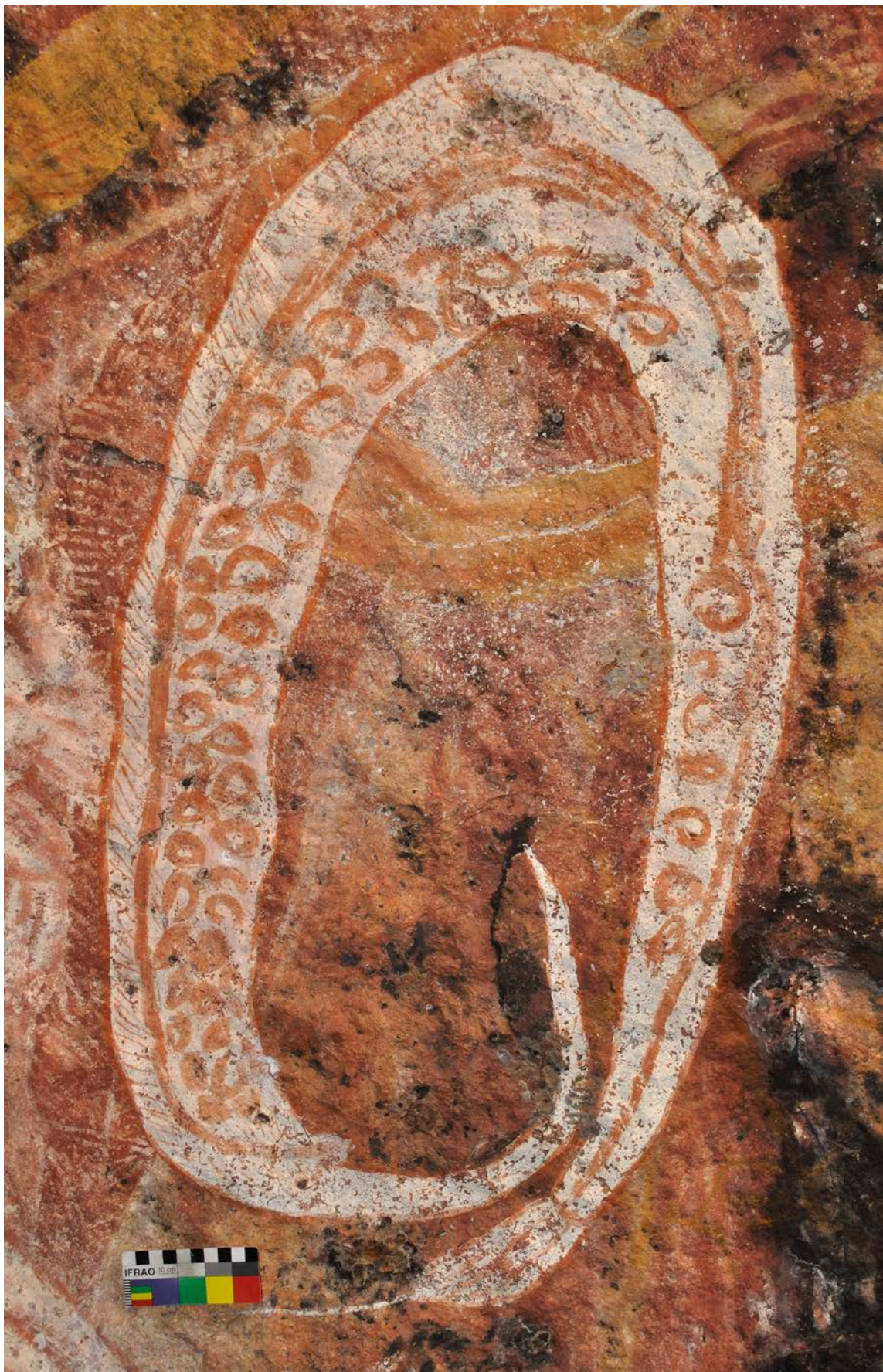


Figure 7.194: Snake motif with simple X-ray features showing the spine and eggs (Motif F-122)



Figure 7.195: Three white female figures and male figure (Motifs F-120; F-121; F-103 and F-102)



Figure 7.196: White macropod motif with red linear infill pattern (Motif F-85)



Figure 7.197: Red fish with white decorative 'X-ray' skeletal features (Motif F-71)



Figure 7.198: Location of beeswax pellets Motifs F-27 to F-30

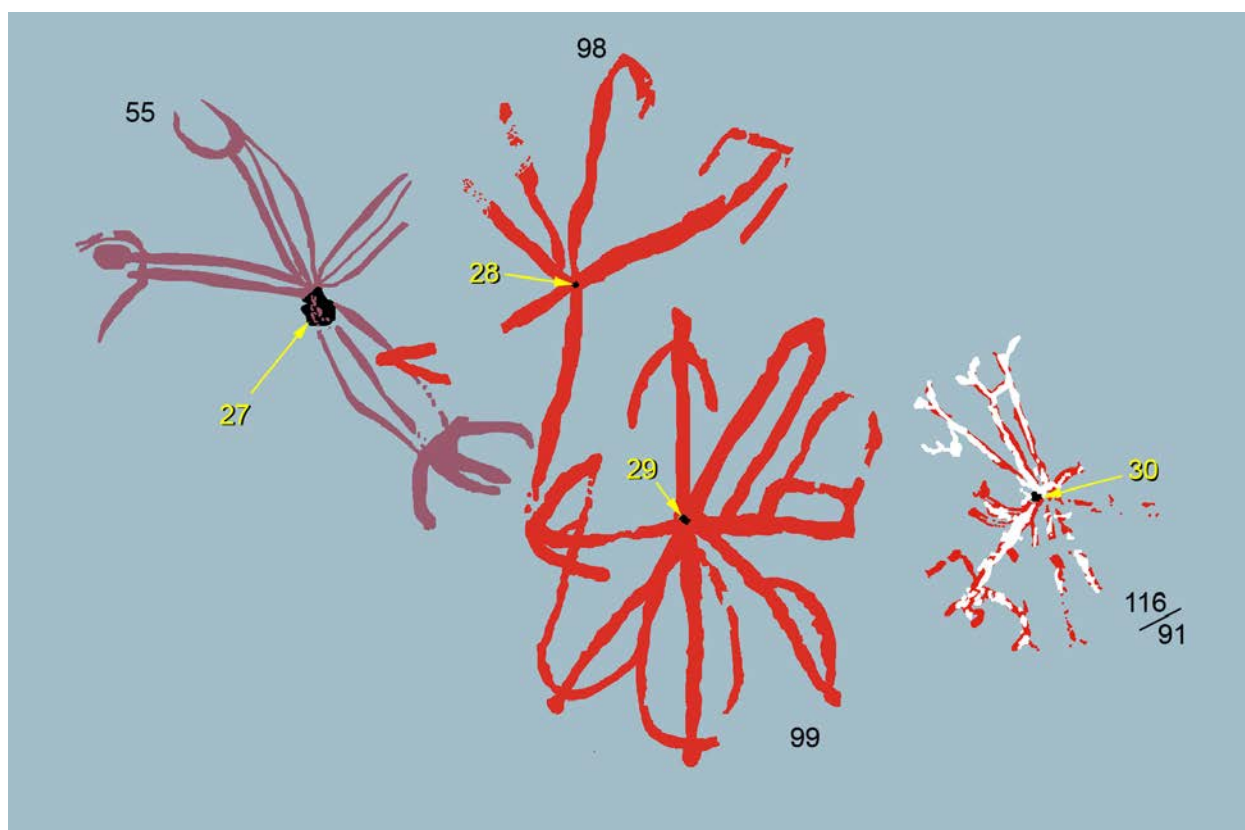


Figure 7.199: Design radials (Motifs F-55, F-91, F-98, F-99 and F-116) centred on beeswax pellets Motifs F-27 to F-30

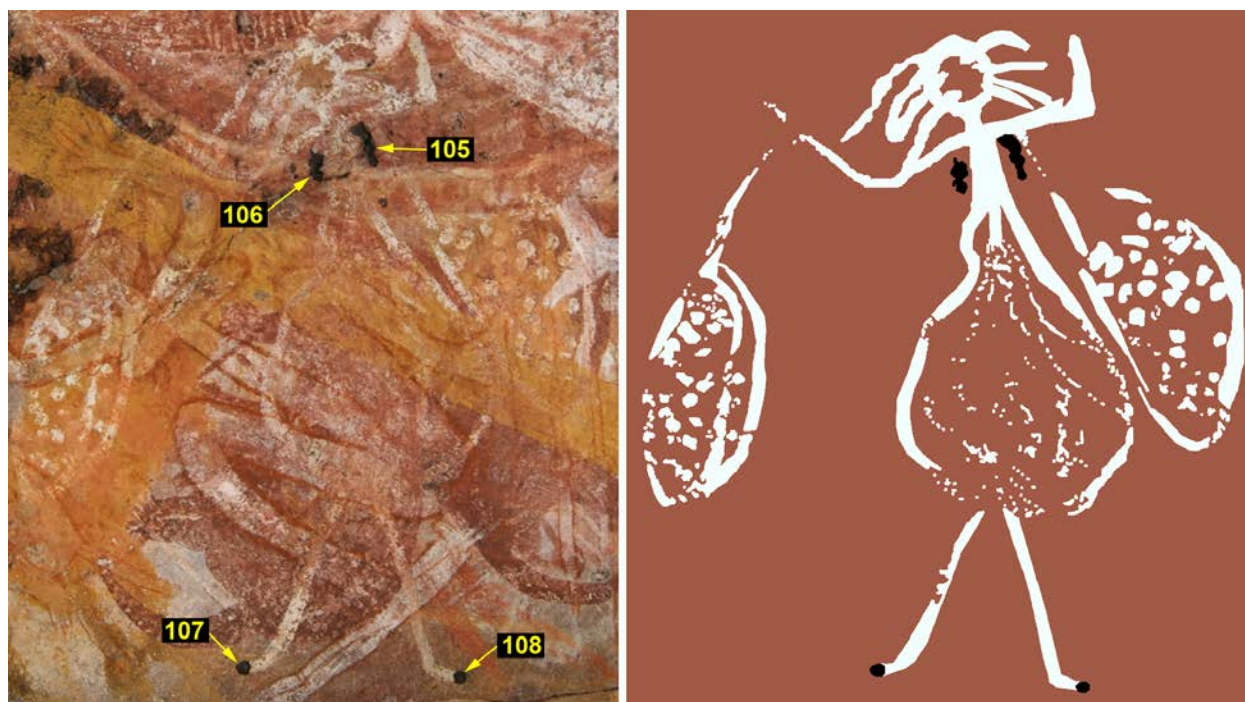


Figure 7.200: White painted female figure (Motif F-104) with beeswax additions (Motifs F-105 to F-108)

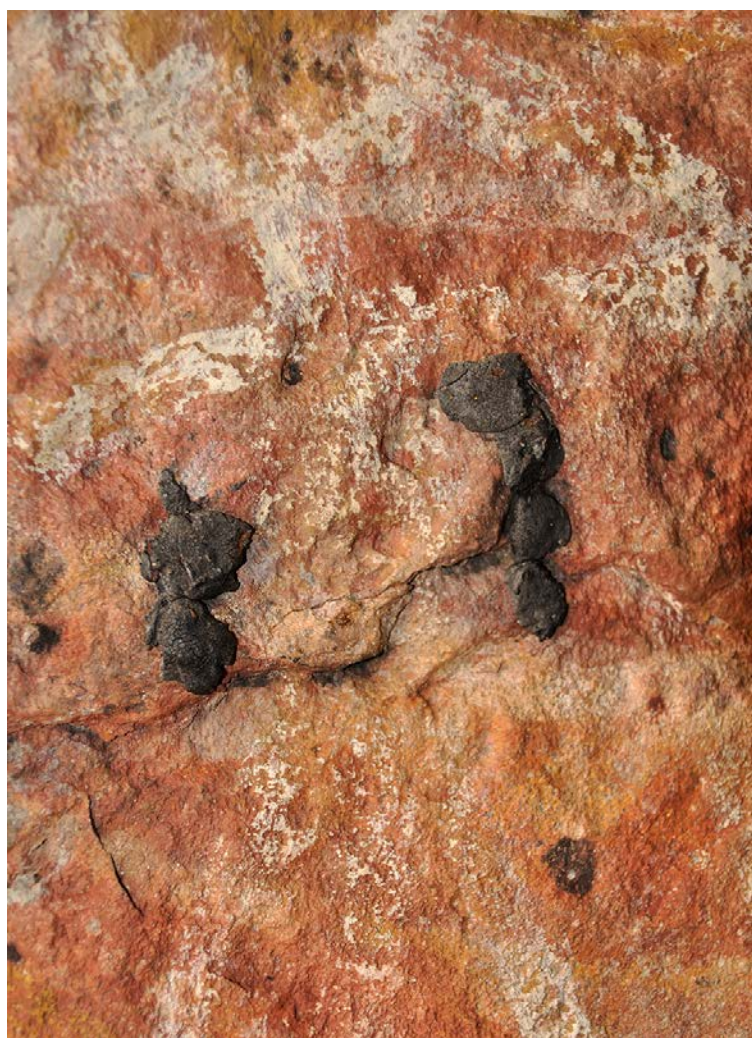


Figure 7.201: Detail of the beeswax breasts on Motif F-104

Panel F2

Panel F2 (Figures 7.202 and 7.203) is triangular in shape, with its longest axes 1.6 m and 0.8 m in length. The bottom corner of the panel (Figure 7.204) has been broken, possibly by manual removal of a slab (see Delannoy et al. 2017). Paintings (Motifs F-131 and F-143) have been placed on this newer exposed surface. Mud-wasp nests occur in low numbers across the panel, both over and beneath paintings.

Panel F2 contains 32 motifs (Table 7.20; Figures 7.205 to 7.211), 20 of which are interpreted to Motif Type. Many of the paintings are involved in superimposition and there is no consistency in motif orientation.

The most impressive motif is that of a white macropod with red and grey fine-line infill patterns (Motif F-157; Figures 7.211 and 7.212). In addition, the motif was, at some later time, partially re-

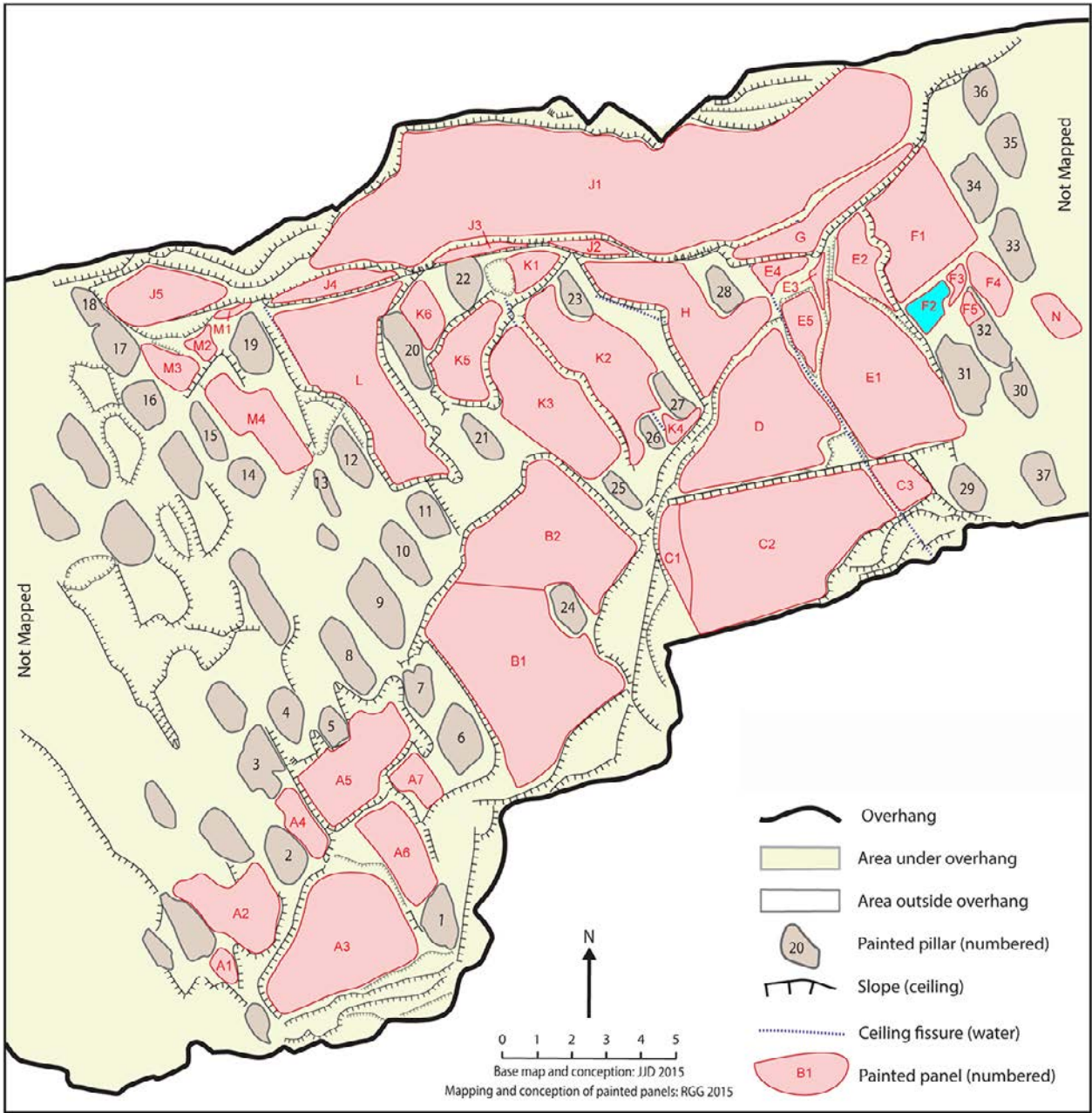


Figure 7.202: Location of Panel F2

outlined in a coarse, uneven manner with a thick, pink-red pigment and starkly contrasting with the finer line-work of the original painting. The sketchy infill of this motif is similar to that used in Motif F-85 on Panel F1 (Figure 7.196).

Motif F-154 is a macropod- or flying fox-headed creature in a very bright and stark white pigment (Figure 7.213). The figure has no legs or feet and is

painted in an unusual method, using short straight strokes in an angular manner.

Motif F-156 was recorded as a painting of an outlined arc in black. The attribution of pigment colour, however, is uncertain as the pigment appears to have been host to an unidentified organism that has created a blistered effect, and possibly caused a change in the original pigment colour (Figure 7.214).

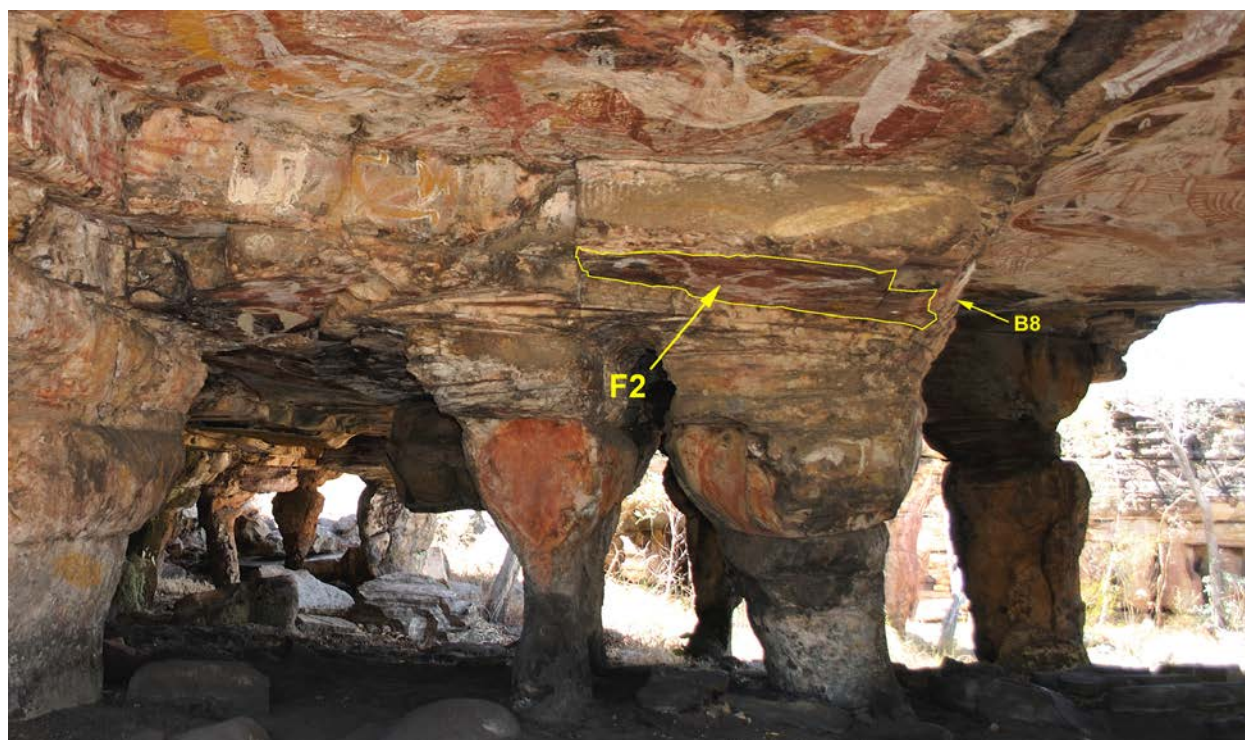


Figure 7.203: Location of Panel F2



Figure 7.204: Panel F2 photograph
Photograph: Leigh Douglas



Figure 7.205: Panel F2 photo-tracing

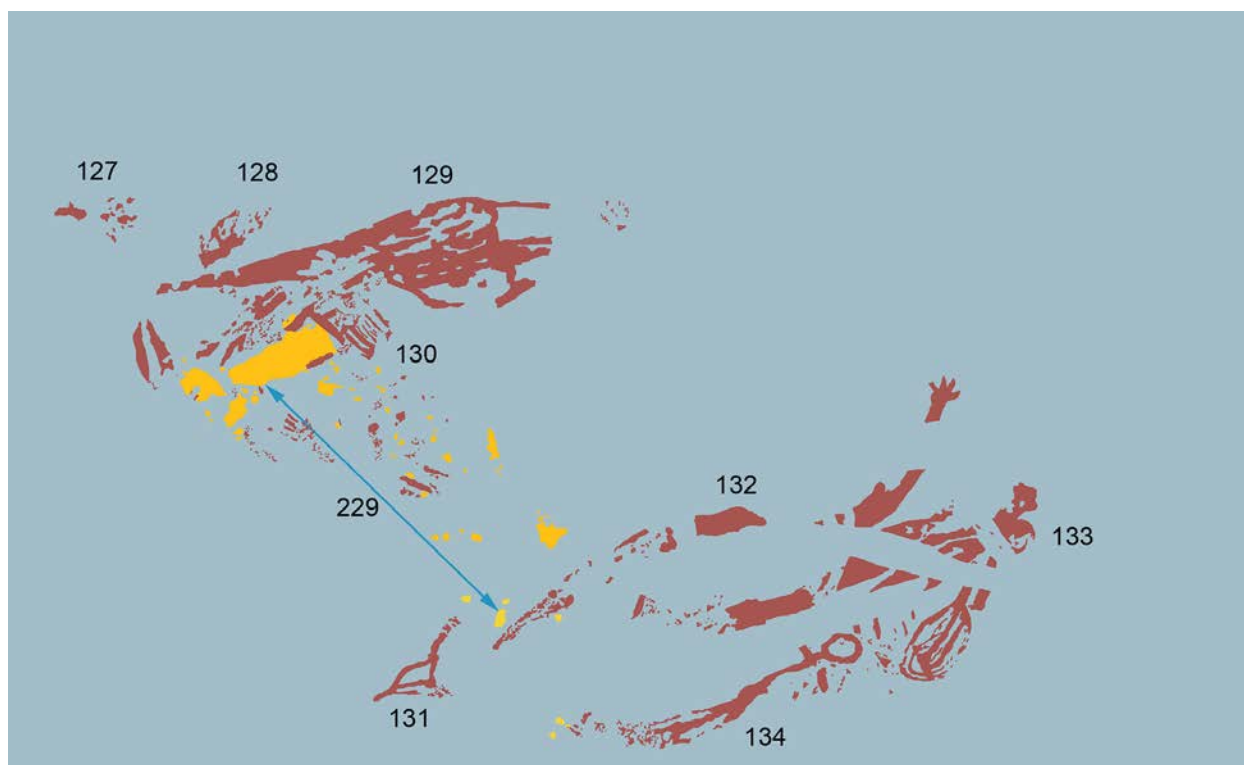


Figure 7.206: Panel F2 motif interpretations (i)

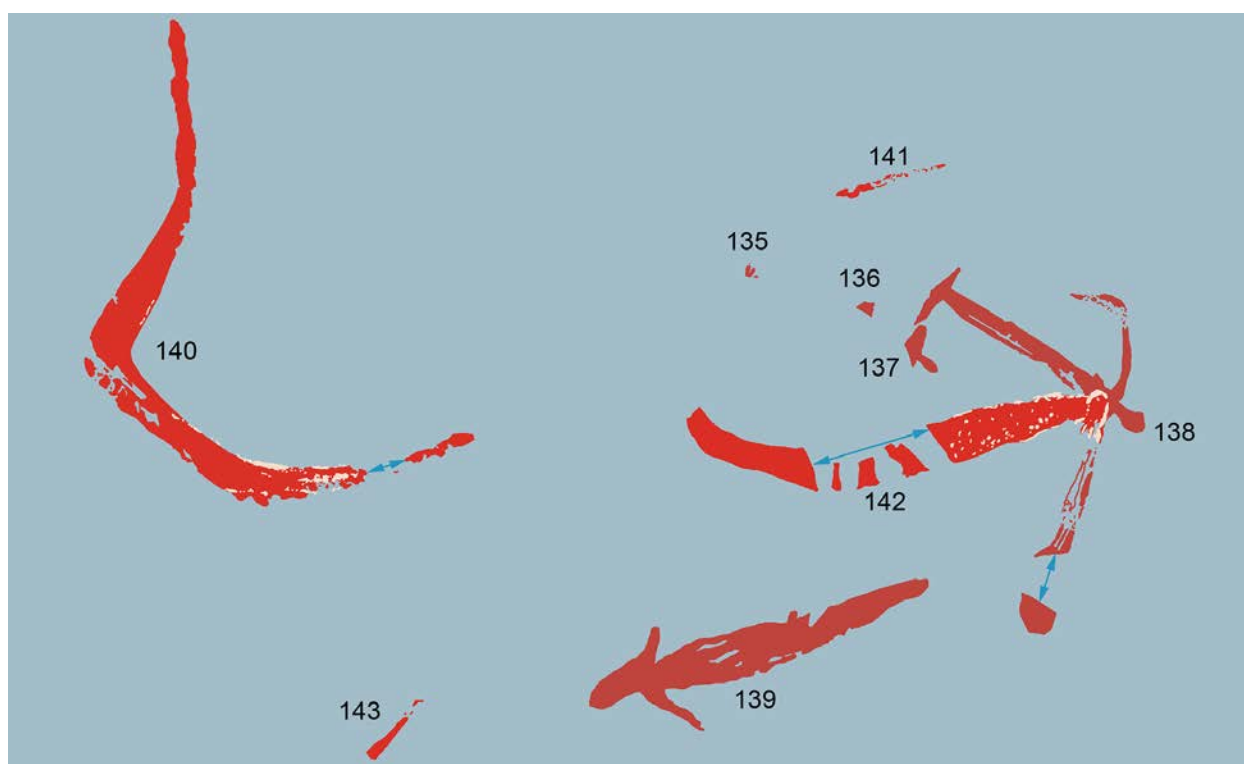


Figure 7.207: Panel F2 motif interpretations (ii)

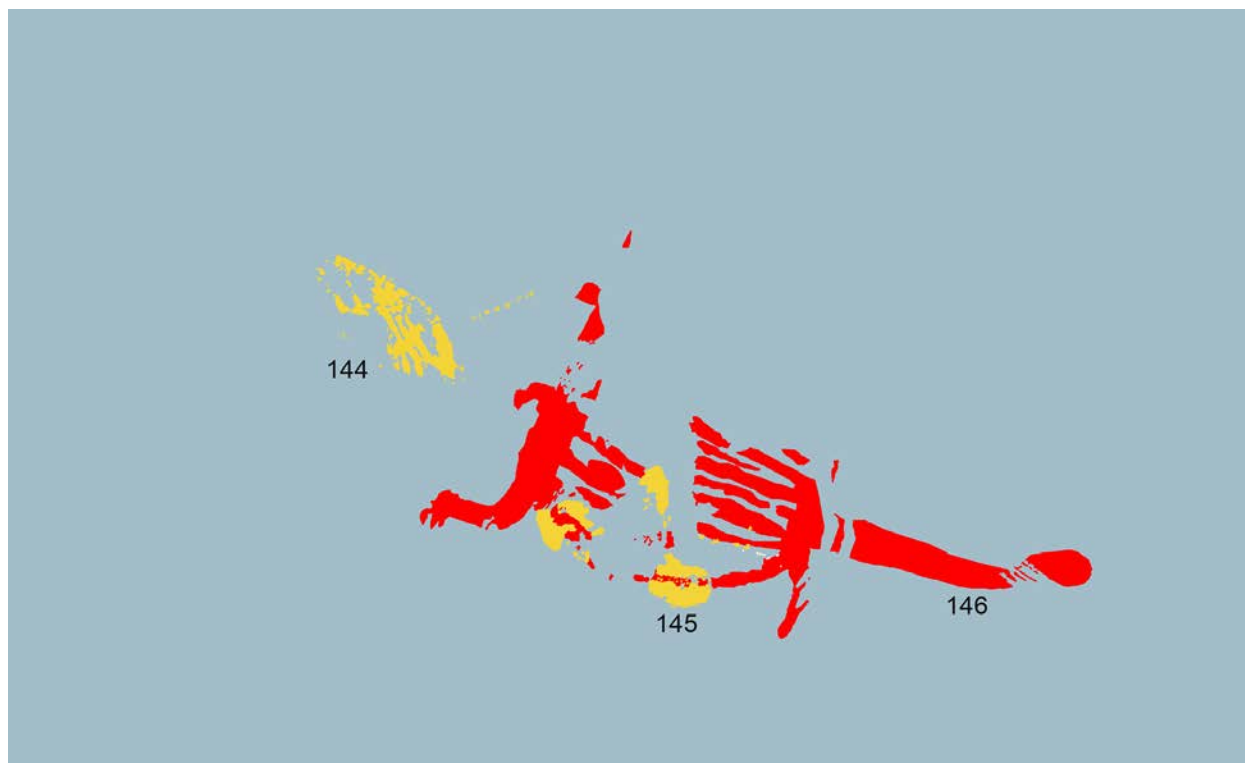


Figure 7.208: Panel F2 motif interpretations (iii)

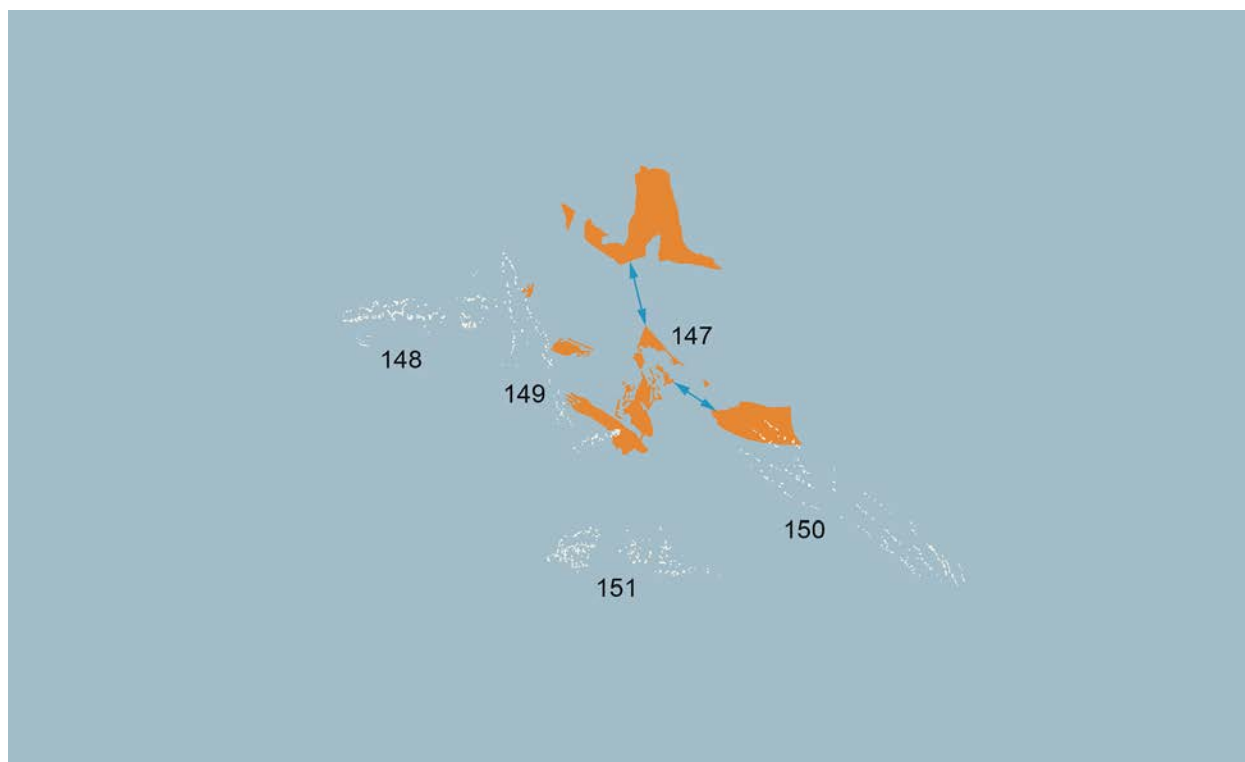


Figure 7.209: Panel F2 motif interpretations (iv)



Figure 7.210: Panel F2 motif interpretations (v)

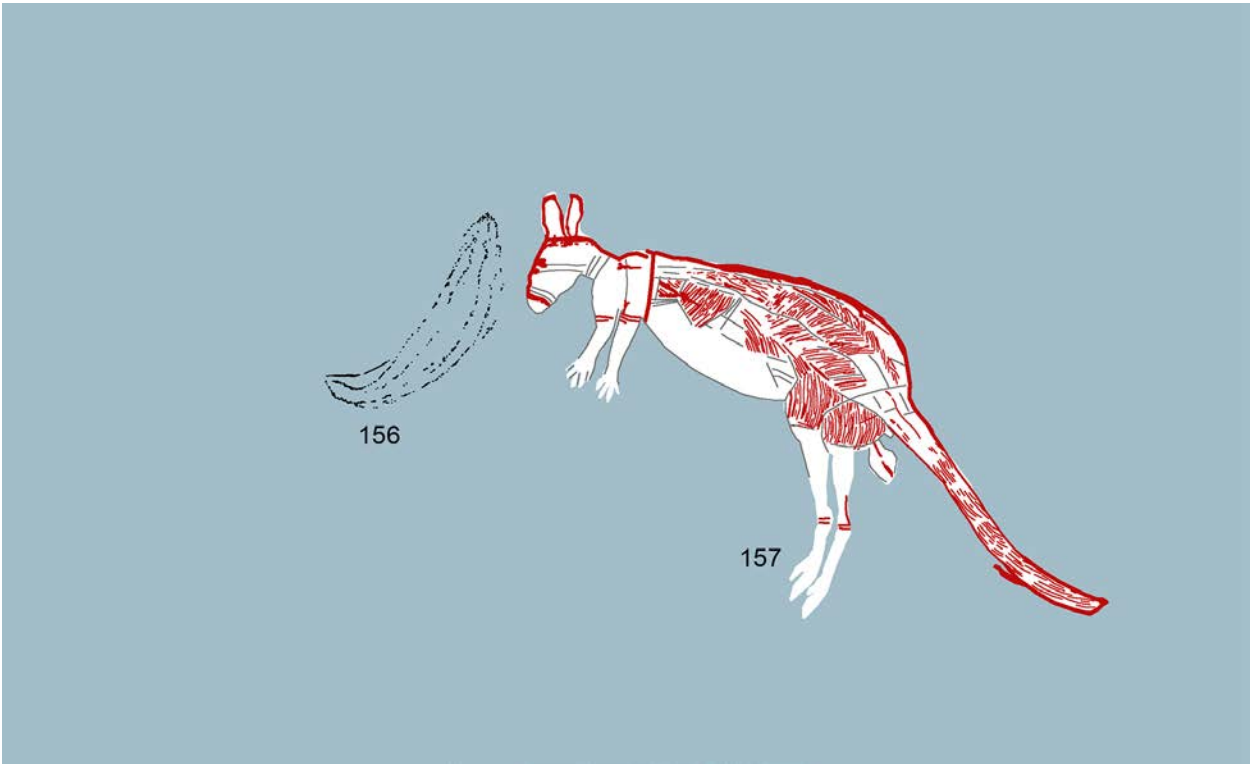


Figure 7.211: Panel F2 motif interpretations (vi)

Table 7.20: Panel F2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
F-127	red	painting	fragment	fragment	fragment	very poor		
F-128	red	painting	fragment	fragment	fragment	very poor		
F-129	red	painting	fragment	mammal	Macropod	very poor		
F-130	red	painting	fragment	fragment	fragment	very poor		
F-131	red	painting	fragment	fragment	fragment	very poor		
F-132	red	painting	fragment	fragment	fragment	very poor		
F-133	red	painting	solid+outline+infill	anthropomorph	Anthropomorph	very poor		
F-134	red	painting	linear+outline	anthropomorph	Anthropomorph	very poor		
F-135	red	painting	fragment	fragment	fragment	very poor		
F-136	red	painting	fragment	fragment	fragment	very poor		
F-137	red	painting	fragment	fragment	fragment	very poor		
F-138	red	painting	solid	anthropomorph	Anthropomorph	very poor		
F-139	red	painting	solid	fish	Catfish eel-tailed	poor	49	12
F-140	red+white	painting	solid+outline+infill	reptile	Snake	poor	53	26
F-141	red	painting	linear	geometric	Line	fair		
F-142	red+white	painting	solid+outline+infill	zoomorph	Bolung	poor		
F-143	red	painting	linear	geometric	Line	fair		
F-144	yellow	painting	solid+linear	fragment	fragment	very poor		
F-145	yellow	painting	fragment	fragment	fragment	very poor		
F-146	red	painting	solid+outline+infill	reptile	Turtle long-necked	poor	78	37
F-147	orange	painting	fragment	fragment	fragment	very poor		
F-148	white	painting	outline	unknown	Unknown	fair		
F-149	white	drawing	linear	simple design	Design apex	good		
F-150	white	drawing	linear	area	Scribble	fair		
F-151	white	painting	linear	area	Scribble	fair		
F-152	white	painting	solid+linear	unknown	Unknown	fair		
F-153	white	painting	solid	unknown	Unknown	good	29	18
F-154	white	painting	solid+outline+infill	therianthrope	Macropod-headed	good	28	24
F-155	white	painting	solid	unknown	Unknown	good	16	13
F-156	black	painting	outline+infill	simple design	Design regular	fair	31	9
F-157	white+red+black	painting	solid+outline+infill	mammal	Macropod male	good	82	43
F-229	yellow	painting	fragment	fragment	fragment	very poor		



Figure 7.212: Macropod (Motif F-157)

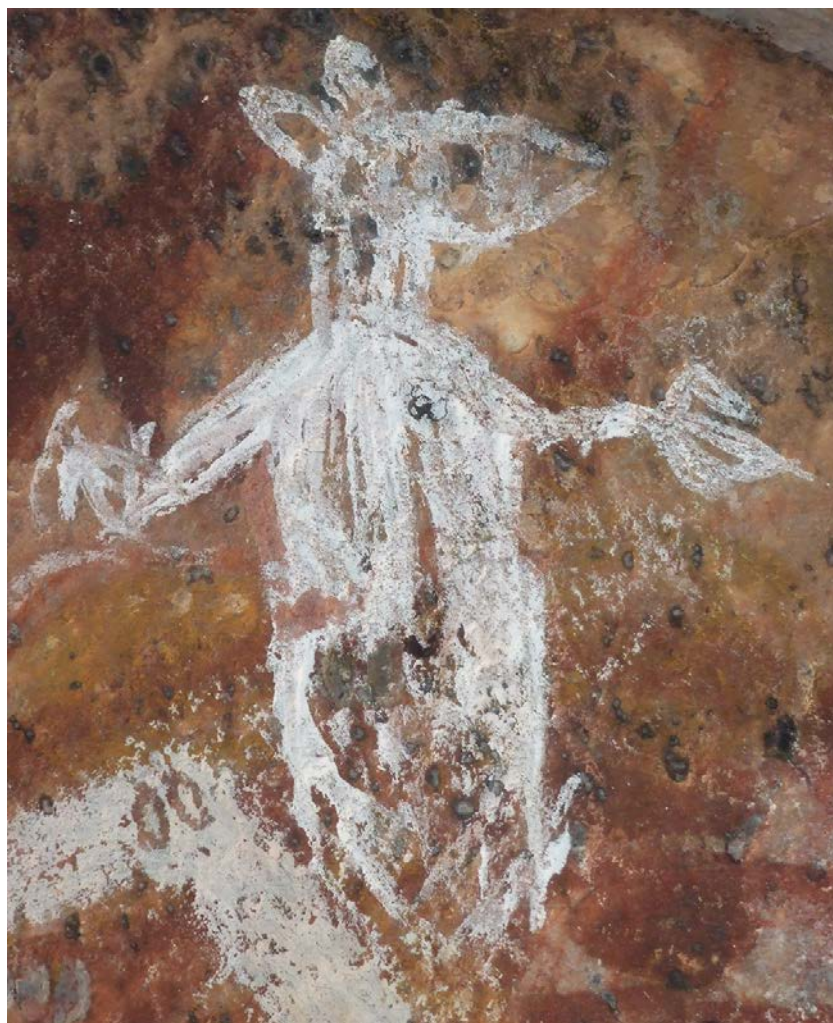


Figure 7.213: Macropod-headed Being or flying fox (Motif F-154)
Photograph: Leigh Douglas



Figure 7.214: 'Blistering' (arrowed) in the pigment of Motif F-156
Photograph: Leigh Douglas

Panel F3

Panel F3 (Figures 7.215 to 7.216) is small, measuring 0.7 × 0.2 m in size, irregular in shape, and with a stepped surface (Figures 7.217 and 7.218). The stepping is most likely due to human agency, through the shearing of the layered sandstone (cf. Delannoy et al. 2013, 2017). The resulting steps are both smooth and flat, but the uppermost, more recent surface (to the right in Figure 7.217) is coated with white salts.

Panel F3 has 11 motifs (Table 7.21; Figures 7.218 to 7.220), nine of which are interpreted to Motif Type.

Two angular simple designs in white (Motifs F-165 and F-166) are particularly unusual. These are interpreted as symbols of female sexuality (stylised vulva), as a similar stylised vulva is depicted on paintings of female figures elsewhere in western Arnhem Land rock art (e.g. Chaloupka 1993: 158, 170 and 222), on both single figures and on female figures involved in sexual foreplay and coitus. The depiction of such sexual symbols is rare in Jawoyn rock art. A similar pair in white has been recorded on Pillar 31 here and also at the ARN-071 site complex, 30 km to the north-east Nawarla Gabarnmang (Figure 7.221A-C). On Pillar 28 at Nawarla Gabarnmang there is a further set of three vulva symbols (a pair and

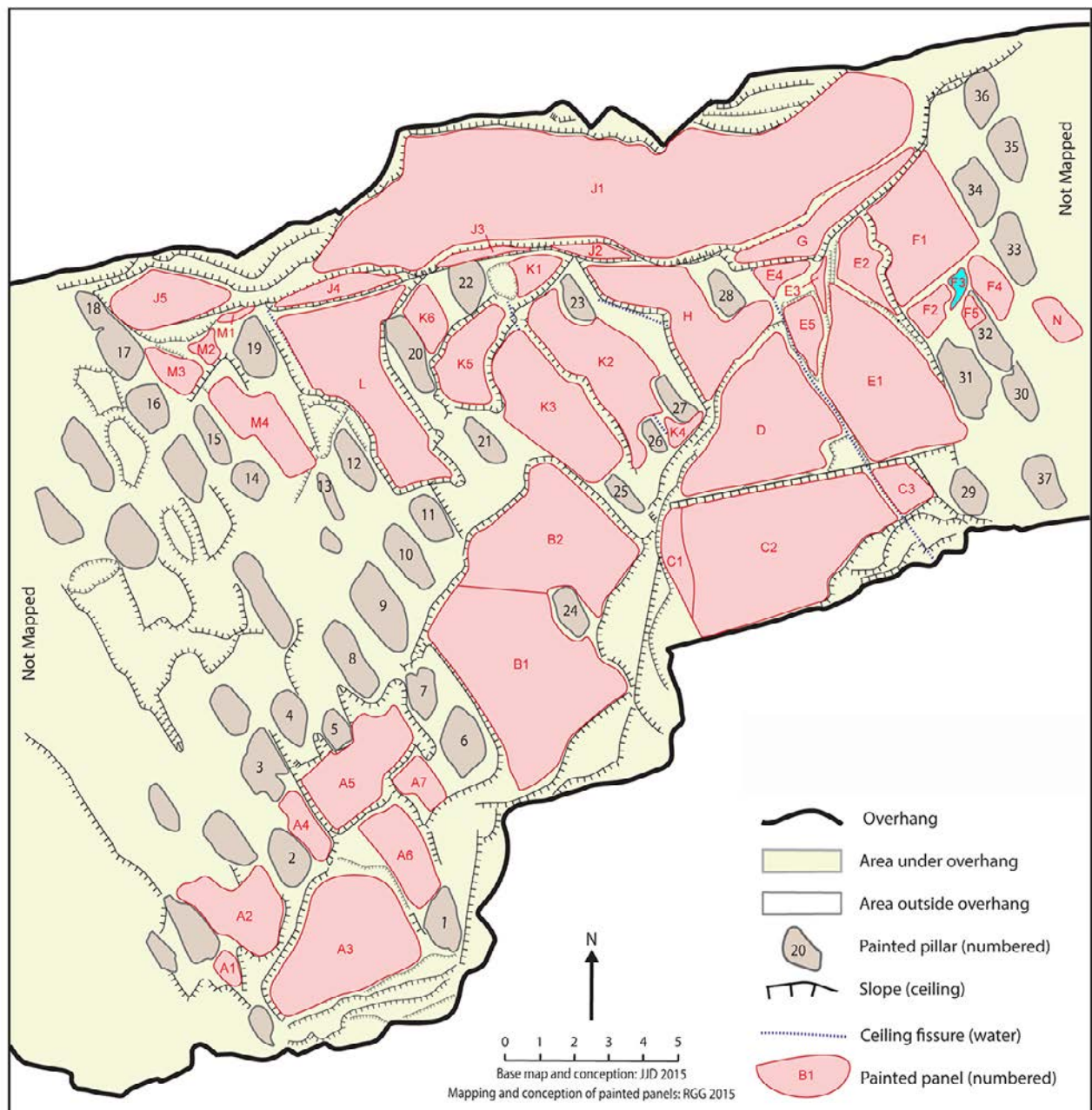


Figure 7.215: Location of Panel F3

a single motif), in red outlined in white, although in a slightly different style (Figure 7.221D). Symbols of male sexuality have been recorded at a small number of sites towards the southern end of the Arnhem Land plateau, but none to date in sites central to the plateau, where the female symbols occur.

Bar motifs are also unusual in Jawoyn rock art and, hence, the presence of both red and white examples on this panel (Panel F3) is of interest. The red bars occur in series (Motifs F-162 and F-163; Figure 7.219), while the alignment of the white bars is irregular (Motifs F-167 and F-168; Figure 7.220).



Figure 7.216: Location of Panel F3
Photograph: Leigh Douglas



Figure 7.217: Panel F3 photograph
Photograph: Leigh Douglas

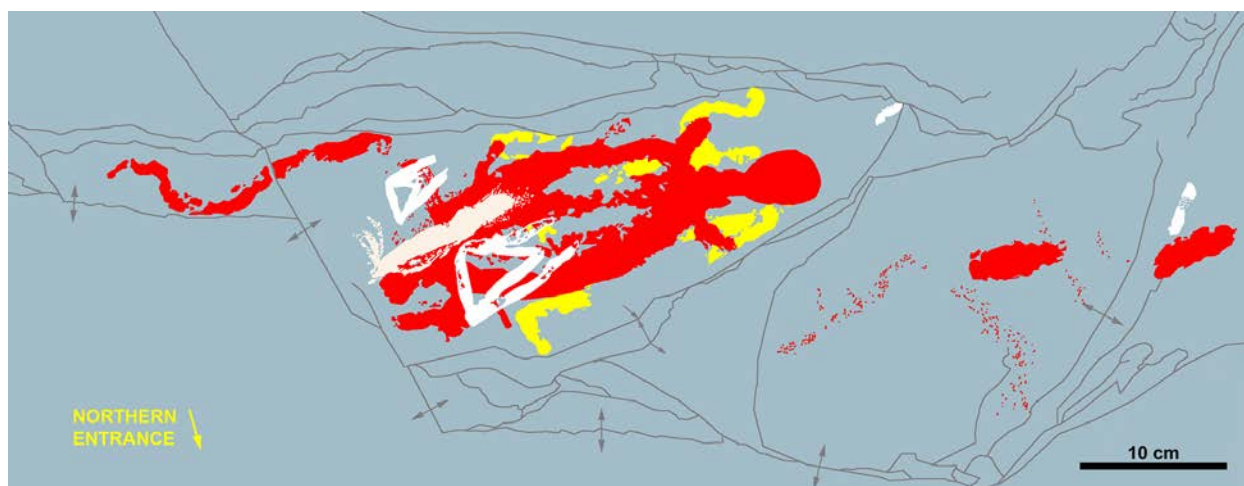


Figure 7.218: Panel F3 photo-tracing

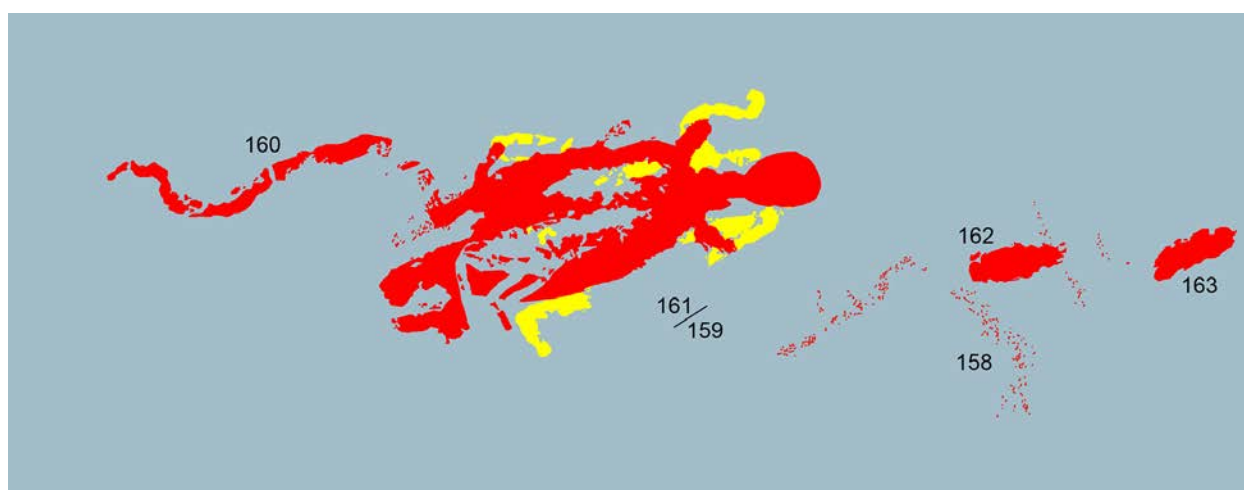


Figure 7.219: Panel F3 motif interpretations (i)

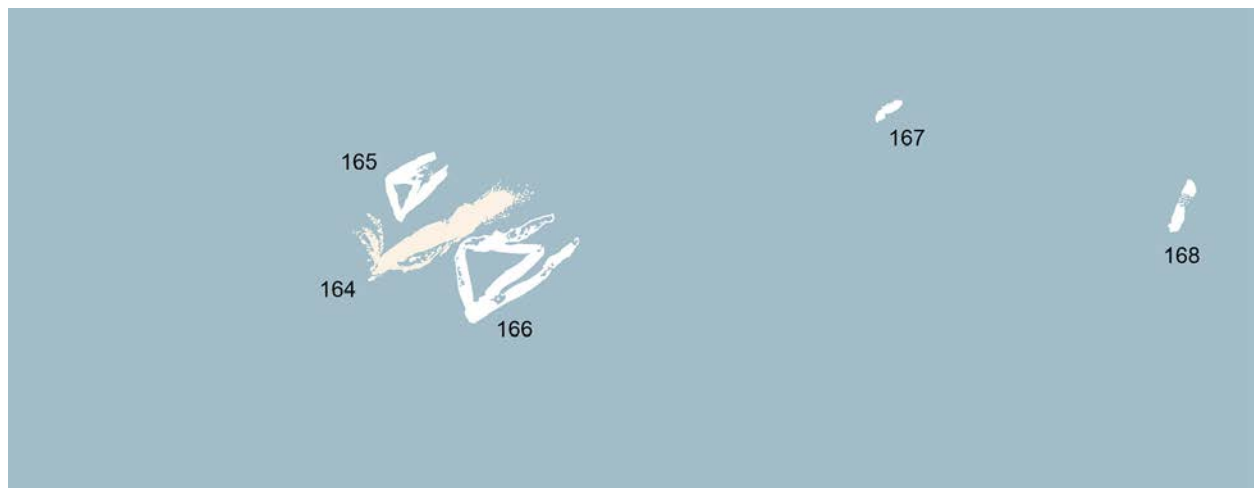


Figure 7.220: Panel F3 motif interpretations (ii)

Table 7.21: Panel F3 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
F-158	red	painting	trace	trace	trace	very poor		
F-159	yellow	painting	solid+linear	fragment	fragment	very poor		
F-160	red	painting	linear	reptile	Snake	poor	25	9
F-161	red	painting	outline +infill	fish	Fish	poor	32	10
F-162	red	painting	linear	geometric	Bar	fair		
F-163	red	painting	linear	geometric	Bar	fair		
F-164	red	painting	solid+linear	unknown	Unknown	fair	12	5
F-165	white	painting	outline	anthropomorph	Genitals female	good	5	3
F-166	white	painting	outline	anthropomorph	Genitals female	good	9	6
F-167	white	painting	linear	geometric	Bar	good	7	2
F-168	white	painting	linear	geometric	Bar	good	6	2

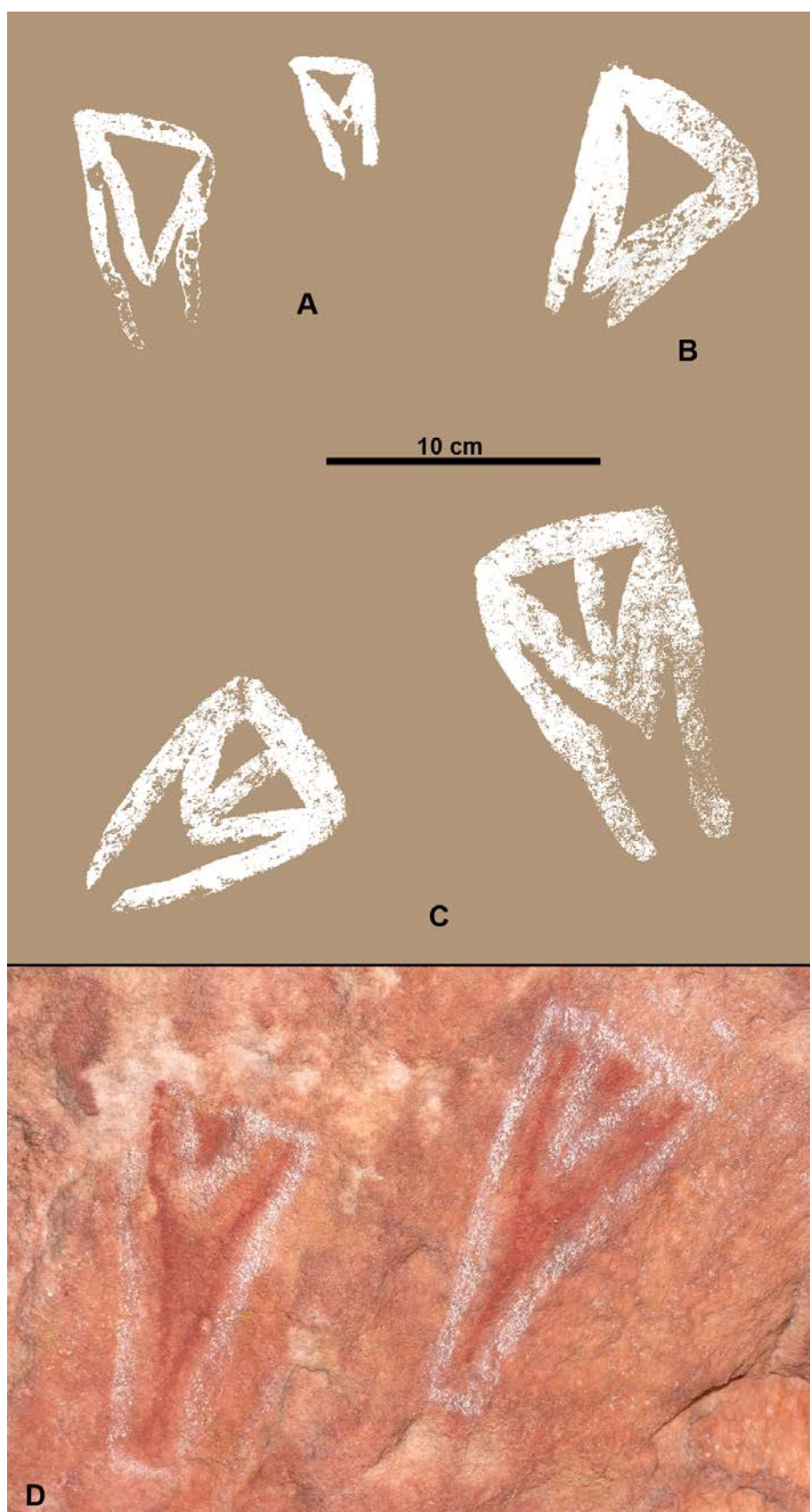


Figure 7.221: Apparent female sex symbols
 A: Nawarla Gabarnmang (Motifs F-165 and F-166)
 B: Nawarla Gabarnmang (the clearer of the motifs on Pillar 31)
 C: Site ARN-072/Y D: Nawarla Gabarnmang (Pillar 28)

Panel F4

Panel F4 (Figures 7.222 and 7.223) measures 1.2×0.6 m in size and is roughly lens-like in shape, tapering to the inner and outer ends. The surface of the panel is smooth but severely affected by a thick, black deposit on the inner edge (underneath the scale in Figure 7.224). The opposite side of the panel has been broken, presumably by slab removal. This damage was undertaken following the painting of Motif

F-179 (which is partially destroyed) and prior to the painting of Motifs F-204, F-211 and F-212 (which are on the newer exposed surfaces).

Panel F4 contains 54 motifs (Table 7.22; Figures 7.225 to 7.231), 34 of which are interpreted to Motif Type. Twenty-seven of these motifs occur in a single aggregate/composition of disc-like motifs. The motifs (Motifs F-190 to F-208; Figures 7.228 and 7.234) are likely to represent round (cheeky) yams (Margaret

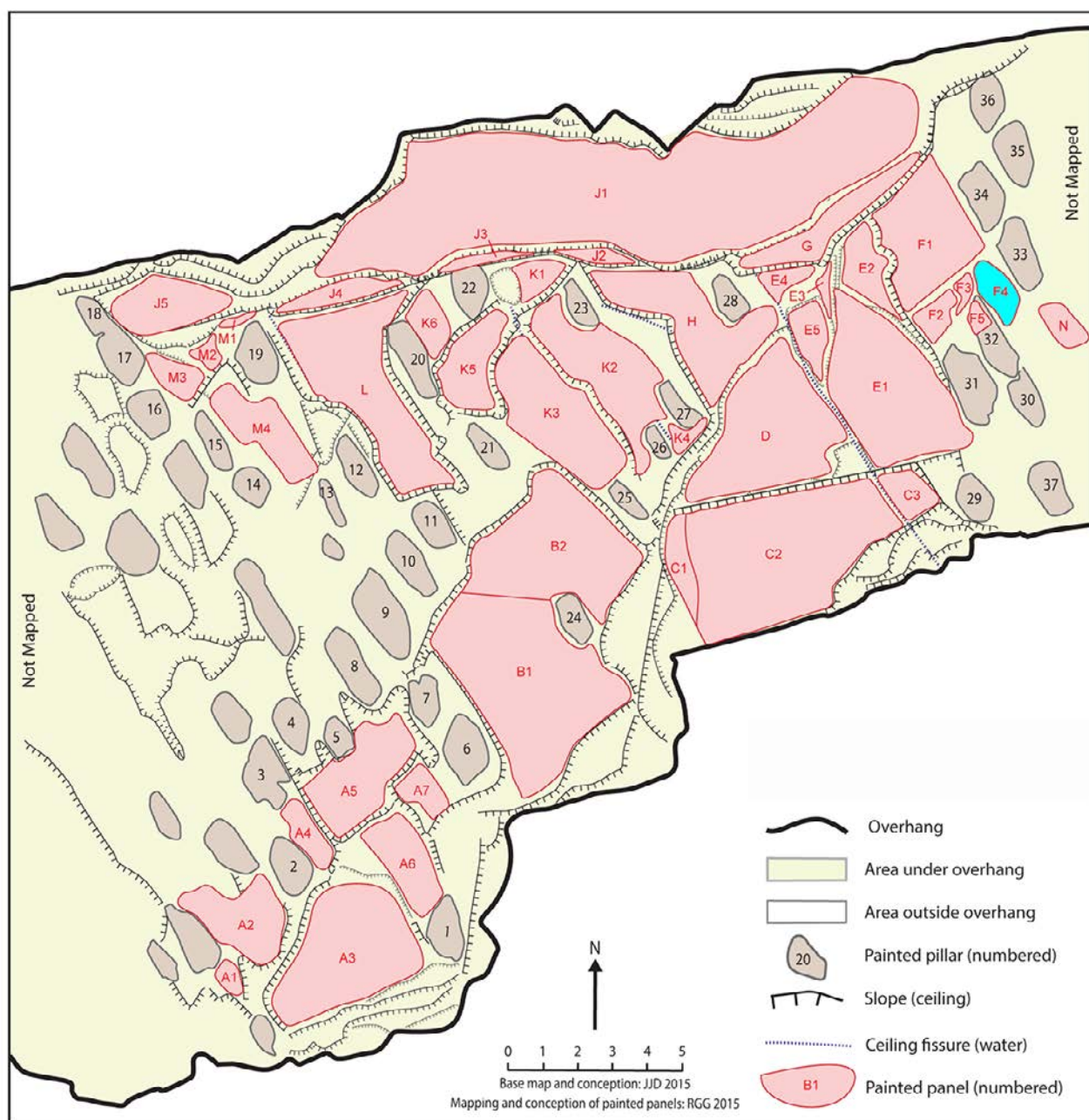


Figure 7.222: Location of Panel F4

Katherine, pers. comm., 2010; see Bennett et al. 2009: 18). Round yams are unusual in Jawoyn rock art, as is a composition involving 19 similar motifs of any motif type other than rows of stick figures.

The most conspicuous motif is a cream painting of a fish (Motif F-221; Figure 7.231). Three pinkish-white lines were added as embellishments to the fish but, as they overlie the cream pigment and do not mix with it, it appears that they were added some time after the painting of the original motif (Figure 7.231).

Motif F-212 is a poorly preserved Jawoyn Lady motif with its head, unusually, presented in profile (Figure 7.229). Although no facial features are now present, the headdress appears to recede away from the right side of the head, suggesting that the head is turned to the figure's left (Figure 7.233). Also, while initially infilled with red fine-line patterning, the breasts were

subsequently reoutlined and infilled with a broader and coarser red line-work.

Motifs F-213 to F-218 are a group of apparently contemporaneous white paintings. Five of these (Motif F-213, F-215 to F-218) are turtle or turtle-like motifs. Motif F-214 is an unusual rectangular design with an irregular stroke infill (Figure 7.234B). Square or rectangular designs are uncommon in Jawoyn rock art and in the rock art of most other regions of Australia. This motif is painted in a similar angular manner to the therianthrope on Panel F2 (Motif F-154). Motifs F-169 to F-173 form another group but these are of very poorly preserved yellow motifs, all of similar size (Figure 7.226). Two of these (Motifs F-170 and F-171) are stick figure anthropomorphs, and it is likely that the other motifs within the group were also stick figures, forming a row of stick figures reminiscent of rows of similar stick figure compositions found in many other Jawoyn rock shelters.



Figure 7.223: Location of Panel F4



Figure 7.224: Panel F4 photomosaic
Photograph: Leigh Douglas



Figure 7.225: Panel F4 photo-tracing

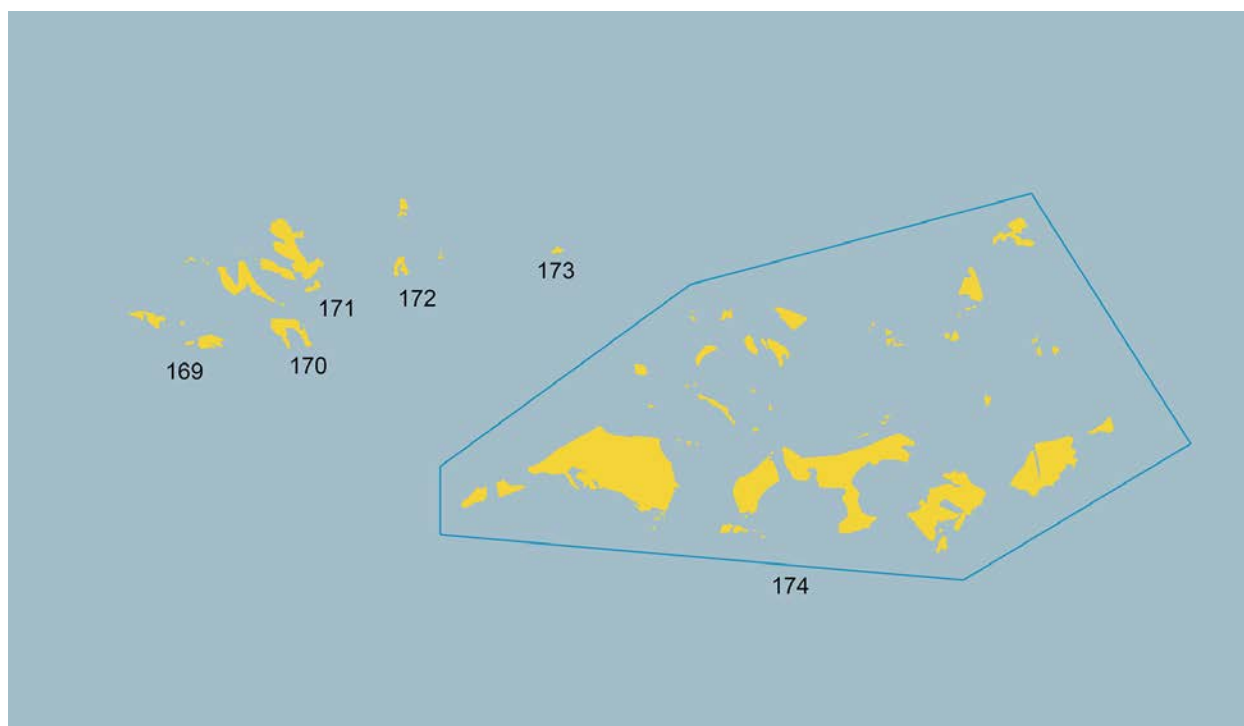


Figure 7.226: Panel F4 motif interpretations (i)

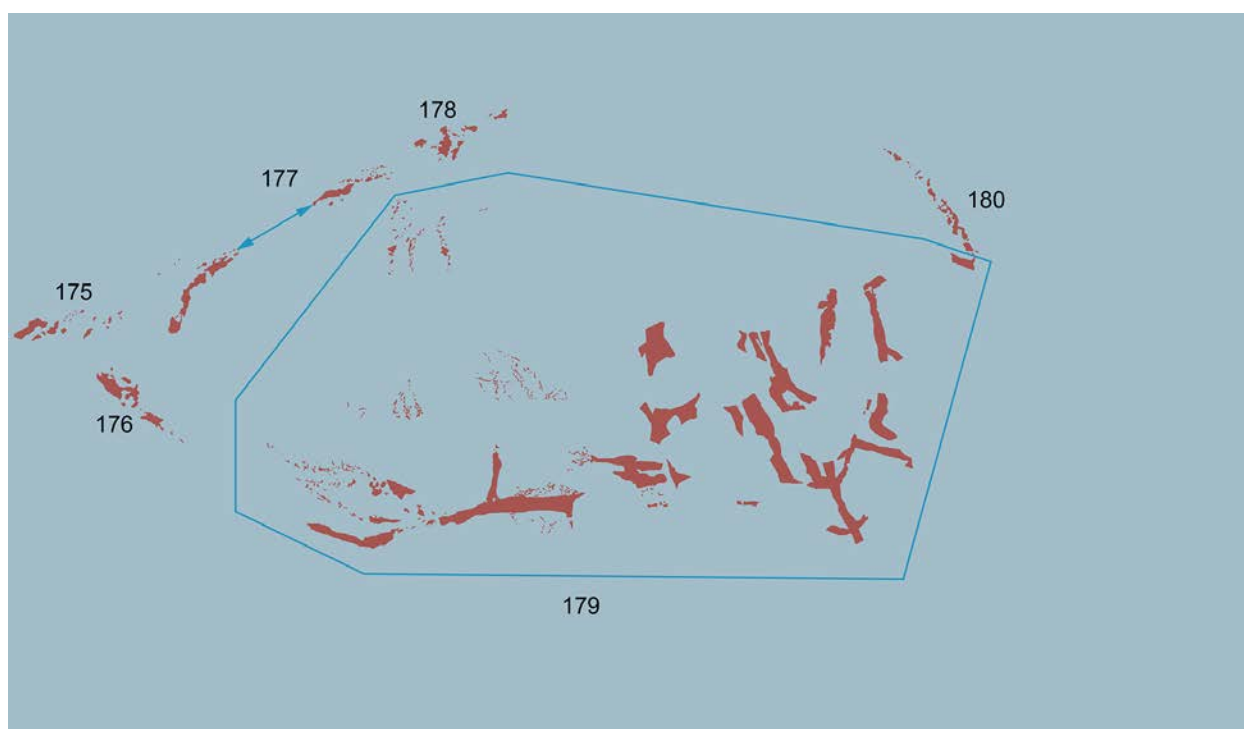


Figure 7.227: Panel F4 motif interpretations (ii)

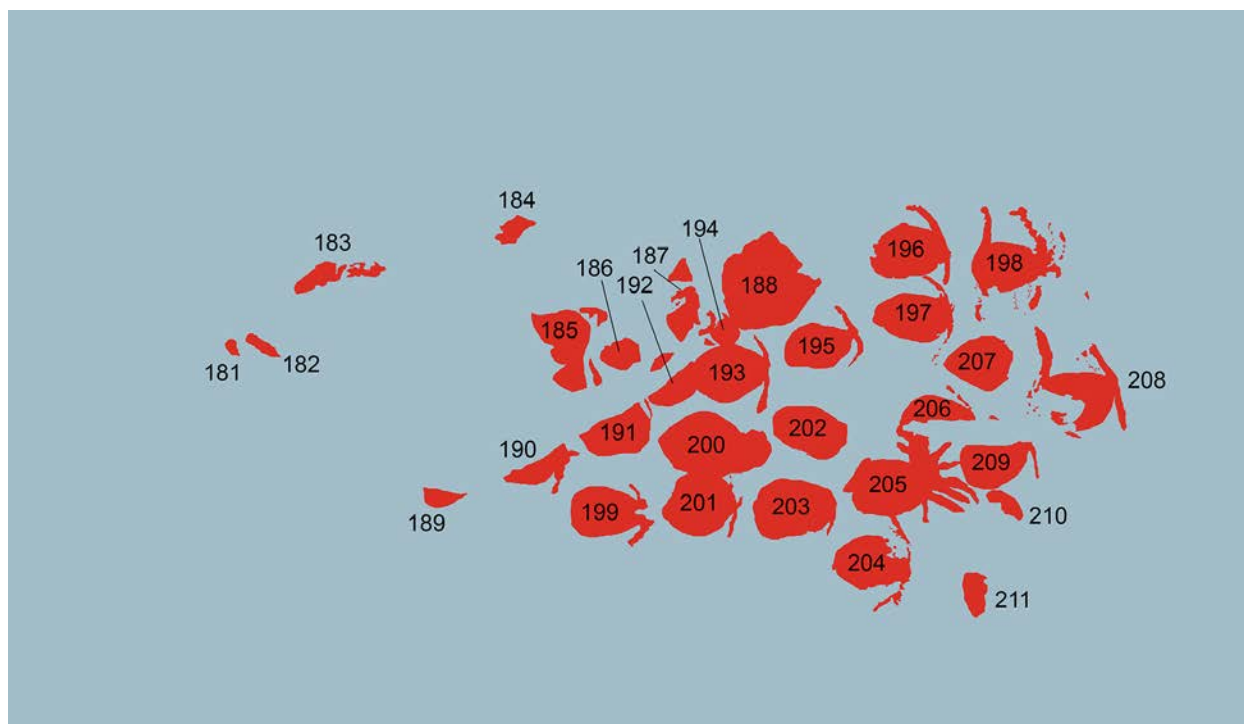


Figure 7.228: Panel F4 motif interpretations (iii)

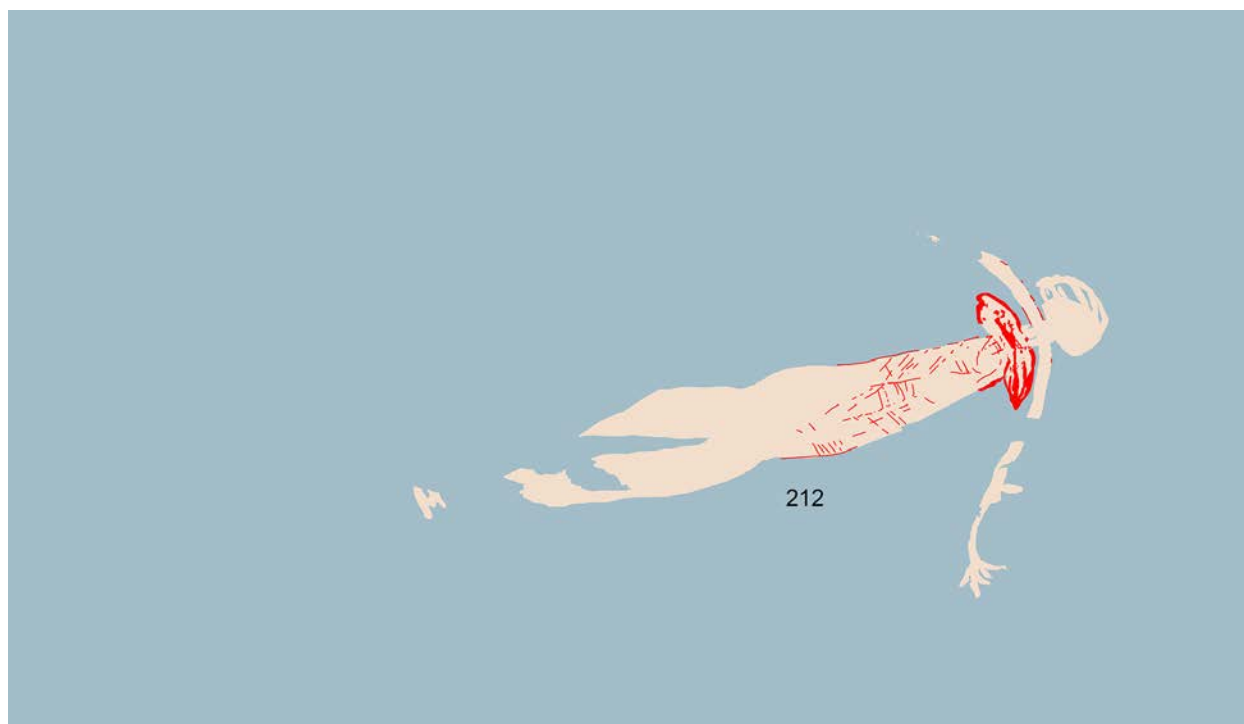


Figure 7.229: Panel F4 motif interpretations (iv)

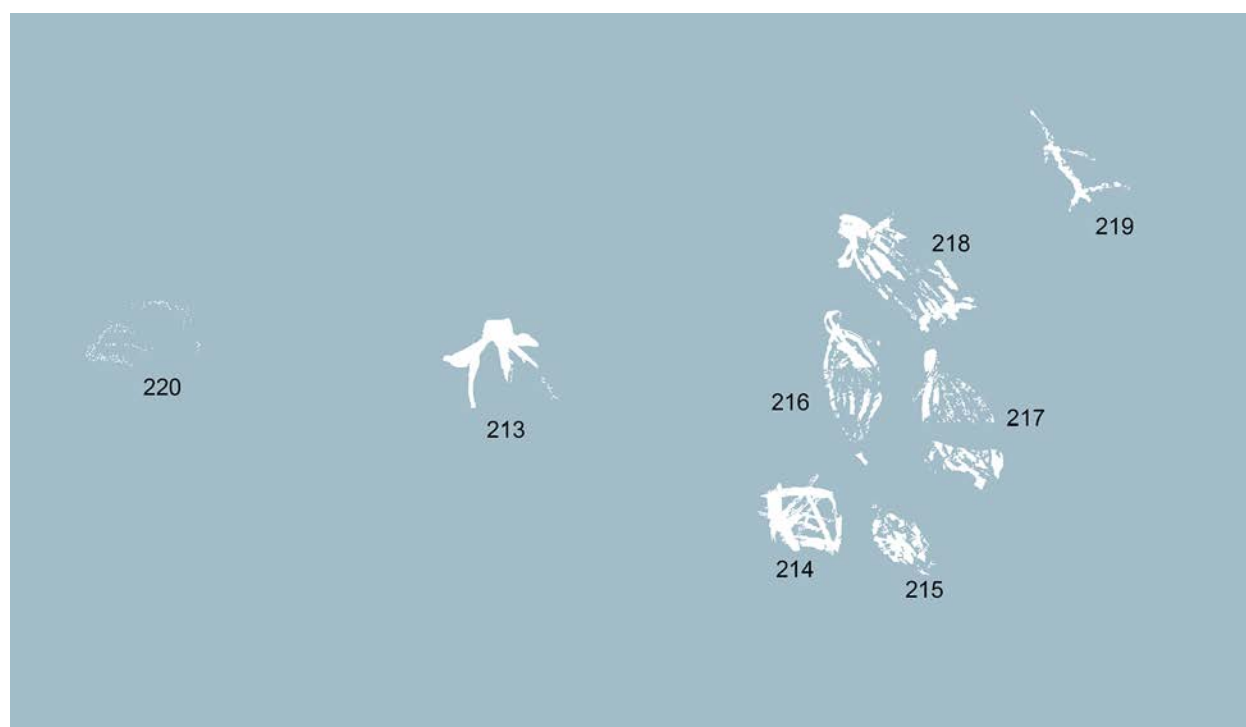


Figure 7.230: Panel F4 motif interpretations (v)



Figure 7.231: Panel F4 motif interpretations (vi)

Table 7.22: Panel F4 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
F-169	yellow	painting	fragment	fragment	fragment	very poor		
F-170	yellow	painting	fragment	fragment	fragment	very poor		
F-171	yellow	painting	fragment	fragment	fragment	very poor		
F-172	yellow	painting	fragment	fragment	fragment	very poor		
F-173	yellow	painting	fragment	fragment	fragment	very poor		
F-174	yellow	painting	fragment	fragment	fragment	very poor		
F-175	red	painting	fragment	fragment	fragment	very poor		
F-176	red	painting	fragment	fragment	fragment	very poor		
F-177	red	painting	fragment	fragment	fragment	poor		
F-178	red	painting	fragment	fragment	fragment	very poor		
F-179	red	painting	fragment	fragment	fragment	very poor		
F-180	red	painting	linear	geometric	Line	fair		
F-181	red	painting	linear	geometric	Bar	fair		
F-182	red	painting	linear	geometric	Bar	fair		
F-183	red	painting	solid	fragment	fragment	very poor		
F-184	red	painting	solid	fragment	fragment	very poor		
F-185	red	painting	solid	fragment	fragment	very poor		
F-186	red	painting	solid	fragment	fragment	very poor		
F-187	red	painting	solid	fragment	fragment	very poor		
F-188	red	painting	solid	fragment	fragment	very poor		
F-189	red	painting	solid	fragment	fragment	very poor		
F-190	red	painting	solid+linear	flora	Yam	poor		
F-191	red	painting	solid+linear	flora	Yam	poor		
F-192	red	painting	solid+linear	flora	Yam	poor		
F-193	red	painting	solid+linear	flora	Yam	fair	9	10
F-194	red	painting	solid+linear	flora	Yam	very poor		

F-195	red	painting	solid+linear	flora	Yam	fair		
F-196	red	painting	solid+linear	flora	Yam	fair	8	9
F-197	red	painting	solid+linear	flora	Yam	fair	8	9
F-198	red	painting	solid+linear	unknown	Unknown	fair	9	12
F-199	red	painting	solid+linear	flora	Yam	fair	9	6
F-200	red	painting	solid+linear	flora	Yam	poor		
F-201	red	painting	solid+linear	flora	Yam	fair	8	9
F-202	red	painting	solid+linear	flora	Yam	poor		
F-203	red	painting	solid+linear	flora	Yam	fair		
F-204	red	painting	solid+linear	flora	Yam	fair	8	10
F-205	red	painting	solid+linear	flora	Yam	fair	13	7
F-206	red	painting	solid+linear	flora	Yam	poor		
F-207	red	painting	solid+linear	flora	Yam	poor		
F-208	red	painting	solid+linear	unknown	Unknown	fair	8	9
F-209	red	painting	solid+linear	flora	Yam	poor		
F-210	red	painting	solid	fragment	fragment	poor		
F-211	red	painting	solid	fragment	fragment	poor		
F-212	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	fair	77	41
F-213	white	painting	outline+infill+linear	reptile	Turtle short-necked	poor		
F-214	white	painting	outline+infill	simple design	Design regular	good	7	7
F-215	white	painting	outline+infill+linear	unknown	Unknown	very poor		
F-216	white	painting	outline+infill+linear	unknown	Unknown	very poor	15	6
F-217	white	painting	outline+infill+linear	unknown	Unknown	very poor		
F-218	white	painting	outline+infill+linear	reptile	Turtle short-necked	very poor	16	7
F-219	white	painting	linear	anthropomorph	Anthropomorph male	fair		
F-220	white	drawing	outline+infill	unknown	Unknown	poor		
F-221	cream+pink	painting	outline+infill	fish	Saratoga	excellent	65	24
F-222	cream	painting	solid	unknown	Unknown	good		



Figure 7.232: Cream fish (saratoga; Motif F-221) highlighting the pinkish-white embellishments (arrowed)



Figure 7.233: Detail of the profile head of Jawoyn Lady motif (Motif F-212) and underlying red yam motifs

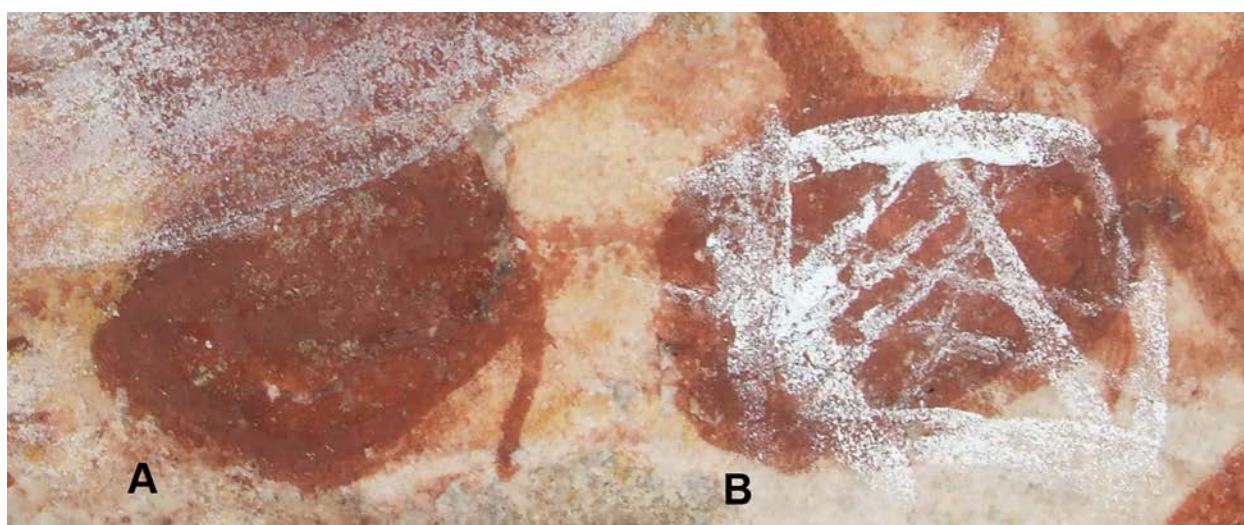


Figure 7.234: Detail of red yam Motif F-201 (A) and overlying white rectangular design Motif F-214 (B)

Panel F5

Panel F5 (Figures 7.235 and 7.236) is small, measuring 0.4×0.3 m in size, roughly rectangular in shape but rounded at its northern (outer) edge. The southern edge of the panel abuts Pillar 32. The panel surface is flat but has a rough sandy texture, and is discoloured by a light coating of salts and (possible) vegetal growth (Figure 7.237). The left side is irregular and has a receding rather than an abrupt angular outer edge.

Panel F5 contains six motifs (Table 7.23; Figures 7.237 and 7.238), five of which are interpreted to Motif Type. The panel is dominated by a single standing anthropomorph

with upraised arms (Motif F-223). This motif is orientated away from Pillar 32. Motif F-226, an unknown Motif Type (Figure 7.238), extends beyond the bounds of the panel and down onto the upper section of Pillar 32.

The lower portions of Motifs F-227 and F-228 are badly damaged (erased?), but the reasons for this deterioration are unclear. The white painting Motif F-228 is also an unknown Motif Type (Figure 7.238).

Motifs F-224 and F-225 are a pair of single red dots that appear to be related to the anthropomorph (Motif F-223), being adjacent to it, of similar colour, and in a similar state of preservation (Figure 7.238).

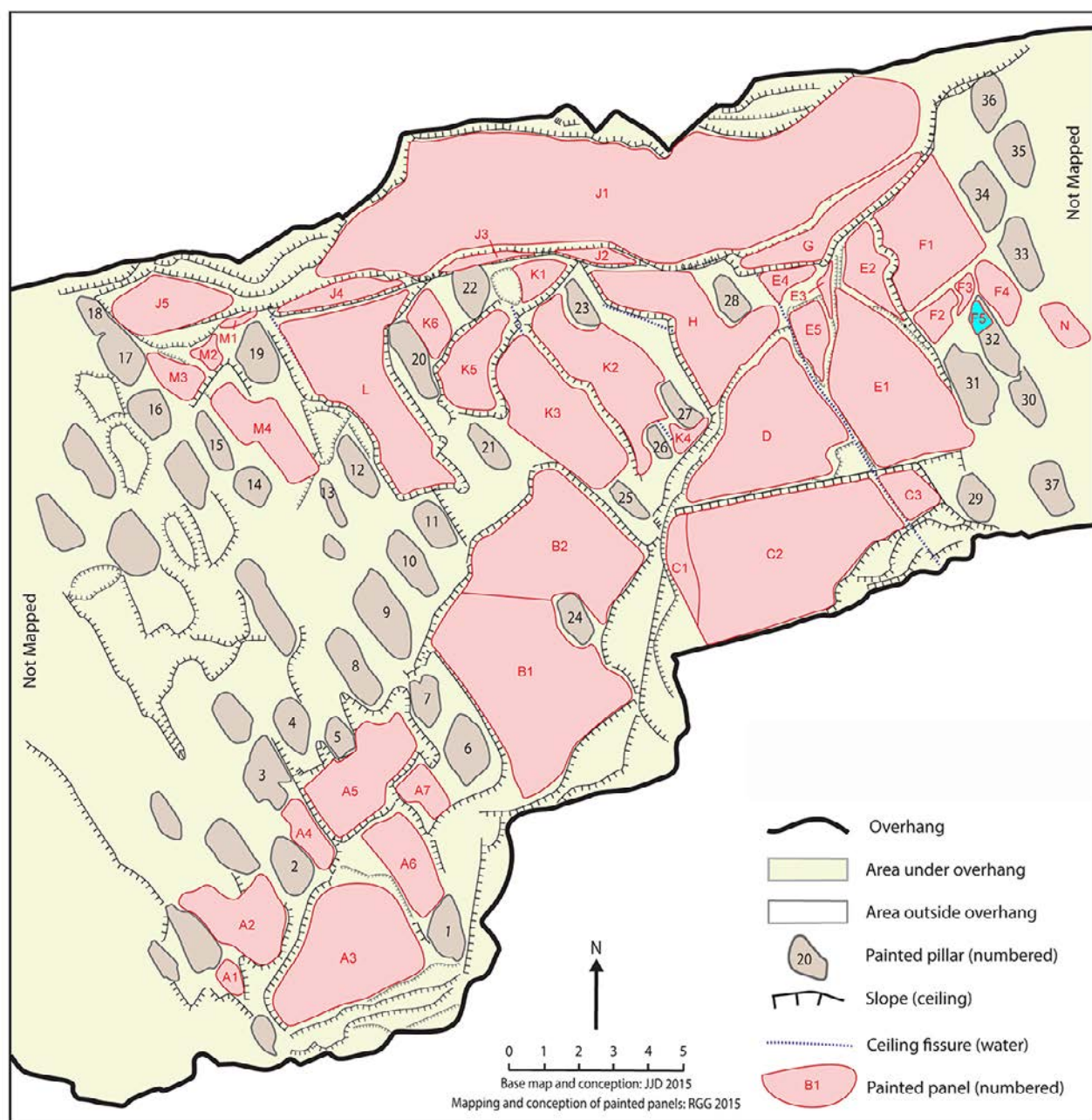


Figure 7.235: Location of Panel F5



Figure 7.236: Location of Panel F5

Table 7.23: Panel F5 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
F-223	red	painting	solid	anthropomorph	Anthropomorph	fair	39	11
F-224	red	painting	dot	geometric	Dot	poor	1	1
F-225	red	painting	dot	geometric	Dot	poor	1	1
F-226	red	painting	solid+linear	unknown	Unknown	poor		
F-227	red	painting	fragment	fragment	fragment	very poor		
F-228	white	painting	outline+infill	unknown	Unknown	poor	23	5

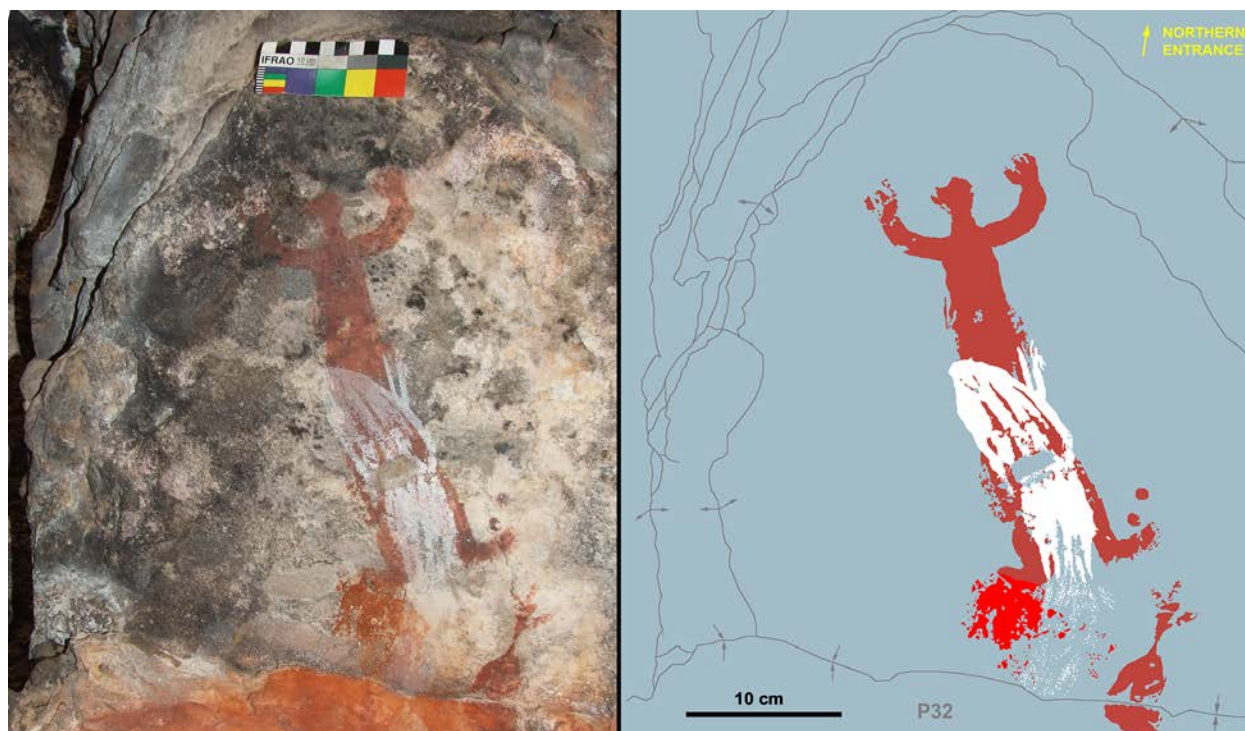


Figure 7.237: Panel F4 photograph and photo-interpretation
 Photograph: Leigh Douglas

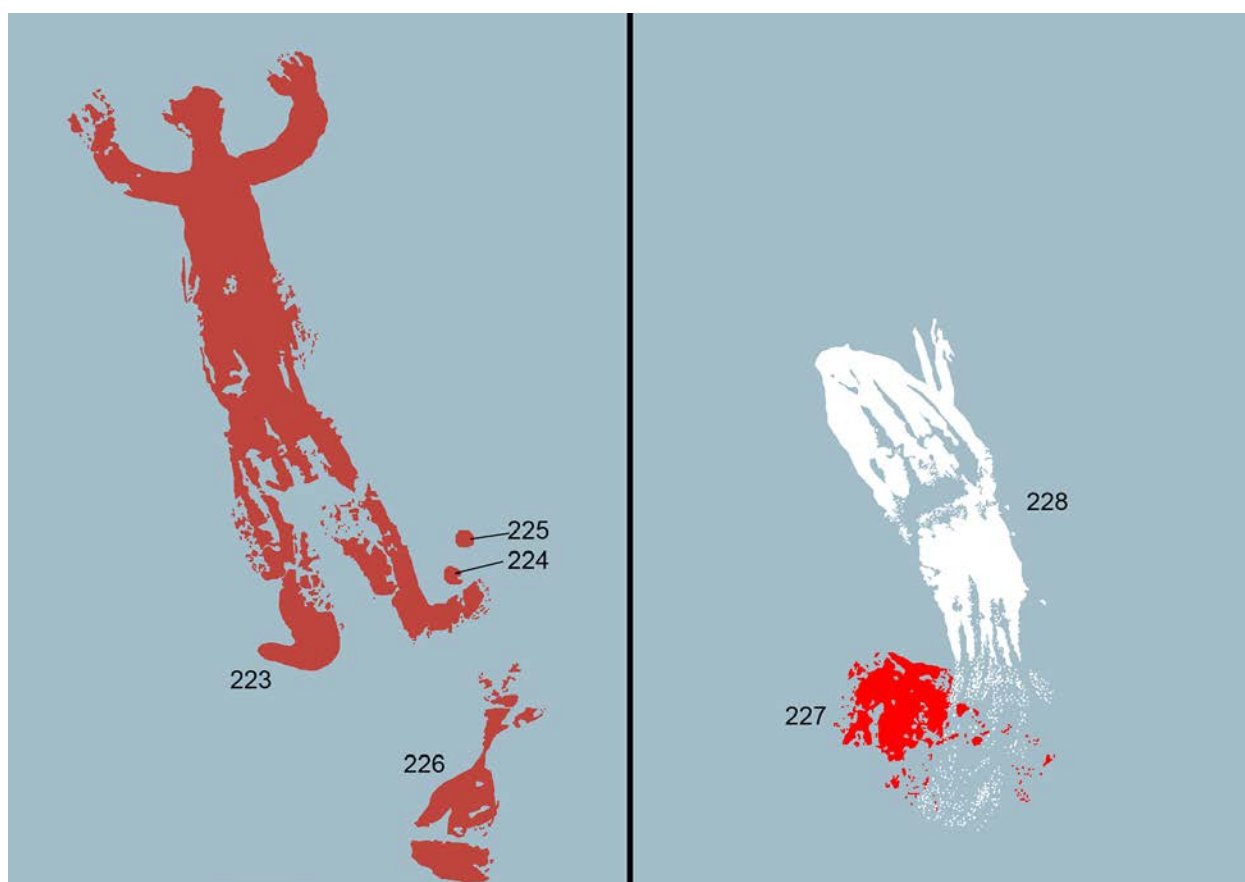


Figure 7.238: Panel F5 motif interpretations

Panel G

Panel G (Figures 7.239 and 7.240) is a long and narrow step located above the main northern entrance. The full panel is some six metres long, but only the western half, 3.2×0.8 m, has a surface suitable for pigment preservation. Even this portion, however, is badly affected by water seepage, salt deposition, fractures and delamination. The panel contains 17 motifs (Table 7.24; Figures 7.241 and 7.242), of which ten were interpreted to Motif Type, the other seven being too poorly preserved to permit identification to type.

The artwork is dominated by a large anthropomorph (Motif G-16), 3.2 m long, with striped body infill, inordinately spindly fingers on its upraised arm, and a disproportionately large penis. The head is in profile, with both nose and beard depicted. The head was outlined and infilled with white on at least two occasions (first a grey-white and then a cream-white), and most recently, a series of dots in a stronger white were added to the hair-area of the head (Figure 7.243). Although the head has a striped infill, it does not appear to have any form of headdress depicted. Underlying the anthropomorph is a pair of opposing crocodiles

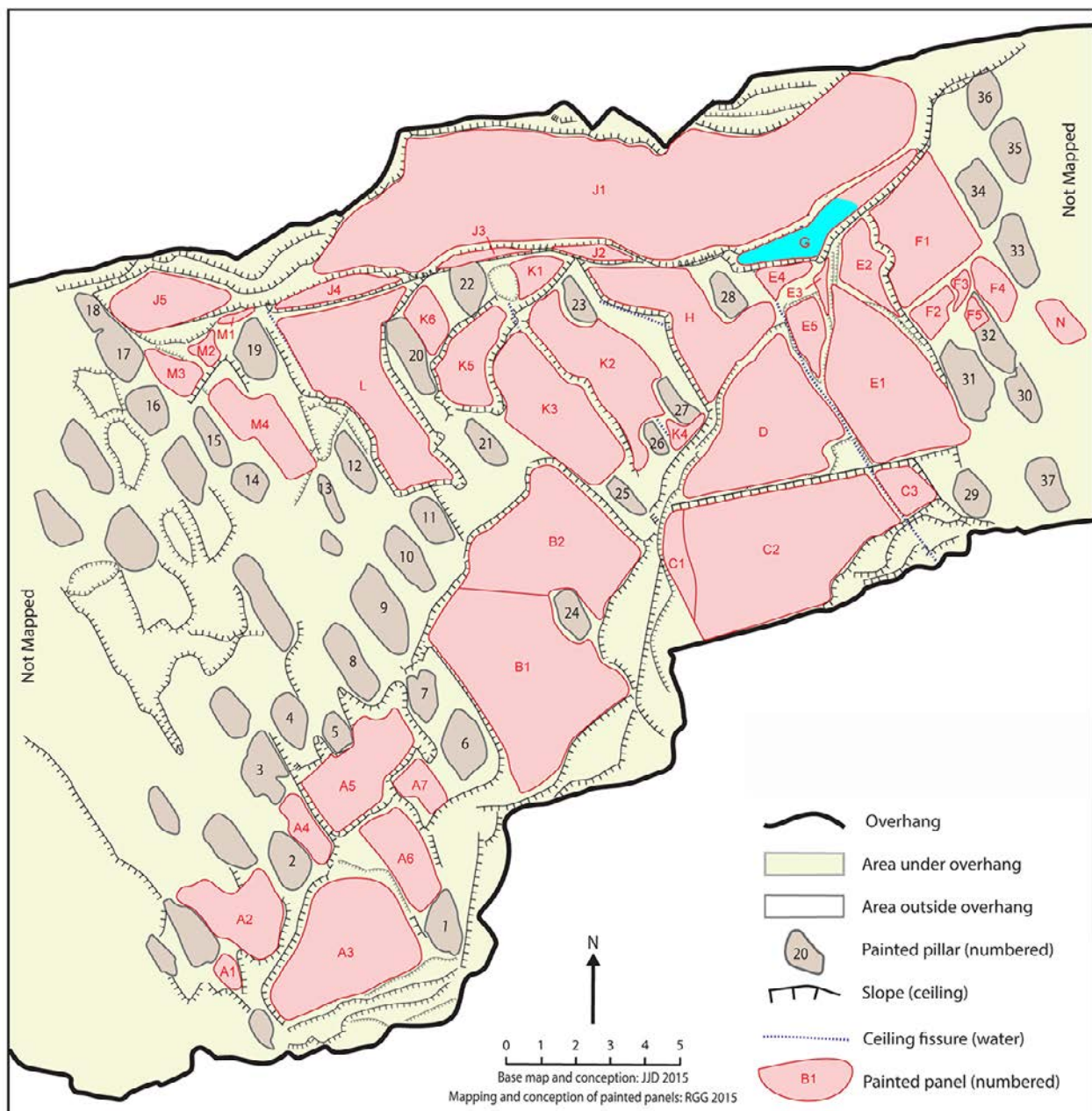


Figure 7.239: Panel G location

(Motifs G-12 and 14) and a now indecipherable motif (Motif G-13), all in red with white infill patterning (Figure 7.242). The two crocodiles have different infill forms (one striped and the other solid), but their mirror placement implies an intentional relationship, both to

each other and the panel overall. Motif G-8 appears to have been a bird painted in red. At some later time, it was partially outlined and infilled in yellow (Motif G-11). Underlying these motifs are several red and yellow fragments.

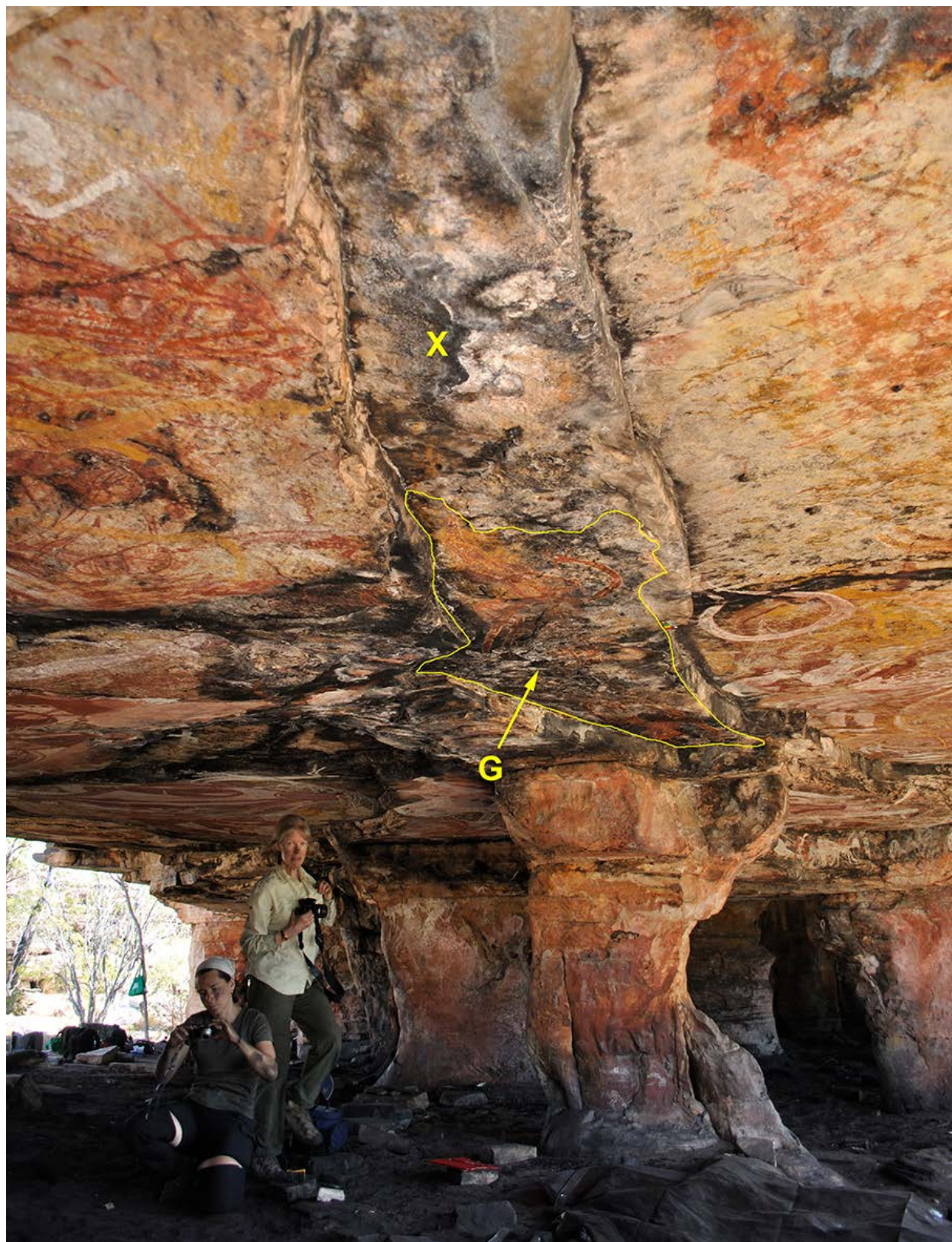


Figure 7.240: Location of Panel G showing extent of painted area (outlined) and the adjacent poor and unused surface (X)

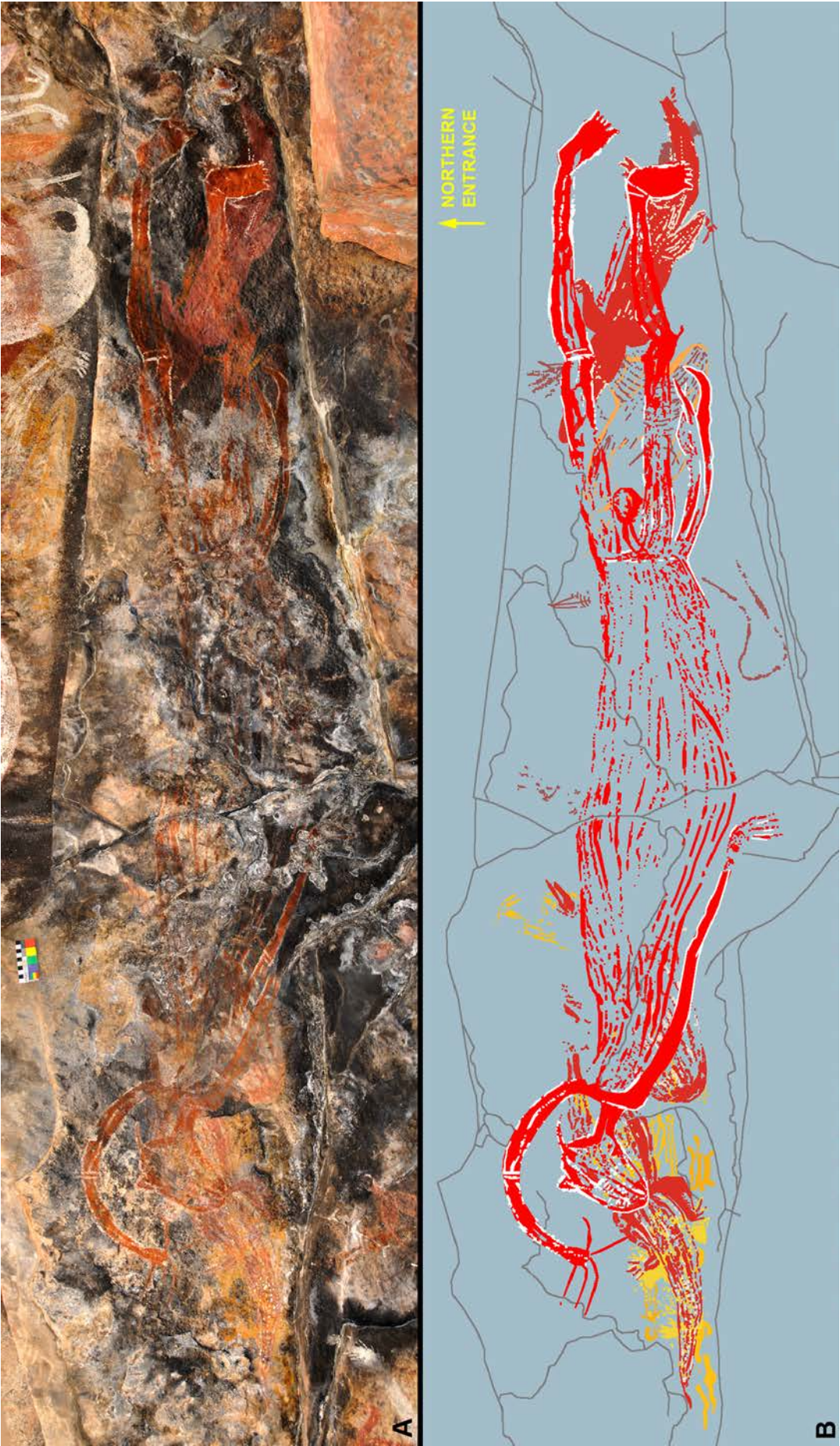


Figure 7.241: Panel G photomosaic (A) and photo-tracing (B)

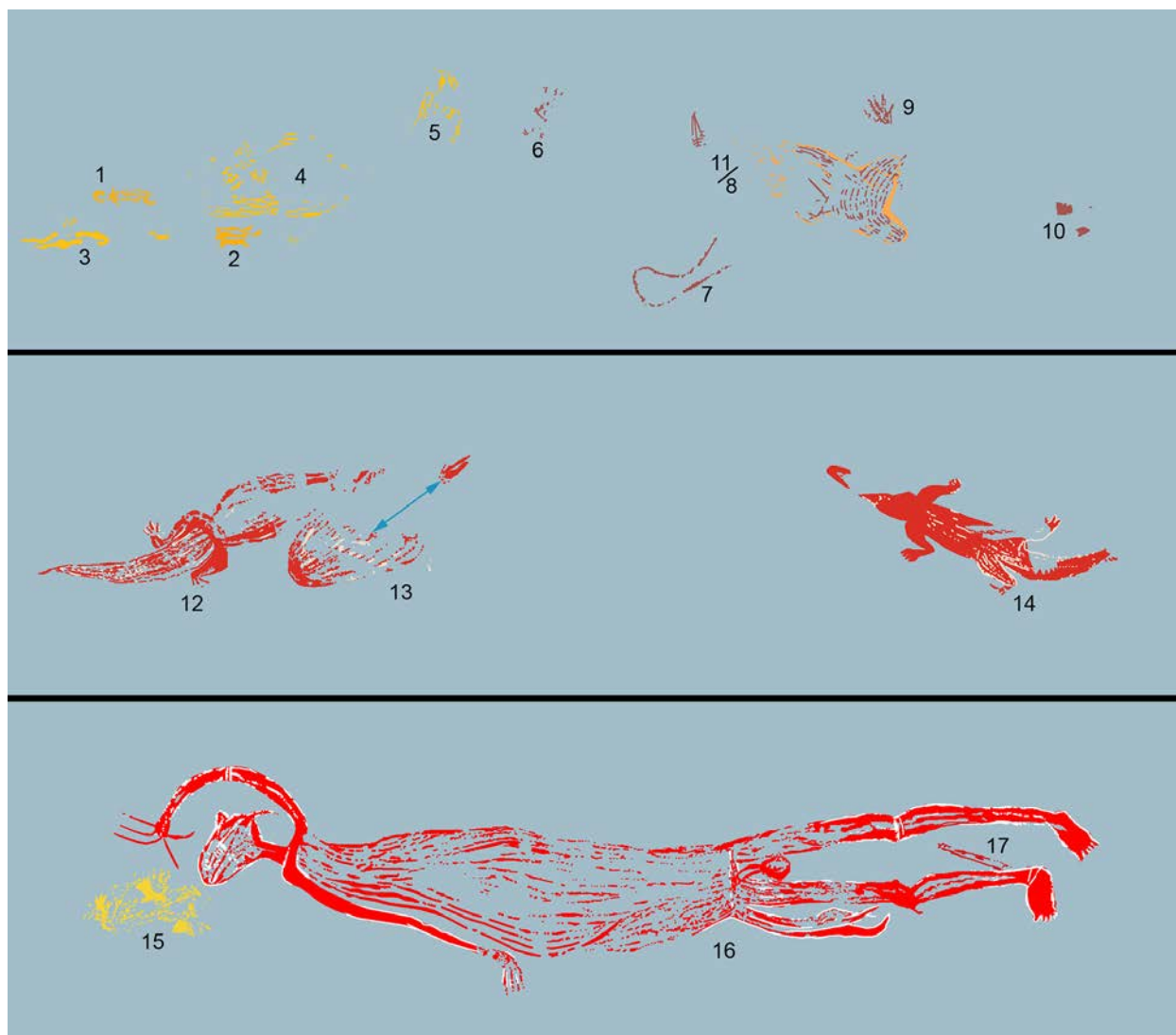


Figure 7.242: Panel G motif interpretations

Table 7.24: Panel G motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
G-1	yellow	painting	outline+infill	reptile	Turtle short-necked	poor		
G-2	yellow	painting	outline+infill	reptile	Turtle long-necked	poor		
G-3	yellow	painting	solid+linear	fragment	fragment	very poor		
G-4	yellow	painting	outline+infill	fragment	fragment	very poor		
G-5	yellow	painting	fragment	fragment	fragment	very poor		
G-6	red	painting	fragment	fragment	fragment	very poor		
G-7	red	painting	linear	simple design	Design irregular	poor		
G-8	red	painting	outline+infill	bird	Emu	very poor		
G-9	red	painting	linear	fragment	fragment	very poor		
G-10	red	painting	fragment	fragment	fragment	very poor		
G-11	orange	painting	outline+infill	bird	Emu	poor		
G-12	red+white	painting	outline+infill	reptile	Crocodile	poor		
G-13	red+white	painting	outline+infill	unknown	Unknown	very poor		
G-14	red+white	painting	solid+outline+infill	reptile	Crocodile	fair	84	22
G-15	yellow	painting	fragment	unknown	Unknown	very poor		
G-16	red+white	painting	outline+infill	anthropomorph	Anthropomorph male	fair	302	60
G-17	red	painting	outline+infill	unknown	Unknown	fair		



Figure 7.243: Motif G-16 head detail

Panel H

Panel H (Figures 7.244 and 7.245) is large, measuring 4.1 × 3.1 m, but irregular and roughly 'L-shape' in form. The surface is flat but with deep fractures cutting through the inner area, although, being narrow, they have been largely ignored by the painters (Figures 7.246 and 7.247). As both inner and outer edges of the rock-slab bearing panel have been subject to breakage, these fractures may well be the result of human activity rather than natural causes. The artwork adjacent to these fissures has also suffered from either natural water-wash or human erasure (Figure 7.248).

Panel H contains 132 motifs (Table 25; Figures 7.248 to 7.257), of which 76 (58%) were interpreted to Motif Type. The motifs are well distributed across the full surface area of the panel (Figure 7.248), and there is no consistency in motif orientation. The condition of the artwork varies considerably, with the majority of the underlying motifs being in very poor condition, while many of the upper motifs are very well-preserved.

The panel is visually dominated by two barramundi motifs (Motifs H-128 and H-129), both of which partially cover many underlying motifs, and doubtless completely hide others that are no longer

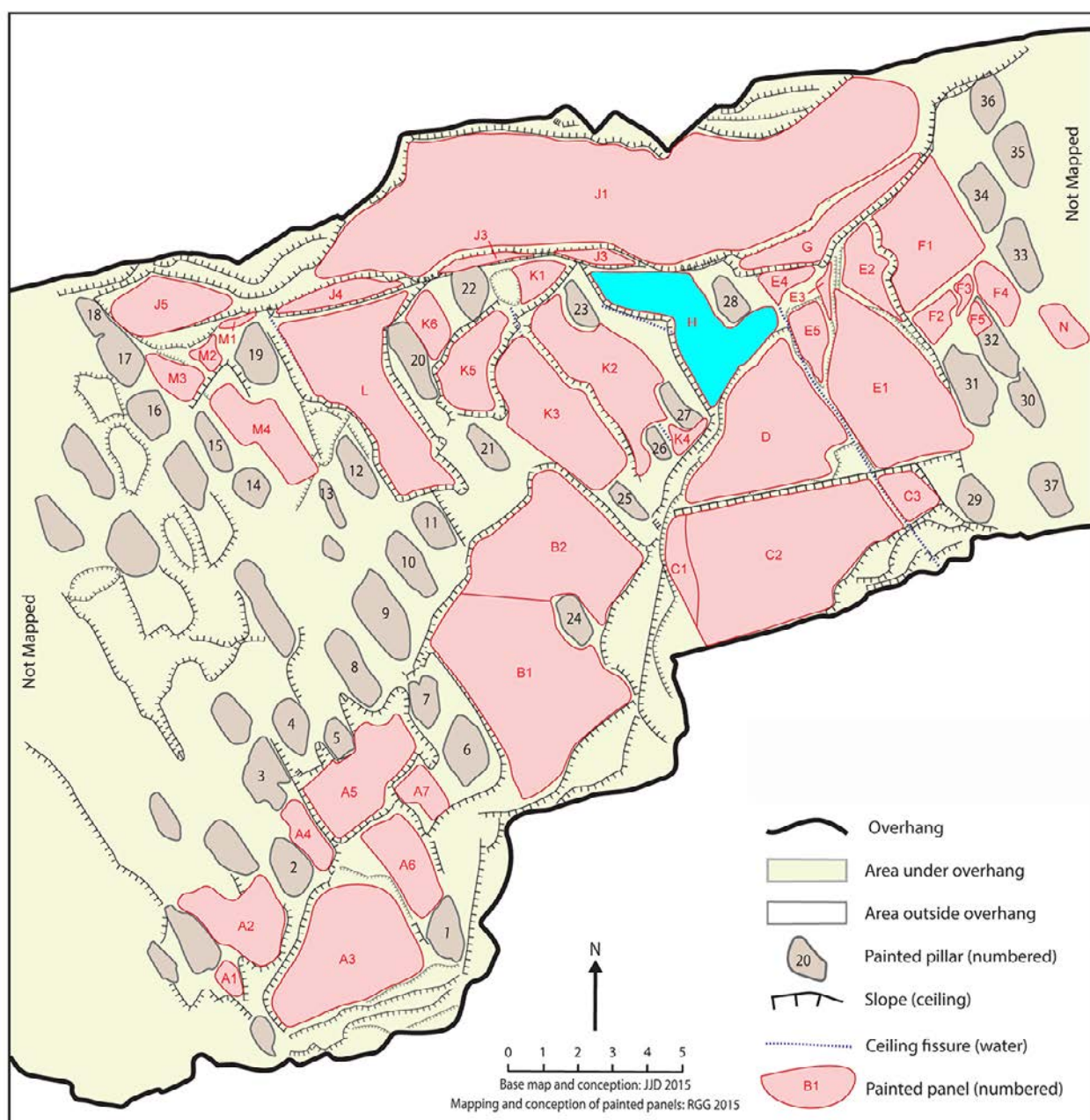


Figure 7.244: Location of Panel H

visible (Figure 7.247). These two barramundi motifs dominate the panel through their central placement, large size (180 × 84 cm and 143 × 53 cm respectively), polychrome colouring and visually striking Northern X-ray form (Figures 7.258 and 7.259). However, the two barramundi do have different patterns of infill and are aligned differently, suggesting different artists or concepts.

Irregularities in the photomosaic occur at two places: across Motif H-72 (a coiled snake) and Motif H-115 (a macropod). Detailed photographs from which the tracings of these two motifs were produced are given in figures 7.260 and 7.261. The macropod motif, H-115, is of interest as it is one of the few paintings in the shelter that has been painted over an erased motif. Motif H-105 was erased by smearing the pigment either with a simple water wash or with a light slurry of white (Motif H-114; Figure 7.261A). The subsequent macropod (Motif H-115) appears to have been drawn in charcoal prior to painting, with the charcoal then mixing with the white over-paint to produce a grey outline and infill (Figure 7.261B). Further, the heart of the macropod is depicted in a complex X-ray manner, while other internal features (partial backbone and directional linear patterning) are depicted in the standard Jawoyn infill manner. Both sets of features were apparently added some time after the initial white silhouette figure was painted, and were most likely concurrent with the painting of Motifs H-119 and H-120, as both of

these motifs have a similar red fine-line infill (Figures 7.262 and 7.263).

A second smeared area (Motif H-106; Figure 7.263) also appears to be an erased motif but, due to subsequent painting of overlying Motifs H-124 to H-126, it is not possible to determine whether or not it was created for the positioning of a later, but now obscured, motif.

A single beeswax figure (Motif H-122) was placed at the extreme outer edge of the panel (Figure 7.264). The figure overlies yellow pigment and is superimposed by white (Figure 7.265). It is one of two small anthropomorphs within the shelter, the other figure being on panel K4 (see below). Both beeswax figures are of similar age (see Chapter 9 below). Another figure of interest is Motif H-113: a large male anthropomorph with skeletal features (Figure 7.266). The figure has a body encircled by three concentric arcs (ribs?), a disproportionately large penis, and bone-like thighs joined to the torso by 'strings' rather than a pelvis. The legs are more than twice the length of the head + torso, and the eyes are devoid of colour and displaced at different heights on the face.

A red macropod (Motif H-64) was partially repainted in white (Motif H-65) and, at that time, the tail was realigned (Figure 7.267). The better sections of the white on this figure are noticeably better preserved than the red, suggesting a considerable time depth between the two painting episodes.



Figure 7.245: Location of Panel H

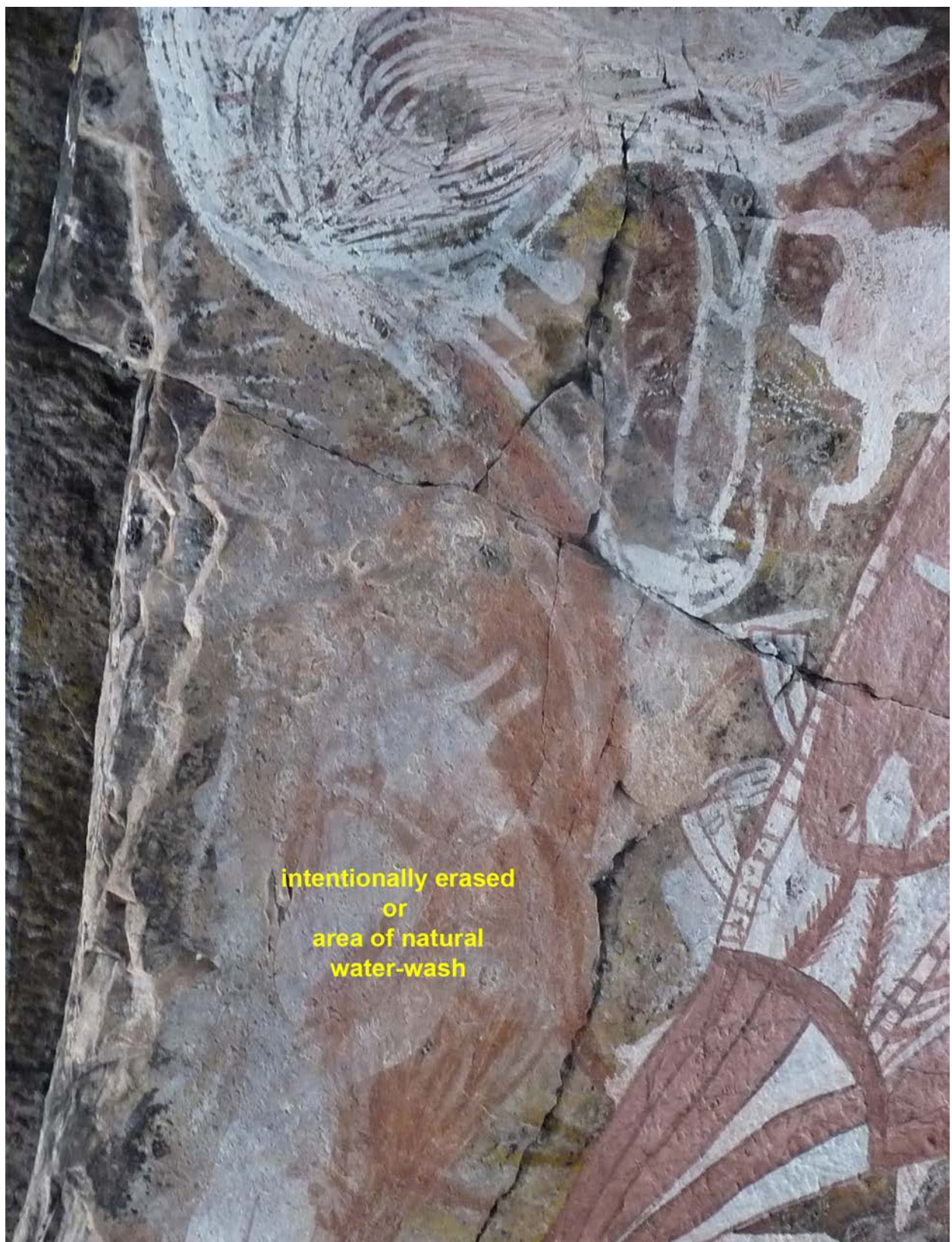


Figure 7.246: Deep fractures at the inner end of the panel and area of erased artwork



Figure 7.247: Panel H photomosaic
(Mosaic distortion errors at X-X)



Figure 7.248: Panel H photo-tracing
(Mosaic distortion error corrected using single detailed photographs)

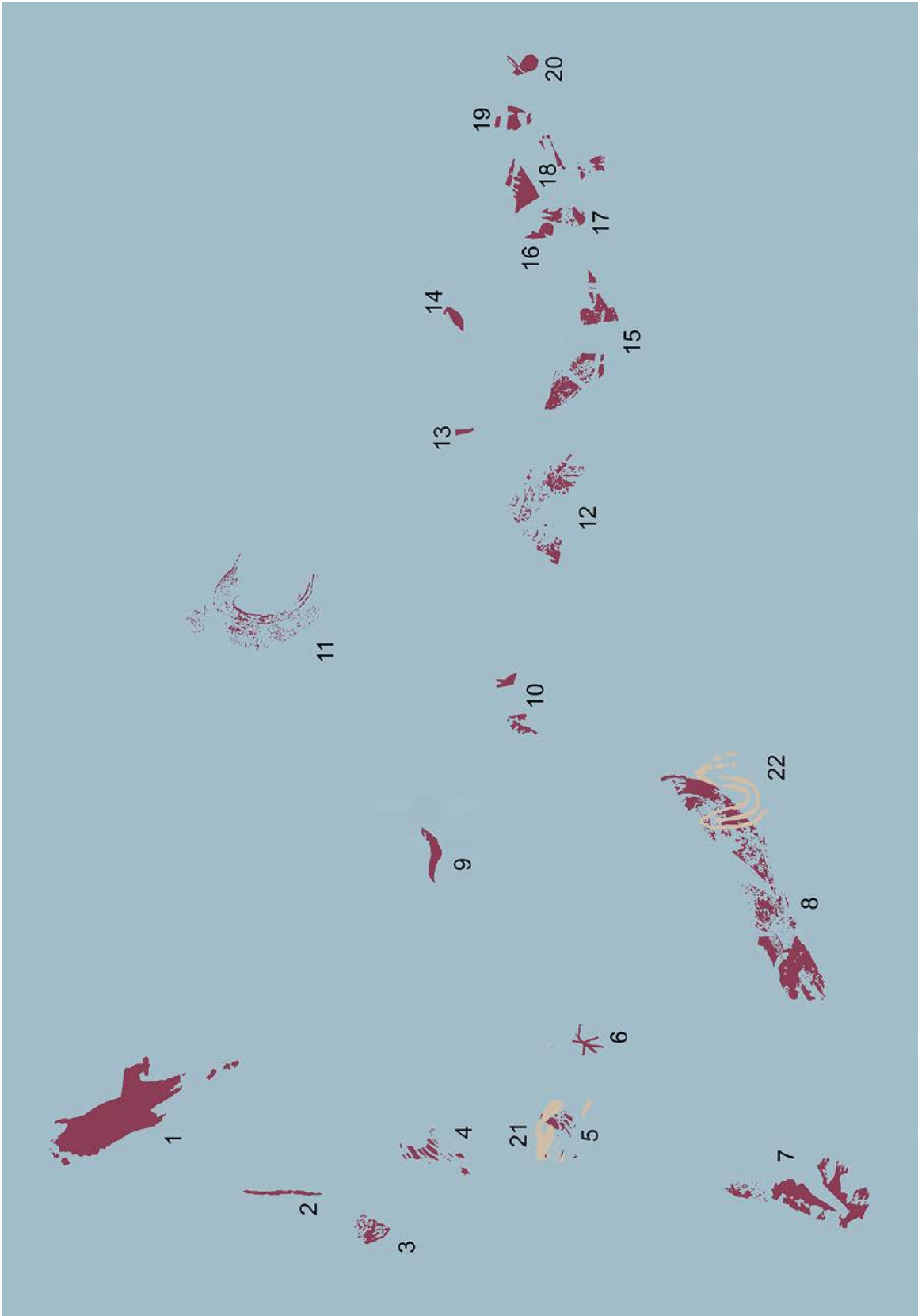


Figure 7.249: Panel H motif interpretations (i)

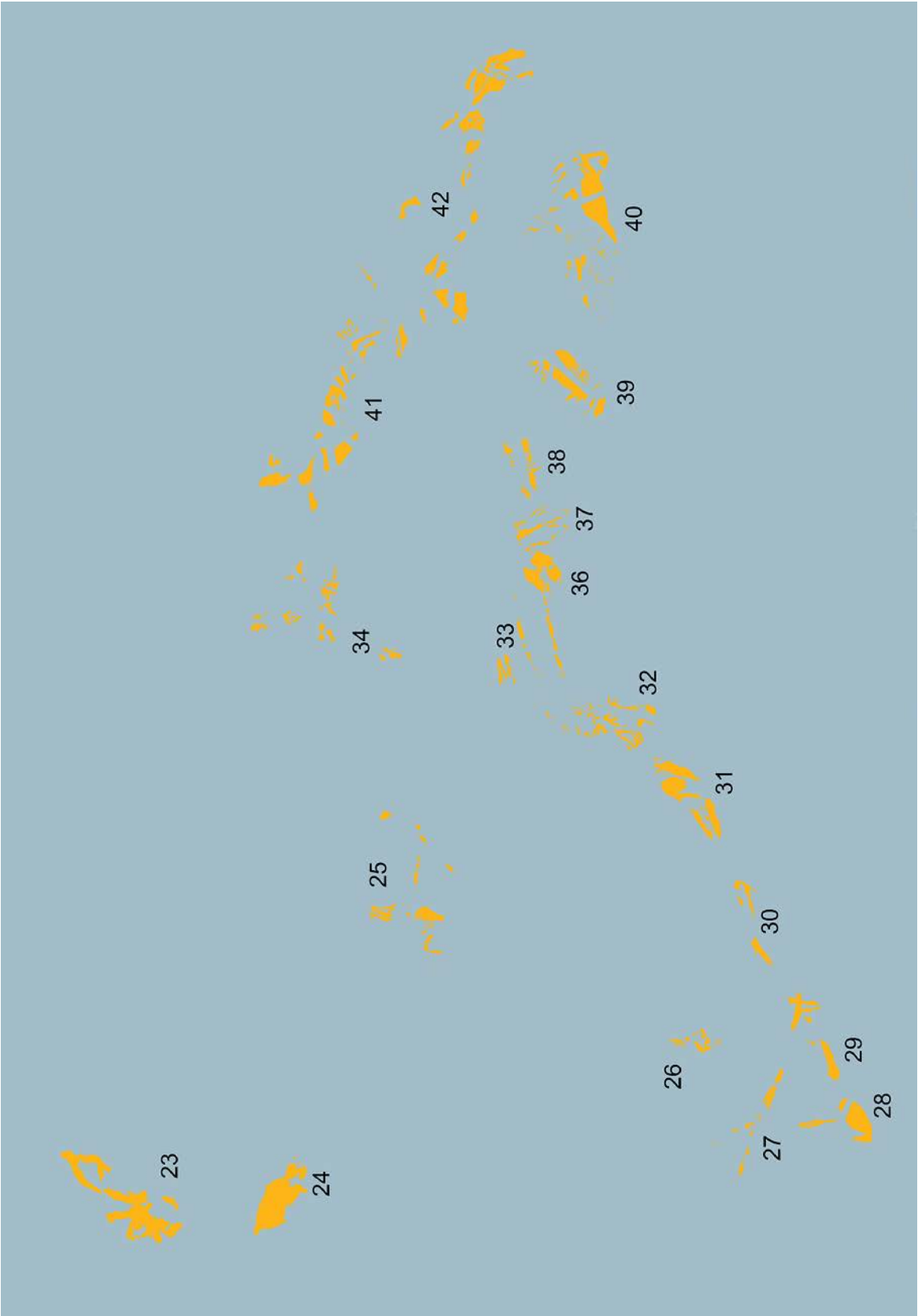


Figure 7.250: Panel H motif interpretations (ii)

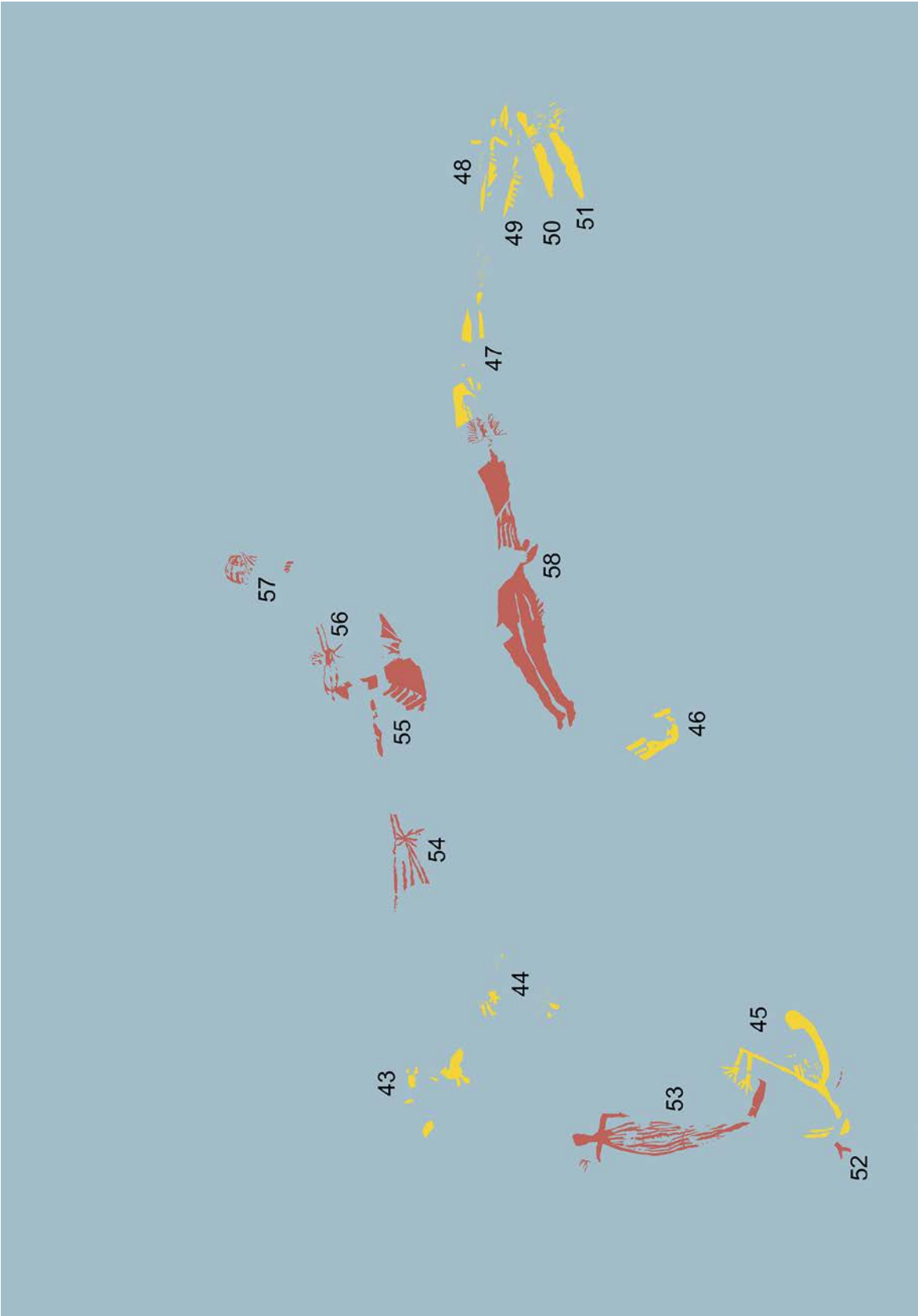


Figure 7.251: Panel H motif interpretations (iii)

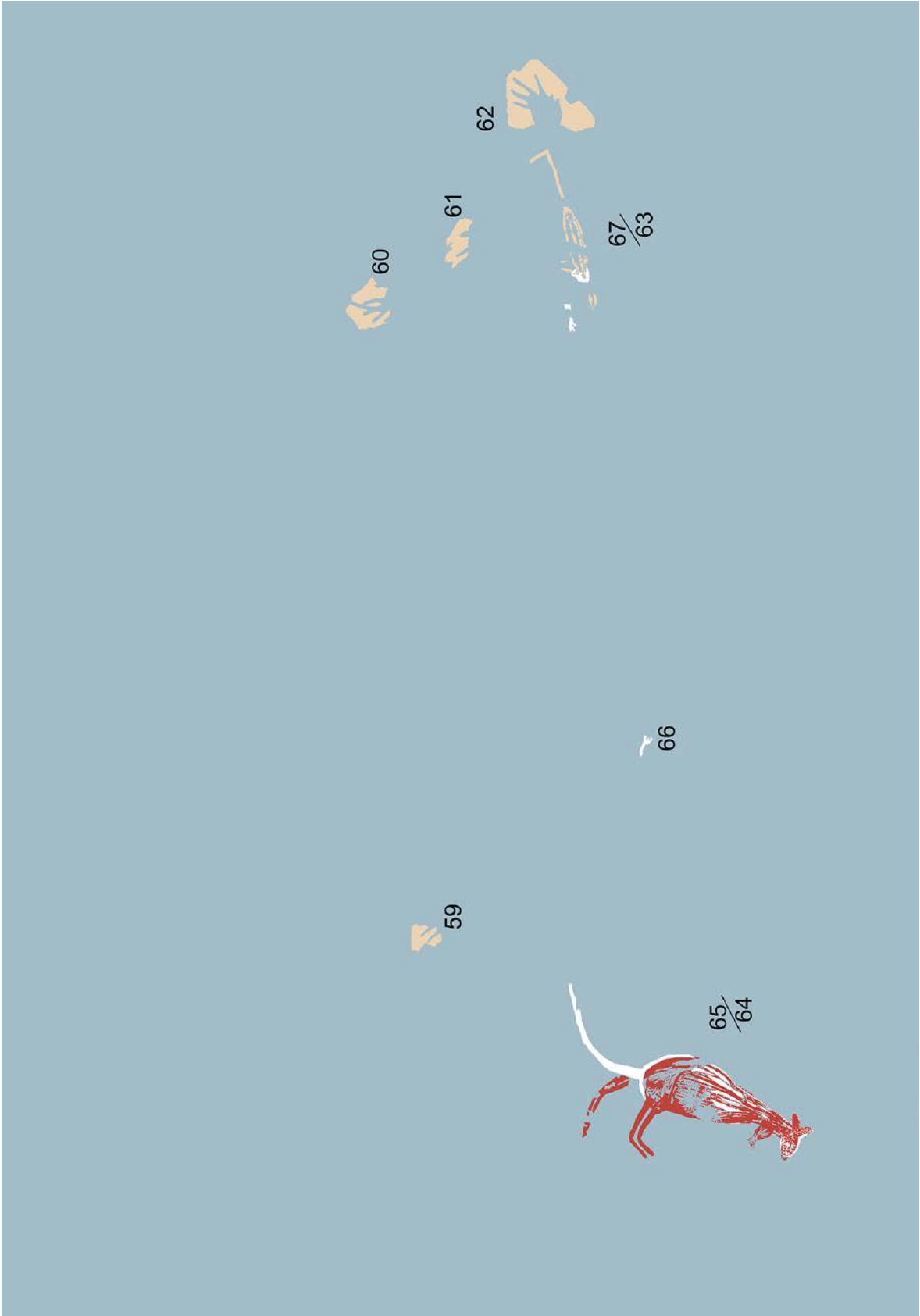


Figure 7.252: Panel H motif interpretations (iv)

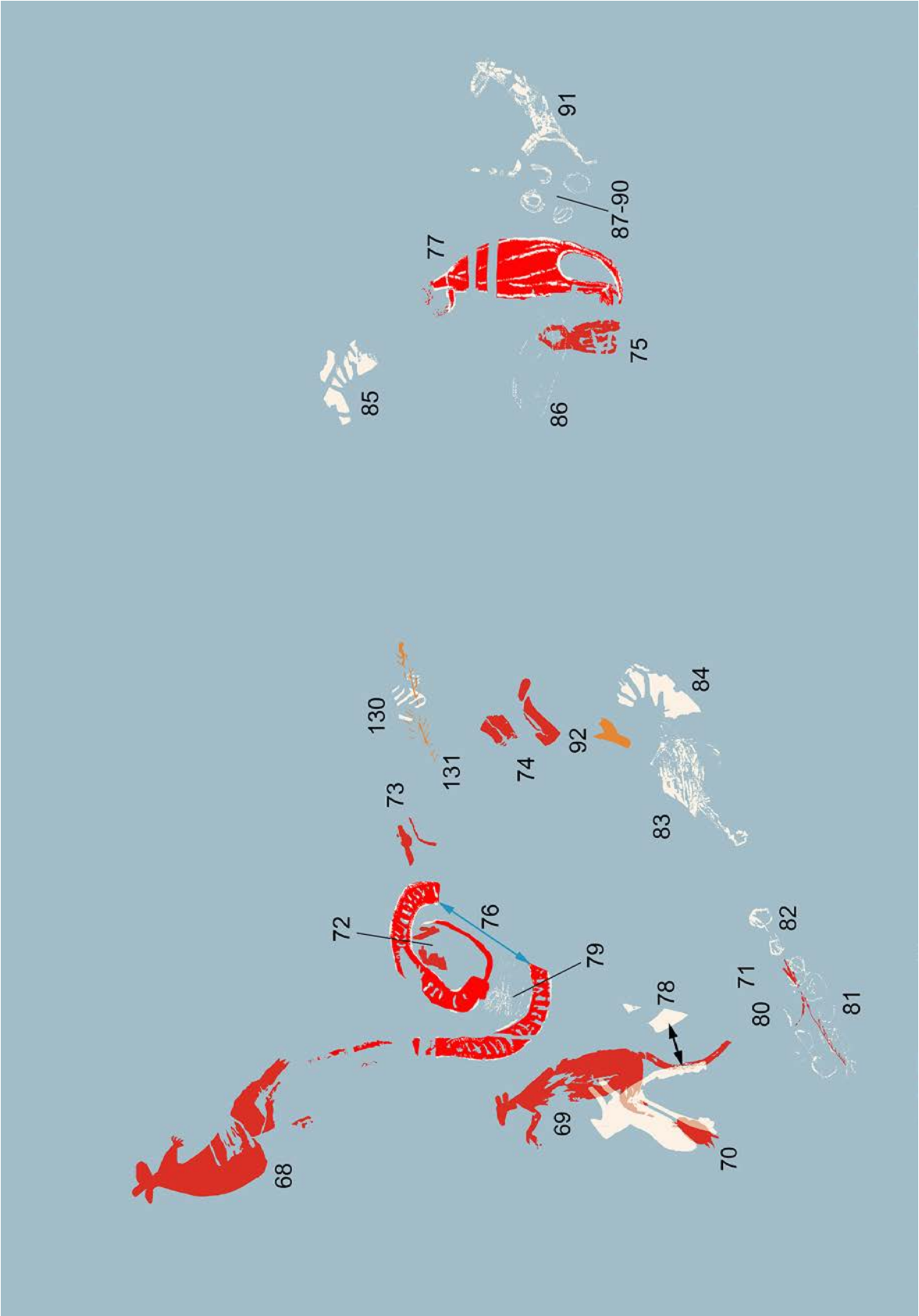


Figure 7.253: Panel H motif interpretations (v)

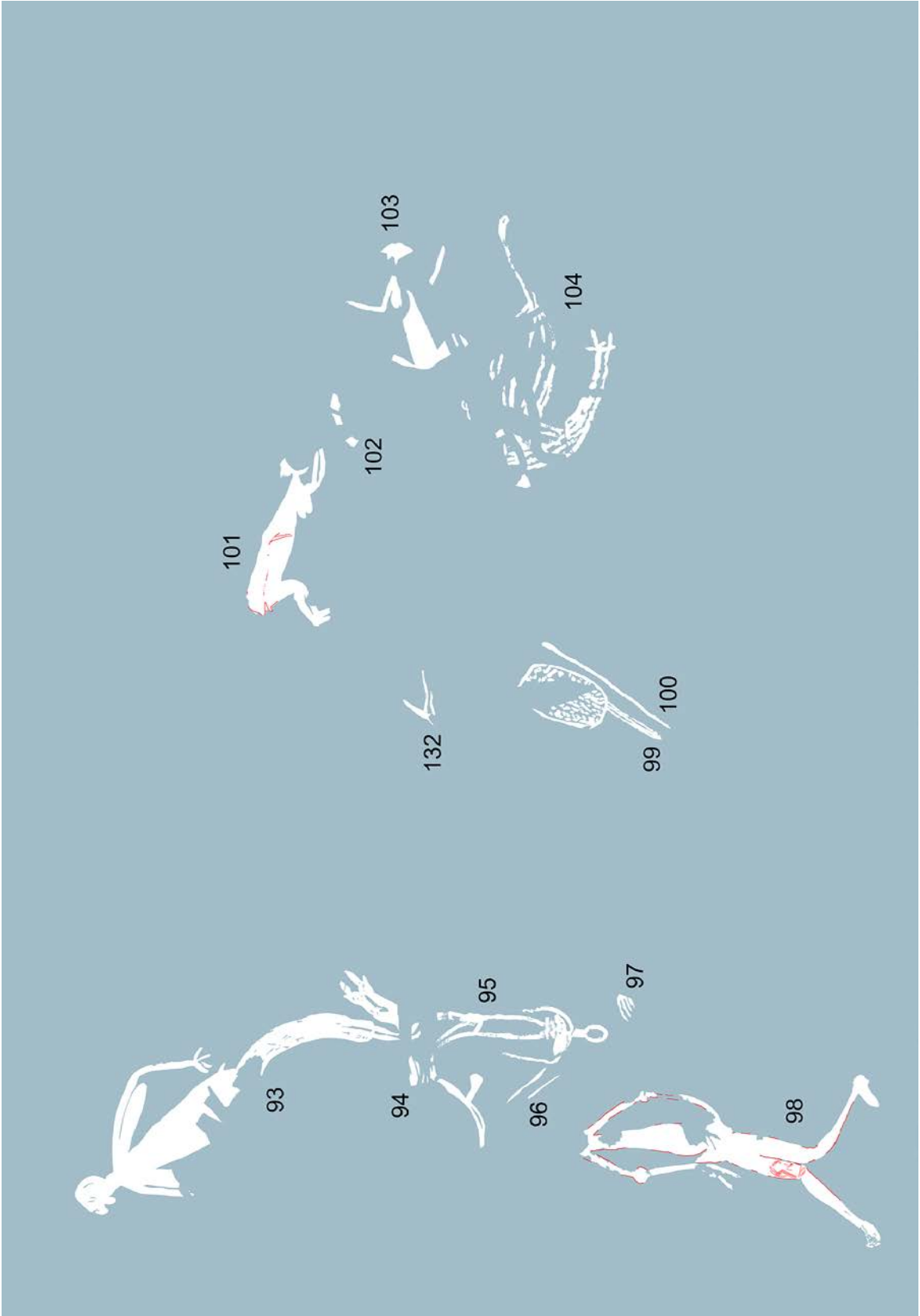


Figure 7.254: Panel H motif interpretations (vi)

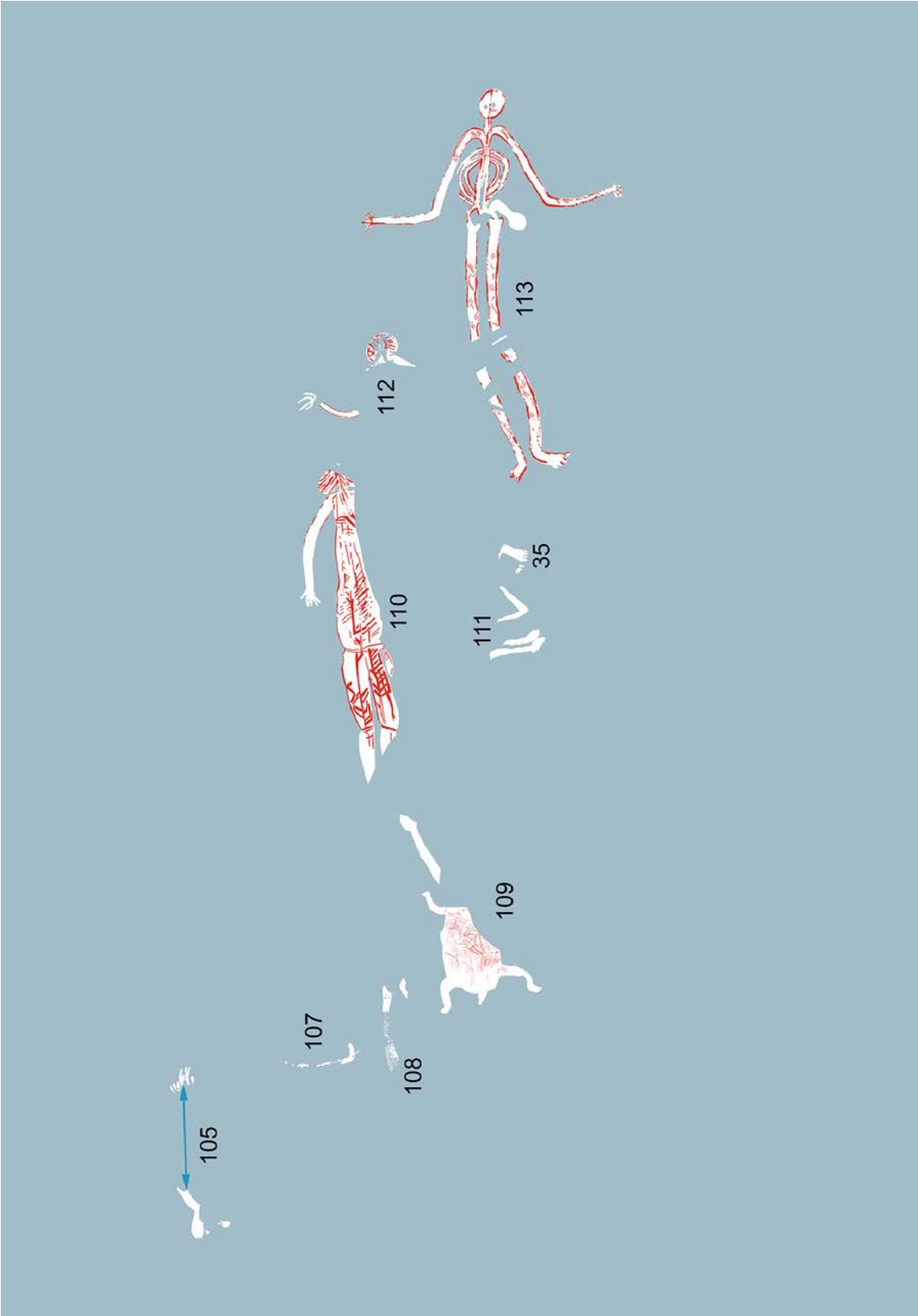


Figure 7.255: Panel H motif interpretations (vii)

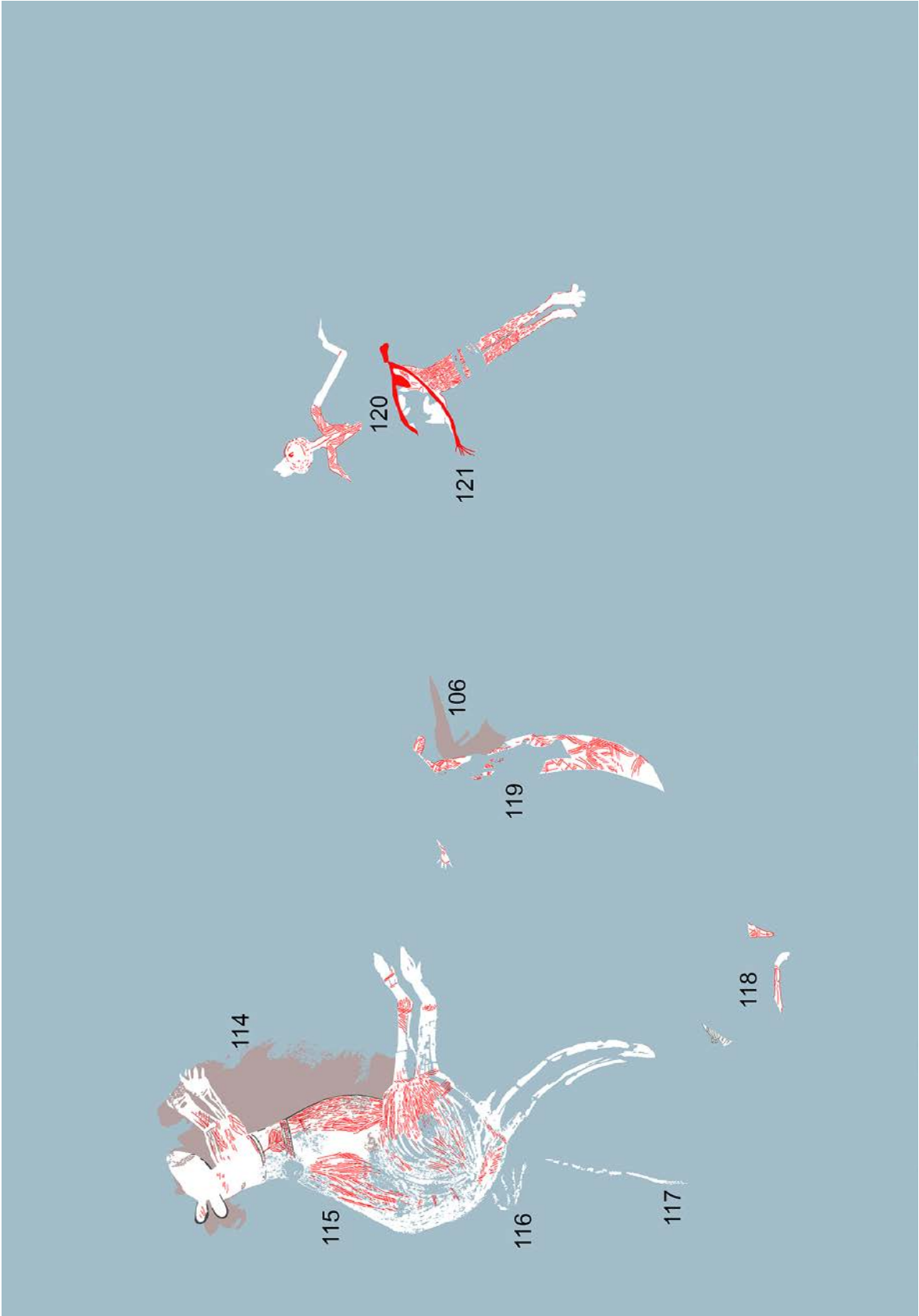


Figure 7.256: Panel H motif interpretations (viii)

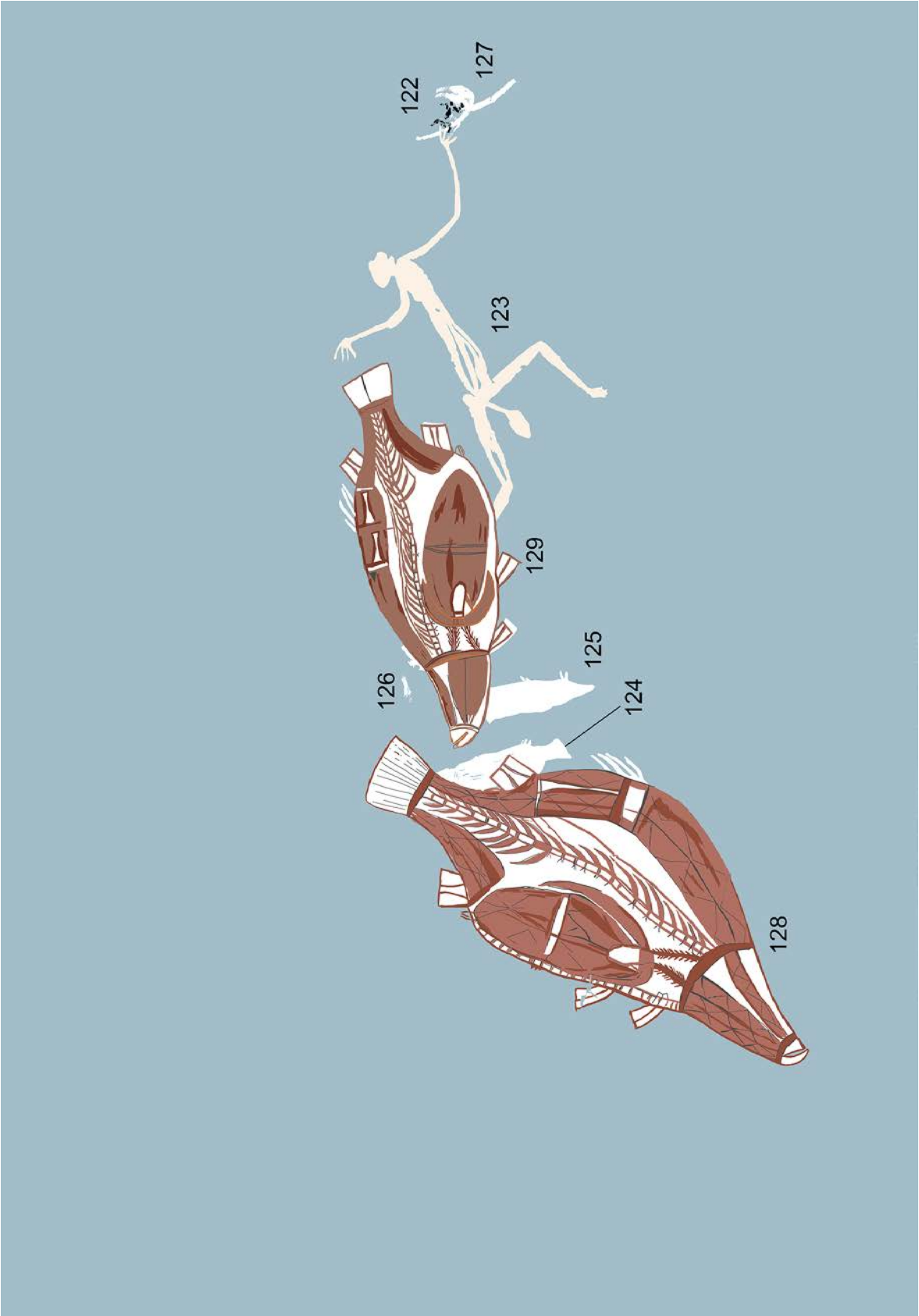


Figure 7.257: Panel H motif interpretations (ix)

Table 7.25: Panel H motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
H-1	red	painting	solid	reptile	Goanna	very poor		
H-2	red	painting	linear	geometric	Line	poor		
H-3	red	painting	fragment	fragment	fragment	very poor		
H-4	red	painting	fragment	fragment	fragment	very poor		
H-5	red	painting	fragment	fragment	fragment	very poor		
H-6	red	painting	linear	fragment	fragment	very poor		
H-7	red	painting	solid	mammal	Animal	very poor		
H-8	red	painting	solid	fragment	fragment	very poor		
H-9	red	painting	fragment	fragment	fragment	very poor		
H-10	red	painting	solid	mammal	Animal	very poor		
H-11	red	painting	outline+infill	fragment	fragment	very poor		
H-12	red	painting	fragment	fragment	fragment	very poor		
H-13	red	painting	fragment	fragment	fragment	very poor		
H-14	red	painting	fragment	fragment	fragment	very poor		
H-15	red	painting	solid	fragment	fragment	very poor		
H-16	red	painting	solid	fragment	fragment	very poor		
H-17	red	painting	solid	fragment	fragment	very poor		
H-18	red	painting	fragment	fragment	fragment	very poor		
H-19	red	painting	fragment	fragment	fragment	very poor		
H-20	red	painting	fragment	fragment	fragment	very poor		
H-21	white	spray	stencil	hand	Hand left	poor		
H-22	white	painting	outline+infill	simple design	Design regular	poor		
H-23	yellow	painting	fragment	fragment	fragment	very poor		
H-24	yellow	painting	fragment	fragment	fragment	very poor		
H-25	yellow	painting	fragment	fragment	fragment	very poor		
H-26	yellow	painting	fragment	fragment	fragment	very poor		
H-27	yellow	painting	fragment	fragment	fragment	very poor		
H-28	yellow	painting	solid	geometric	Disc	very poor		
H-29	yellow	painting	solid	geometric	Disc	very poor		
H-30	yellow	painting	fragment	fragment	fragment	very poor		
H-31	yellow	painting	fragment	fragment	fragment	very poor		

H-32	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-33	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-34	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-35	white	painting	solid	solid	anthropomorph	anthropomorph	Anthropomorph	poor		
H-36	yellow	painting	solid	solid	mammal	mammal	Macropod	very poor		
H-37	yellow	painting	outline	outline	mammal	mammal	Macropod	very poor		
H-38	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-39	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-40	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-41	yellow	painting	solid	solid	mammal	mammal	Macropod	very poor		
H-42	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-43	yellow	painting	solid	solid	mammal	mammal	Animal	very poor		
H-44	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-45	yellow	painting	outline+linear	outline+linear	bird	bird	Jabiru	poor		
H-46	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-47	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-48	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-49	yellow	painting	linear	linear	fragment	fragment	fragment	poor		
H-50	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-51	yellow	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-52	red	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-53	red	painting	outline+infill+linear	outline+infill+linear	anthropomorph	anthropomorph	Anthropomorph	very poor		
H-54	red	painting	outline+infill	outline+infill	fragment	fragment	fragment	very poor		
H-55	red	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-56	red	painting	fragment	fragment	fragment	fragment	fragment	very poor		
H-57	red	painting	outline+infill	outline+infill	fragment	fragment	fragment	very poor		
H-58	red	painting	solid+linear	solid+linear	anthropomorph	anthropomorph	Anthropomorph	very poor		
H-59	white	spray	stencil	stencil	hand	hand	Hand	fair		
H-60	white	spray	stencil	stencil	hand	hand	Hand left	fair		
H-61	white	spray	stencil	stencil	hand	hand	Hand left	fair		
H-62	white	spray	stencil	stencil	hand	hand	Hand left	fair		
H-63	white	painting	linear+outline+infill	linear+outline+infill	bird	bird	Bird	poor		
H-64	red	painting	outline+infill	outline+infill	mammal	mammal	Macropod	fair		
H-65	red	painting	outline+infill	outline+infill	mammal	mammal	Macropod	fair		
H-66	red	painting	fragment	fragment	fragment	fragment	fragment	very poor		

H-67	white	painting	fragment	fragment	fragment	fragment	very poor		
H-68	red	painting	solid	mammal	Macropod	Macropod	poor		
H-69	red	painting	solid	mammal	Macropod	Macropod	poor		
H-70	red	painting	solid	reptile	Turtle short-necked	Turtle short-necked	very poor		
H-71	red	painting	linear	object	Spear	Spear	fair		
H-72	red	painting	fragment	fragment	fragment	fragment	poor		
H-73	red	painting	solid	reptile	Snake	Snake	poor		
H-74	red	painting	solid	fragment	fragment	fragment	poor		
H-75	red	painting	solid	mammal	Animal	Animal	good		
H-76	red+white	painting	solid+outline+infill	reptile	Snake	Snake	fair		
H-77	red+white	painting	solid+outline+infill	mammal	Macropod	Macropod	good	75	26
H-78	white	painting	solid	fragment	fragment	fragment	very poor		
H-79	white	drawing	outline+infill	simple design	Design irregular	Design irregular	fair		
H-80	white	painting	outline+infill	simple design	Design regular	Design regular	fair		
H-81	white	painting	outline+infill	simple design	Design regular	Design regular	very poor		
H-82	white	painting	outline+infill	simple design	Design regular	Design regular	poor		
H-83	white	painting	outline+infill	unknown	Unknown	Unknown	fair		
H-84	white	spray	stencil	hand	Hand left	Hand left	good		
H-85	white	spray	stencil	hand	Hand left	Hand left	good		
H-86	white	drawing	outline+infill	simple design	Design irregular	Design irregular	fair		
H-87	white	painting	outline+infill	geometric	Oval concentric	Oval concentric	good	8	
H-88	white	painting	outline+infill	geometric	Oval concentric	Oval concentric	good	7	
H-89	white	painting	outline+infill	geometric	Oval concentric	Oval concentric	good	9	
H-90	white	painting	outline	geometric	Oval	Oval	good	9	
H-91	white	painting	outline+infill+linear	mammal	Macropod	Macropod	good		
H-92	orange	painting	fragment	fragment	fragment	fragment	poor		
H-93	white	painting	solid	anthropomorph	Anthropomorph female	Anthropomorph female	poor	125	56
H-94	white	painting	solid+outline	mammal	Macropod male	Macropod male	poor		
H-95	white	painting	outline+linear	anthropomorph	Anthropomorph female	Anthropomorph female	fair	70	20
H-96	white	painting	linear	fragment	fragment	fragment	poor		
H-97	white	painting	fragment	fragment	fragment	fragment	poor		
H-98	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	Anthropomorph	very poor		
H-99	white	painting	outline+infill+linear	object	Dillybag	Dillybag	good	52	17
H-100	white	painting	linear	object	Digging stick	Digging stick	very poor	22	2

H-101	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph female	fair	71	38
H-102	white	painting	fragment	fragment	fragment	poor		
H-103	white	painting	solid	anthropomorph	Anthropomorph female	poor		
H-104	white	painting	outline+infill	bird	Emu	fair		
H-105	white	painting	solid	mammal	Macropod	very poor		
H-106	pink	painting	solid	area	Smear	fair		
H-107	white	painting	fragment	fragment	fragment	very poor		
H-108	white	painting	fragment	fragment	fragment	very poor		
H-109	white+red	painting	solid+infill	reptile	Turtle long-necked	good	84	36
H-110	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	good	143	
H-111	white	painting	solid	anthropomorph	Anthropomorph	poor		
H-112	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		
H-113	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	good	147	100
H-114	pink	painting	solid	area	Smear	fair		
H-115	white+red+black	painting	X-ray	mammal	Macropod male	fair	153	85
H-116	white	painting	linear	simple design	Design apex	fair		
H-117	white	painting	linear	geometric	Line	fair		
H-118	white+red	painting	solid+outline+infill	fragment	fragment	poor		
H-119	white+red	painting	solid+outline+infill	mammal	Macropod	poor		
H-120	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	fair	126	
H-121	red	painting	solid+linear	anthropomorph	Anthropomorph female	poor		
H-122	black	appliqué	linear	anthropomorph	Anthropomorph	good	13	9
H-123	white	painting	solid+outline+infill	anthropomorph	Anthropomorph male	good	170	75
H-124	white	painting	solid	fish	Fish	good		
H-125	white	painting	solid	fish	Fish	good		
H-126	white	painting	fragment	fragment	fragment	very poor		
H-127	white	painting	solid+linear	bird	Bird	excellent		
H-128	white+red+black	painting	X-ray	fish	Barramundi	excellent	180	84
H-129	white+red+black	painting	X-ray	fish	Barramundi	excellent	143	53
H-130	white	painting	outline+infill	unknown	Unknown	poor		
H-131	orange	painting	linear	object	Feather	poor		
H-132	white	painting	linear	fragment	fragment	poor		



Figure 7.258: Polychrome barramundi in the Northern X-ray form (Motif H-128)



Figure 7.259: Polychrome barramundi in the Northern X-ray form (Motif H-129)



Figure 7.260: Coiled snake (Motif H-72)

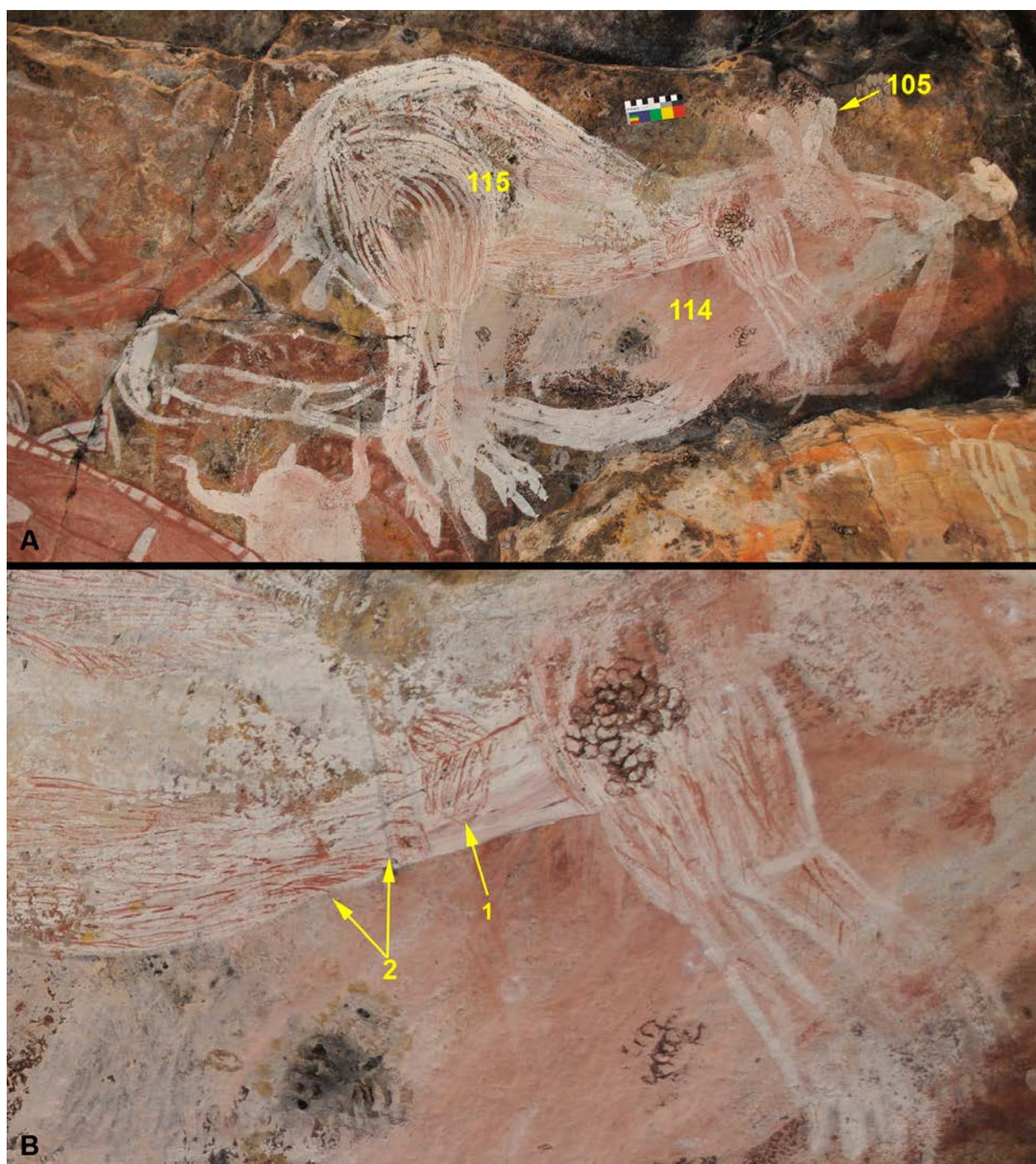


Figure 7.261: Polychrome macropod (Motif H-115)
 A: detail of motif with earlier version (Motif H-105) and underlying Smear (Motif H-114)
 B: detail of X-ray heart (1) and black line-work (2)



Figure 7.262: Fine-line infill on anthropomorph Motif H-120



Figure 7.263: Smeared area (Motif H-106) and surrounding motifs



Figure 7.264: Beeswax anthropomorph (Motif H-122)



Figure 7.265: Beeswax figure (Motif H-122) details showing overlying white pigment



Figure 7.266: Skeletal male anthropomorph (Motif H-113)

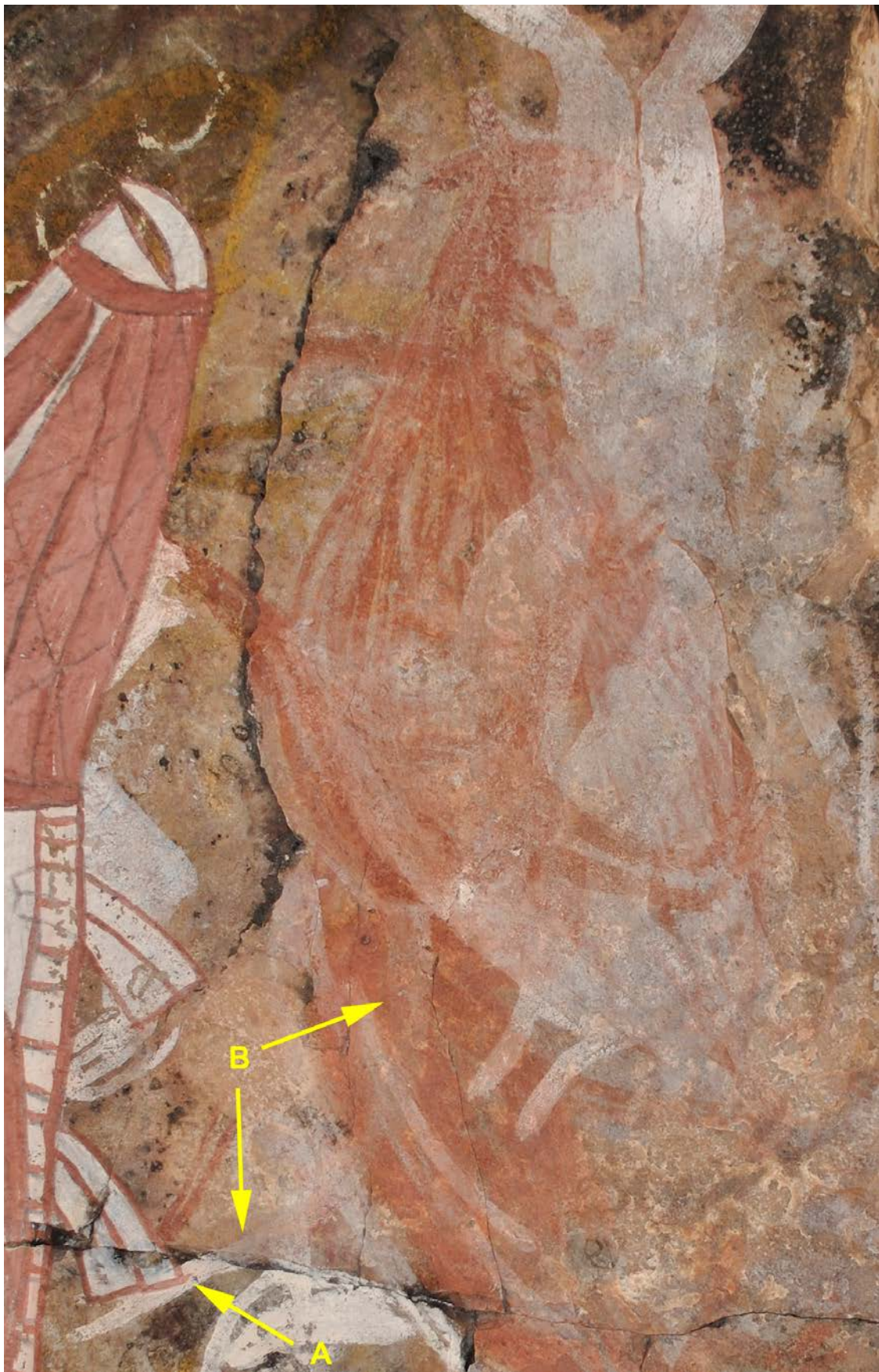


Figure 7.267: Red macropod (Motif H-64) later repainted in white (Motif H-65) and tail realigned
A: better preserved white pigment B: sections of poorly preserved white repainting

Panel J1

Panel J1, beneath the northern verandah, is the largest panel within the shelter, reaching 15 m in length with a maximum width of 3 m (Figures 7.268 and 7.269). The width of the panel varies along its length, reducing to less than 2 m wide around its mid-point and at either end. The panel surface is flat but has two major fractures cutting across the panel at its eastern end (Figure 7.270). Both fractures are points of entry for moisture born salts and the panel on either side of the most eastern fracture has suffered from exfoliation (Figure 7.271 left). Water-wash also creeps under the outer, northern edge of the panel and continues to damage some of the motifs, particularly those at the western end (Figure 7.271 right).

A single photomosaic of the panel was not possible in the time available due to an incomplete photographic record (as a result of the slight unevenness of the floor below it which was not recognised when photographing). As a result, several areas of major distortion were incorporated into the mosaic. To rectify this problem for photo-tracing, the panel was subdivided into five units (Units J1-A to J1-E; Figure 7.272) and use was made of detailed photographs to trace individual figures, which were then included into the mosaic at the appropriate scale. Consequently, the composite photo-tracing of this panel has the major disconformities highlighted (Figure 7.273).

Panel J1 contains 235 motifs (Table 7.26; Figures 7.274 to 7.309), of which 157 (67%) were interpreted to Motif Type. The motifs are concentrated towards the western end of the panel, specifically around the two largest motifs: a fresh-water crocodile, Motif J-148 (Figures 7.294 and 7.295), and a macropod, Motif J-227 (Figures 7.302 and 7.303). The condition of the artwork varies considerably, and in common with other panels, the majority of the underlying motifs are in very poor condition. In contrast to most other panels however, few of the overlying (more recent) motifs are either well-preserved or well-defined.

While there is little consistency in motif alignment, there is a tendency for them to be placed with their heads towards the outer (northern) edge of the panel. Unlike many other panels, Panel J1 has no motifs with a dramatic visual impact, primarily because none of the larger motifs have solid silhouettes or other attributes to make them outstanding from their surrounding motifs.

The four largest motifs are a snake (python: Motif J-58; 540 × 18 cm), a macropod (Motif J-227; 345 × 200 cm), a crocodile (Motif J-14; 380 × 205 cm), and an unknown quadruped (Motif J-46; 200 × 97 cm) (Figures 7.310 to 7.313). Each has been repainted or renovated on several occasions and, on the basis of differences

in the preservation of their various superimposed colours (Table 7.27), each occasion was separated by a considerable time gap. The sequences of colour application for each of these motifs are similar, but not identical, suggesting that the motifs were not repainted or retouched at the same time (see Chapter 8 below).

The painting of the central layer of the large macropod (Motif J-201) incorporates the use of a thin coating of white pigment in the manner of a thin wash silhouette. This is unusual in Jawoyn rock art; although a similar wash was used on a large emu motif (Motif A71) on panel A3.

Motif J-46 (Figures 7.302 and 7.311) is recorded as an unknown animal for, while the shape of its back and tail has more in common with the thylacine than other animals known from the region, its large and pointed ears contrast with those of the thylacine, which are short and more rounded. The original motif was painted in a pink-red pigment that does not appear of particularly great age (thought to be in the hundreds of years, not thousands); the motif is not amongst the earliest motifs on the panel and has been embellished at least twice in more recent times. The large ears are shared by another quadruped motif (Motifs J-210, 125 × 50 cm; Figure 7.314), although this motif does not have the distinct tail/hind-quarters of the thylacine, and is decorated in a moiety design rather than the realistic hind-stripes. This design and colour is similar to that used on nearby Jawoyn Lady motifs. In contrast, another depiction of a thylacine (Motif J-172, Figure 7.315), bares a much closer resemblance to the actual animal (Beresford and Bailey 1981), suggesting that Motif J-172 was painted by people who knew the animal well and, hence, at a time when the animal roamed the Arnhem Land landscape.

The panel has a number of other motifs of particular interest:

- Two adjacent radial designs in red (Motifs J-55 and J-56), the arms of which have anthropomorphic traits (Figure 7.316). The two designs are both focused on pellets of beeswax (Motifs J-54 and 55). The two designs, their placement and their incorporation of beeswax pellets, parallel that of Motifs F-98 and F-99 on Panel F1 (Figure 7.199);
- The coiled snake (Motif J-63; Figure 7.317), has a parallel with Motif F-122 (Panel F1) as both are white silhouettes with red outline and infill, including incipient X-ray features, and are uppermost on their respective panels (Figure 7.194);
- Two female anthropomorphs in orange (Motifs J-156 and J-157; Figure 7.318), both similarly preserved and positioned at either end of the large crocodile motif (Motif J-148);

Table 7.27: Colour sequences for the four largest motifs on Panel J1

Motif Nos.	Motif type	Initial layer	2nd layer	3rd layer	4th layer	5th layer	6th layer
J-50, 52, 58	Snake	yellow/ cream	red	white			
J-123, 148	Crocodile	yellow	red	white ²	yellow ²	orange ²	
J-194, 201, 227	Macropod	red	white ³	cream ³	orange ⁴	white ⁴	red ⁴
J-46, 60, 62	Quadruped	orange	yellow	white			

¹ It is not possible to determine the relative times of application of these two colours as they do not overlap and their preservation state is visually similar

^{2,3,4} although superimposed, these layers appear part of the same painting event

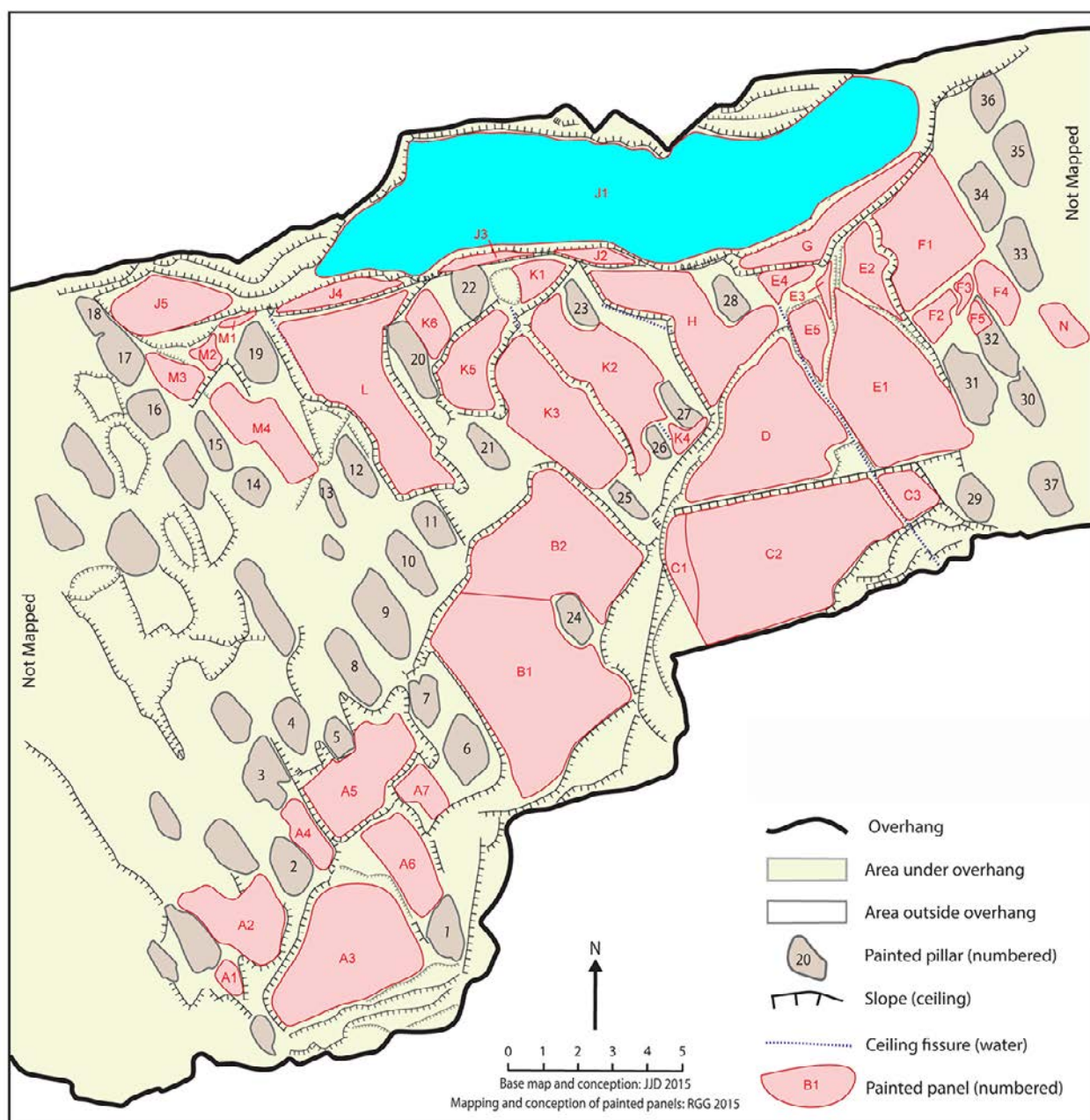


Figure 7.268: Location of Panel J1

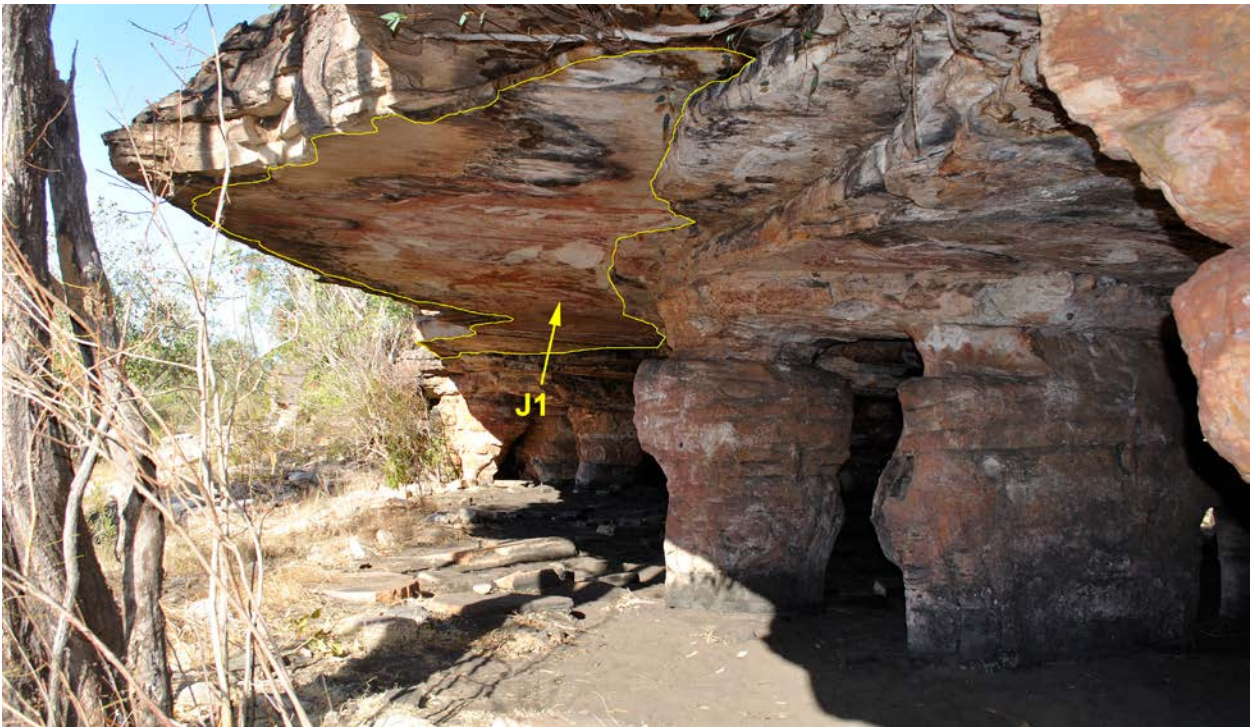


Figure 7.269: Location of Panel J1 (from the west)

- A pair of possums in white with yellow embellishments (Motifs J-82 and J-83; Figure 319);
- An unusual orange object decorated in white (Motif J-77; Figure 7.320);
- An imposing and dominant white female figure (Motif J-80; Figure 7.321);
- An unusual composite motif depicting a small female macropod-headed figure reaching out to another macropod-headed zoomorph, and both enclosed within a larger macropod-headed figure (the lower portion of which is now severely weathered), along with a possible fighting pick and other unrecognised features (Motif J-76; Figure 7.322); and
- A skeletal figure with macropod head (viewed in plan) and macropod feet (Motif J-90; Figure 7.323). This figure, in white with red embellishment, appears through its superimposition to be one of the most recent on the panel. However, its pigment has not adhered well to the ceiling surface and in numerous places has fallen away.

Overall, despite the high number of motifs and the large size of a number of these, the panel lacks the visual impact of many of the smaller panels. This is most likely due to the poor preservation of white pigment on this panel and a consequent reluctance of painters to undertake large and complex motifs on this surface.

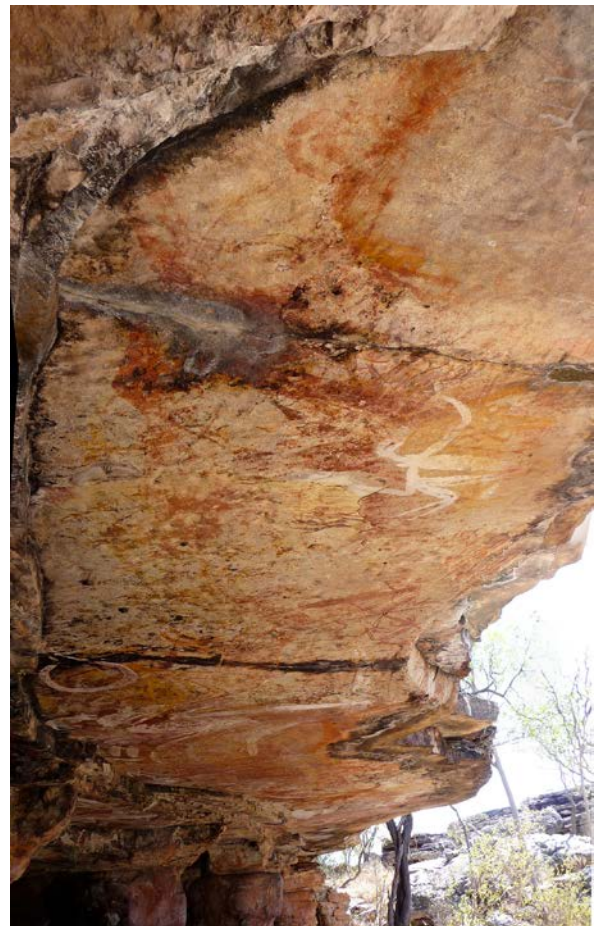


Figure 7.270: Panel J1 from the east



Figure 7.271: Panel J1 photomosaic



Figure 7.272: Panel J1 photomosaic showing subdivisions used for detailed illustrations



Figure 7.273: Panel J1 composite photo-tracing

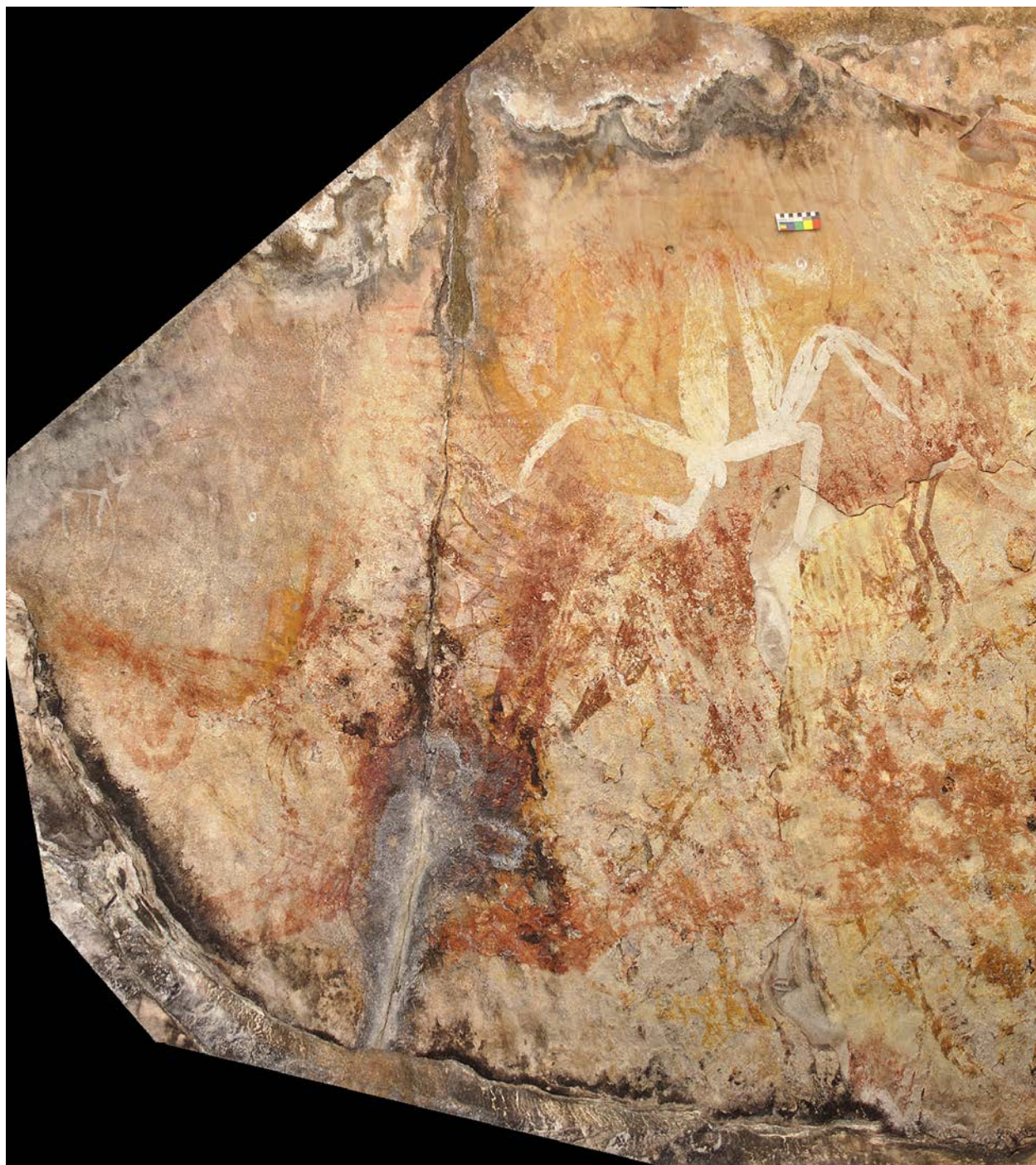


Figure 7.274: Panel J1-A photomosaic

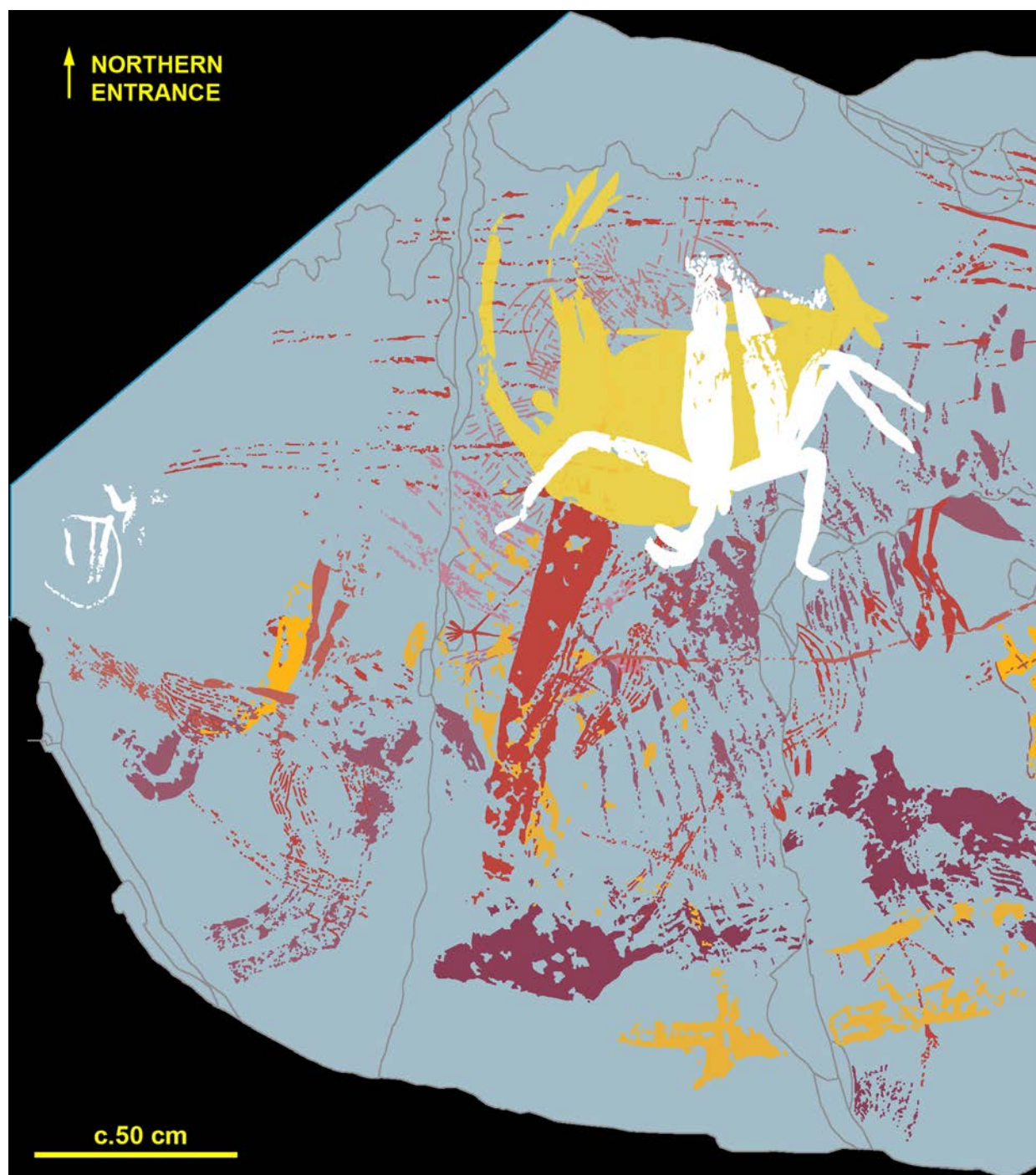


Figure 7.275: Panel J1-A photo-tracing

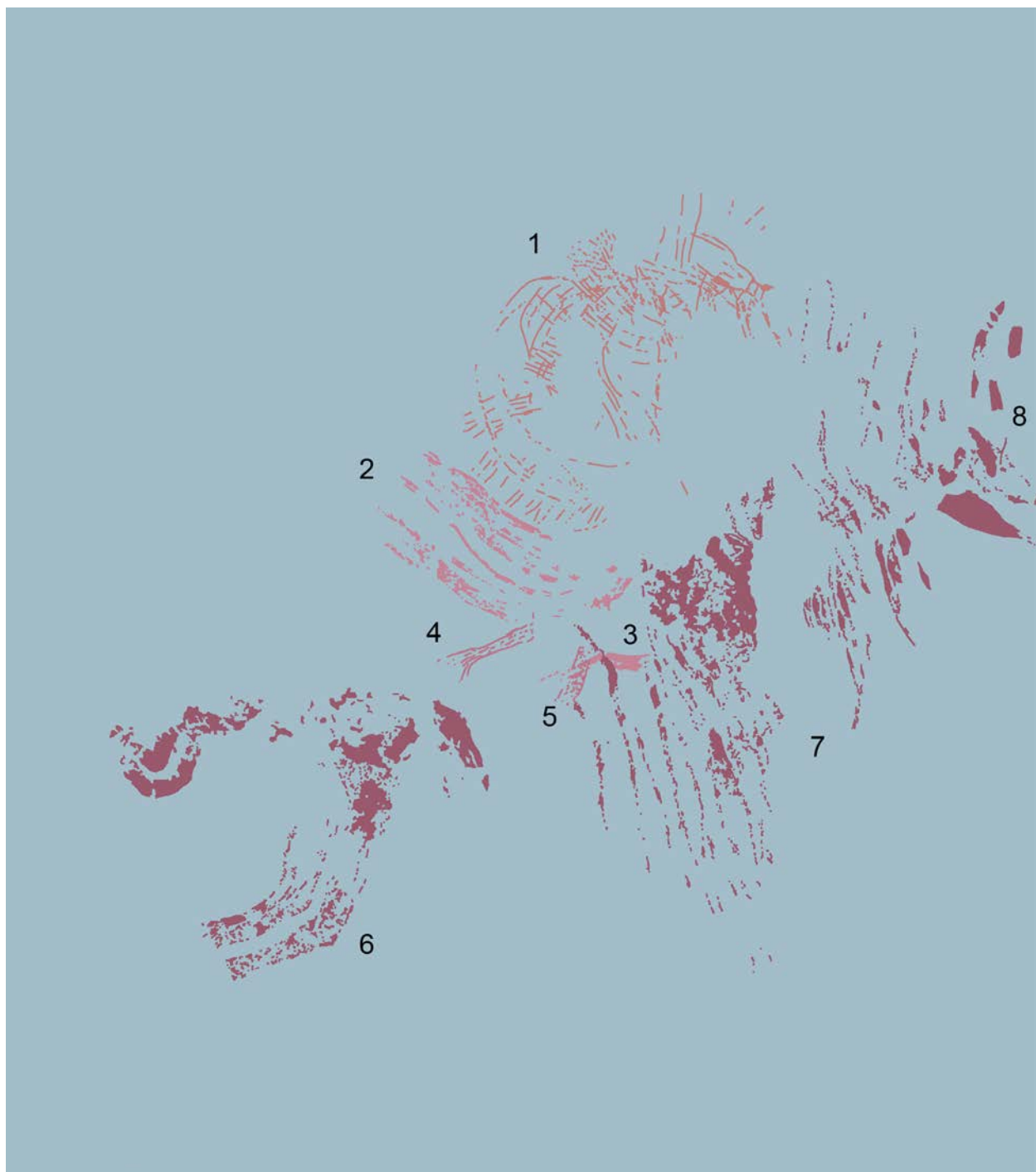


Figure 7.276: Panel J1-A motif interpretations (i)

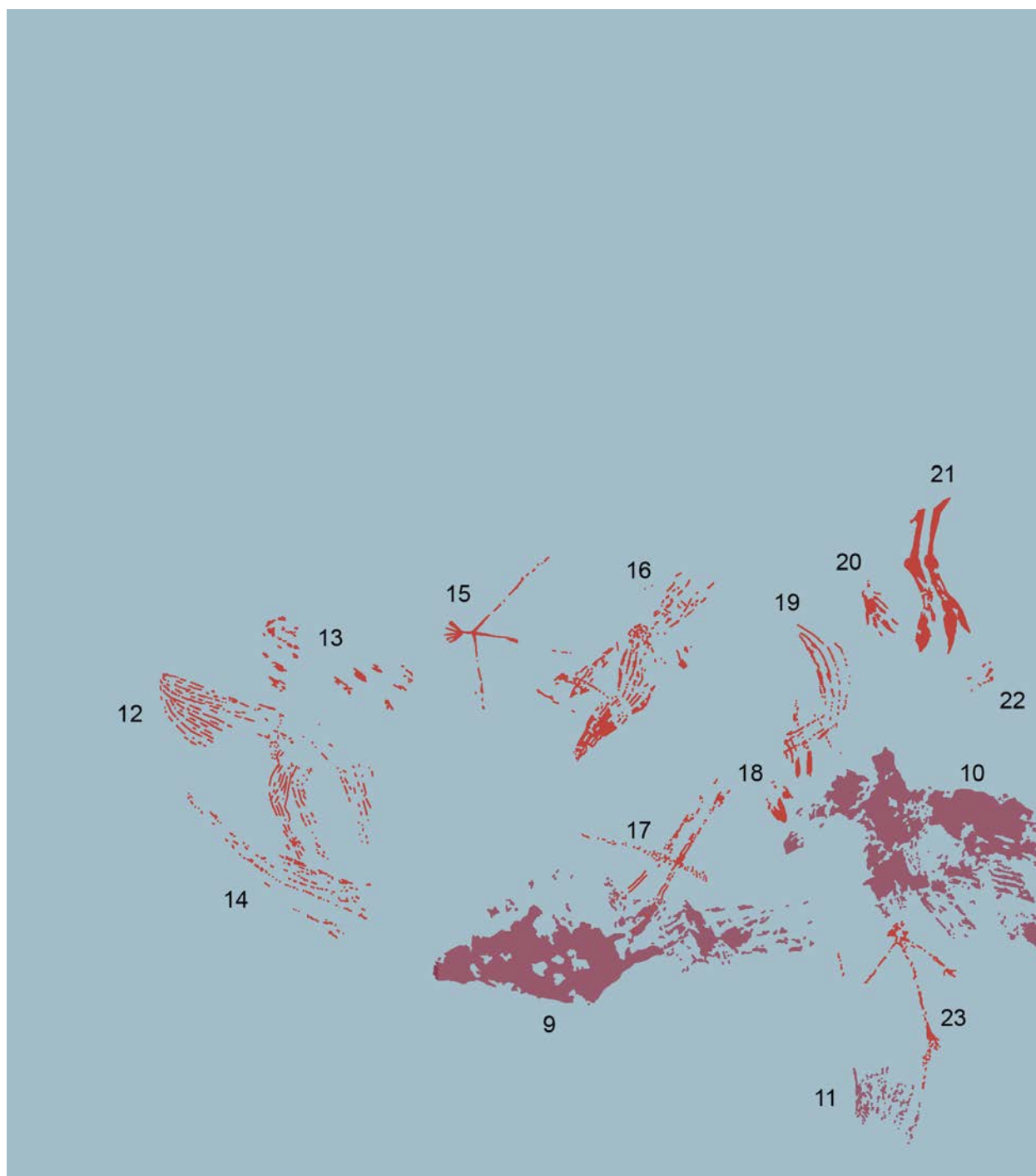


Figure 7.277: Panel J1-A motif interpretations (ii)

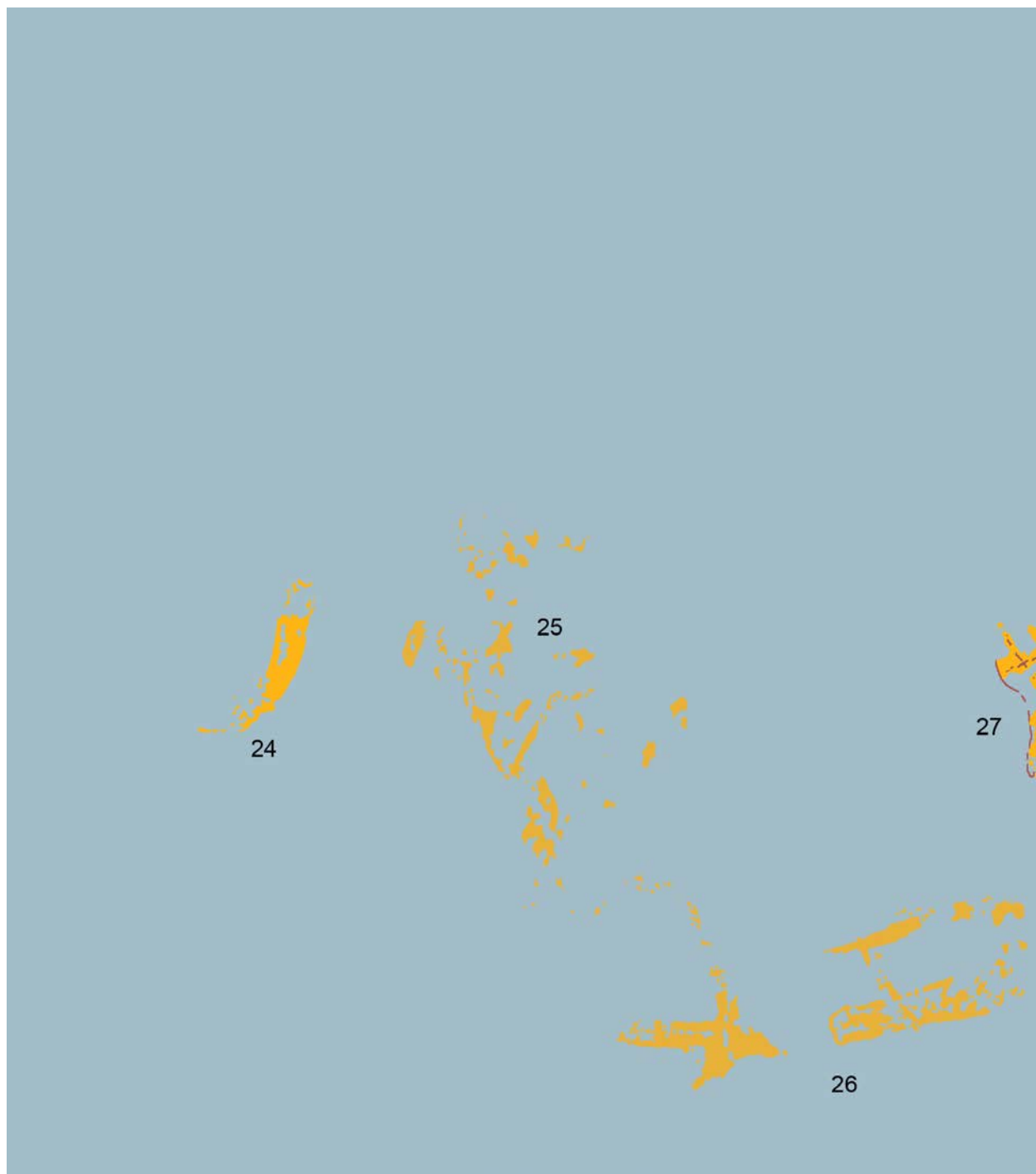


Figure 7.278: Panel J1-A motif interpretations (iii)

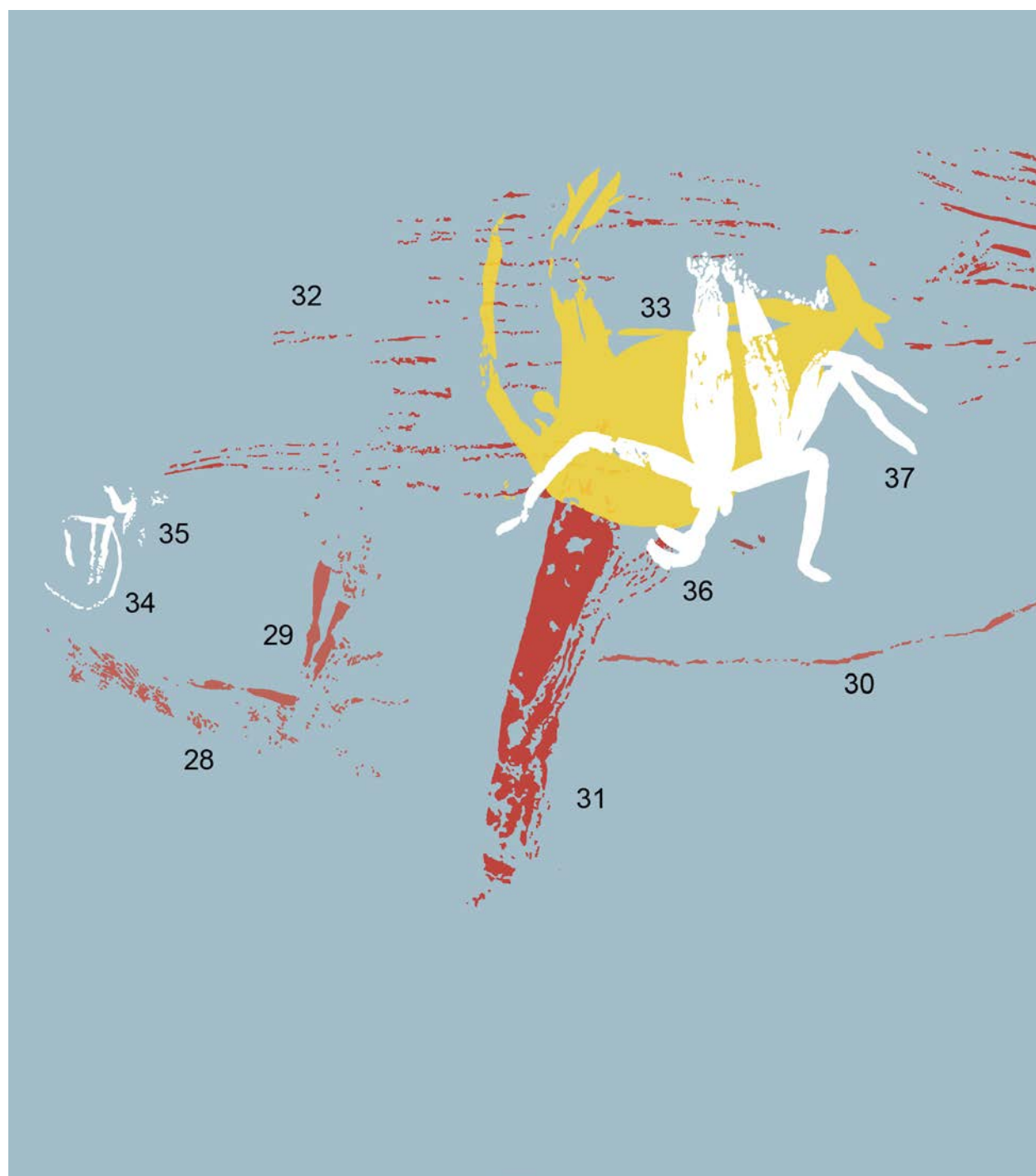


Figure 7.279: Panel J1-A motif interpretations (iv)

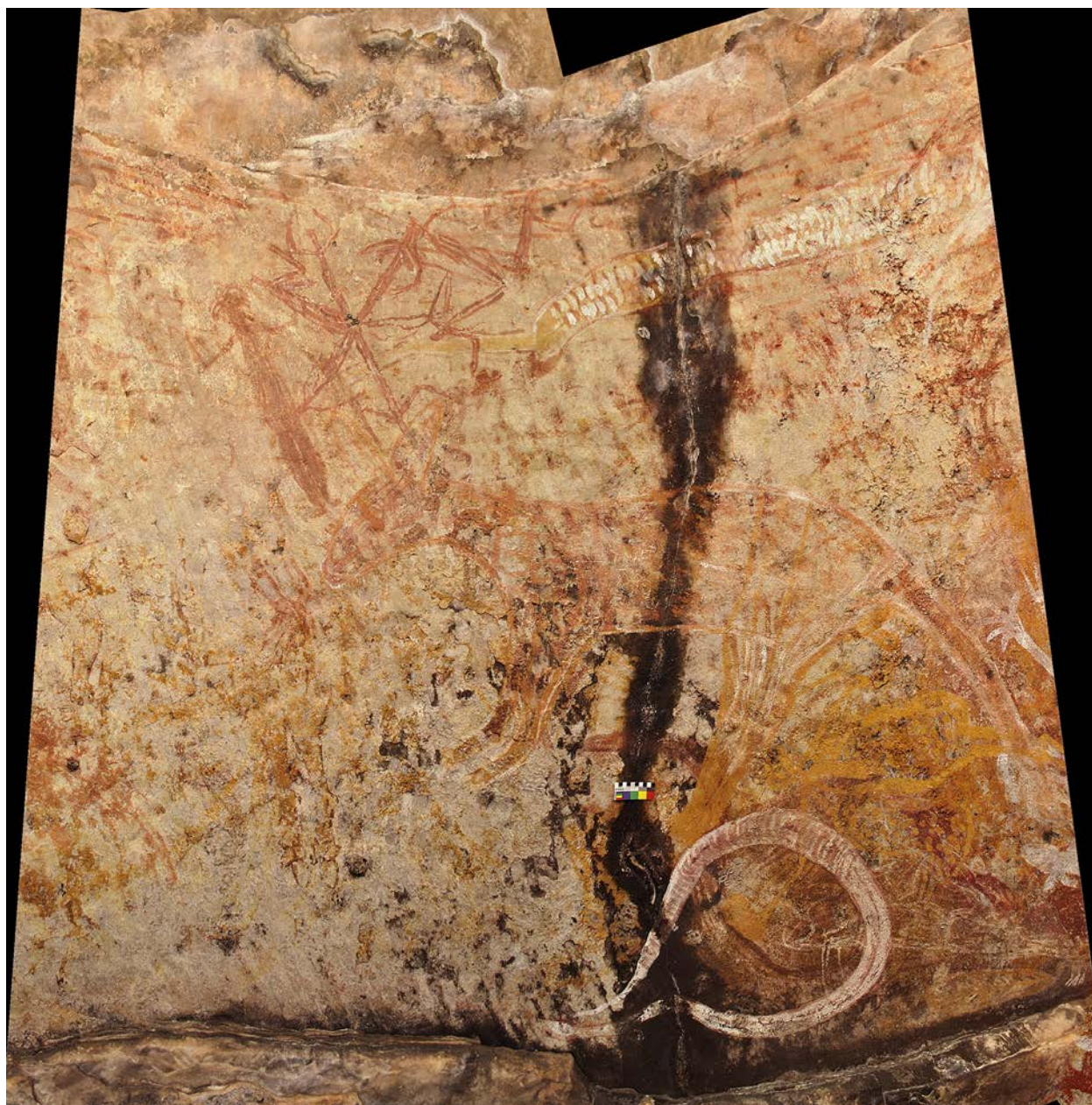


Figure 7.280: Panel J1-B photomosaic

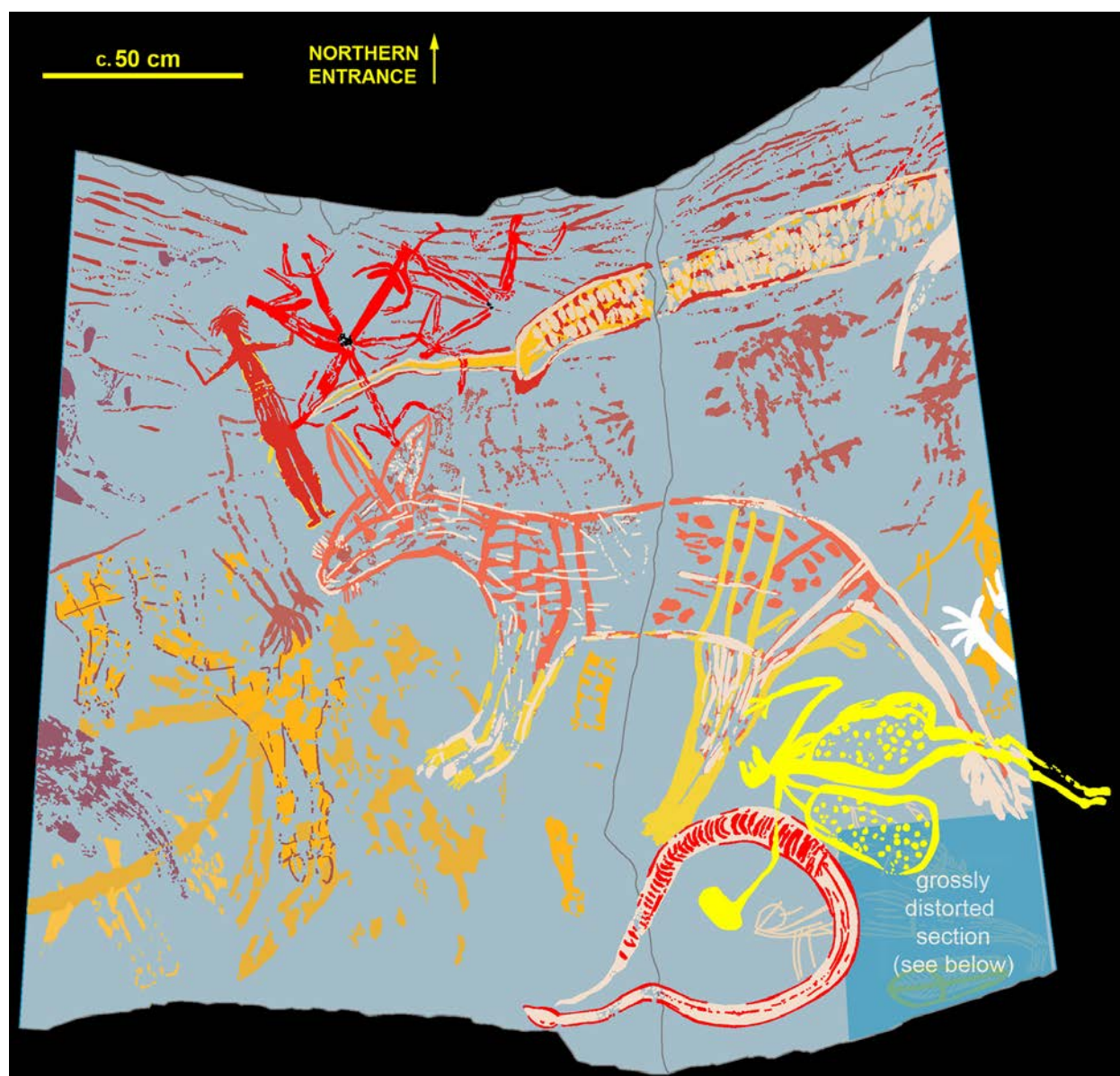


Figure 7.281: Panel J1-B photo-tracing

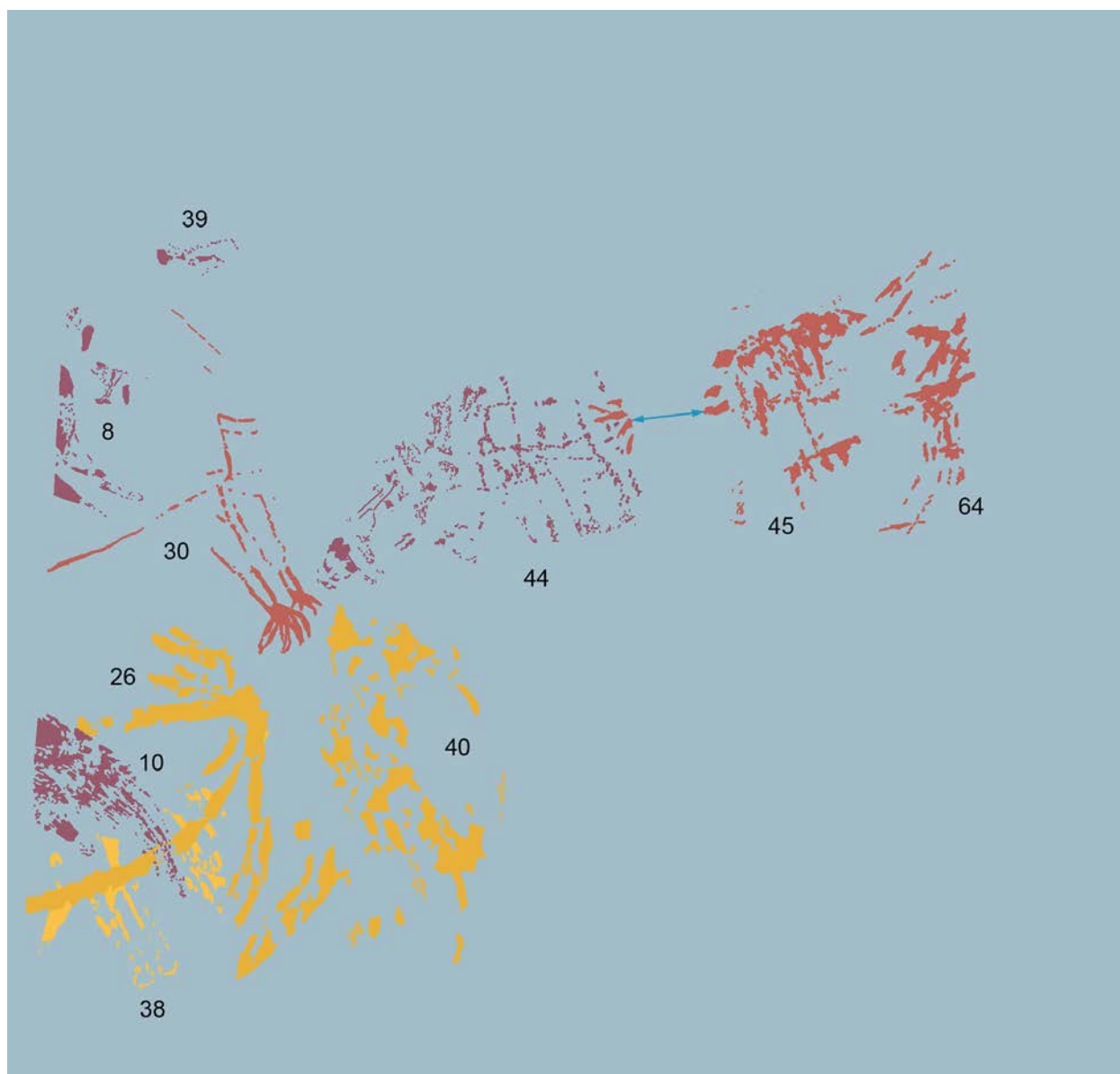


Figure 7.282: Panel J1-B motif interpretations (i)

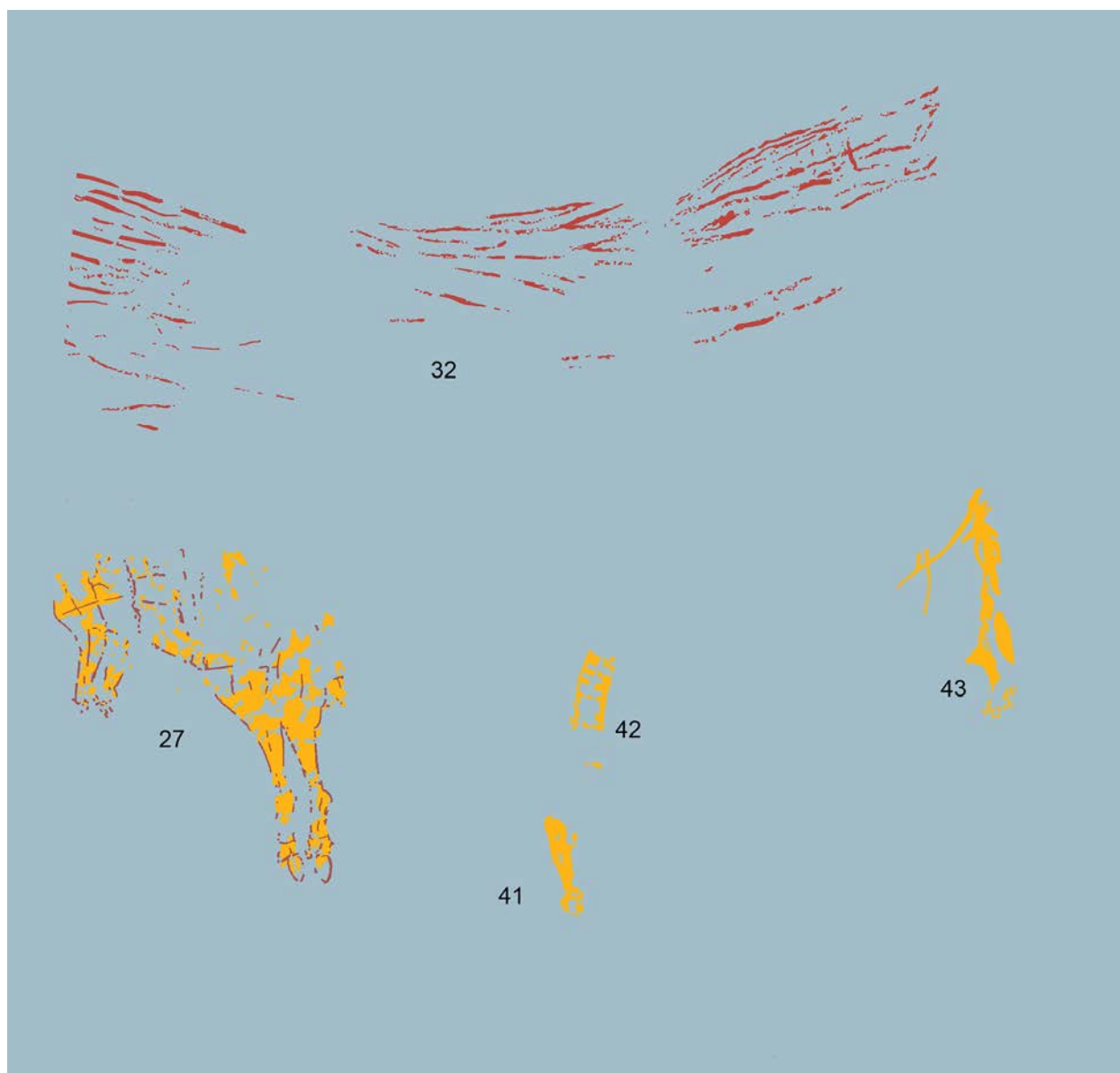


Figure 7.283: Panel J1-B motif interpretations (ii)

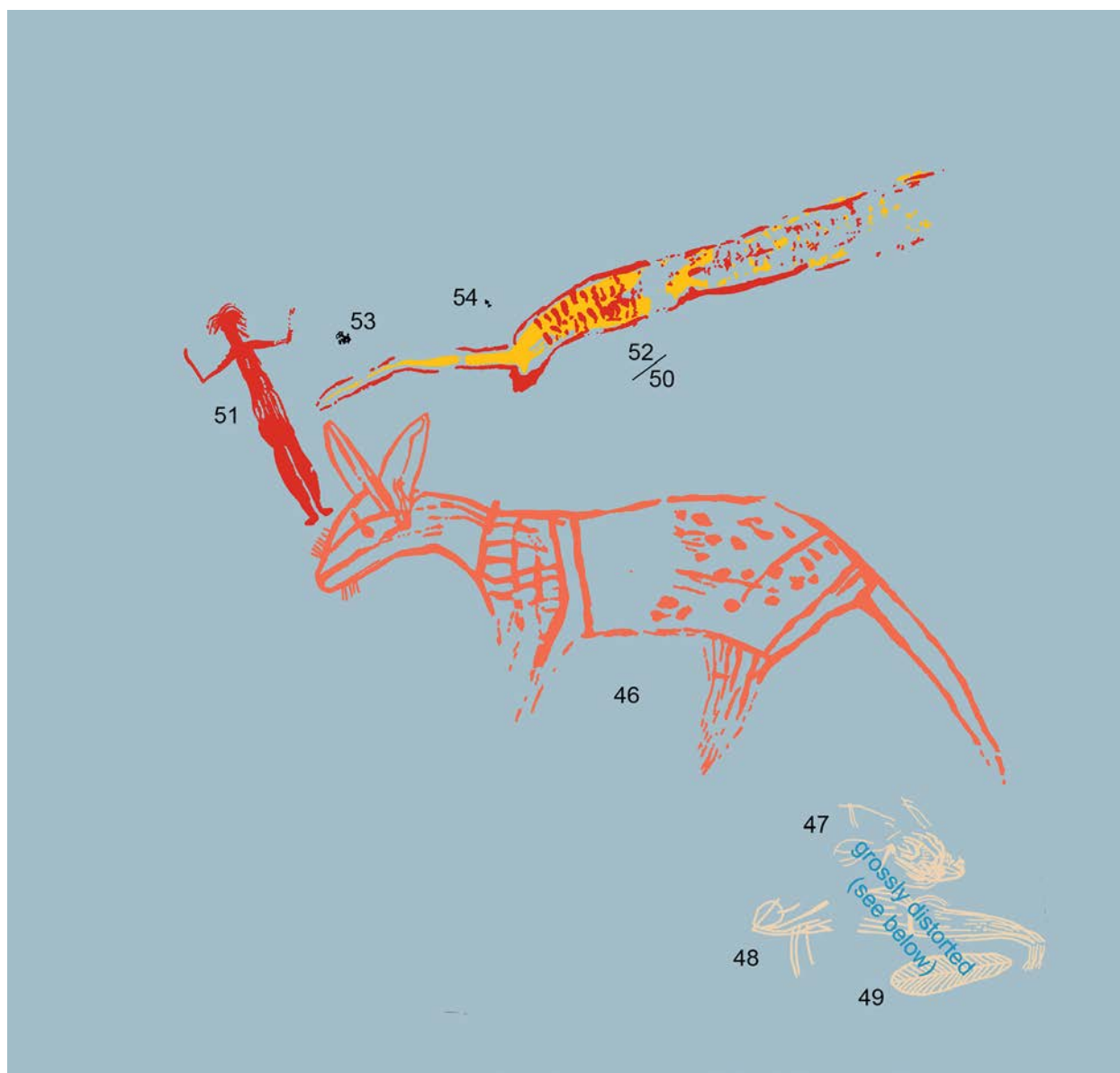


Figure 7.284: Panel J1-B motif interpretations (iii)

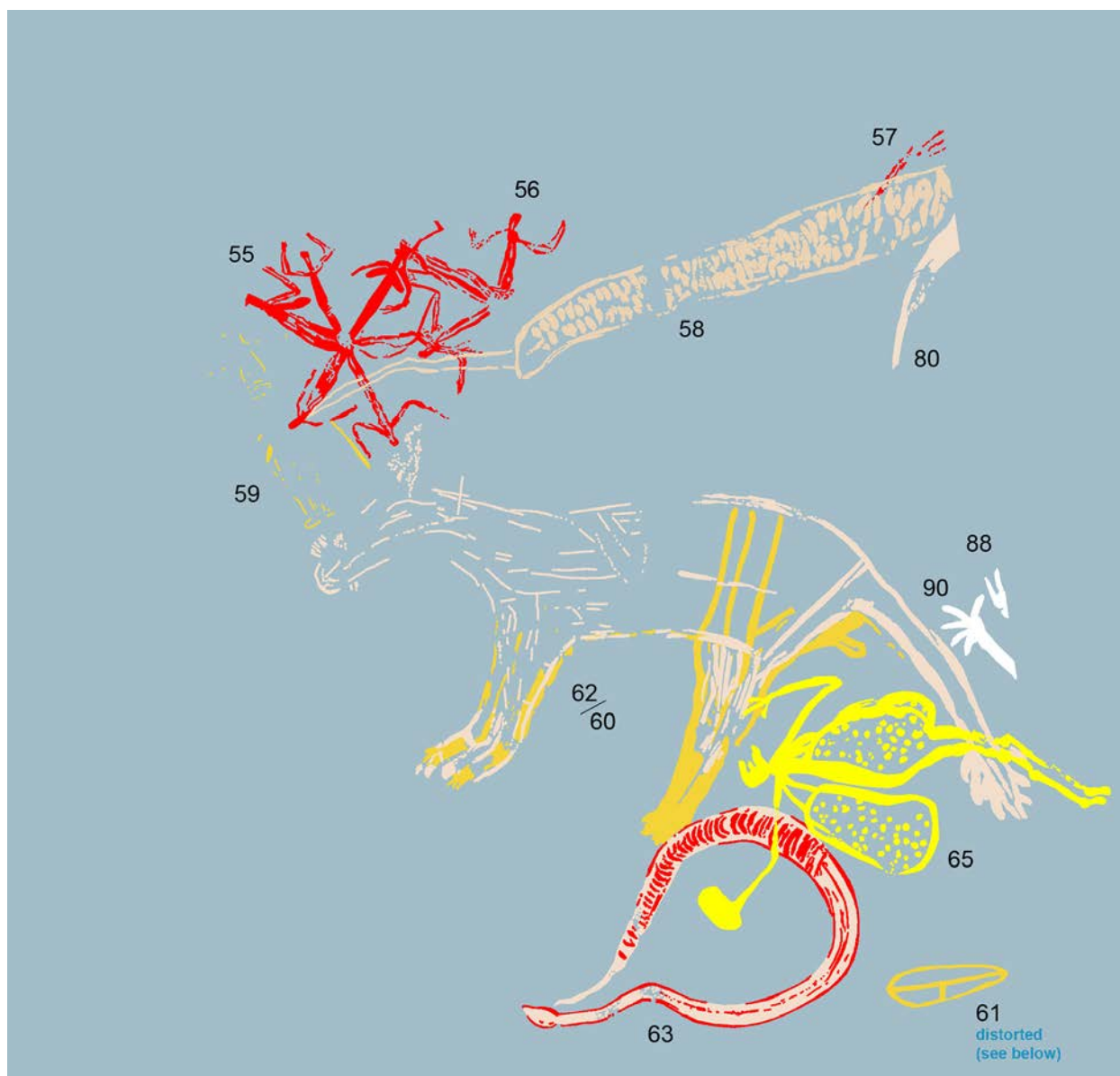


Figure 7.285: Panel J1-B motif interpretations (iv)

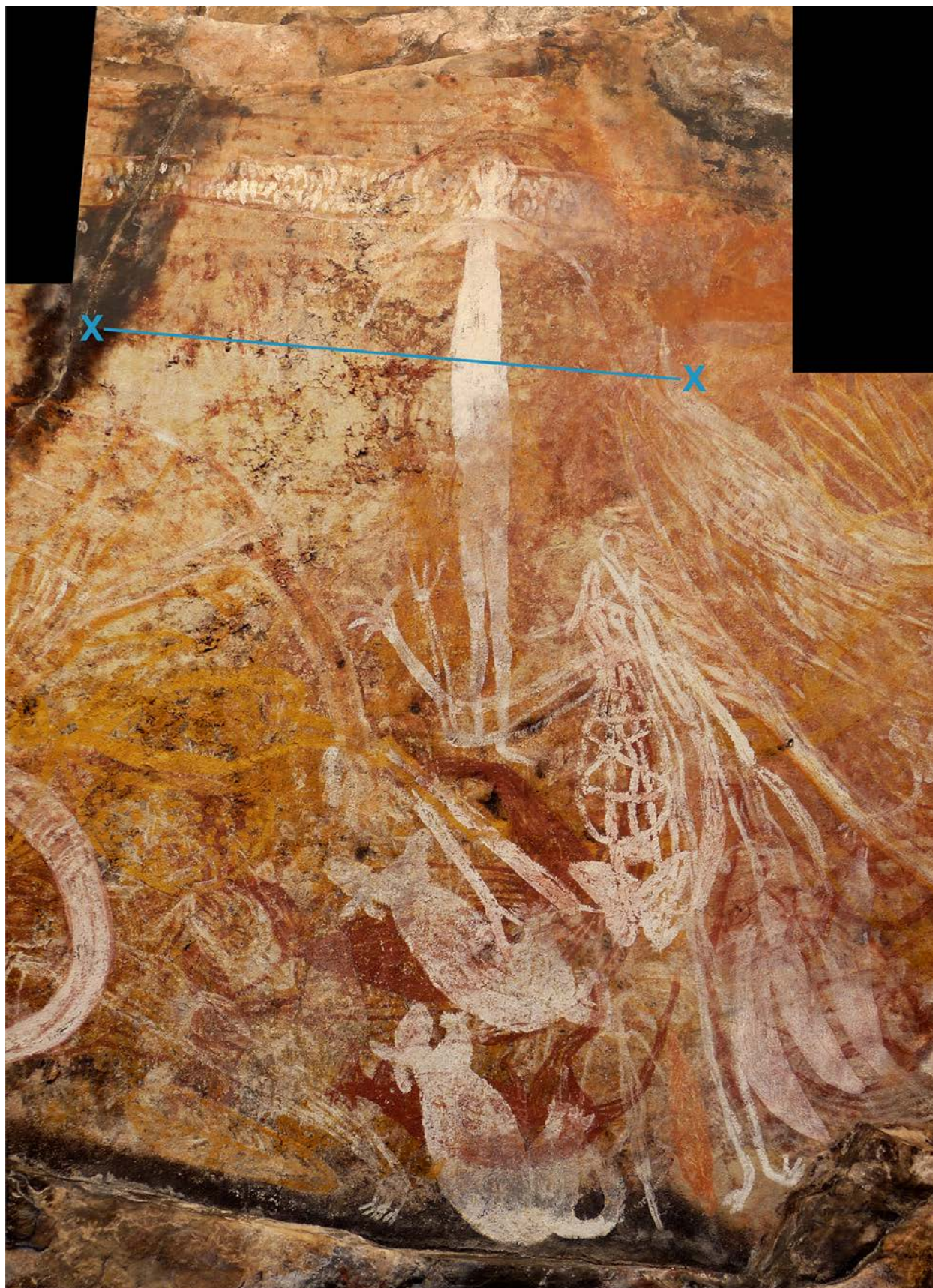


Figure 7.286: Panel J1-C photomosaic
(Mosaic distortion errors at X-X)



Figure 7.287: Panel J1-C photo-tracing
(Mosaic distortion error corrected using single detailed photographs)

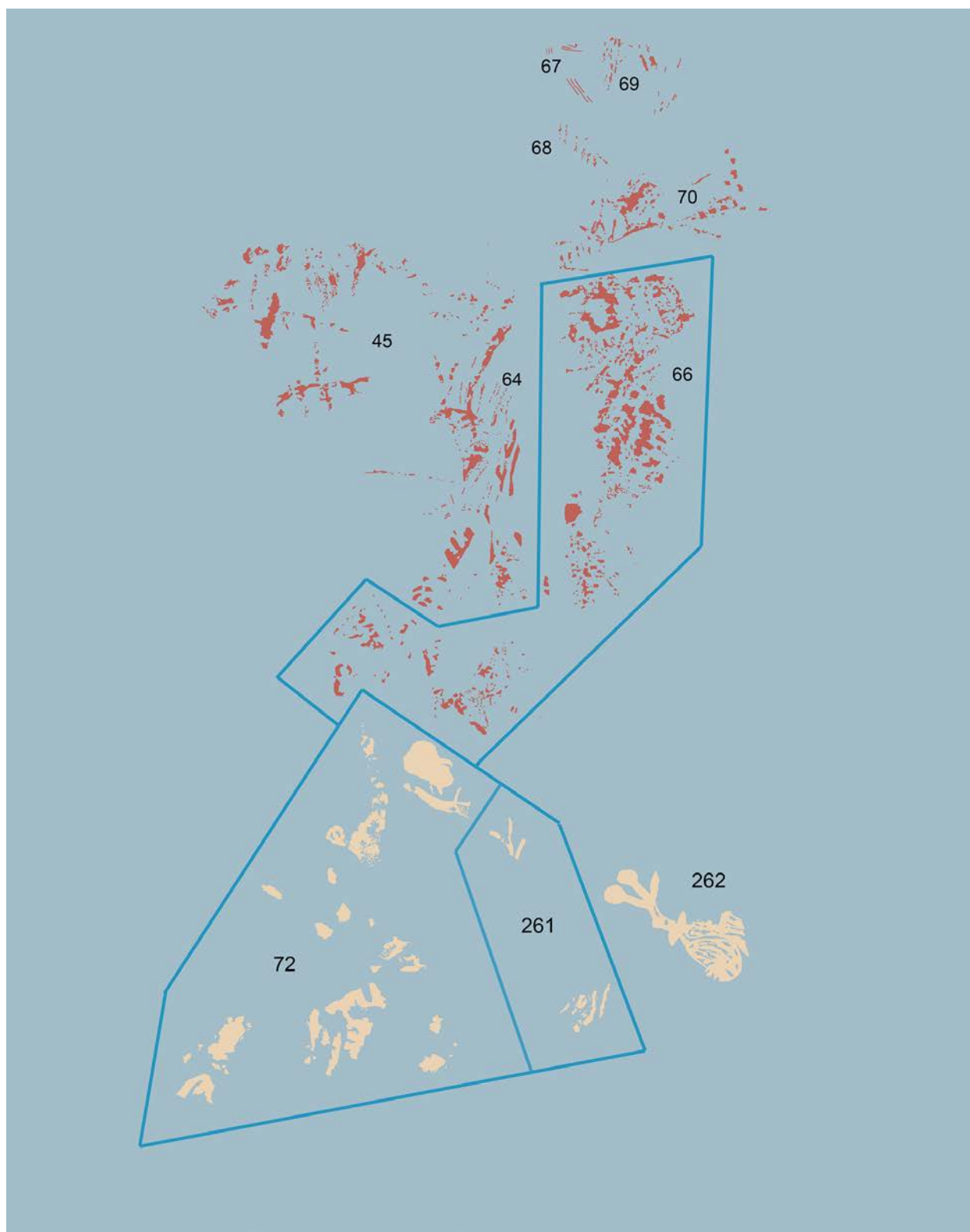


Figure 7.288: Panel J1-C motif interpretations (i)

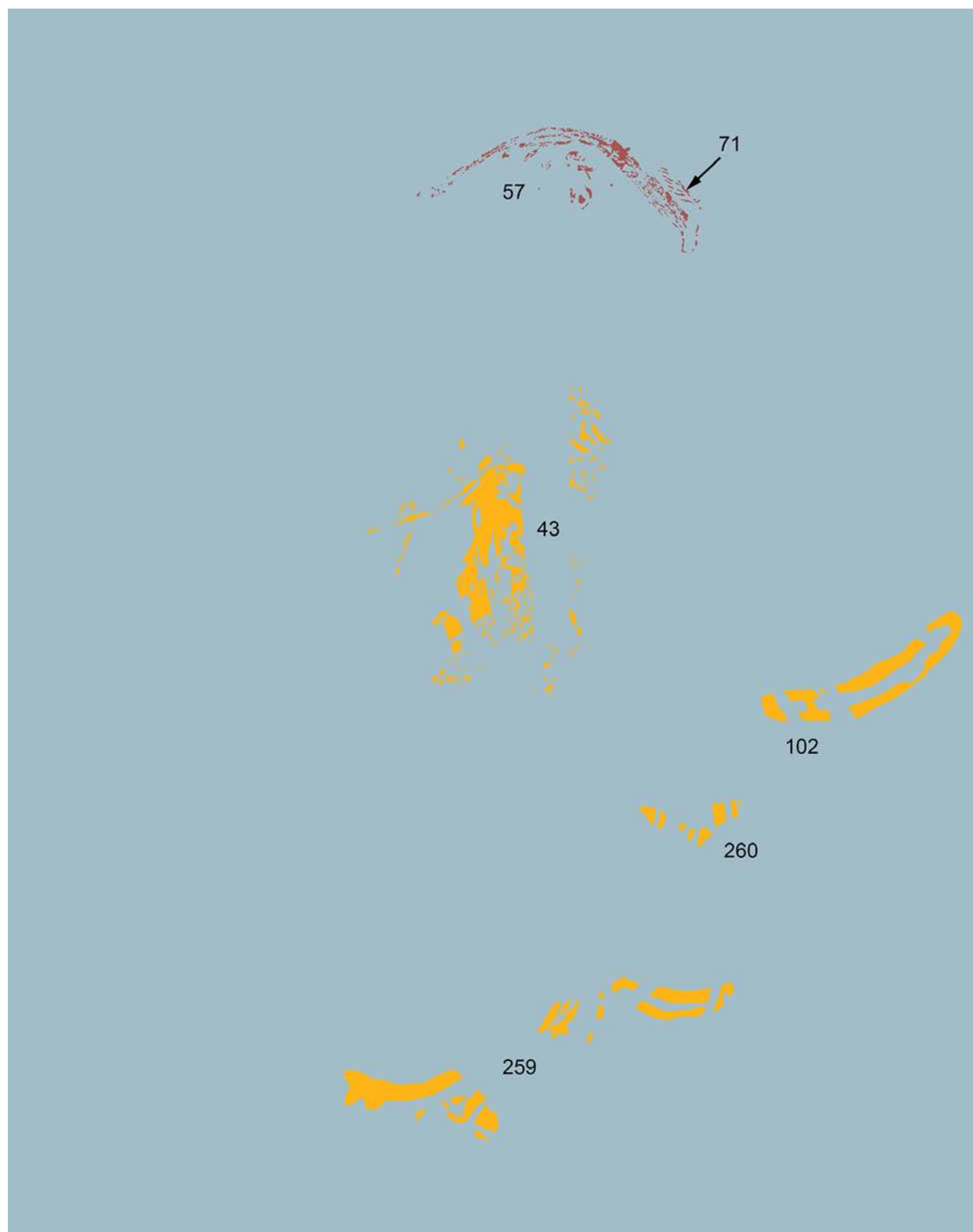


Figure 7.289: Panel J1-C motif interpretations (ii)



Figure 7.290: Panel J1-C motif interpretations (iii)



Figure 7.291: Panel J1-C motif interpretations (iv)



Figure 7.292: Panel J1-C motif interpretations (v)

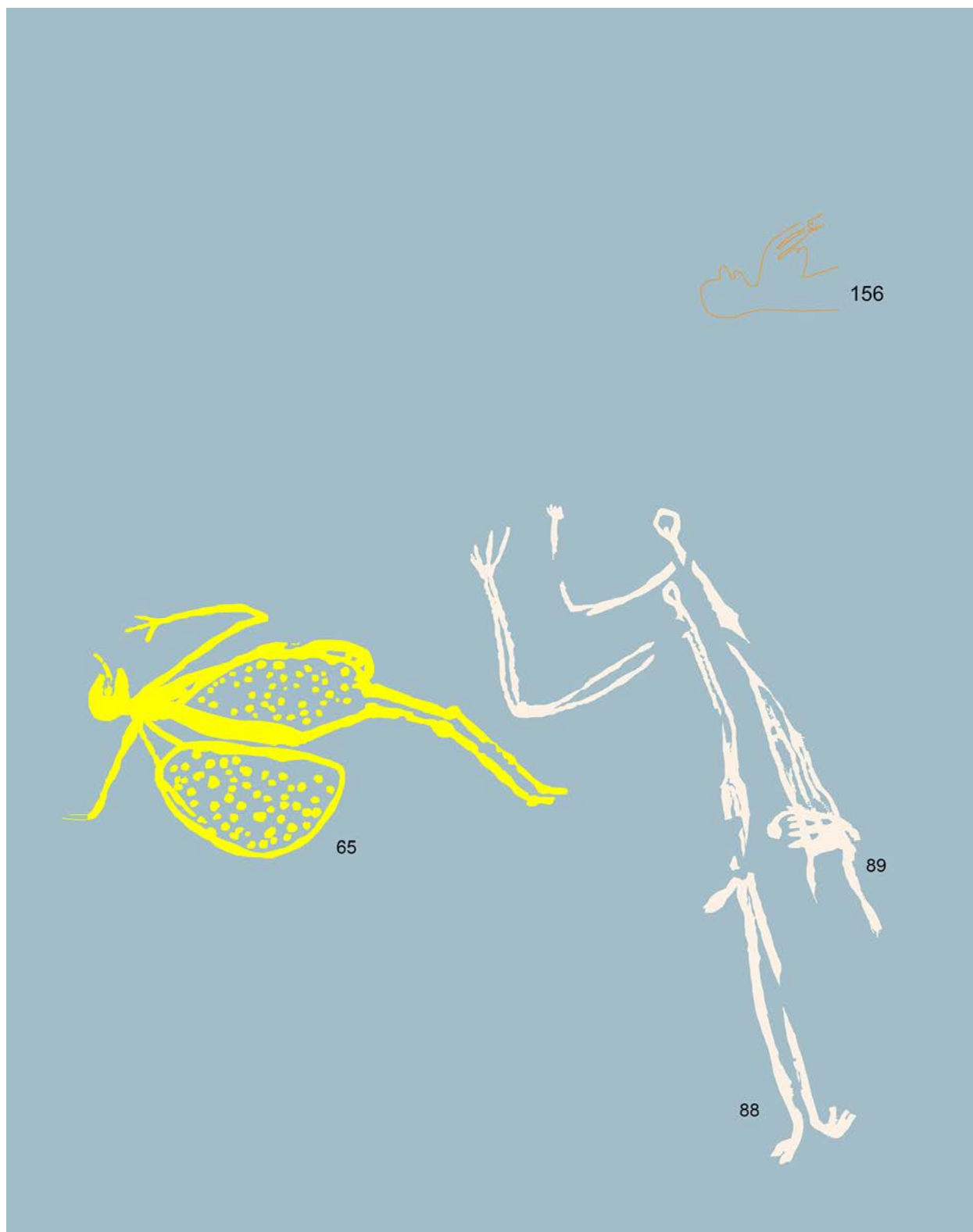


Figure 7.293: Panel J1-C motif interpretations (vi)

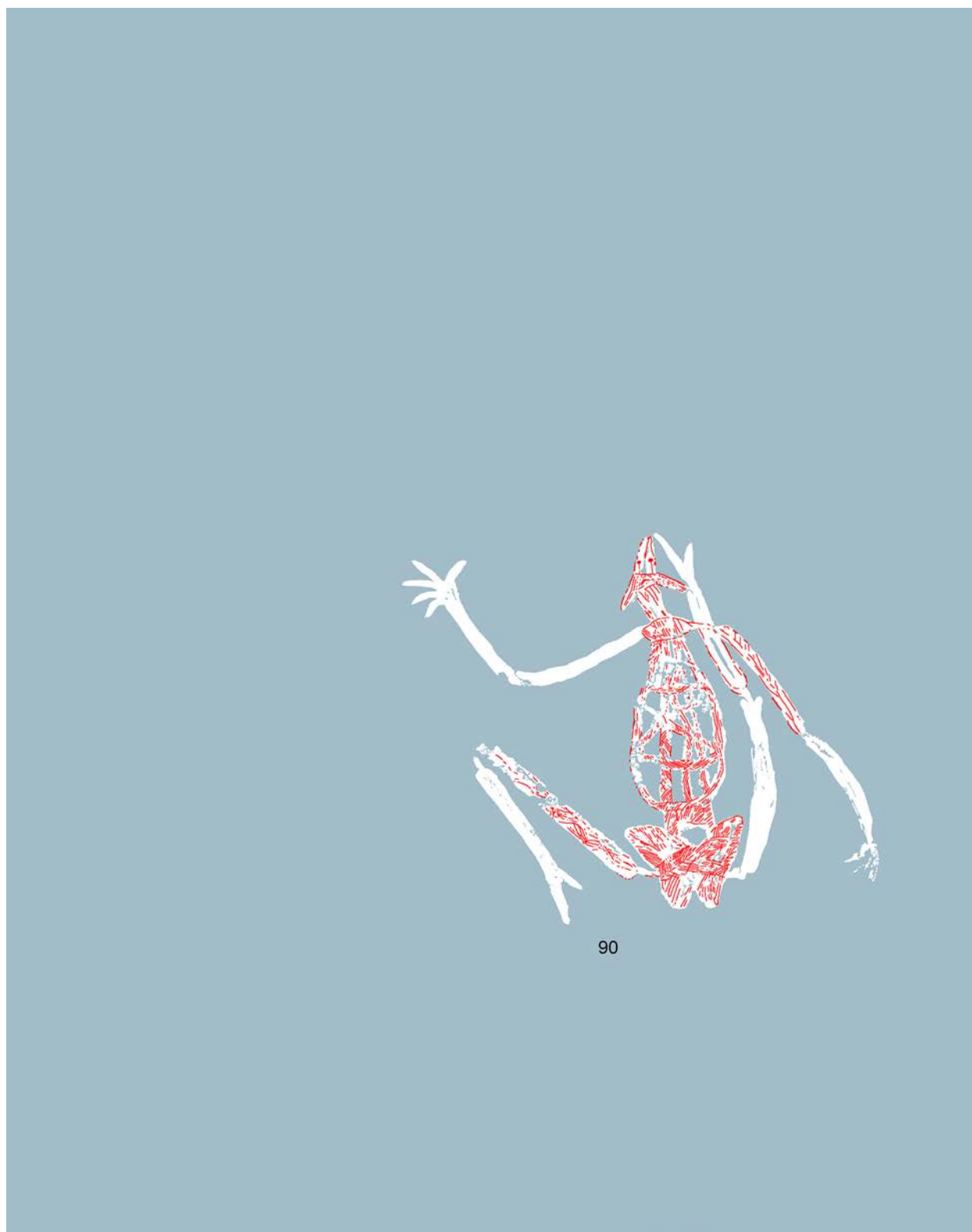


Figure 7.294: Panel J1-C motif interpretations (vii)



Figure 7.295: Panel J1-D photomosaic

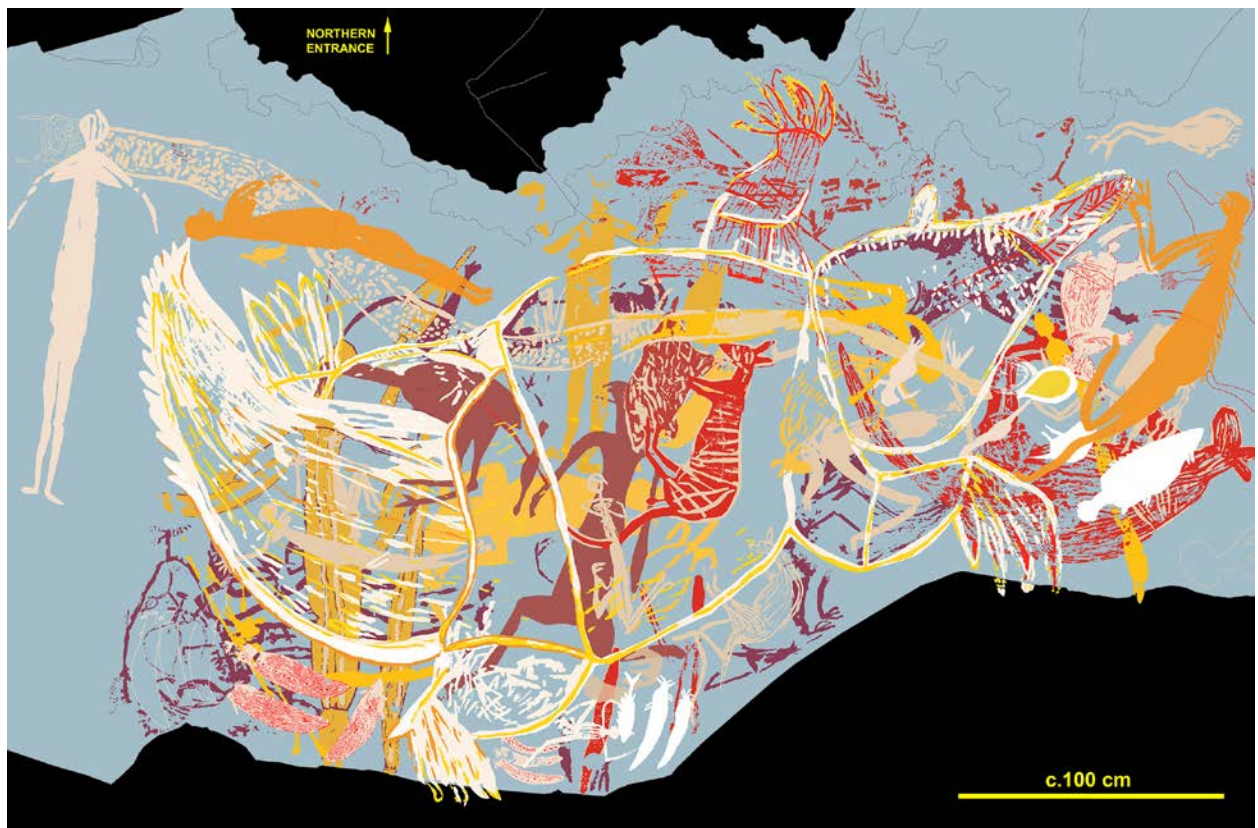


Figure 7.296: Panel J1-D photo-tracing



Figure 7.297: Panel J1-D motif interpretations (i)



Figure 7.298: Panel J1-D motif interpretations (ii)

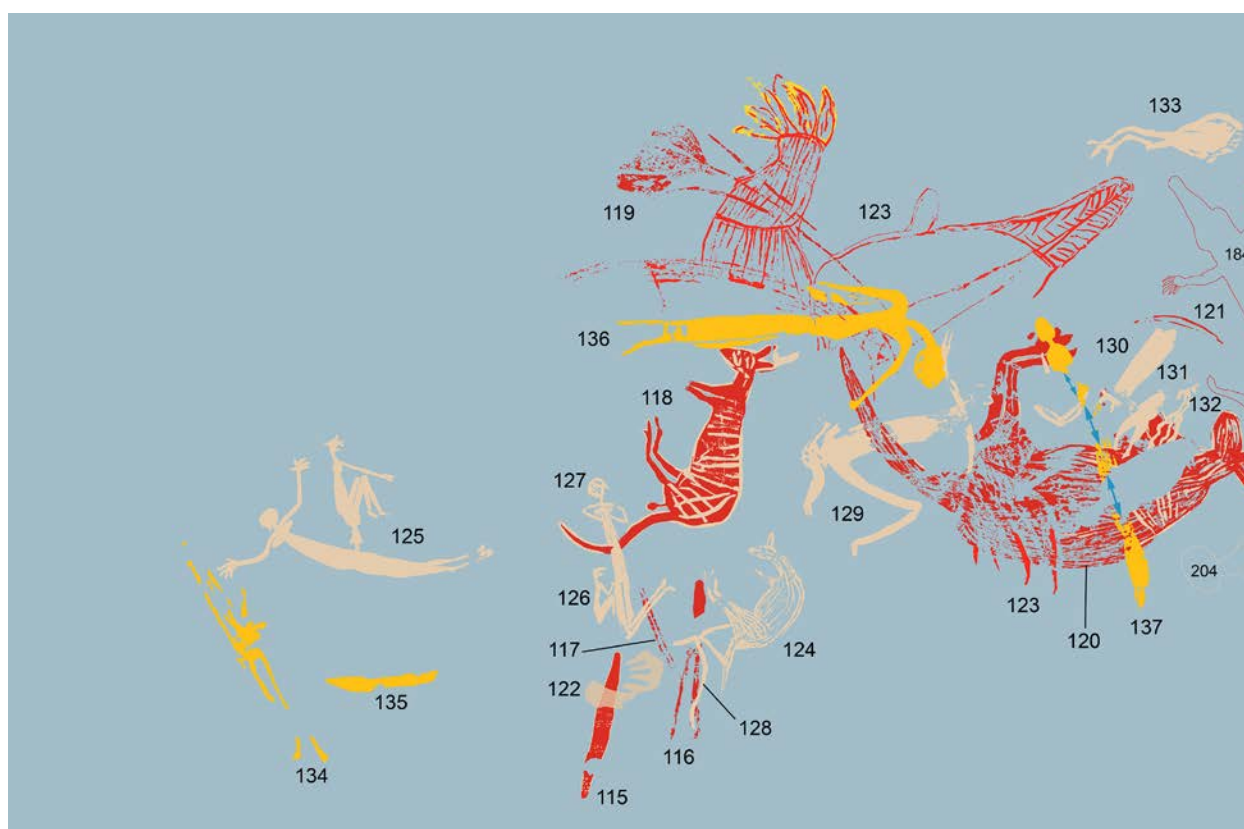


Figure 7.299: Panel J1-D motif interpretations (iii)



Figure 7.300: Panel J1-D motif interpretations (iv)

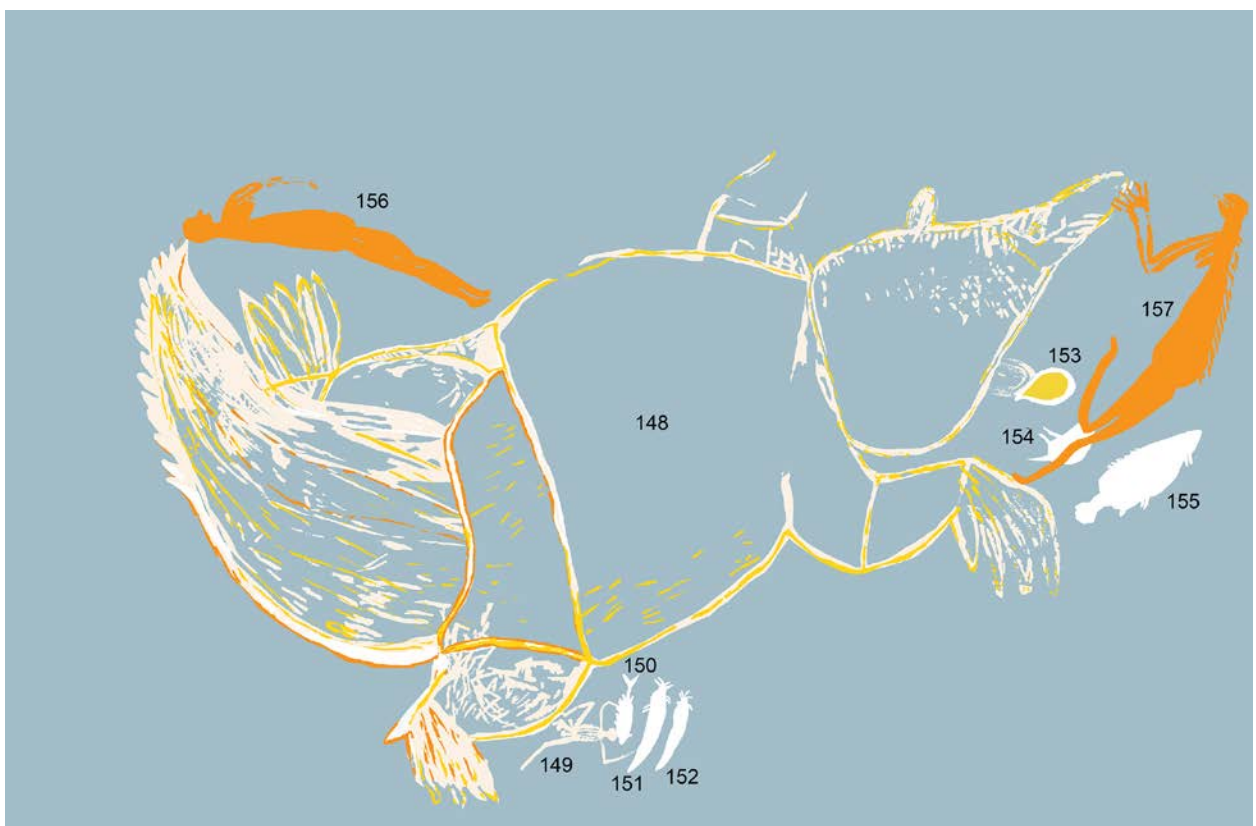


Figure 7.301: Panel J1-D motif interpretations (v)



Figure 7.302: Panel J1-E photomosaic



Figure 7.303: Panel J1-E photo-tracing

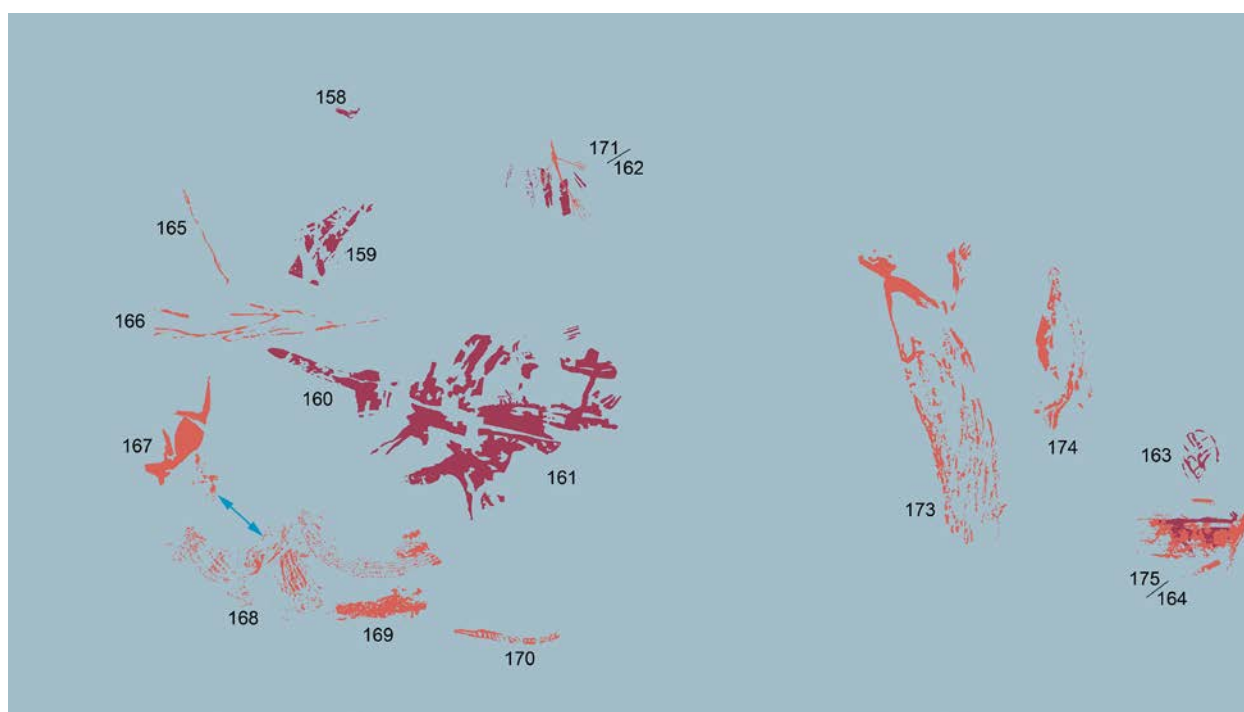


Figure 7.304: Panel J1-E motif interpretations (i)

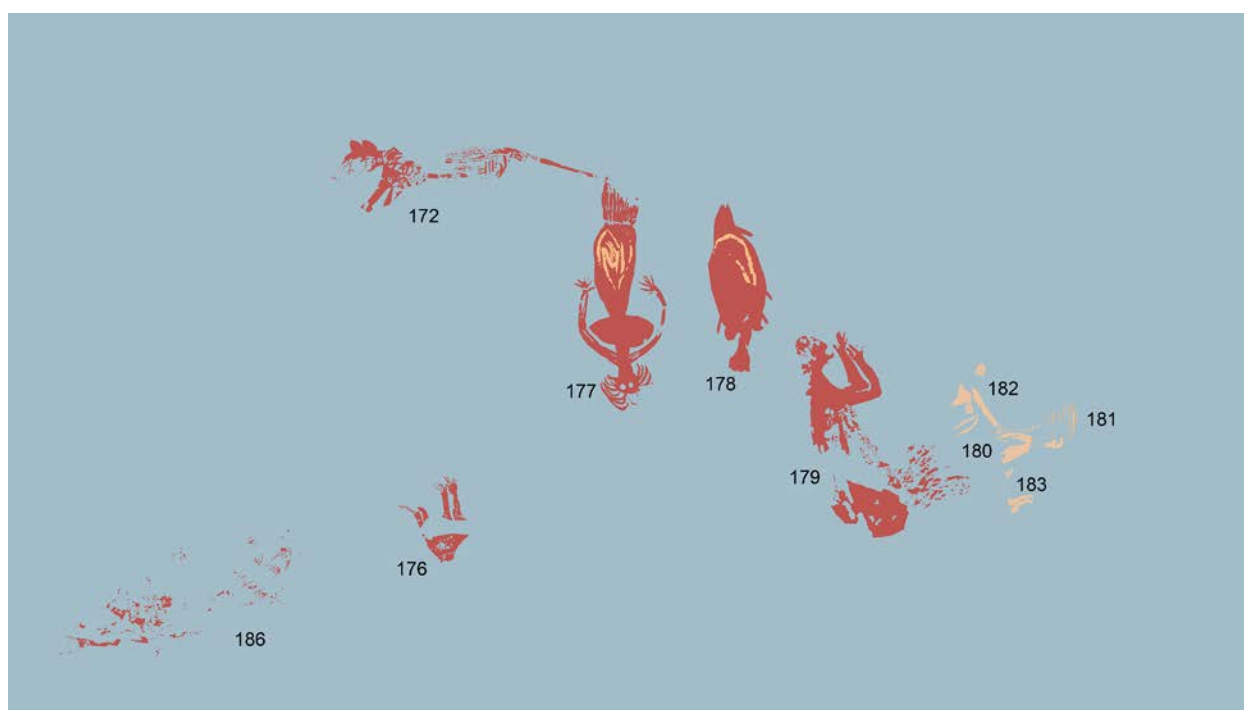


Figure 7.305: Panel J1-E motif interpretations (ii)

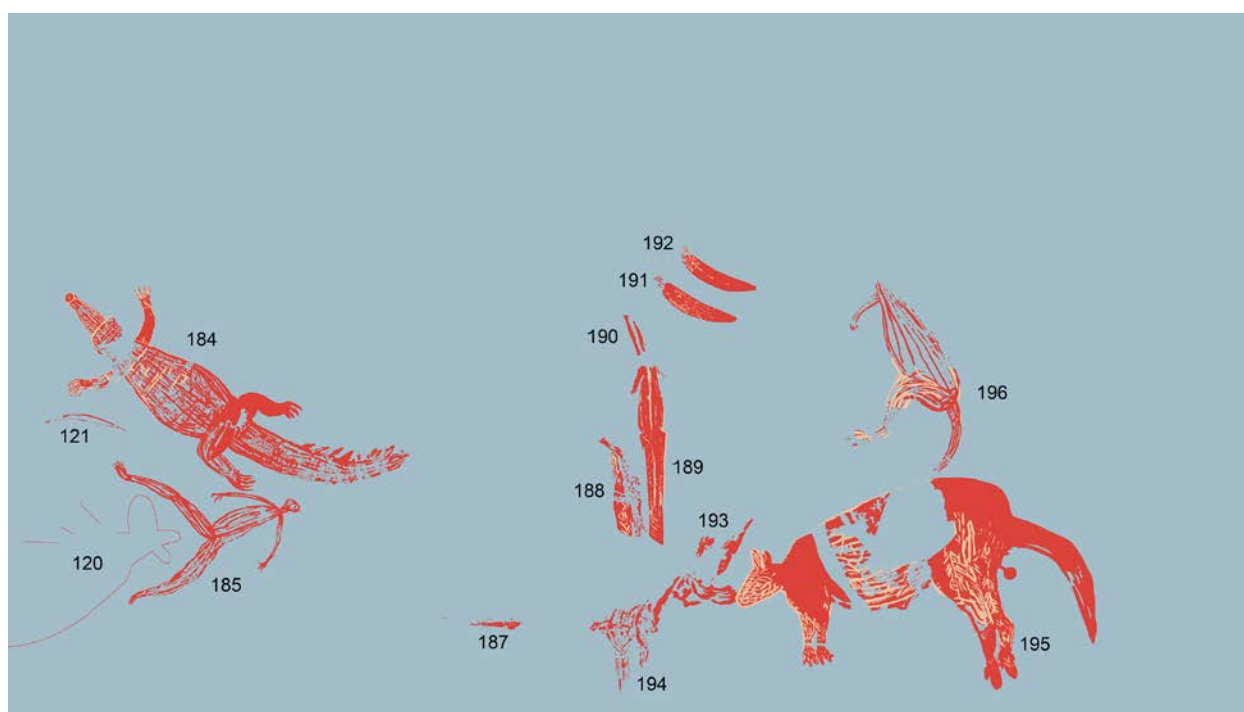


Figure 7.306: Panel J1-E motif interpretations (iii)

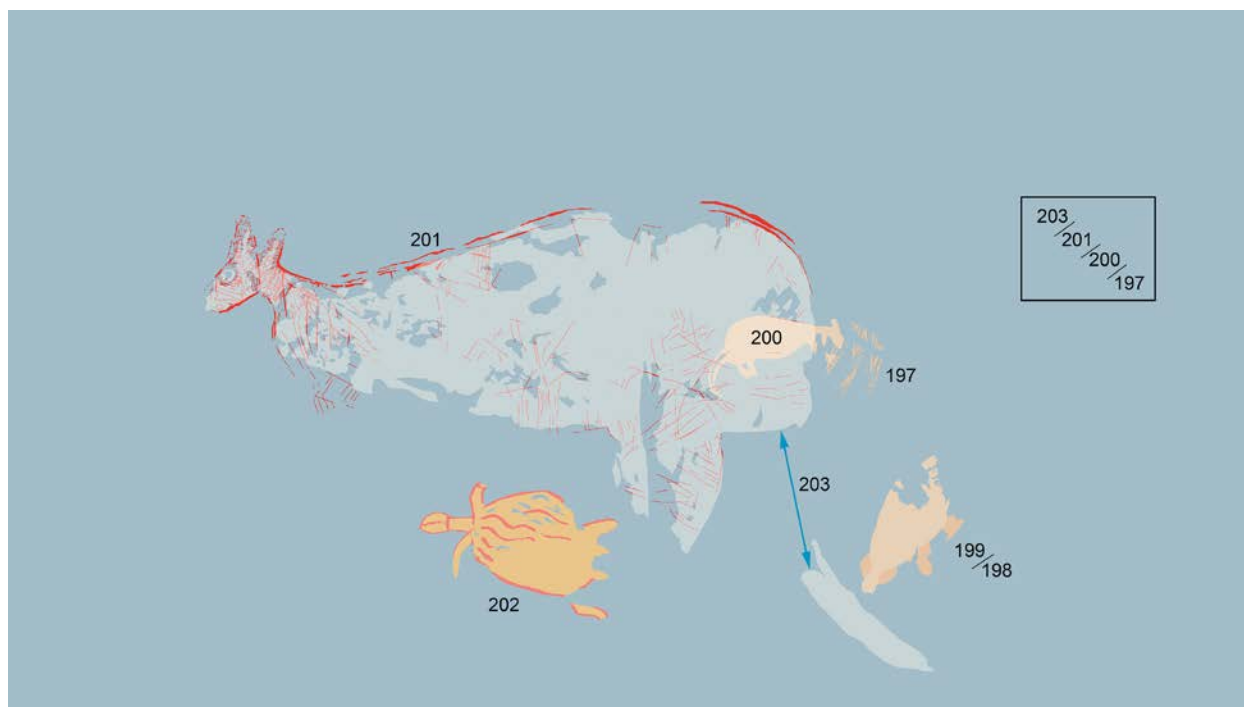


Figure 7.307: Panel J1-E motif interpretations (iv)

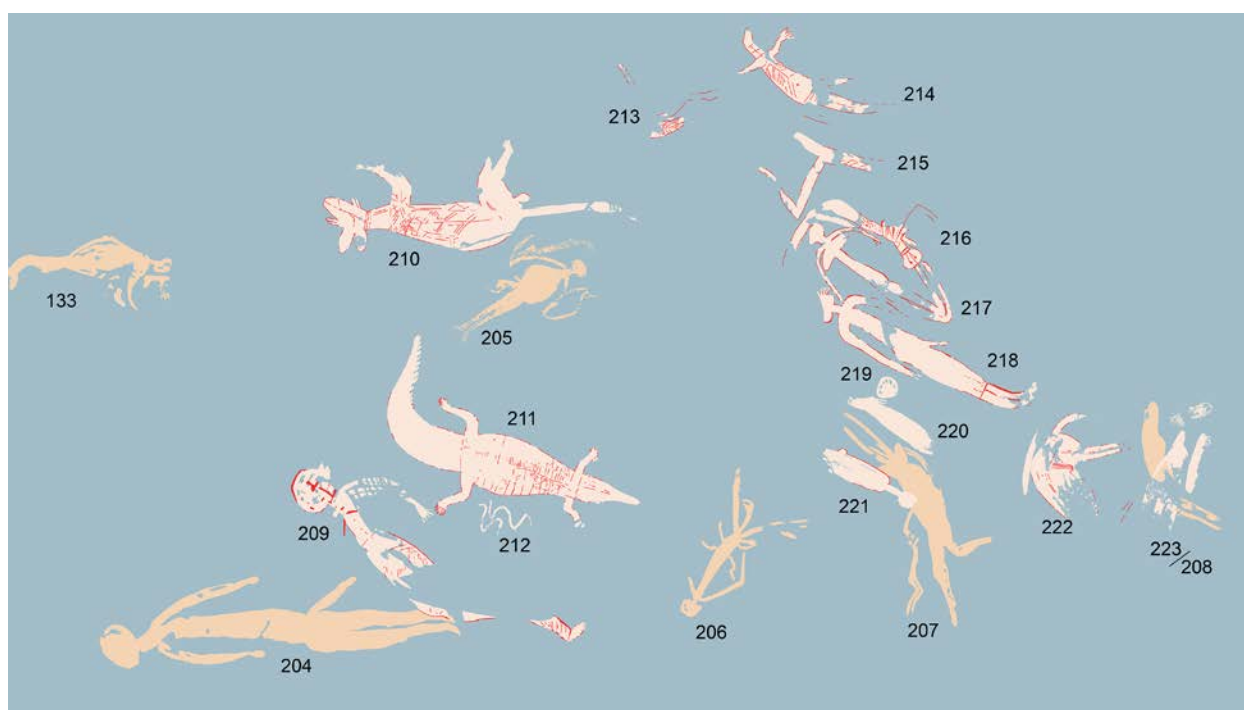


Figure 7.308: Panel J1-E motif interpretations (v)

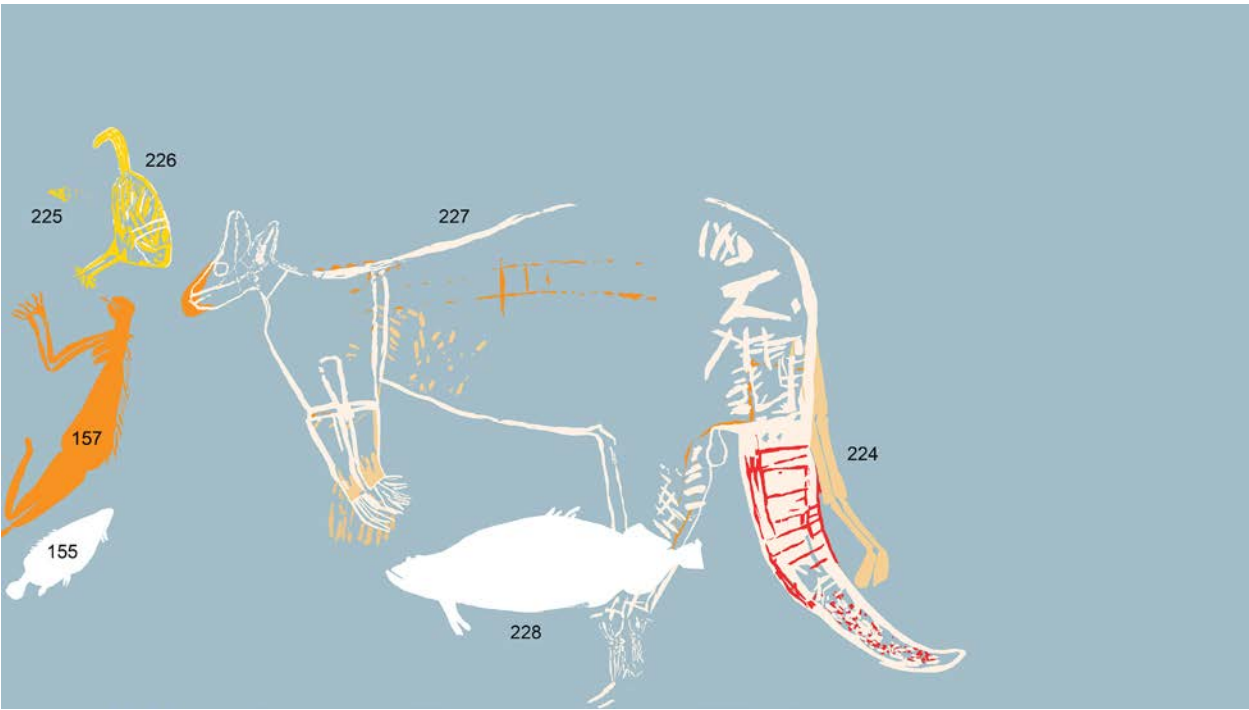


Figure 7.309: Panel J1-E motif interpretations (vi)

Table 7.26: Panel J1 motif list

J1-A

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-1	red	painting	outline+infill	fragment	fragment	very poor		
J-2	red	painting	outline+infill	fragment	fragment	very poor		
J-3	red	painting	outline+infill	fragment	fragment	very poor		
J-4	red	painting	outline+infill	fragment	fragment	very poor		
J-5	red	painting	outline+infill	fragment	fragment	very poor		
J-6	red	painting	solid	mammal	Macropod	very poor		
J-7	red	painting	fragment	fragment	fragment	very poor		
J-8	red	painting	fragment	fragment	fragment	very poor		
J-9	red	painting	solid	fragment	fragment	very poor		
J-10	red	painting	solid	fragment	fragment	very poor		
J-11	red	painting	fragment	fragment	fragment	very poor		
J-12	red	painting	outline+infill	mammal	Animal	poor		
J-13	red	painting	solid	fragment	fragment	very poor		
J-14	red	painting	outline+infill	fragment	fragment	very poor		
J-15	red	painting	linear	anthropomorph	Anthropomorph	very poor		
J-16	red	painting	outline+infill	fragment	fragment	very poor		
J-17	red	painting	linear	fragment	fragment	very poor		
J-18	red	painting	fragment	fragment	fragment	very poor		
J-19	red	painting	solid	fragment	fragment	poor		
J-20	red	painting	solid	mammal	Animal	very poor		
J-21	red	painting	solid	mammal	Macropod legs	poor		
J-22	red	painting	fragment	fragment	fragment	very poor		

J-23	red	painting	linear	anthropomorph	Anthropomorph	very poor		
J-24	yellow	painting	solid	fragment	fragment	very poor		
J-25	yellow	painting	solid	fragment	fragment	very poor		
J-26	yellow	painting	solid	fragment	fragment	very poor		
J-27	yellow+red	painting	solid+outline+infill	mammal	Macropod male	poor		
J-28	red	painting	fragment	fragment	fragment	very poor		
J-29	red	painting	solid+linear	fragment	fragment	very poor		
J-30	red	painting	solid	mammal	Animal	very poor		
J-31	red	painting	linear	fragment	fragment	very poor		
J-32	red	painting	linear	simple design	Line set	very poor		
J-33	yellow	painting	solid	mammal	Macropod male	poor		
J-34	white	painting	linear	simple design	Design regular	poor		
J-35	white	painting	linear	fragment	fragment	poor		
J-36	white	painting	solid+linear	anthropomorph	Anthropomorph	good		
J-37	white	painting	solid+linear	anthropomorph	Anthropomorph	good		

J1-B

Motif No.	Colour	Technique	Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-38	yellow	painting	solid+outline	mammal	Animal	very poor		
J-39	red	painting	fragment	fragment	fragment	very poor		
J-40	yellow	painting	fragment	fragment	fragment	very poor		
J-41	yellow	painting	solid+outline	mammal	Animal	very poor		
J-42	yellow	painting	outline+infill	fragment	fragment	very poor		
J-43	yellow	painting	fragment	fragment	fragment	very poor		
J-44	red	painting	outline+infill	simple design	Design grid	very poor		
J-45	red	painting	fragment	fragment	fragment	very poor		
J-46	orange	painting	outline+infill	mammal	Quadruped	poor	200	97
J-47	white	painting	outline+infill	unknown	Unknown	poor		
J-48	white	painting	outline+infill	anthropomorph	Anthropomorph	fair		
J-49	white	painting	outline+infill	object	Shield	fair		
J-50	yellow	painting	solid	reptile	Snake	poor	540	18
J-51	red	painting	solid+linear	anthropomorph	Anthropomorph	fair		
J-52	red	painting	outline+infill	reptile	Snake	fair	540	18
J-53	black	appliqué	dot	geometric	Dot	poor		
J-54	black	appliqué	dot	geometric	Dot	poor		
J-55	red	painting	solid+linear	complex design	Design radial	fair		
J-56	red	painting	solid+linear	complex design	Design radial	fair		
J-57	red	painting	solid+linear	unknown	Unknown	poor		
J-58	white	painting	outline+infill	reptile	Snake	fair	540	18
J-59	yellow	painting	outline+infill	infill	Infill #51	poor		
J-60	yellow	painting	solid+linear	mammal	Quadruped	fair	200	97
J-61	yellow	painting	outline+infill	object	Shield	fair		
J-62	white	painting	outline+infill	infill	Infill #60	fair		
J-63	white	painting	solid+outline+infill	reptile	Snake	fair	90	60
J-64	red	painting	linear	fragment	fragment	very poor		
J-65	yellow	painting	linear+outline+infill	anthropomorph	Anthropomorph female	very good	105	48

J1-C

Motif No.	Colour	Technique	Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-66	red	painting	fragment	fragment	fragment	very poor		
J-67	red	painting	linear	fragment	fragment	very poor		
J-68	red	painting	fragment	fragment	fragment	very poor		
J-69	red	painting	fragment	fragment	fragment	very poor		
J-70	red	painting	fragment	fragment	fragment	very poor		
J-71	red	painting	linear	fragment	fragment	very poor		
J-72	white	painting	fragment	fragment	fragment	very poor		
J-73	red	painting	solid+outline+infill	mammal	Macropod	fair		
J-74	red	painting	solid+outline+infill	mammal	Macropod male	fair		
J-75	red	painting	solid+outline+infill	mammal	Macropod female	fair		
J-76	red	painting	outline+infill	complex design	Design regular	fair		
J-77	orange +white	painting	solid+infill	object	Object	fair		
J-78	white	painting	outline+infill +linear	anthropomorph	Anthropomorph male	fair		
J-79	red	painting	outline+infill	simple design	Design regular	poor		
J-80	white	painting	solid+linear	anthropomorph	Anthropomorph female	good	150	60
J-81	white	painting	linear	simple design	Design apex	fair		
J-82	white +yellow	painting	solid+infill	mammal	Possum	good	63	24
J-83	white +yellow	painting	solid+infill	mammal	Possum	good	52	29
J-84	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	poor		
J-85	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	poor		
J-86	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	poor		
J-87	yellow	painting	solid	geometric	Bar	good		
J-88	white	painting	outline+linear	anthropomorph	Anthropomorph male	good		
J-89	white	painting	outline+infill +linear	anthropomorph	Anthropomorph male	fair		
J-90	white+red	painting	outline+infill +solid	therianthrope	Macropod-footed	good		
J-259	yellow	painting	fragment	fragment	fragment	very poor		
J-260	yellow	painting	fragment	fragment	fragment	very poor		
J-261	white	painting	fragment	fragment	fragment	very poor		
J-262	white	painting	solid	flora	Round yam	poor		

J1-D

Motif No.	Colour	Technique	Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-91	yellow	painting	outline+linear	reptile	Turtle short-necked	poor		
J-92	yellow	painting	solid	reptile	Crocodile	poor		
J-93	yellow	painting	outline+infill+linear	reptile	Turtle short-necked	poor		
J-94	yellow	painting	solid	fragment	fragment	very poor		
J-95	yellow	painting	outline+infill	mammal	Macropod male	poor		
J-96	red	painting	linear	fragment	fragment	very poor		
J-97	red	painting	fragment	fragment	fragment	very poor		
J-98	red	painting	solid+linear	fragment	fragment	very poor		
J-99	red	painting	fragment	fragment	fragment	very poor		
J-100	red	painting	fragment	fragment	fragment	very poor		
J-101	red	painting	fragment	fragment	fragment	very poor		
J-102	yellow+red+white	painting	solid+outline+infill	anthropomorph	Anthropomorph	fair		
J-103	yellow+red+white	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		
J-104	yellow	painting	solid+infill	anthropomorph	Anthropomorph	poor		
J-105	yellow	painting	solid	reptile	Turtle short-necked	poor		
J-106	red	painting	solid	bird	Emu	poor		
J-107	red	painting	solid	anthropomorph	Anthropomorph	poor		
J-108	red	painting	linear	fragment	fragment	very poor		
J-109	red	painting	linear	fragment	fragment	very poor		
J-110	red	painting	linear	geometric	Line	poor		
J-111	red	painting	fragment	fragment	fragment	very poor		
J-112	red	painting	linear	geometric	Line	poor		
J-113	red+white	painting	solid+outline+infill	mammal	Echidna	fair		
J-114	red	painting	outline+linear	fragment	fragment	very poor		
J-115	red+white	painting	solid+outline+infill	object	Shield	fair		
J-116	red	painting	solid+linear	simple design	Design apex	poor		
J-117	red	painting	linear	geometric	Line pair	poor		
J-118	red+white	painting	solid+outline+infill	mammal	Macropod male	fair	105	40
J-119	red	painting	linear	flora	Waterlily	fair		
J-120	red+white	painting	outline+infill	mammal	Macropod	fair	165	85
J-121	red	painting	outline	object	Object	fair		
J-122	white	spray	stencil	hand	Hand left	good	mf 8.5	
J-123	red+yellow	painting	outline+infill	reptile	Crocodile	fair	-	
J-124	white	painting	outline+infill	mammal	Macropod	fair		
J-125	white	painting	solid+linear	anthropomorph	Copulating couple	poor	93	44
J-126	white	painting	solid+linear	anthropomorph	Anthropomorph	poor		
J-127	white	painting	solid+linear	anthropomorph	Anthropomorph female	poor		
J-128	white	painting	linear	simple design	Design apex	good		

J-129	white	painting	solid+linear	anthropomorph	Copulating couple	poor		
J-130	white	painting	solid+linear	fragment	fragment	poor		
J-131	white	painting	solid+linear	anthropomorph	Anthropomorph	poor		
J-132	white	painting	linear	fragment	fragment	poor		
J-133	white	painting	solid+linear	therianthrope	Bird-footed	very poor		
J-134	yellow	painting	linear+outline	anthropomorph	Anthropomorph male	poor		
J-135	yellow	painting	solid	object	Object	poor		
J-136	yellow	painting	solid+linear	anthropomorph	Anthropomorph	poor		
J-137	yellow	painting	solid	object	Spearthrower	fair		
J-138	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	fair		
J-139	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	fair	44	12
J-140	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	good	42	11
J-141	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	fair	35	12
J-142	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	poor		
J-143	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	fair		
J-144	white	painting	solid+linear	anthropomorph	Anthropomorph	poor		
J-145	white	painting	linear	object	Object	very poor		
J-146	white	painting	solid	object	Spearthrower	fair		
J-147	white+red	painting	solid+outline+infill	mammal	Possum	good		
J-148	white +yellow +orange	painting	outline+infill	reptile	Crocodile	fair	380	205
J-149	white	painting	solid+linear	anthropomorph	Anthropomorph male	fair		
J-150	white	painting	solid+linear	fish	Fish	very good	25	8
J-151	white	painting	solid+linear	fish	Catfish eel-tailed	very good	36	9
J-152	white	painting	solid+linear	fish	Catfish eel-tailed	very good	31	6
J-153	white +yellow	painting	solid+outline	simple design	Design regular	fair		
J-154	white	painting	solid+linear	mammal	Bandicoot	fair		
J-155	pink	painting	solid+linear	fish	Bream	very good	58	22
J-156	orange	painting	solid+linear	anthropomorph	Anthropomorph female	good	110	30
J-157	orange	painting	solid+linear	anthropomorph	Anthropomorph female	good	143	52
J-256	red	painting	fragment	fragment	fragment	poor		
J-257	red	painting	solid	mammal	Thylacine	poor		
J-258	white	painting	fragment	fragment	fragment	poor		

J1-E

Motif No.	Colour	Technique	Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-158	red	painting	fragment	fragment	fragment	very poor		
J-159	red	painting	fragment	fragment	fragment	very poor		
J-160	red	painting	fragment	fragment	fragment	very poor		
J-161	red	painting	fragment	fragment	fragment	very poor		
J-162	red	painting	fragment	fragment	fragment	very poor		
J-163	red	painting	outline+infill	simple design	Design regular	very poor		
J-164	red	painting	fragment	fragment	fragment	very poor		
J-165	red	painting	linear	geometric	Line	fair		
J-166	red	painting	linear	simple design	Design apex	poor		
J-167	red	painting	solid	mammal	Animal	very poor		
J-168	red	painting	outline+infill	fragment	fragment	very poor		
J-169	red	painting	fragment	fragment	fragment	very poor		
J-170	red	painting	outline+infill	reptile	Snake	poor		
J-171	red	painting	linear	anthropomorph	Anthropomorph	fair		
J-172	red	painting	solid+outline+infill	mammal	Thylacine	poor		
J-173	red	painting	solid+outline+infill	anthropomorph	Anthropomorph	very poor		
J-174	red	painting	solid+outline+infill	anthropomorph	Anthropomorph	very poor		
J-175	red	painting	fragment	fragment	fragment	very poor		
J-176	red	painting	solid	mammal	Animal	very poor		
J-177	red	painting	solid+infill	anthropomorph	Anthropomorph female	poor		
J-178	red	painting	solid+infill	fish	Bream	fair	66	20
J-179	red	painting	solid	anthropomorph	Anthropomorph	poor		
J-180	white	painting	solid	anthropomorph	Anthropomorph	poor		
J-181	white	painting	fragment	fragment	fragment	very poor		
J-182	white	painting	fragment	fragment	fragment	very poor		
J-183	white	painting	solid	mammal	Macropod	poor		
J-184	red+white	painting	outline+infill	reptile	Crocodile	good	175	42
J-185	red	painting	outline+infill	anthropomorph	Anthropomorph	good	85	60
J-186	red	painting	fragment	fragment	fragment	very poor		
J-187	red	painting	fragment	fragment	fragment	very poor		
J-188	red+white	painting	solid+infill	fragment	fragment	very poor		
J-189	red+white	painting	solid+infill	anthropomorph	Anthropomorph	poor		
J-190	red	painting	fragment	fragment	fragment	very poor		
J-191	red+white	painting	solid+infill	fish	Catfish eel-tailed	poor	35	6
J-192	red+white	painting	solid+infill	fish	Catfish eel-tailed	poor	37	7
J-193	red	painting	fragment	fragment	fragment	very poor		
J-194	red	painting	outline+infill	mammal	Macropod legs	poor		
J-195	red+white	painting	solid+infill	mammal	Macropod male	fair	135	85
J-196	red+white	painting	outline+infill	mammal	Macropod	poor		
J-197	white	painting	outline+infill	fragment	fragment	very poor		
J-198	white	painting	fragment	fragment	fragment	very poor		
J-199	white	painting	solid	fish	Fish	very poor		
J-200	white	painting	solid	mammal	Possum	poor		

J-201	red	painting	outline+infill	mammal	Macropod	fair		
J-202	cream+red	painting	solid+outline+infill	reptile	Turtle short-necked	fair		
J-203	white	painting	solid	mammal	Macropod	fair		
J-204	white	painting	solid	anthropomorph	Anthropomorph male	fair	155	35
J-205	white	painting	solid+linear	anthropomorph	Anthropomorph male	fair	63	37
J-206	white	painting	solid+linear	anthropomorph	Anthropomorph male	fair		
J-207	white	painting	solid+linear	fragment	fragment	very poor		
J-208	white	painting	fragment	fragment	fragment	very poor		
J-209	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	very poor		
J-210	white+red	painting	solid+outline+infill	mammal	Quadruped	good	125	50
J-211	white+red	painting	solid+outline+infill	reptile	Crocodile	good	106	70
J-212	white	painting	linear	simple design	Design irregular	very good		
J-213	white+red	painting	solid+outline+infill	fragment	fragment	very poor		
J-214	white+red	painting	solid+outline+infill	reptile	Goanna	poor		
J-215	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	very poor		
J-216	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	very poor		
J-217	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph female	poor	66	35
J-218	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	fair	67	19
J-219	white	painting	outline+infill	simple design	Design regular	good		
J-220	white+red	painting	solid+outline	fish	Catfish eel-tailed	fair		
J-221	white+red	painting	solid+outline+infill	fish	Fish	fair		
J-222	white+red	painting	solid+outline+infill	mammal	Macropod	poor		
J-223	white	painting	fragment	fragment	fragment	very poor		
J-224	cream	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
J-225	yellow	painting	solid	fragment	fragment	very poor		
J-226	yellow+white	painting	outline+infill	bird	Bush-hen	good	67	40
J-227	white+orange+cream+red	painting	outline+infill	mammal	Macropod male	fair	345	200
J-228	white	painting	solid	fish	Saratoga	very good	122	40

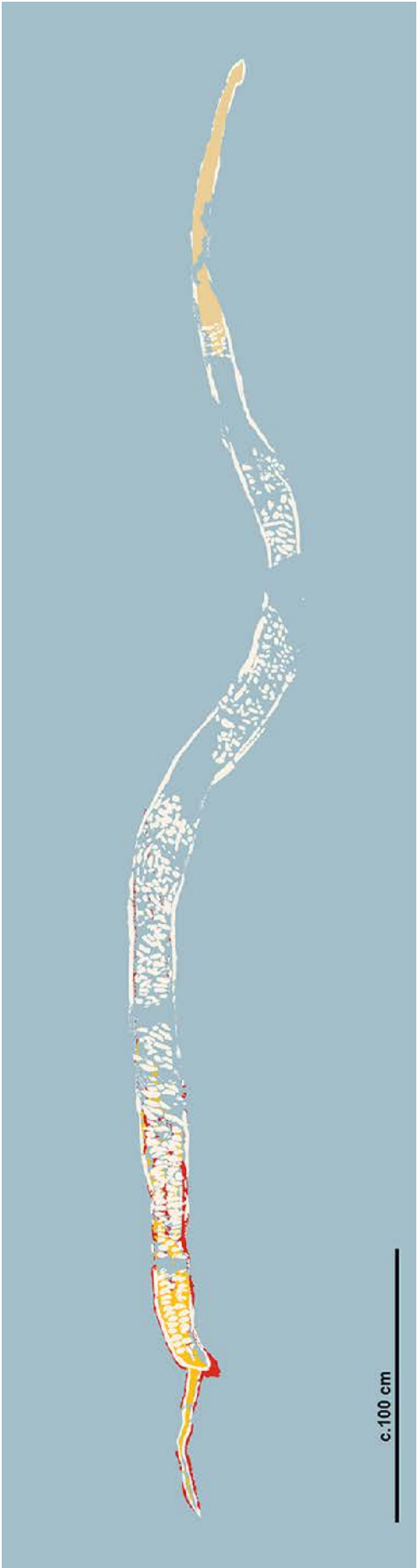


Figure 7.310: Composite of the superimposed Snake motif (Motifs J-50, J-52 and J-58)

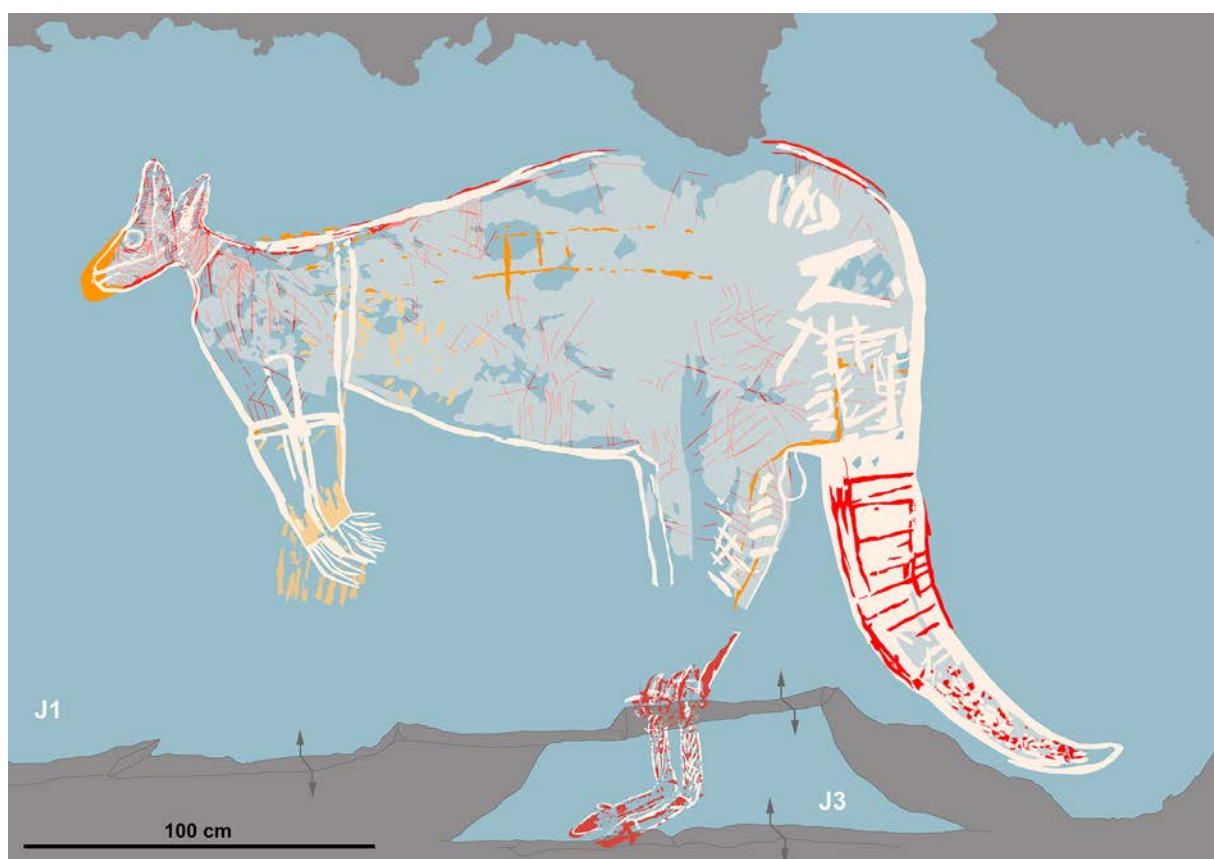


Figure 7.311: Composite of Macropod motif (Motifs J-194, J-210 and J-227) that extends beyond Panel J1 and onto Panel J3

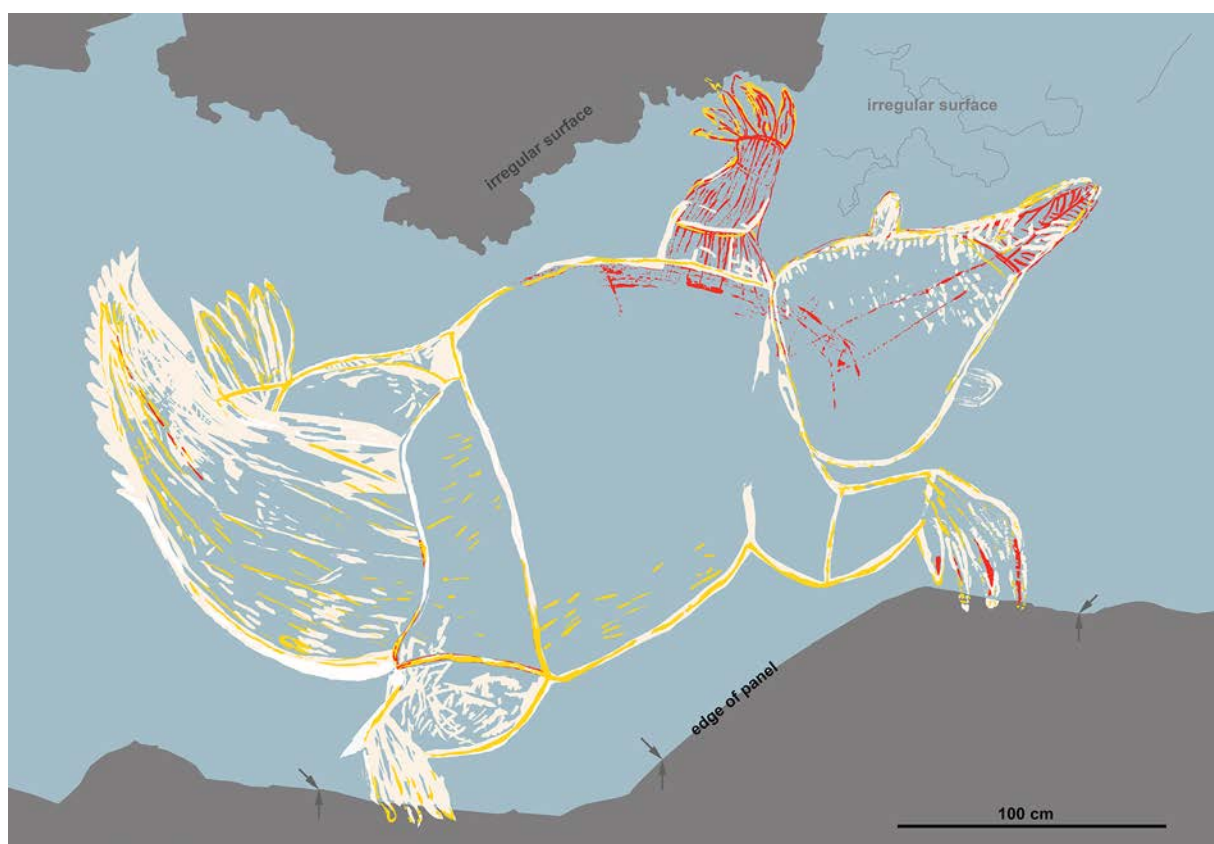


Figure 7.312: Composite of Crocodile motif (Motifs J-123 and J-148)

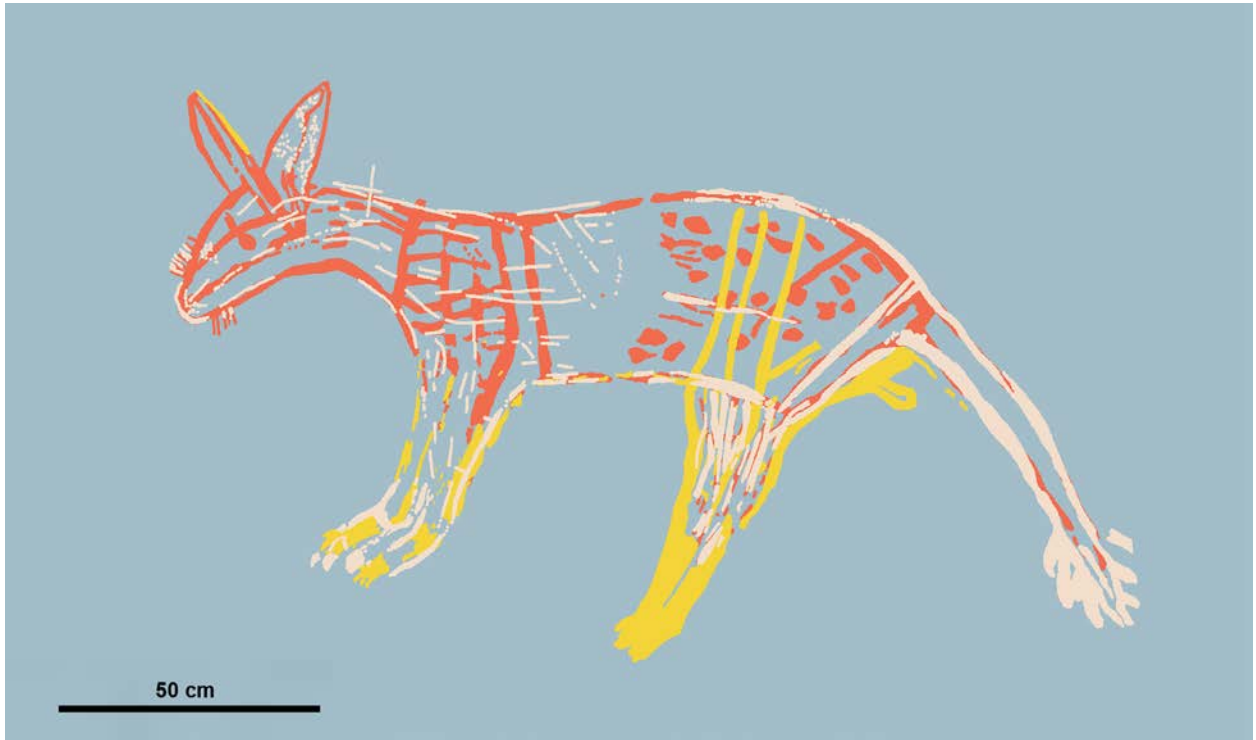


Figure 7.313: Composite of Quadruped motif (Motifs J-46, J-60 and J-62)

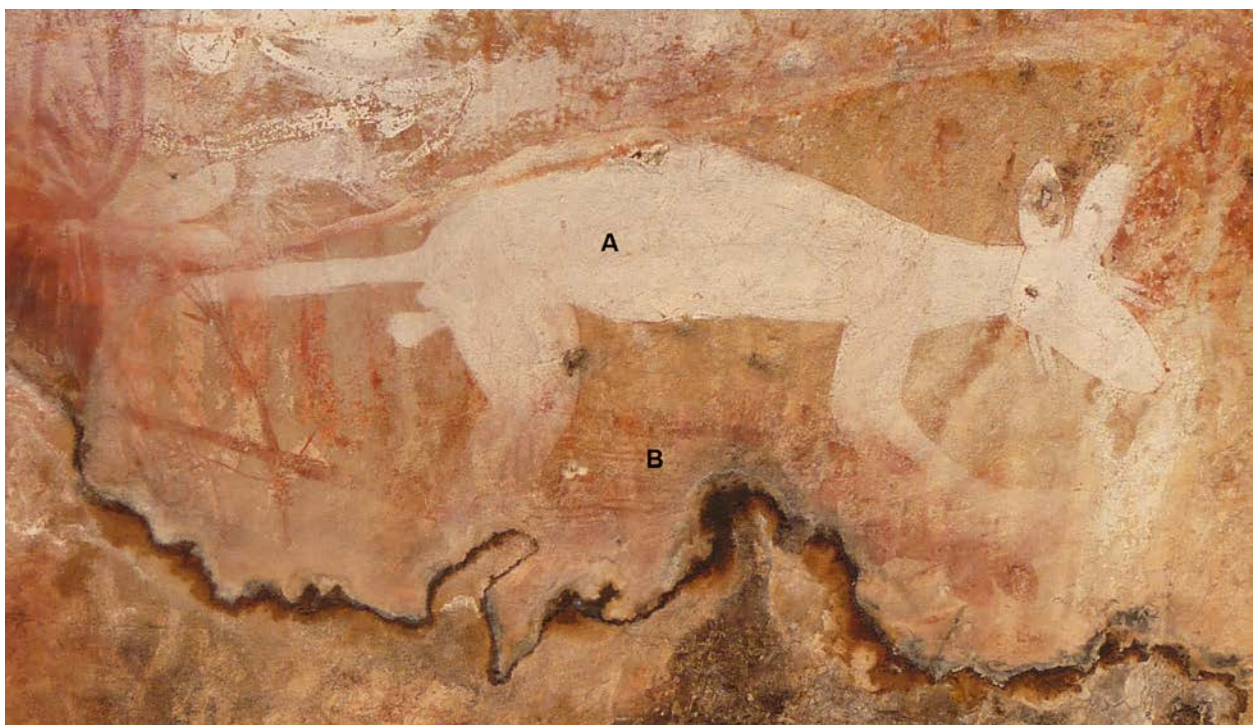


Figure 7.314: Pair of quadruped representations
A: Motif J-210 (unknown animal) B: Motif J-172 (inverted thylacine)



Figure 7.315: Photo-tracing of the thylacine Motif J-172

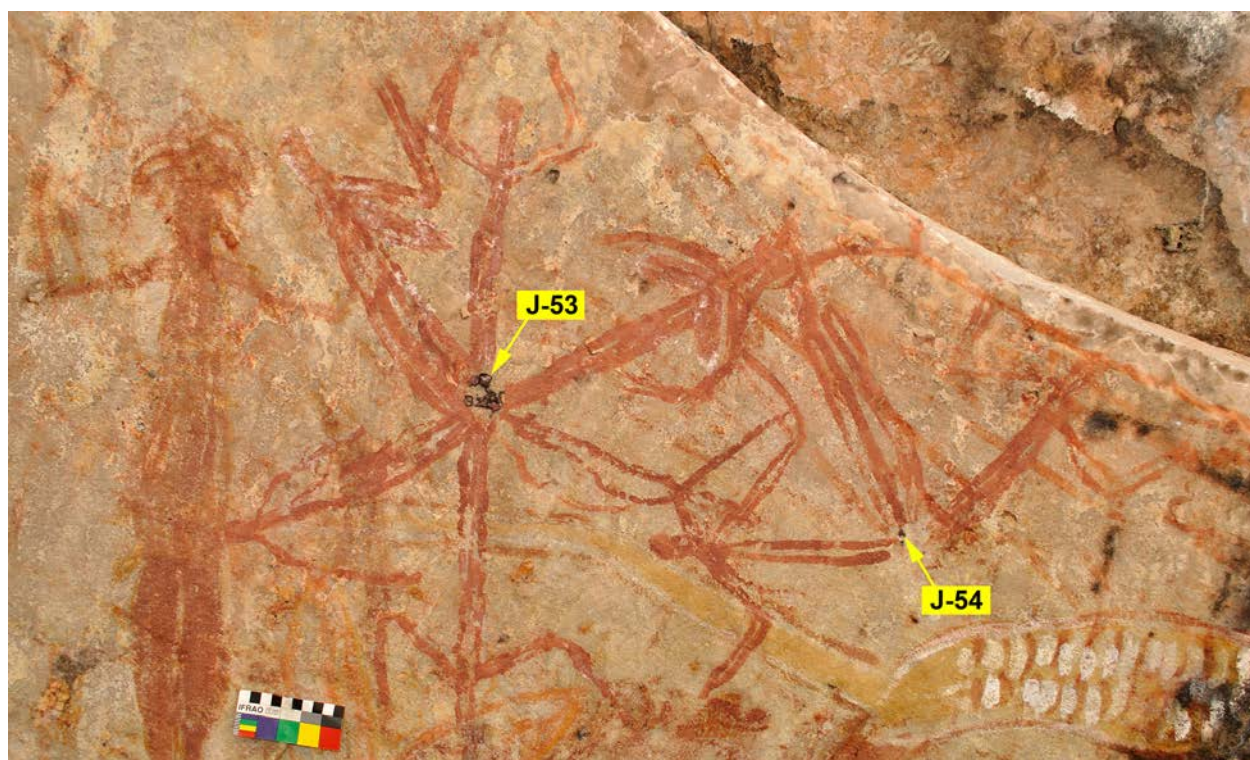


Figure 7.316: Design radial Motifs J-55 and J-56 around beeswax pellet Motifs J-53 and J-54



Figure 7.317: Coiled snake (Motif J-63)



Figure 7.318: Yellow female figure with dillybag and yams (Motif J-65)



Figure 7.319: Pair of white possums with faint yellow embellishment (Motifs J-82 and J-83)

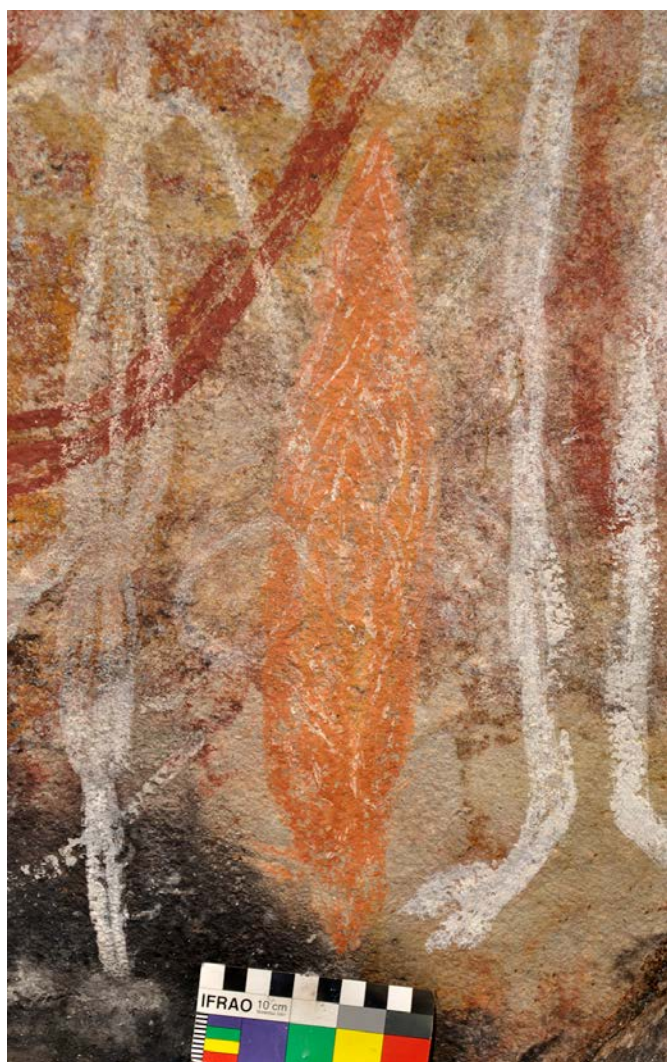


Figure 7.320: Unusual orange object decorated in white (Motif J-77)

Figure 7.321: Visually Dominant white female figure (Motif J-80)

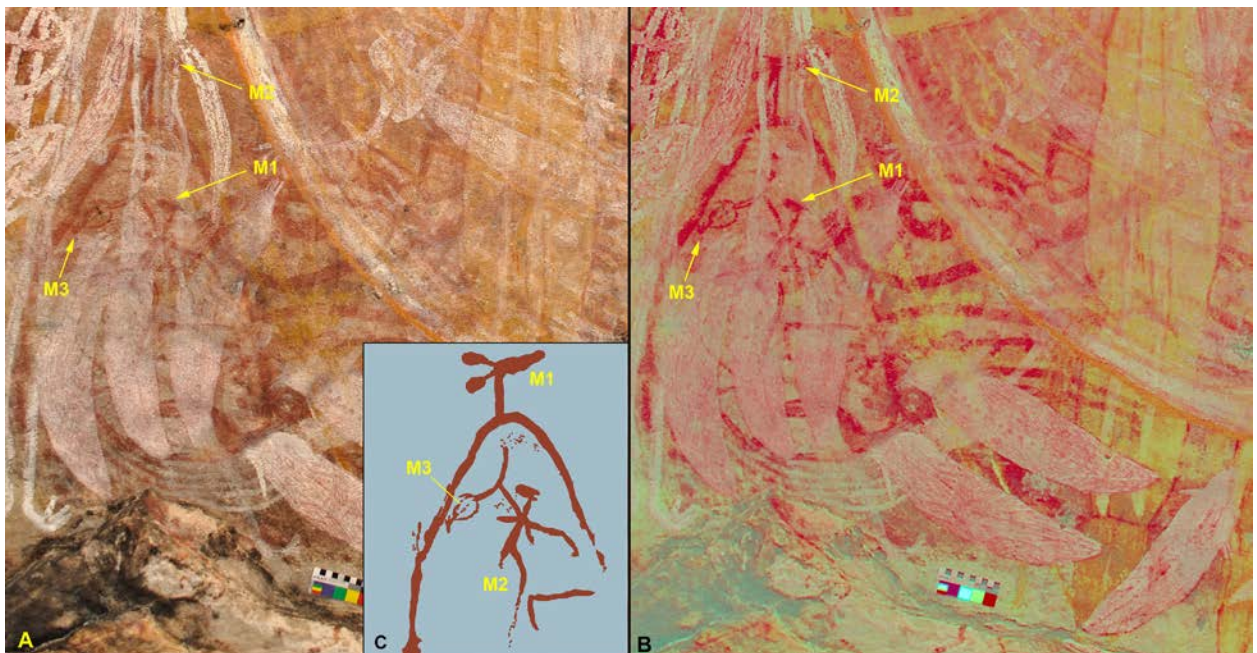


Figure 7.322: Composition of macropod-headed figures (Motif J-76)
A: Flash photograph B: DStretch enhancement _lr10 C: Interpretation of the clearer segments of Motif J-76



Figure 7.323: Disarticulated, macropod-headed, skeletal figure (Motif J-90)

Panel J2

Panel J2 (Figures 7.324 and 7.325) is a narrow and diamond-shaped panel on the inner side of, but 10 cm lower than, Panel J1. The panel measures 0.9×0.5 m along its axes, however, the surface is stepped into three subdivisions. The edges of each step have been extensively flaked. The red motifs appear to predate the flaking of the panel.

Panel J2 has nine motifs (Table 7.28; Figures 7.326 and 7.327) of which four were interpreted to Motif Type.

The artwork tends to be aligned along the axes of their respective subdivisions. Only one motif, a yellow line (Motif J-236), is aligned across the panel and crosses over all three subdivisions (Figure 7.327).

Motif J-237, a short white line, is the only well-preserved motif on the panel (Figure 7.302). Two of the red motifs (Motifs J-232 and J-233) are small linear snakes and Motif J-229 appears to have originally been a complicated design incorporating a series of barred horseshoe-shapes (Figure 7.303).

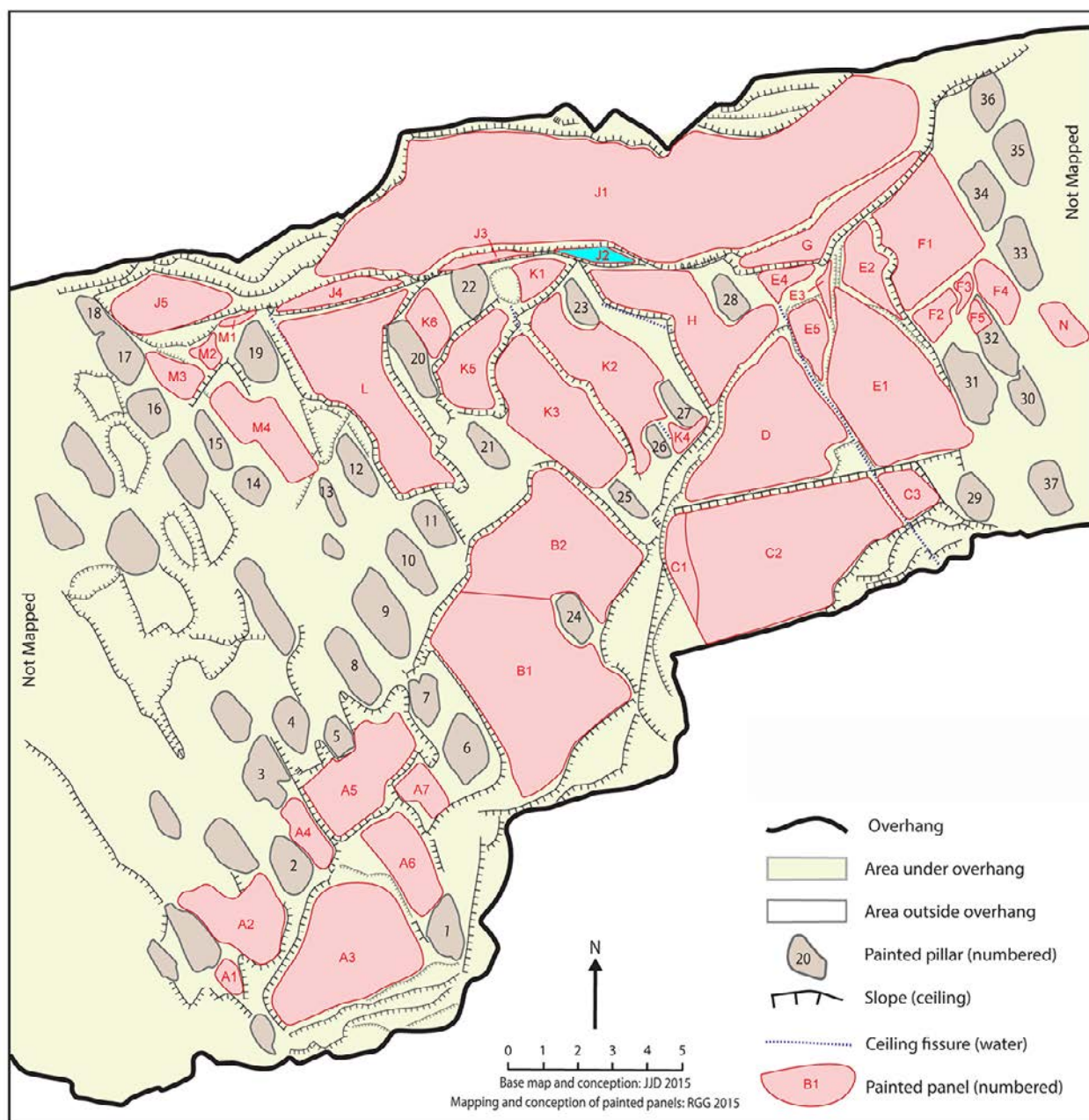


Figure 7.324: Location of Panel J2



Figure 7.325: Location of Panel J2

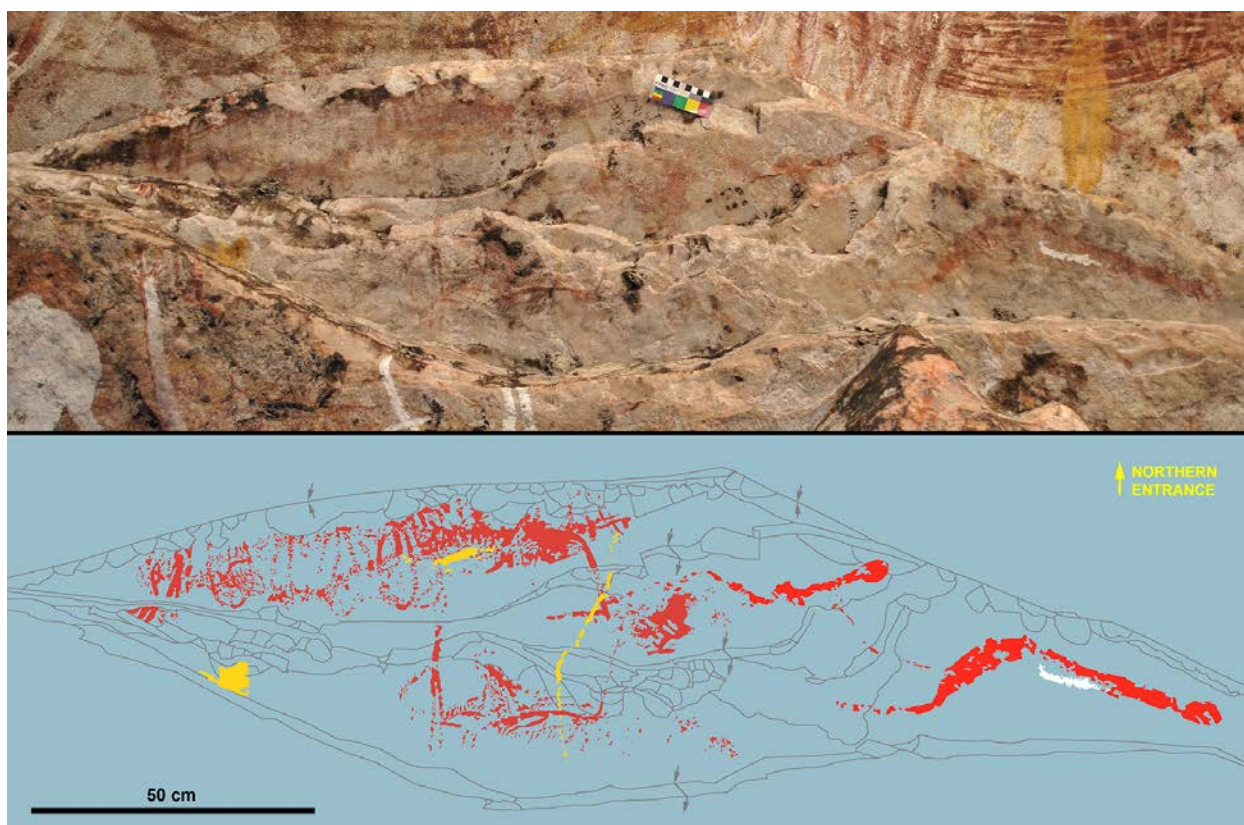


Figure 7.326: Panel J2 photograph and photo-tracing

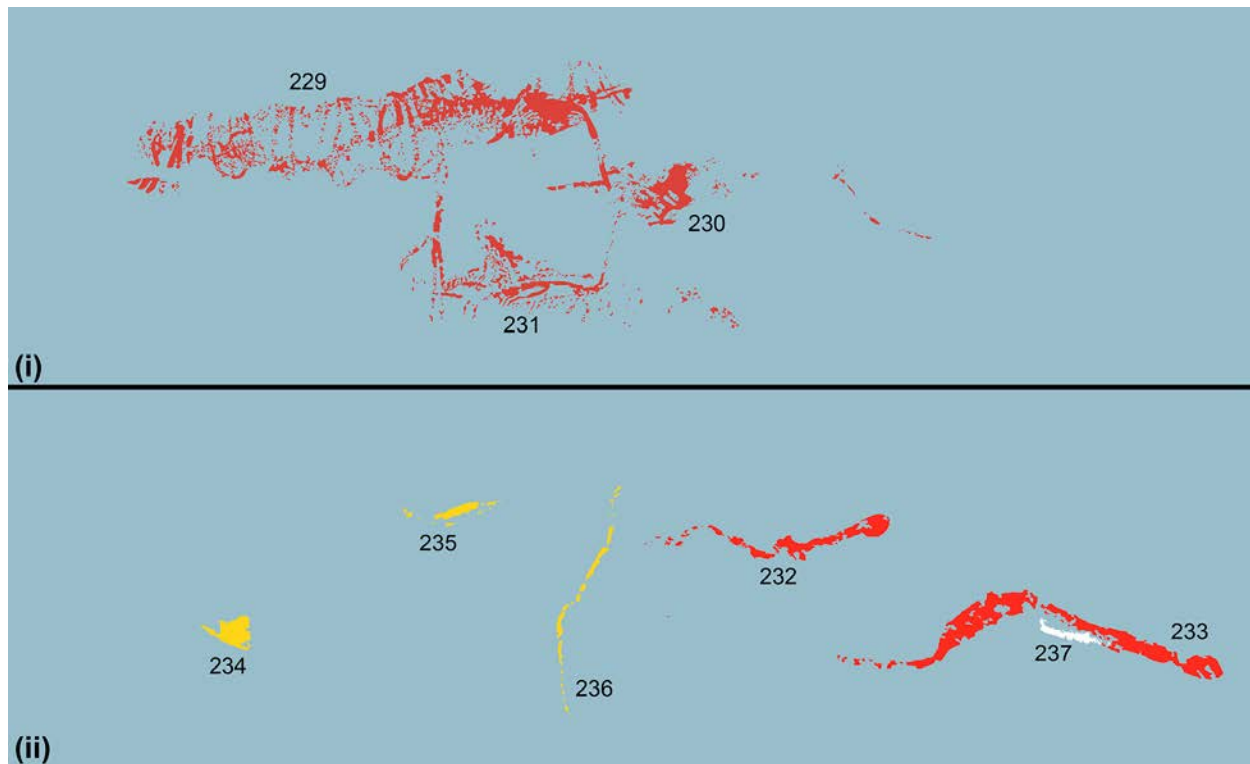


Figure 7.327: Panel J2 motif interpretations (i and ii)

Table 7.28: Panel J2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-229	red	painting	outline+infill	fragment	fragment	very poor		
J-230	red	painting	fragment	fragment	fragment	very poor		
J-231	red	painting	fragment	fragment	fragment	very poor		
J-232	red	painting	solid+linear	reptile	Snake	poor	57	4
J-233	red	painting	solid+linear	reptile	Snake	fair	66	4
J-234	yellow	painting	fragment	fragment	fragment	very poor		
J-235	yellow	painting	fragment	fragment	fragment	very poor		
J-236	yellow	painting	linear	geometric	Line	very poor		
J-237	white	painting	linear	geometric	Line	good	11	2

Panel J3

Panel J3 (Figures 7.328 and 7.329) is a narrow rectangular step on the inner side of Panel J1 and west of Panel J2. Panel J3, which measures 1.3 × 0.3 m, has a flat and smooth surface but the outer edges of the panel have been extensively flaked (Figure 7.330). Motif J-242, a red anthropomorph, extends over, and hence postdates, the flaked area.

Panel J3 contains 12 motifs (Table 7.29; Figures 7.331 to 7.335) of which ten were interpreted to Motif Type. The artwork tends to be aligned along the length of the panel (Figure 7.331). The panel is crossed, however, by two of the feet of the large macropod on Panel J1 (Motifs J-194 and J-227; Figure 335 cf. Figures 7.306 and 7.311). Such transgressing of the panel boundaries by feet, heads or ears appears to be a feature of the art of this shelter.

Motifs J-244 to J-246, that underlie the macropod feet mentioned above, form a composition of a male anthropomorph with spear and spearthrower (Figure 7.334). The spear appears to have a large stone (lawk) point, and the spearthrower is of the long spearthrower type (Lewis 1988).

The white pigment of the painted snake (Motif J-249) is very thickly encrusted and retains brush mark striations (Figure 7.335). The pigment, however, is also beginning to flake away from the surface.

Motif J-241, painted in yellow with a red outline, is a quadruped with a long tasselled tail (Figure 7.332). However, as the head is no longer visible, the animal cannot be identified to species but is likely to be a quoll (native cat), numbat or phascogale.

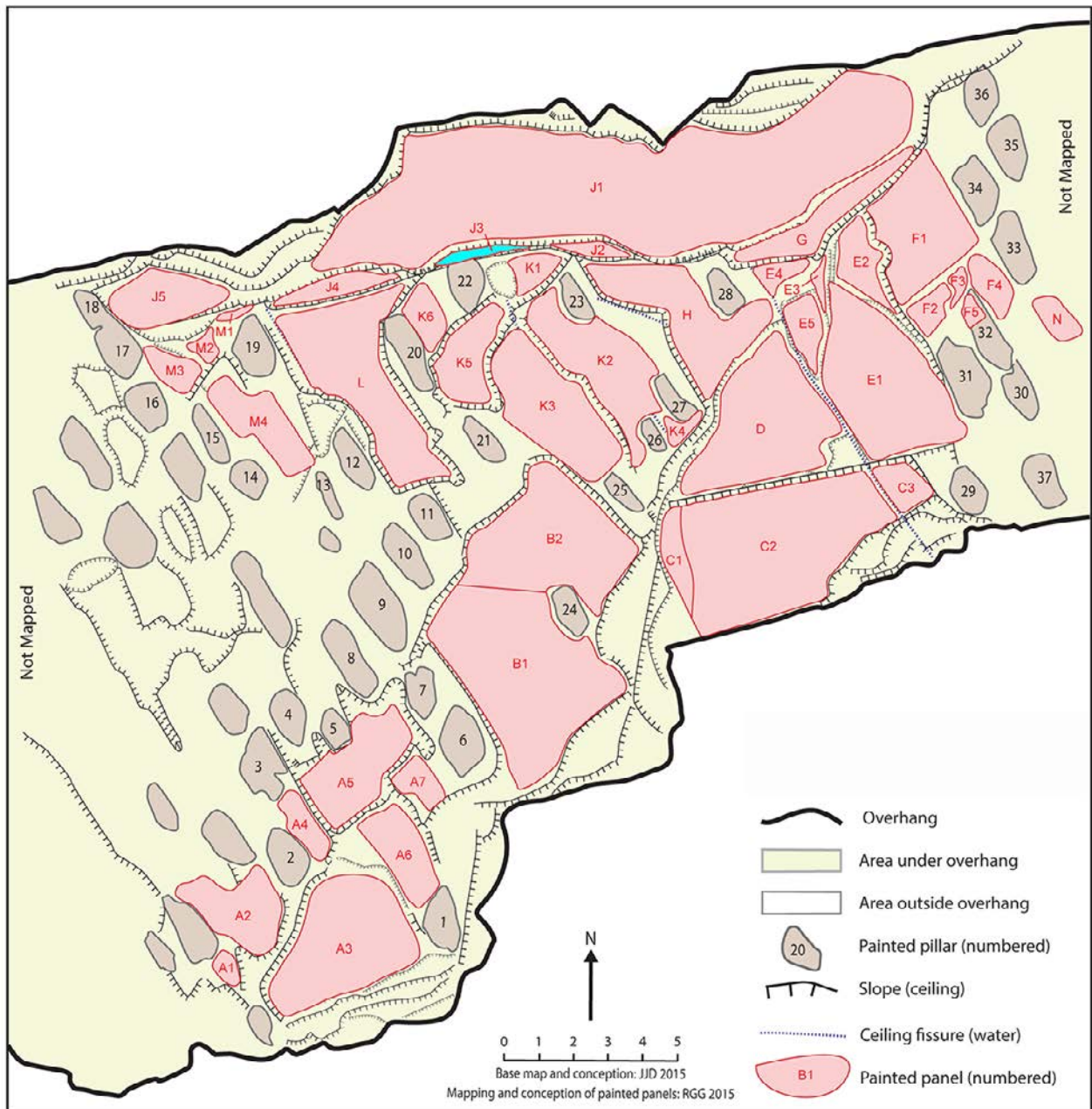


Figure 7.328: Location of Panel J3

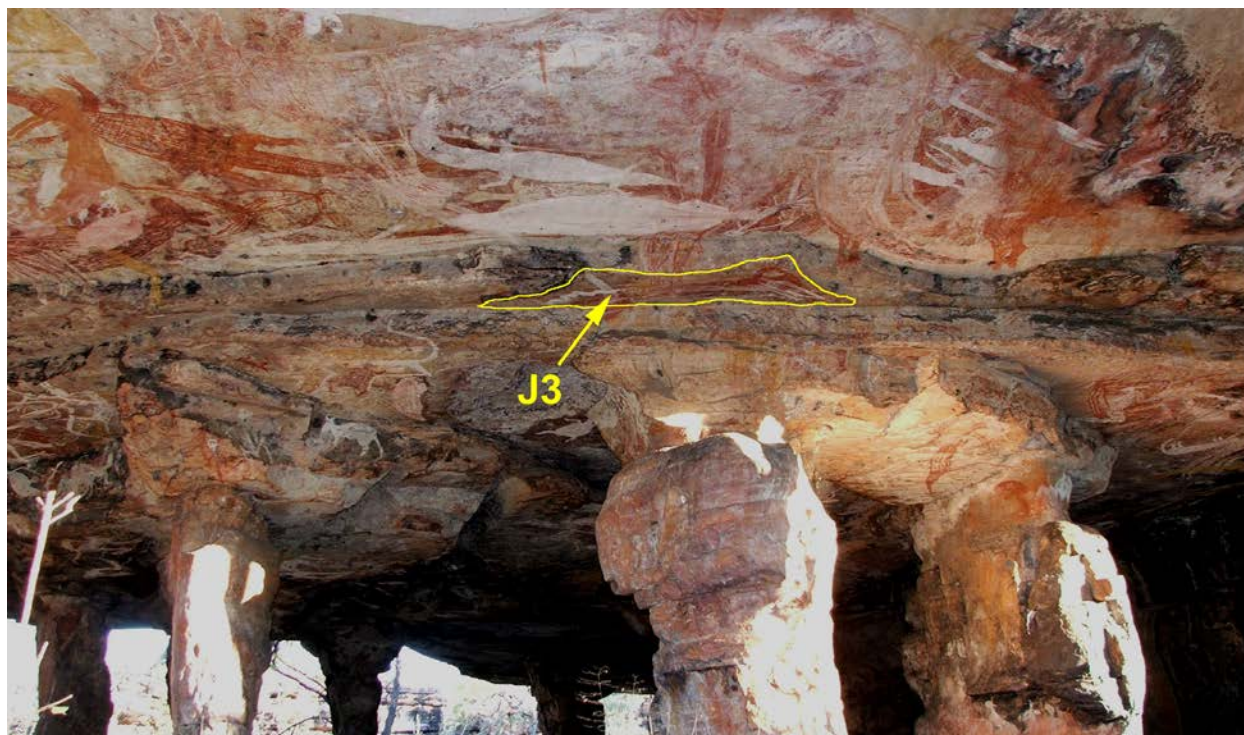


Figure 7.329: Location of Panel J3

Table 7.29: Panel J3 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-238	red	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
J-239	red	painting	fragment	fragment	fragment	very poor		
J-240	yellow	painting	fragment	fragment	fragment	very poor		
J-241	yellow+red	painting	solid+outline	mammal	Quadruped	very poor		
J-242	red	painting	solid+linear	anthropomorph	Anthropomorph	poor		
J-243	white	painting	solid+linear	anthropomorph	Anthropomorph male	poor		
J-244	white	painting	solid+linear	object	Spear	poor		
J-245	white	painting	solid	object	Spearthrower	poor		
J-246	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	fair	78	17
J-247	white	painting	solid	fish	Catfish eel-tailed	fair	31	8
J-248	white	painting	outline+infill	fish	Catfish eel-tailed	fair	35	8
J-249	white	painting	solid	reptile	Snake	good	42	3



Figure 7.330: Panel J3 photograph



Figure 7.331: Panel J3 photo-tracing

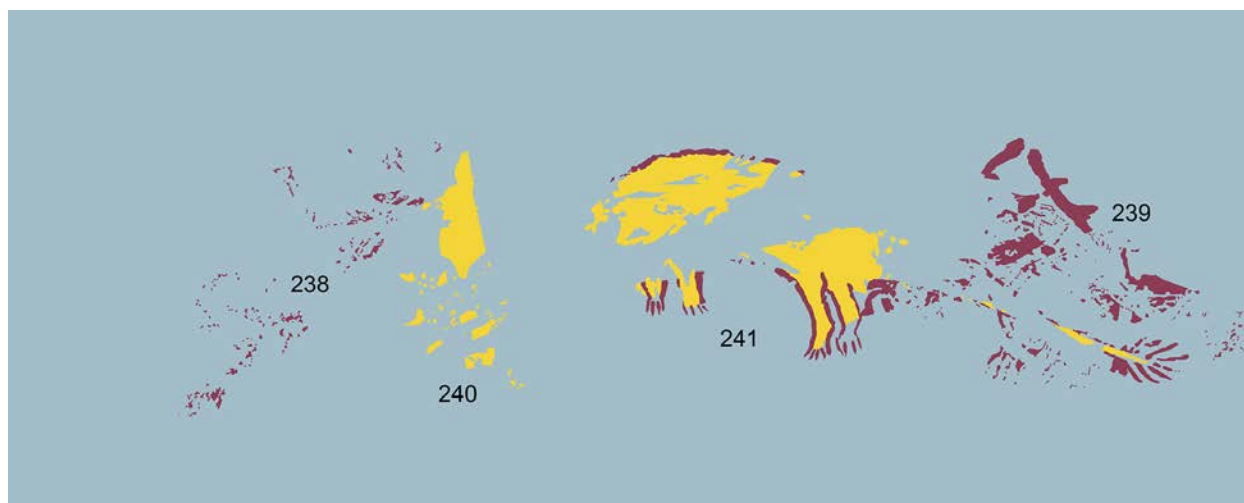


Figure 7.332: Panel J3 motif interpretations (i)



Figure 7.333: Panel J3 motif interpretations (ii)

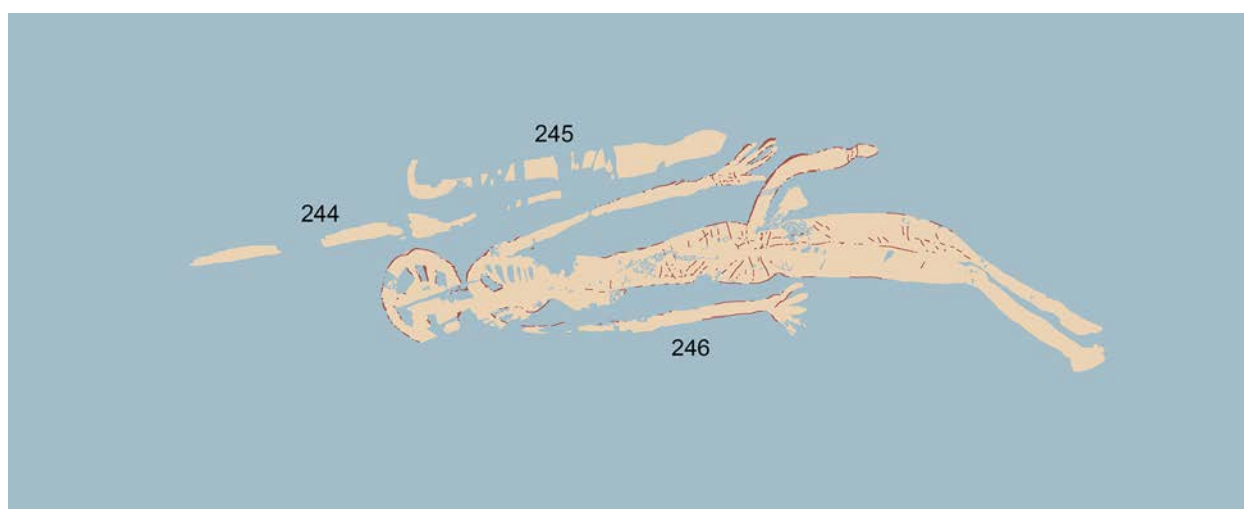


Figure 7.334: Panel J3 motif interpretations (iii)

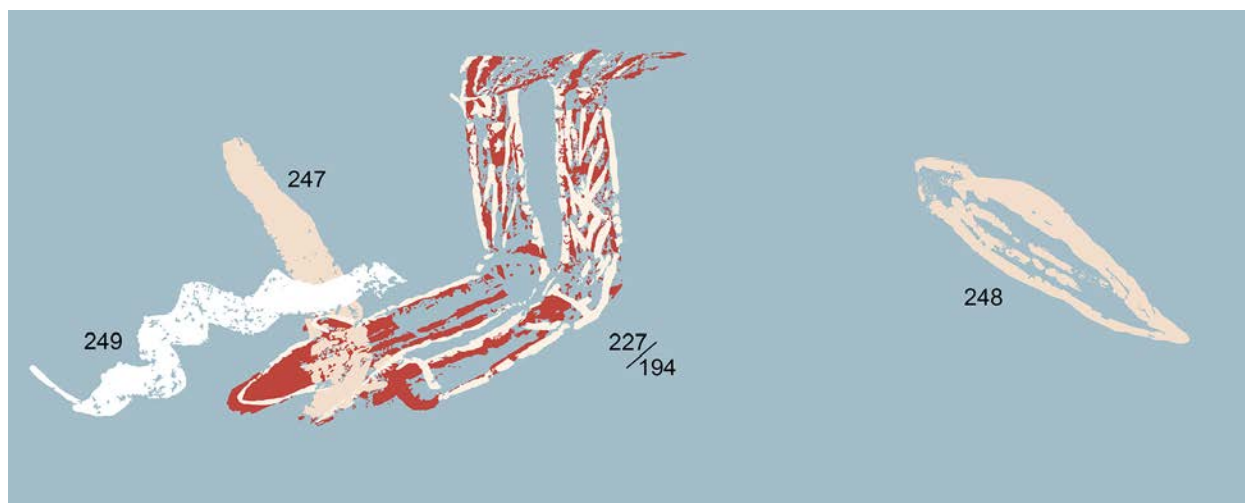


Figure 7.335: Panel J3 motif interpretations (iv)

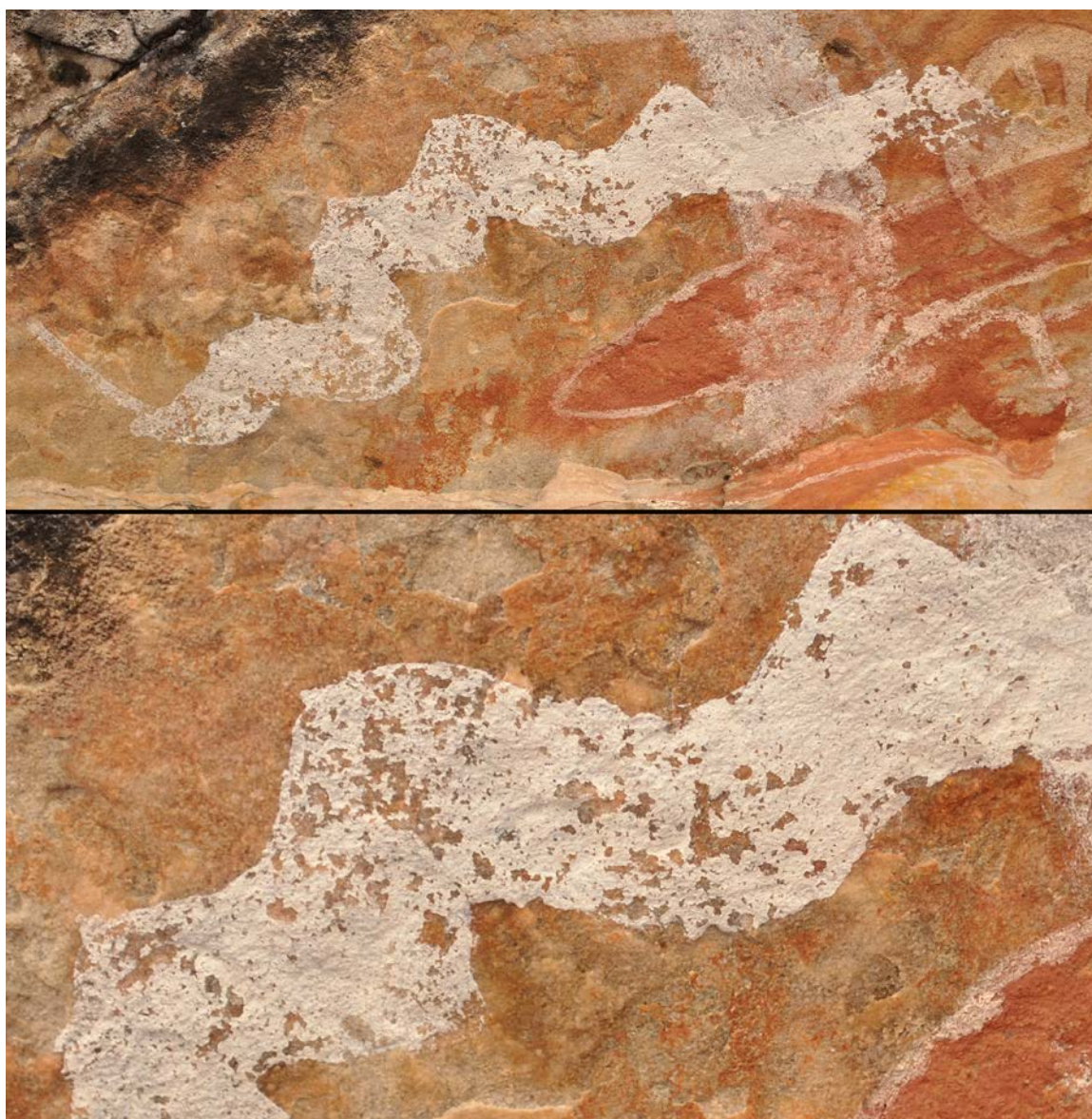


Figure 7.336: Snake motif J-249 showing thickness and flaking damage of the white pigment

Panel J4

Panel J4 (Figures 7.337 and 7.338) is another of the narrow steps on the inner side of Panel J1. The surface, which measures 2.0 × 0.5 m, is flat but racked by exfoliation and salt deposits. The exfoliation appears to be largely due to manual flaking of the outer edges of the panel. All of the artwork postdates this flaking.

Panel J4 contains three motifs (Table 7.30; Figures 7.339 and 7.340): two badly weathered red fragments and a weathered motif of a dog-like animal in white.

The dog-like animal (Motif J-252; Figure 7.341) could represent either a dingo (*Canis lupus dingo*) or domestic dog (*Canis lupus familiaris*). Both animals are readily distinguished from the thylacine, the only other dog-like animal on the Arnhem Land plateau, by the manner in which the tail is held. Dingoes and dogs hold their tail up and over the back, while the thylacine's tail is held straight out as an extension of the backbone (cf. Ride 1970). The large size of the head relative to the body, however, suggests that it is most likely to be that of a dingo rather than a dog (Newsome et al. 1980).

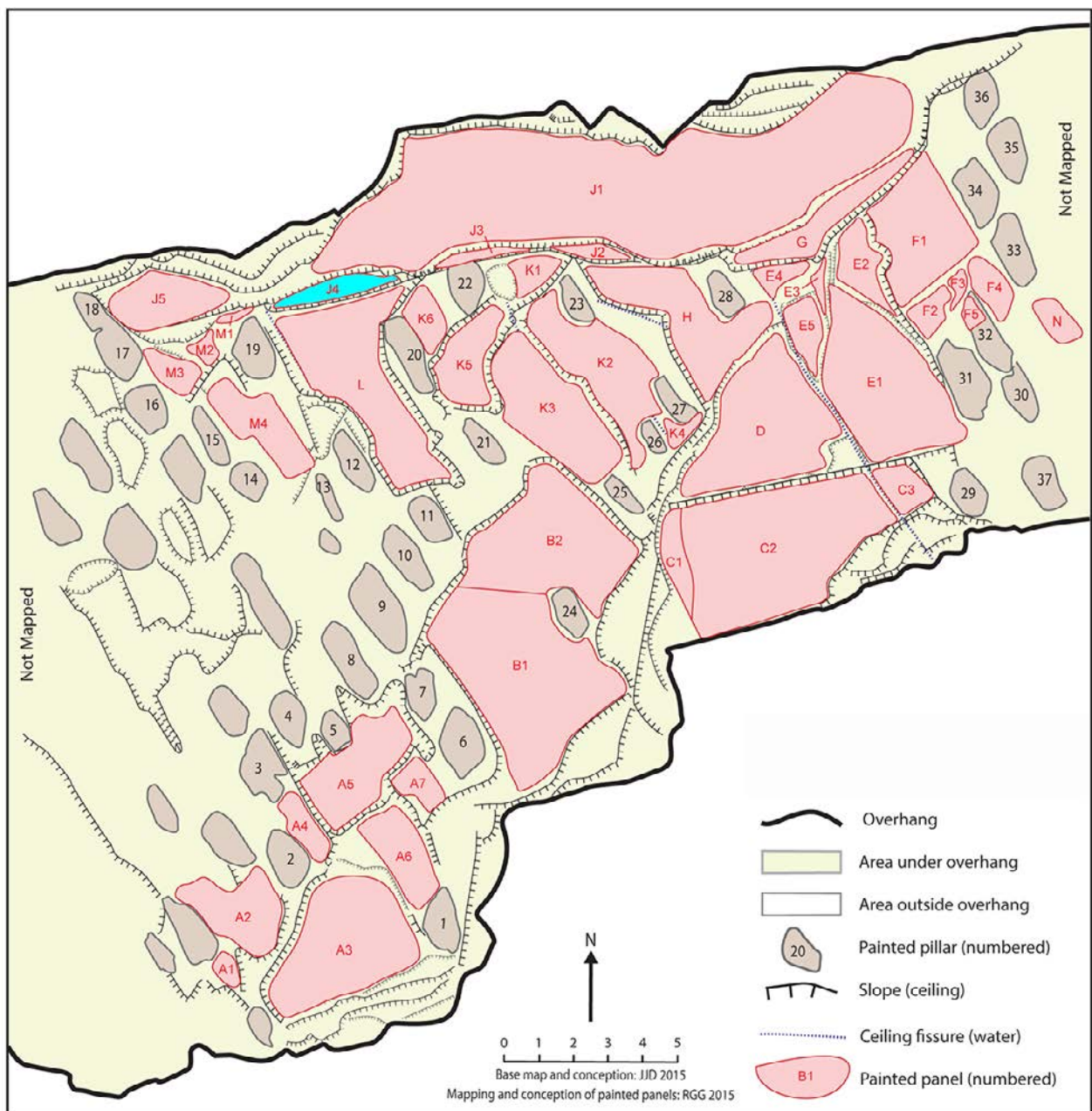


Figure 7.337: Location of Panel J4



Figure 7.338: Location of Panel J4

Table 7.30: Panel J4 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-250	red	painting	fragment	fragment	fragment	very poor		
J-251	red	painting	fragment	fragment	fragment	very poor		
J-252	white	painting	outline+infill+linear	mammal	Dingo	fair	71	54



Figure 7.339: Panel J4 photograph

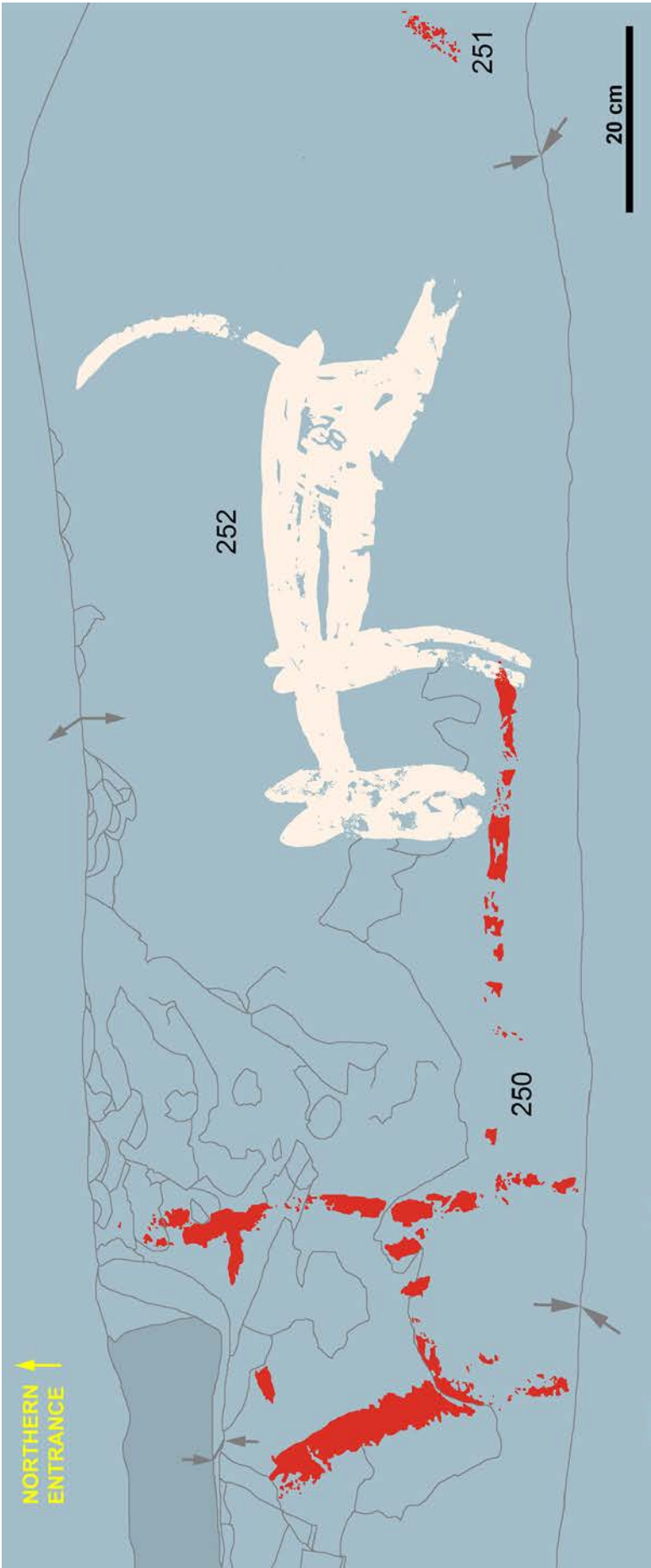


Figure 7.340: Panel J4 photo-tracing and interpretation



Figure 7.341: The white pigment 'Dingo-dog' motif (Motif J-252)

Panel J5

Panel J5 (Figures 7.342 and 7.343) is 2.3×1.3 m in area and roughly egg-shaped, tapering at either end. The panel is an extension of the verandah ceiling holding Panel J1 but separated from that panel by a break in the ceiling layer. The surface of Panel J5 is flat, lightly rippled, and bounded along the outer (northern) margin by an area of water-wash and a band of salt concretions.

Panel J5 contains three motifs (Table 7.31; Figures 7.344 and 7.345): two large macropods and a red fragment. One of the macropods is in white with red outline, the other in yellow with white outline and infill. The two are placed back-to-back and positioned in relation to the shape of the salt band (Figure 7.345). The white pigment on the yellow macropod (Motif J-254) is better preserved, hence probably more recent, than the white on Motif J-255. The only other motif on the panel is a small red fragment (Motif J-153) that underlies Motif J-255.

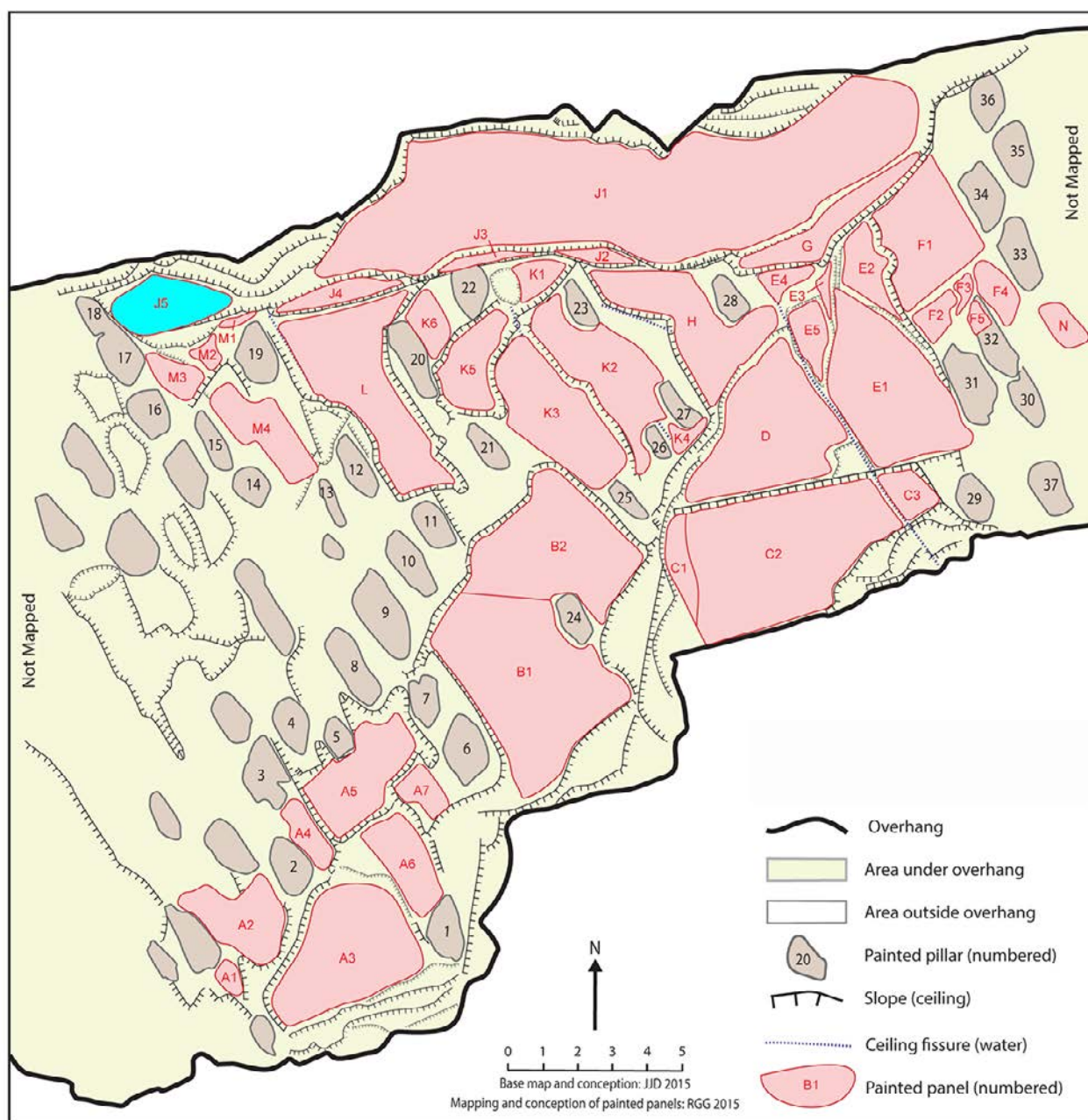


Figure 7.342: Location of Panel J5



Figure 7.343: Photo-location of Panel J5

Table 7.31: Panel J5 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
J-253	red	painting	fragment	fragment	fragment	very poor		
J-254	yellow+white	painting	solid+outline+infill	mammal	Macropod	fair	119	70
J-255	white+red	painting	solid+outline+infill	mammal	Macropod	fair	103	80



Figure 7.344: Panel J5 photograph

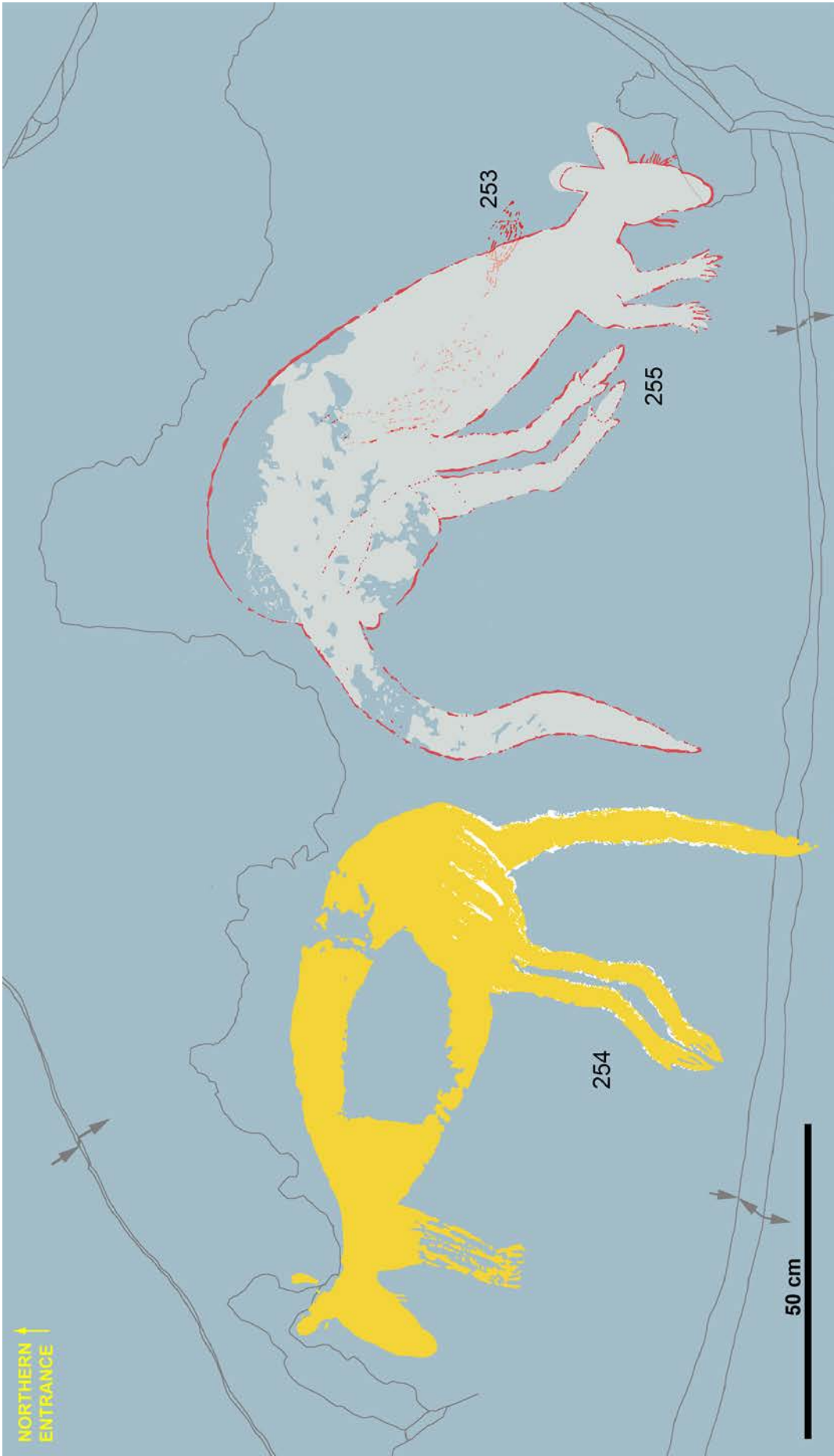


Figure 7.345: Panel J5 photo-tracing and interpretation

Panel K1

Panel K1 (Figures 7.346 and 7.347) is triangular in shape and measures 1.1×0.9 m along its axes. The panel surface is generally flat but roughly textured (Figure 7.348). A light coating of white salts covers much of it and there are several areas of shallow exfoliation that have damaged the artwork. The outer (northern) edge of the panel has been extensively flaked.

Panel K1 has 13 motifs (Table 7.32; Figures 7.349 to 7.352), of which nine could be classified to Motif Type. The artwork is spread across the available surface and represents a range of motif types and styles.

The catfish, Motif K-11, is one of the better examples of a fish decorated in the Jawoyn X-ray form (Figure 7.353). The different coloured orange-red dots down the backbone are suggestive of a subsequent addition.

The solid-bodied red figure at the centre of the panel consists of two motifs: one carefully placed over the top of the other and with the upper motif using the form of the lower (Figure 7.354). The lower red figure (Motif K-6) is a macropod-headed therianthrope with splayed breasts. The upper figure (Motif K-10), painted roughly in a thick paste-like pink pigment with partial orange-yellow outline, has altered Motif K-6 by converted the head of into an oval shape (removing the ears)

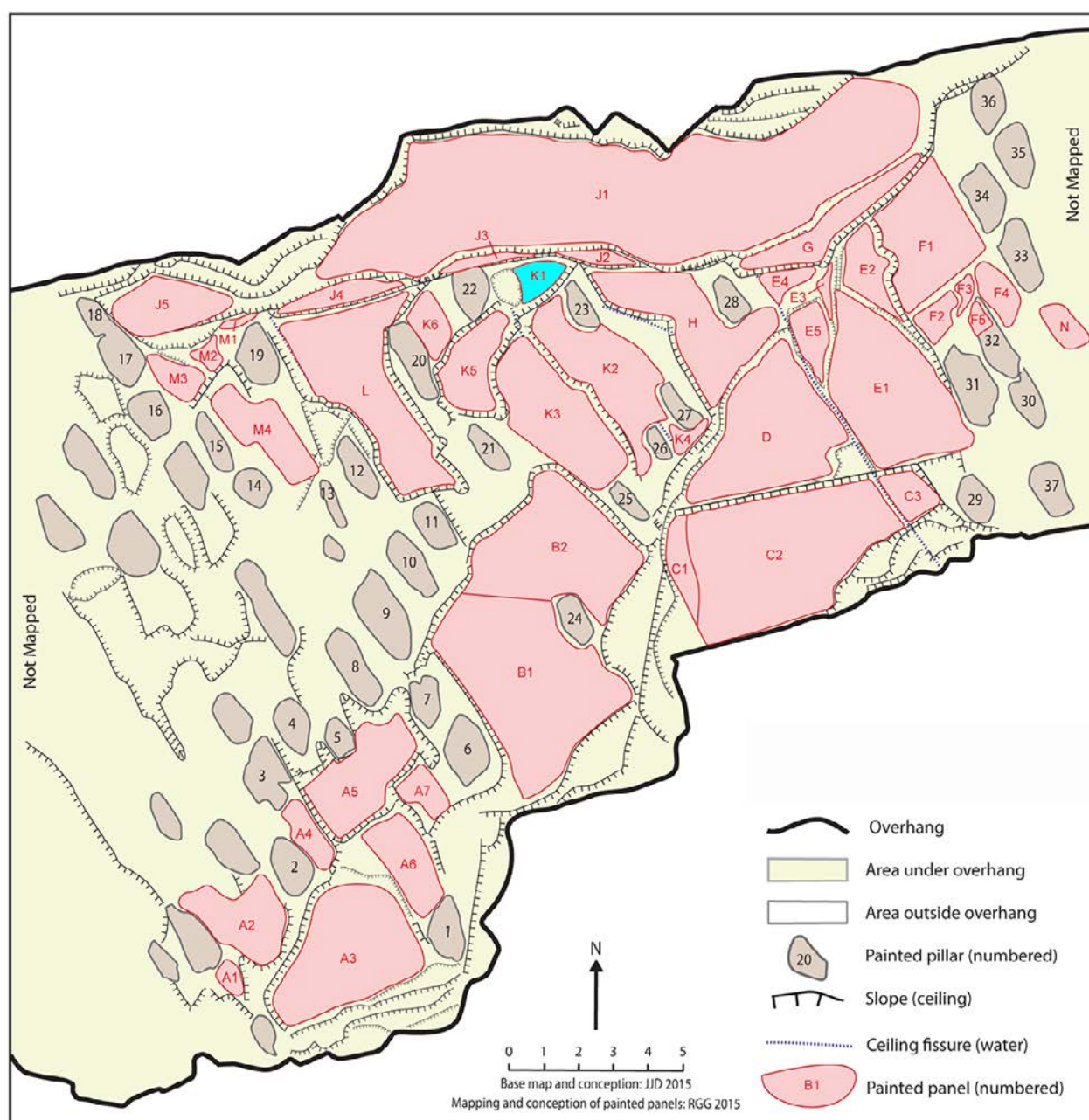


Figure 7.346: Location of Panel K1

and straightened the side of the torso (removing the breasts).

Motif K-12, an anthropomorph in white, is another motif within this shelter that extends beyond the panel surface and down the adjacent vertical face (Figure 7.355).

Motifs K-7 and K-8 (Figure 7.356) are two unusual motifs: an animal and a human footprint. The placement and similar colouring suggest the two motifs form a

composition. The identification of the dog/horse-like animal is unknown because of its unusual triangular tail, and its toed or split feet (hooves?). The diminutive size of both of these motifs contrasts with that of the other motifs on this panel. Single human footprints are uncommon in Jawoyn rock art but another occurs here on Panel L (see below).

The small size and inconspicuous location of this panel, then, belies its overall artistic significance.



Figure 7.347: Location of Panel K1 (K1a and K1b)



Figure 7.348: Panel K1 photograph



Figure 7.349: Panel K1 photo-tracing

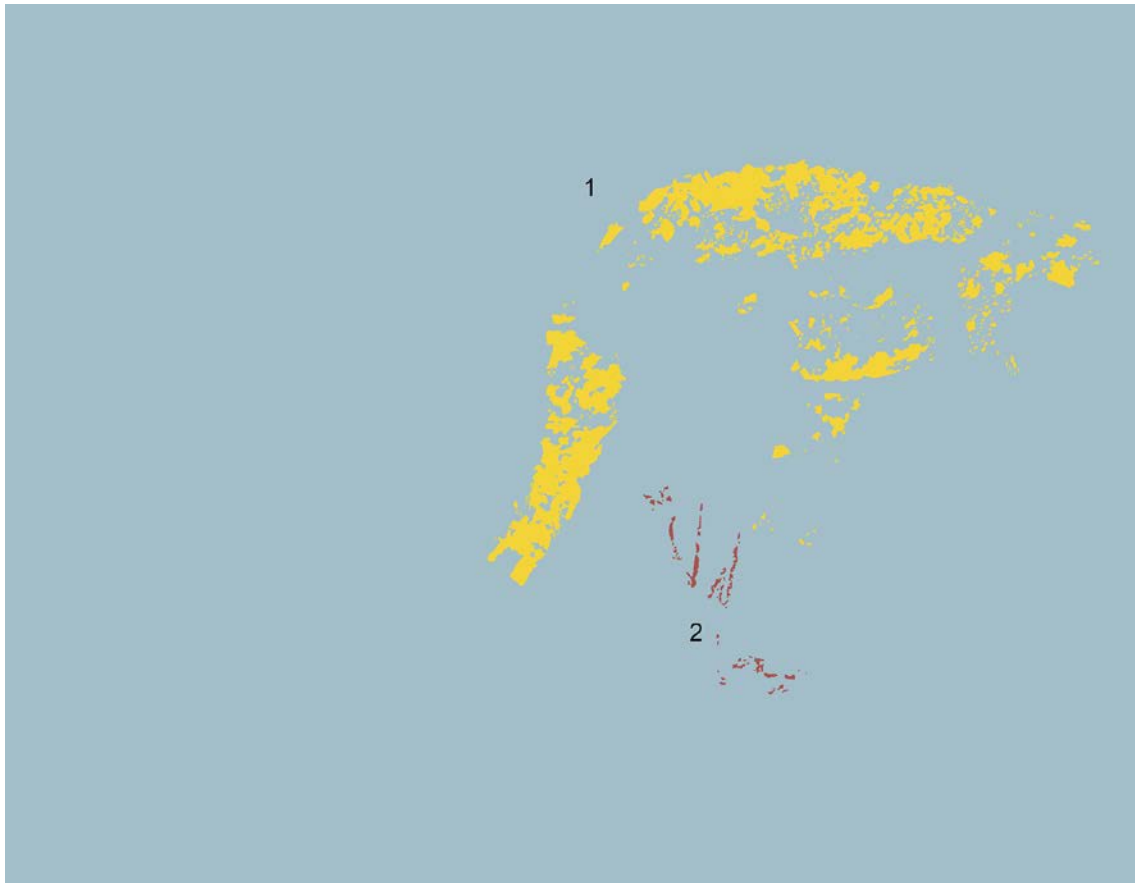


Figure 7.350: Panel K1 motif interpretations (i)

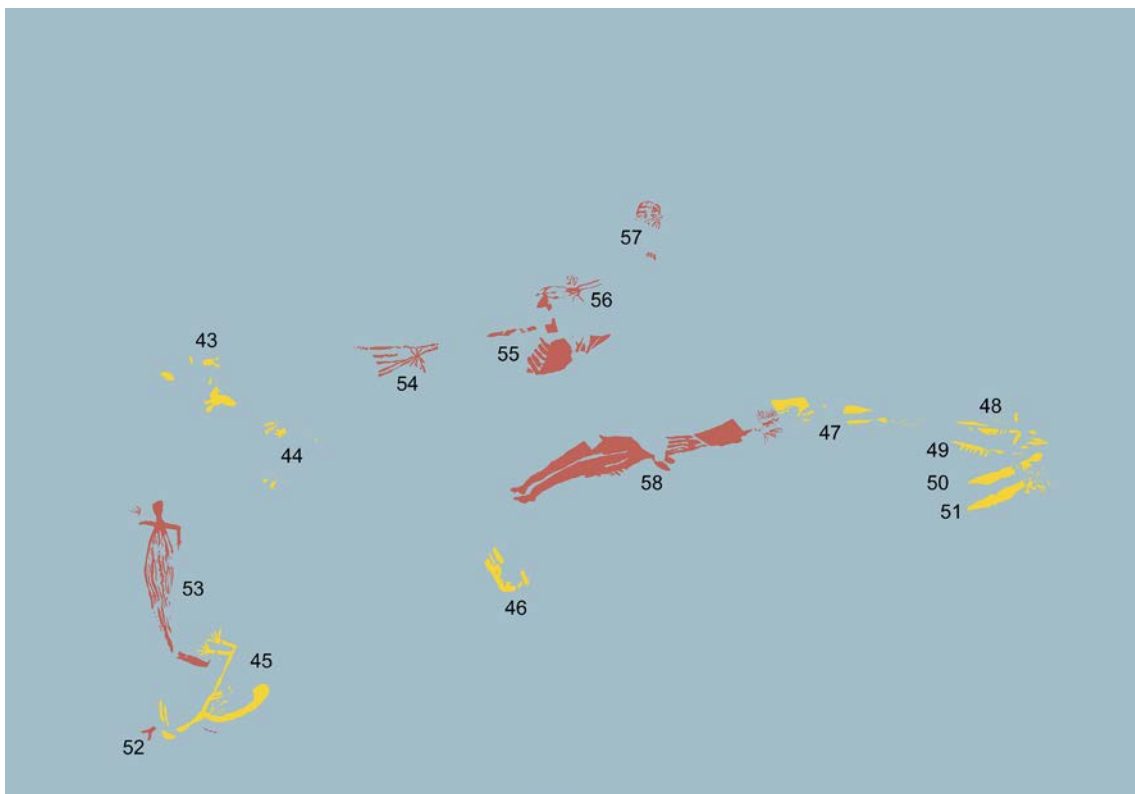


Figure 7.351: Panel K1 motif interpretations (ii)

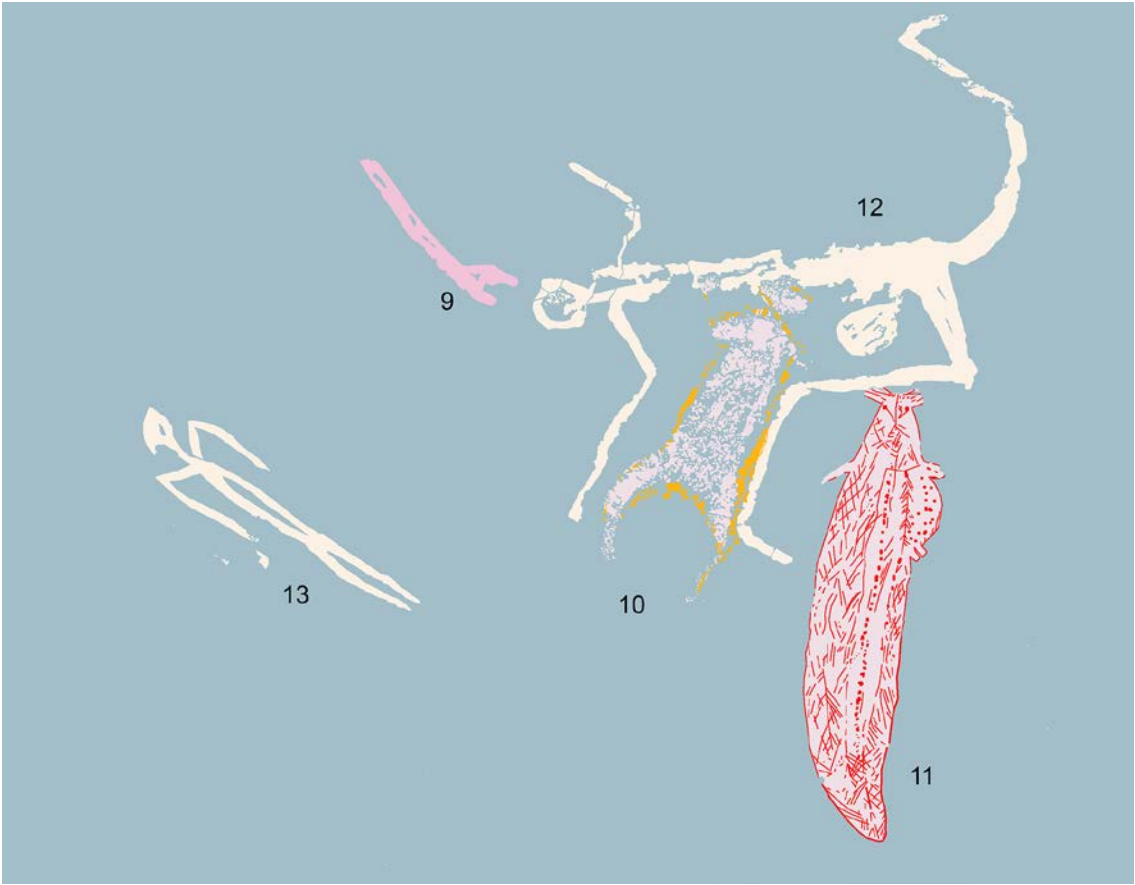


Figure 7.352: Panel K1 motif interpretations (iii)

Table 7.32: Panel K1 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
K-1	yellow	painting	solid	mammal	Macropod	very poor		
K-2	red	painting	linear	fragment	fragment	very poor		
K-3	red	painting	fragment	fragment	fragment	very poor		
K-4	red	painting	fragment	fragment	fragment	very poor		
K-5	red	painting	fragment	fragment	fragment	very poor		
K-6	red	painting	solid	therianthrope	Macropod-headed	fair	41	21
K-7	red	painting	solid	track	Footprint	good	6	4
K-8	red	painting	solid+linear	mammal	Animal	good	18	9
K-9	pink	painting	linear	geometric	Y-shape	good	23	56
K-10	pink	painting	solid	anthropomorph	Anthropomorph female	fair	41	21
K-11	white+red	painting	solid+outline+infill	fish	Catfish eel-tailed	good	62	17
K-12	white	painting	solid+linear	anthropomorph	Anthropomorph	fair	70	72
K-13	white	painting	outline+linear	anthropomorph	Anthropomorph	good	29	10

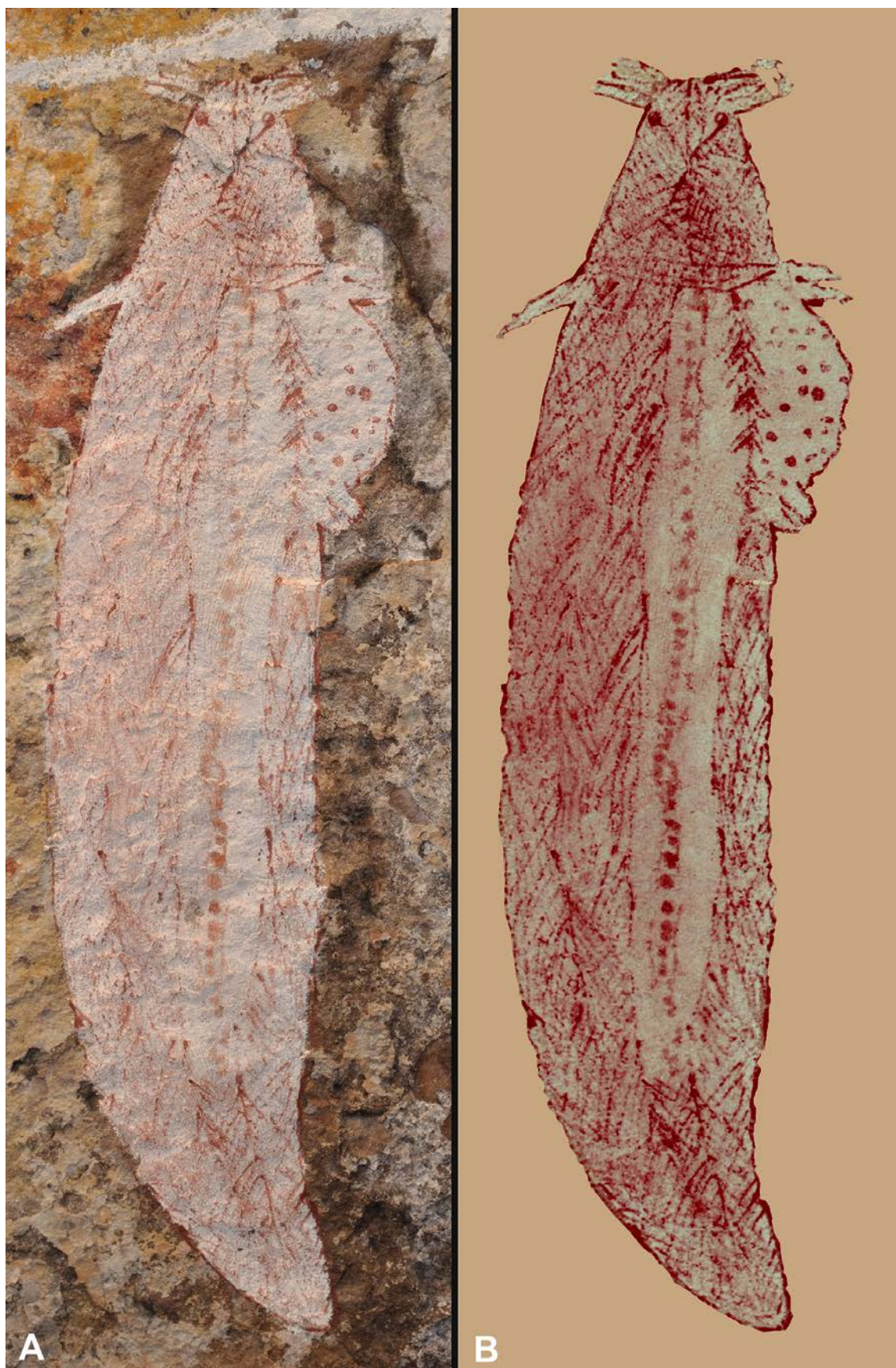


Figure 7.353: Catfish (Motif K-11) with detailed Jawoyn X-ray form
A: daylight photograph B: DStretch_yre10 on plain background
Length 62cm

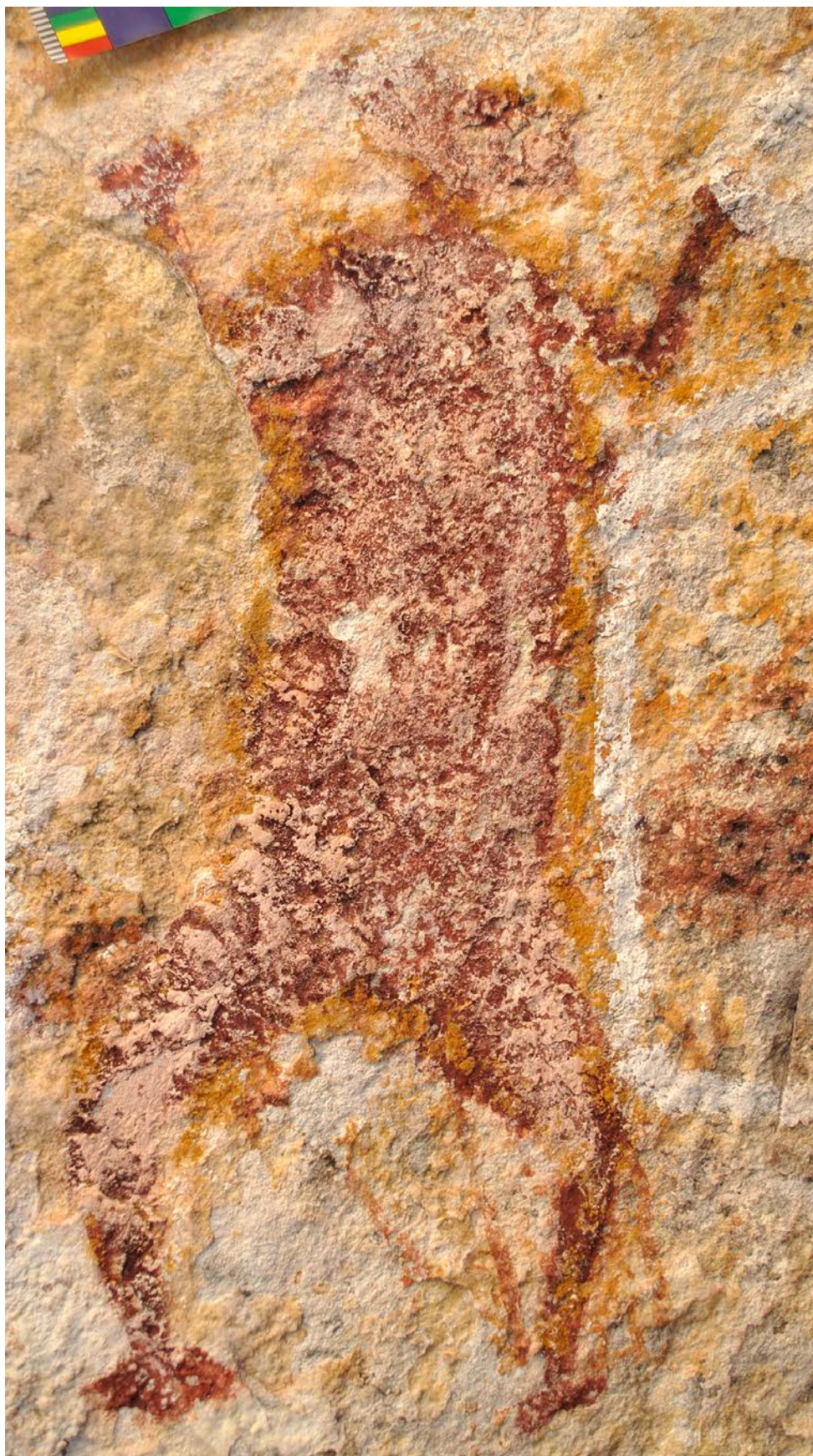


Figure 7.354: Composite motif. Red therianthrope (Motif K-6) and overlying pink anthropomorph (Motif K-10)
Length 41cm

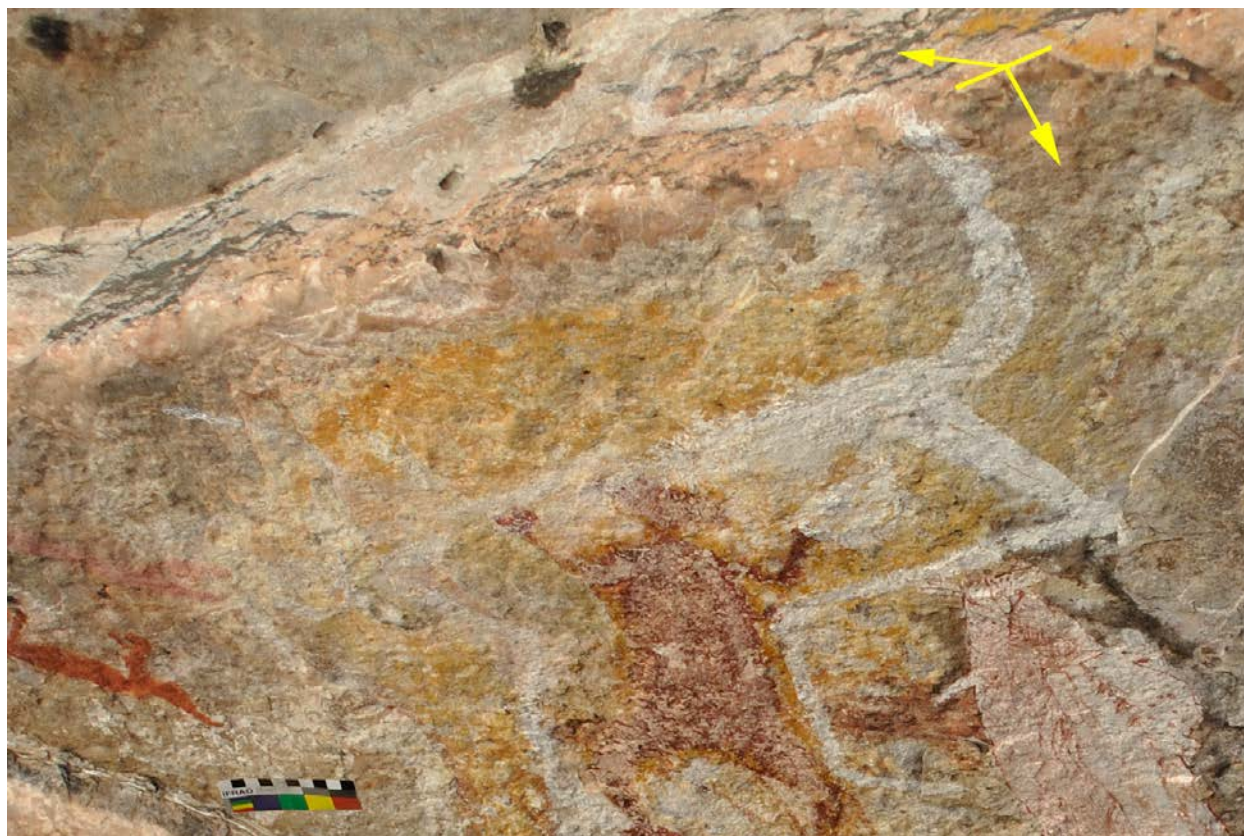


Figure 7.355: White anthropomorph (Motif K-13) showing extension of the upper leg beyond the edge of the panel

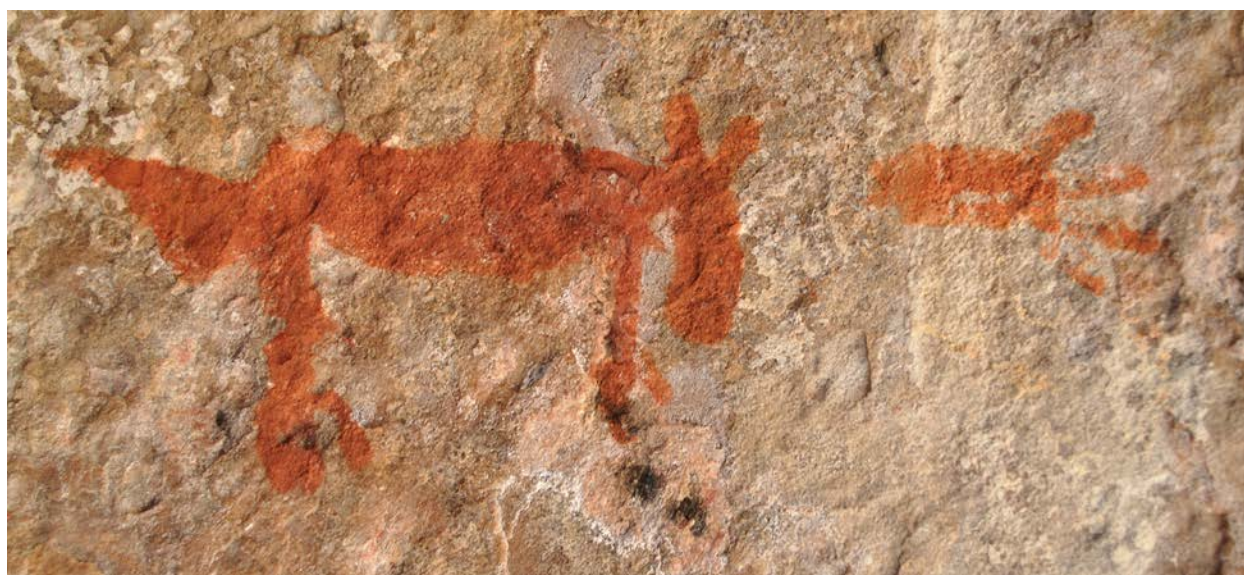


Figure 7.356: Animal (Motif K-8) and human track (Motif K-7)
Animal 18cm long

Panel K2

Panel K2 (Figures 7.357 to 7.359) is large, measuring 5.8×2.2 m, irregular in shape, and divided by a fracture with two central recessed pockets (20 cm high). Outside the pockets the painted surface is essentially flat but pock-marked with numerous small cavities. The inclined walls of the larger pocket have been decorated, but the ceilings of both pockets are covered with black salts and a dense agglomeration of mud-wasp nests.

Panel K2 has 92 motifs (Table 7.33; Figures 7.360 to 7.366), of which 64 (70%) were interpreted to Motif Type. The artwork is well distributed across the panel, but forms two longitudinal aggregates following the

physical subdivision of the panel (Figure 7.359). While motif alignment tends to follow the longer axis of the panel, there is no consistency in motif orientation.

The motifs occur in a wide range of motif types and styles. One of the most conspicuous aspects of the art here is the arrangement of eight small, bright red catfish (Motifs K-61 to K-68) on the inner side of the larger pocket. Their prominence is due in part to their good preservation and the dense hue of the pigment, but particularly because of their unusual placement (Figure 7.367). The motifs on the opposite wall of the pocket (Motifs K158-161) are less well preserved (Figure 7.368) and required DStretch enhancement for interpretation.

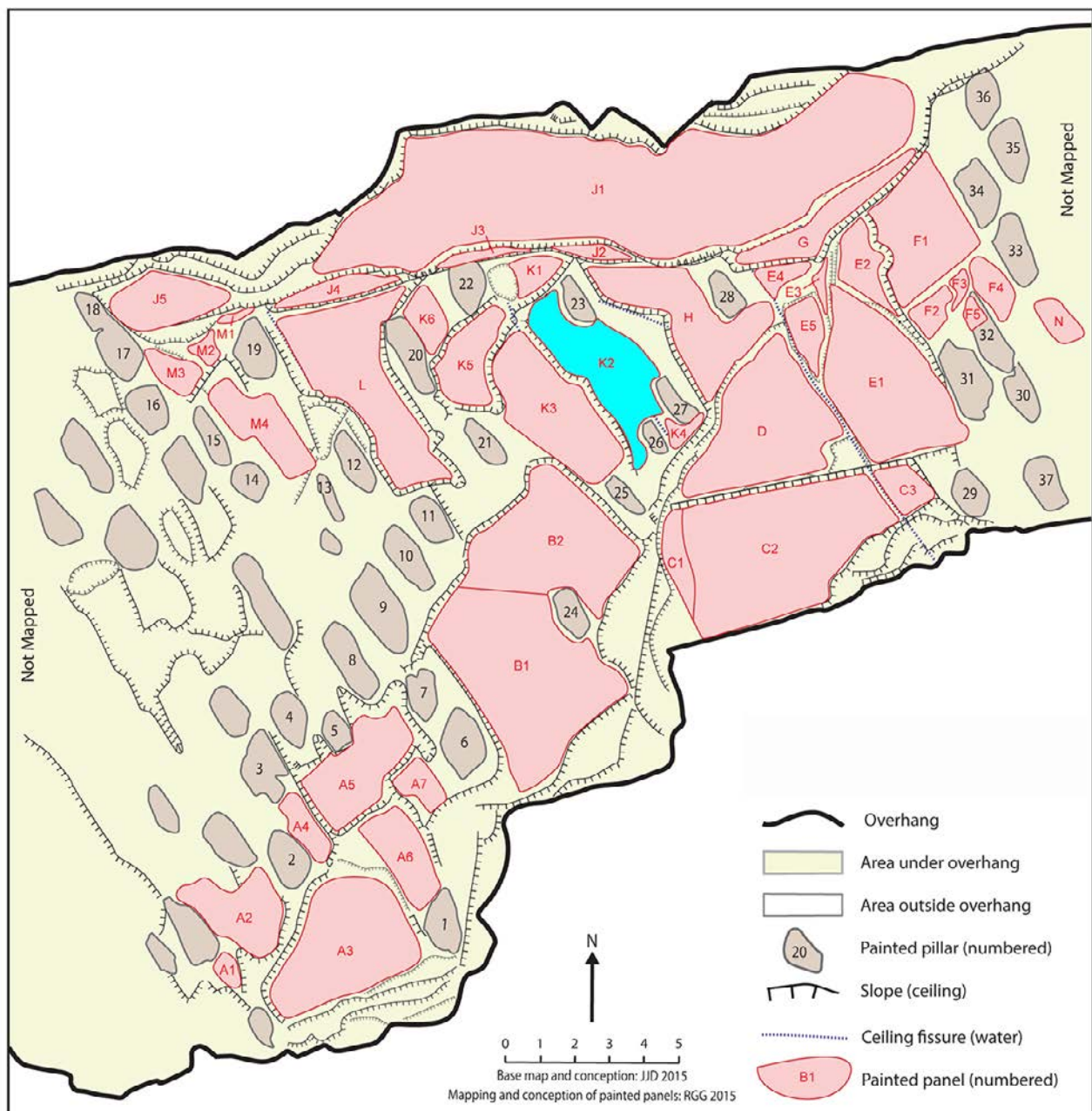


Figure 7.357: Location of Panel K2

The red painted fish on the outer lip of the pocket (Motif K-60; Figure 7.364), of the same colour and intensity as the row of fish within (Motifs K-61 to 68), is one of three motifs on this panel that have been subsequently altered (Figure 7.369). In this case the red fish has been crudely re-outlined in dry white pigment (Motif K-95). At a later stage both motifs were partially over-painted with a pink line (Motif K-163).

The second altered motif is the white copulating couple (Motif K-74; Figure 7.370). In this instance an enlarged penis and body outline (Motif K-162), also in white, were added at a later time. The pose here is similar to that of motif K-129 on Panel K3 (see below).

An anthropomorph with skeletal arms and hip bones and an unusual arrangement of toes was also overpainted (Motif K-90; Figure 7.371). The head of this figure was outlined in pink (Motif K-164), using the same colour as the adjacent bar motif (Motif K-163) discussed above. As there is no mixing of the pink and white pigments, it is probable that the addition occurred at some time after completion of Motif K-90.

In a different manner, a male anthropomorph (Motif K-94) was placed centrally over a speared macropod (Motif K-86) (Figure 7.372). While the interpretation of motif K-94 is somewhat ambiguous, it was classed as a male anthropomorph, rather than a long-tailed lizard, on the basis of its squatting-upraised arm pose and what is interpreted as a face/headaddress on the right side of the head (cf. Motif K-129 on Panel K3 below). The placement of this figure directly over the macropod is deliberate and suggests a thematic association between the two motifs.

Other motifs of note are:

- A solid-bodied figure with sideways headaddress outlined with a 'string of yams' (Motif K-29; Figure 7.362). Although unusual, a comparable figure has been recorded from the nearby site complex ARN-105, 10 km to the north-east (Figure 7.373);
- A therianthrope holding a curved 'club' and a bag-like structure on the end of a stick (dillybag or net?). The figure has the aspect of a flying fox but with arms in place of wings (Motif K-83; Figure 7.374);
- A pair of what appear to be composite fish, with the snout of a Longtom and the body of a forked-tail Catfish (Motifs K-75 and K-76). The extended snouts of both fish bend over the lip of the surface and dip into the central fracture (Figure 7.375). These fish are the only motifs on this panel with extensive infill decoration. The only other bichrome figures are the copulating couple mentioned above (which only have minimal infill) with which these fish appear to be contemporary;
- A clear depiction of a bandicoot in white (Motif K-81; Figure 7.376);
- An unusually sketchy painting of an anthropomorph with unknown implements (Motif K-91; Figure 7.377). This motif is very well preserved and its sketchy technique is reminiscent of the therianthrope (Motif F-154; Figure 7.213) and the white rectangular design of Motif F214 (Figure 7.235); and
- Motif K-91 overlies two white hand stencils (Motif K-84 and 85), the latter of which has an unusual right-angled base below the wrist (Figure 7.377A).

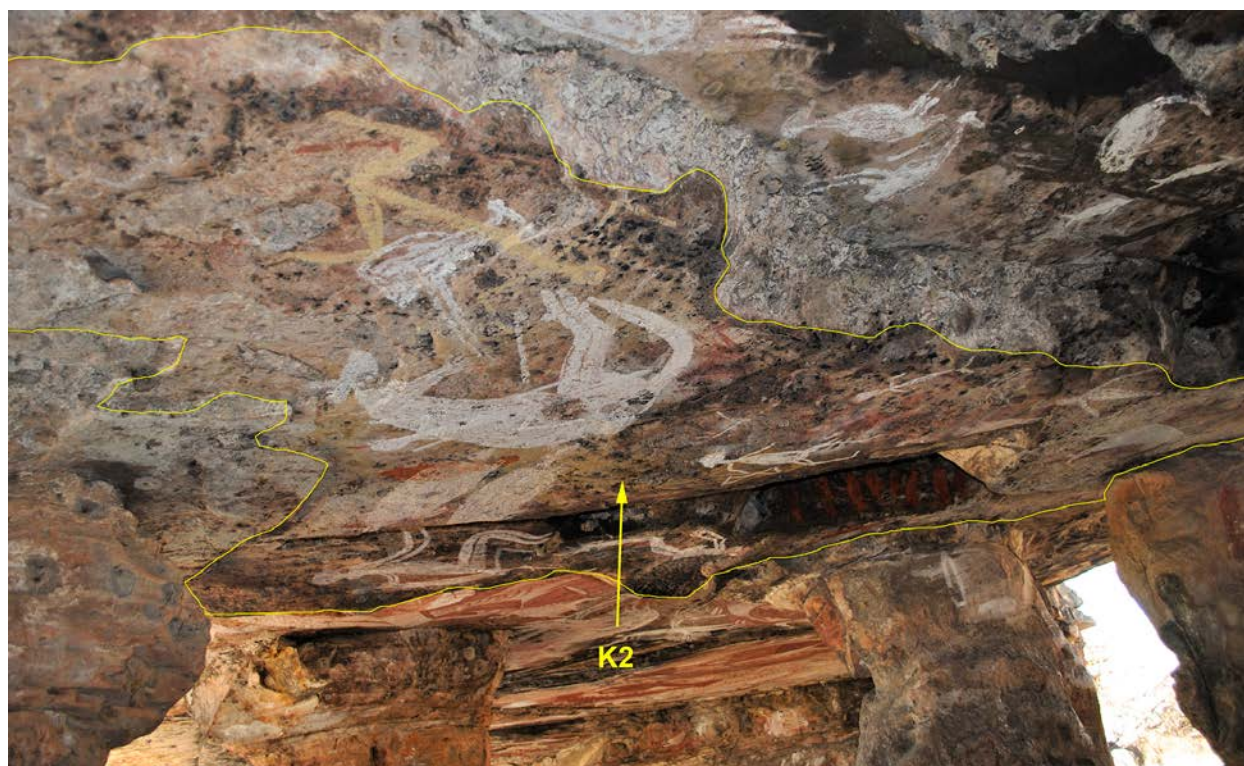


Figure 7.358: Location of Panel K2

Table 7.33: Panel K2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
K-14	yellow	painting	solid+outline+infill	mammal	Macropod female	poor	53	19
K-15	yellow	painting	linear	simple design	Design regular	poor		
K-16	yellow	painting	linear	anthropomorph	Anthropomorph	poor	42	25
K-17	yellow	painting	fragment	fragment	fragment	very poor		
K-18	red	painting	fragment	fragment	fragment	very poor		
K-19	red	painting	fragment	fragment	fragment	very poor		
K-20	red	painting	fragment	fragment	fragment	very poor		
K-21	red	painting	fragment	fragment	fragment	poor		
K-22	red	painting	fragment	fragment	fragment	very poor		
K-23	red	painting	fragment	fragment	fragment	very poor		
K-24	red	painting	outline	simple design	Design apex	poor		
K-25	red	painting	fragment	fragment	fragment	very poor		
K-26	red	painting	fragment	fragment	fragment	very poor		
K-27	red	painting	fragment	fragment	fragment	very poor		
K-28	red	painting	linear	anthropomorph	Anthropomorph	very poor		
K-29	red	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
K-30	red	painting	solid	fragment	fragment	very poor		
K-31	red	painting	fragment	fragment	fragment	very poor		
K-32	yellow+red	painting	solid+outline+infill	reptile	Snake	very poor		
K-33	red	painting	linear	infill	Infill for #K-14	very poor		

K-34	red	painting	fragment	fragment	fragment	very poor		
K-35	red	painting	fragment	fragment	fragment	very poor		
K-36	red	painting	fragment	fragment	fragment	very poor		
K-37	red	painting	fragment	fragment	fragment	very poor		
K-38	red	painting	fragment	fragment	fragment	very poor		
K-39	red	painting	fragment	fragment	fragment	very poor		
K-40	red	painting	fragment	fragment	fragment	very poor		
K-41	red	painting	fragment	fragment	fragment	very poor		
K-42	red	painting	outline+infill	mammal	Echidna	very poor		
K-43	red	painting	outline+infill	object	Dillybag	very poor		
K-44	red	painting	outline+infill	mammal	Macropod female	very poor		
K-45	red	painting	outline+infill	mammal	Macropod	very poor		
K-46	red	painting	linear	fragment	fragment	very poor		
K-47	red	painting	linear	anthropomorph	Anthropomorph	very poor		
K-48	red	painting	solid+linear	fragment	fragment	very poor		
K-49	red	painting	linear	simple design	Design apex	very poor		
K-50	red	painting	fragment	fragment	fragment	very poor		
K-51	red	painting	linear	geometric	V-shape	very poor		
K-52	red	painting	outline+infill	mammal	Macropod male	fair		
K-53	red	painting	linear	geometric	Arc	fair		
K-54	red	painting	linear	object	Object	fair		
K-55	white	spray	stencil	hand	Hand	poor		
K-56	white	painting	fragment	fragment	fragment	very poor		
K-57	white	spray	stencil	hand	Hand	poor		
K-58	white	painting	solid	fish	Fish	good		
K-59	white	painting	solid	geometric	Triangle	very poor		
K-60	red+white	painting	solid+linear	fish	Catfish eel-tailed	good	39	9
K-61	red	painting	outline+infill+linear	fish	Bream	fair	16	4
K-62	red	painting	outline+infill+linear	fish	Bream	good	16	4
K-63	red	painting	outline+infill+linear	fish	Bream	good	16	4
K-64	red	painting	outline+infill+linear	fish	Bream	fair	16	4
K-65	red	painting	outline+infill+linear	fish	Bream	good	16	4
K-66	red	painting	outline+infill+linear	fish	Bream	good	16	4
K-67	red	painting	outline+infill+linear	fish	Bream	good	16	4
K-68	red	painting	outline+infill+linear	fish	Bream	fair	16	4
K-69	red	painting	solid	unknown	Unknown	fair		
K-70	red	painting	outline+infill+linear	anthropomorph	Anthropomorph	fair		
K-71	red	painting	solid	fish	Bream	good	27	10
K-72	yellow	painting	outline+infill+linear	anthropomorph	Anthropomorph	poor		
K-73	yellow	painting	linear	geometric	Line	good		

K-74	white +red	painting	solid+outline+infill	anthropomorph	Copulating couple	fair	88	42
K-75	cream +red	painting	solid+outline+infill	fish	Fish	fair	59	18
K-76	cream +red	painting	solid+outline+infill	fish	Fish	fair	53	19
K-77	cream	painting	linear+outline	anthropomorph	Anthropomorph	good	50	28
K-78	white	spray	stencil	hand	Hand left	good		
K-79	white	spray	stencil	hand	Hand left	good		
K-80	white	spray	stencil	hand	Hand left	poor	mf 7.5	
K-81	white	painting	solid	mammal	Bandicoot	good	56	26
K-82	white	painting	outline+infill	unknown	Unknown	good	39	24
K-83	white	painting	solid+linear	therianthrope	Macropod-headed	fair	39	21
K-84	white	spray	stencil	hand	Hand left	good	mf 6.0	
K-85	white	spray	stencil	hand	Hand left	fair	mf 6.5	
K-86	white	painting	solid+linear	mammal	Macropod+spear	good	67	52
K-87	white	painting	outline+infill	bird	Jabiru	good	35	24
K-88	white	painting	linear	geometric	Bar	good		
K-89	white	painting	solid+linear	unknown	Unknown	good	35	8
K-90	white	painting	solid+linear	anthropomorph	Anthropomorph	excellent	73	27
K-91	white	painting	solid+linear	anthropomorph	Anthropomorph	excellent	45	28
K-92	white	painting	solid+linear	anthropomorph	Anthropomorph	excellent	26	10
K-93	white	painting	linear	geometric	V-shape	excellent	15	8
K-94	white	painting	solid+linear	anthropomorph	Anthropomorph male	excellent	55	17
K-95	white	painting	linear	geometric	Bar	good		
K-158	yellow	painting	linear	simple design	Design irregular	very poor		
K-159	red	painting	solid	fish	Fish	poor		
K-160	white	painting	linear	geometric	Bar	good		
K-161	white	drawing	linear	simple design	Design irregular	fair		
K-162	white	painting	linear+outline	anthropomorph	Genitals male	good		
K-163	pink	painting	linear	geometric	Bar	very good		
K-164	pink	painting	outline	geometric	Oval	very good		
K-165	red	painting	linear	infill	Infill for #K-16	very poor		
K-166	yellow	painting	solid	fragment	fragment	very poor		
K-167	yellow	painting	linear	geometric	Arc	poor		



Figure 7.359: Panel K2 photomosaic
A and B: recessed pockets in the ceiling X-X: distortion

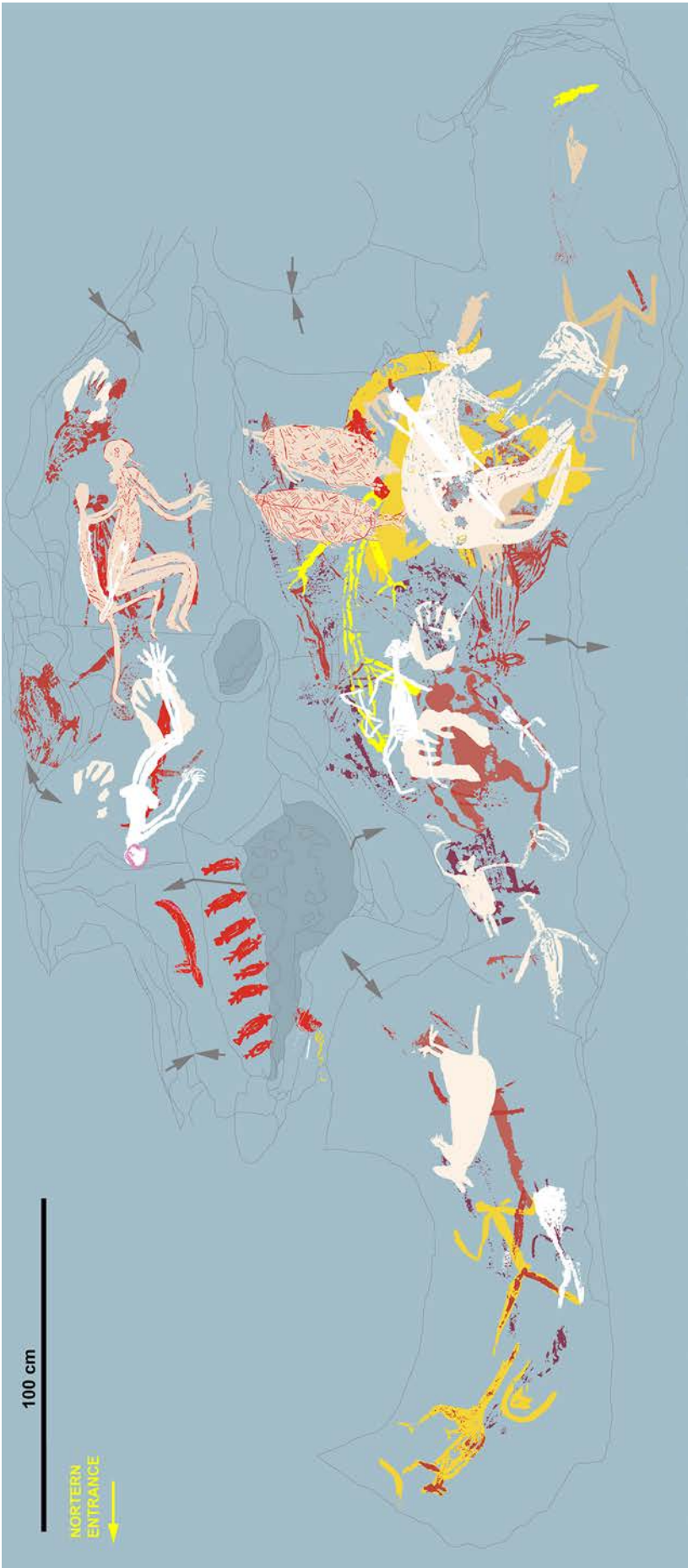


Figure 7.360: Panel K2 photo-tracing



Figure 7.361: Panel K2 motif interpretations (i)

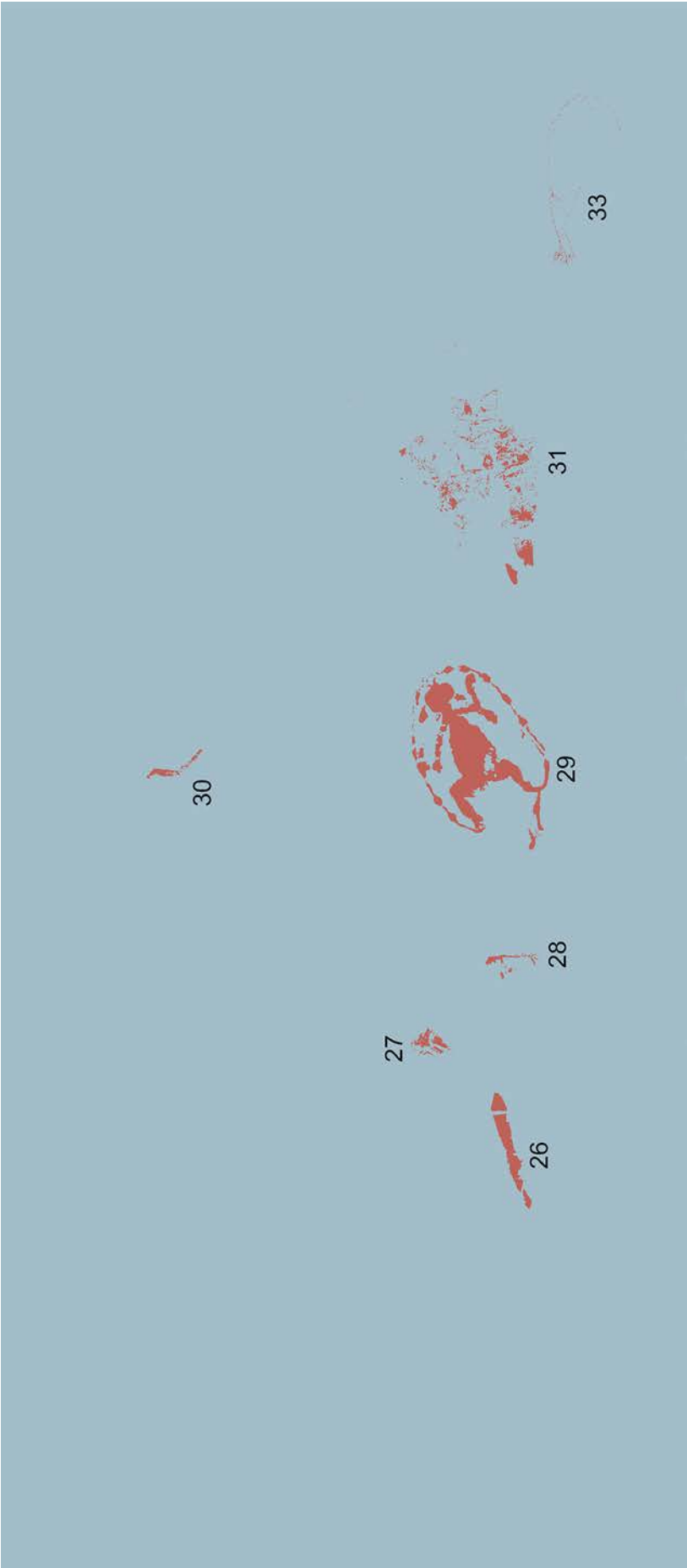


Figure 7.362: Panel K2 motif interpretations (ii)

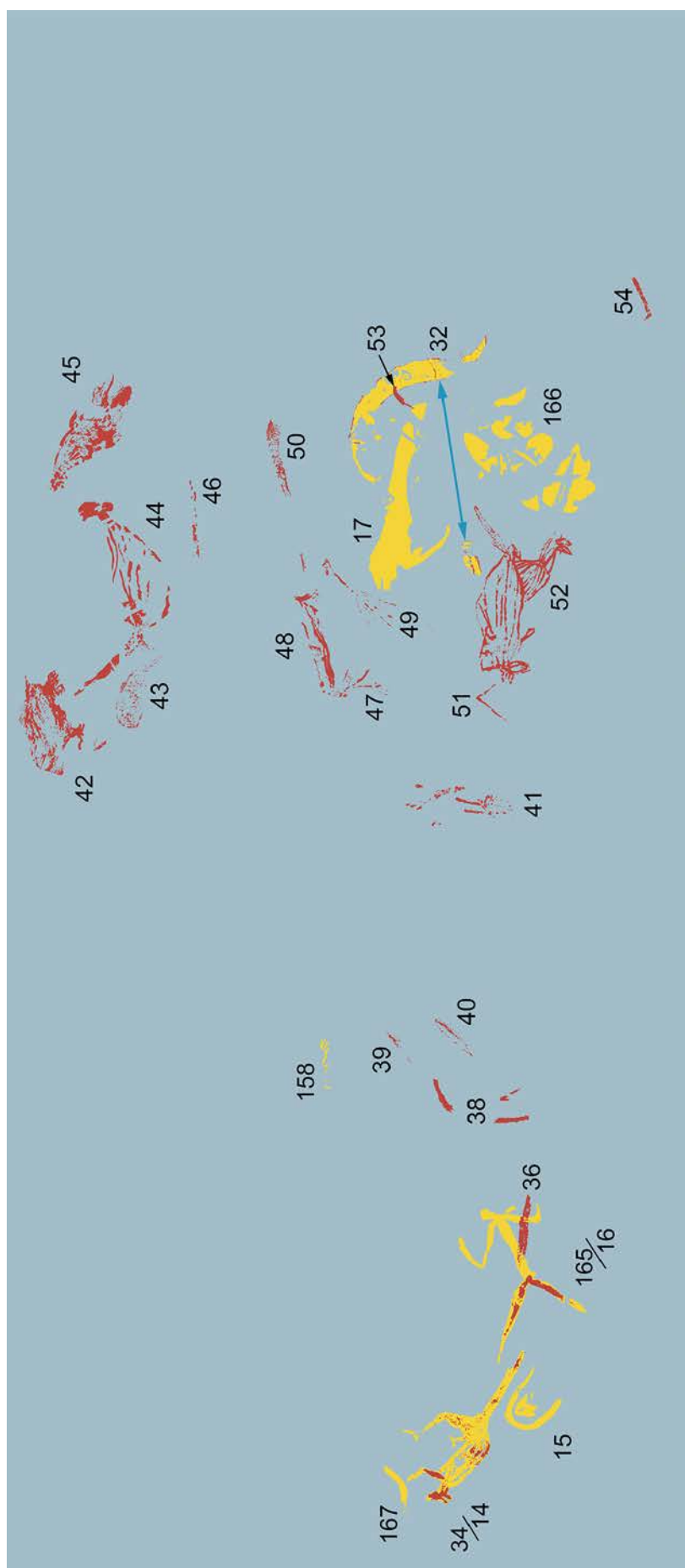


Figure 7.363: Panel K2 motif interpretations (iii)

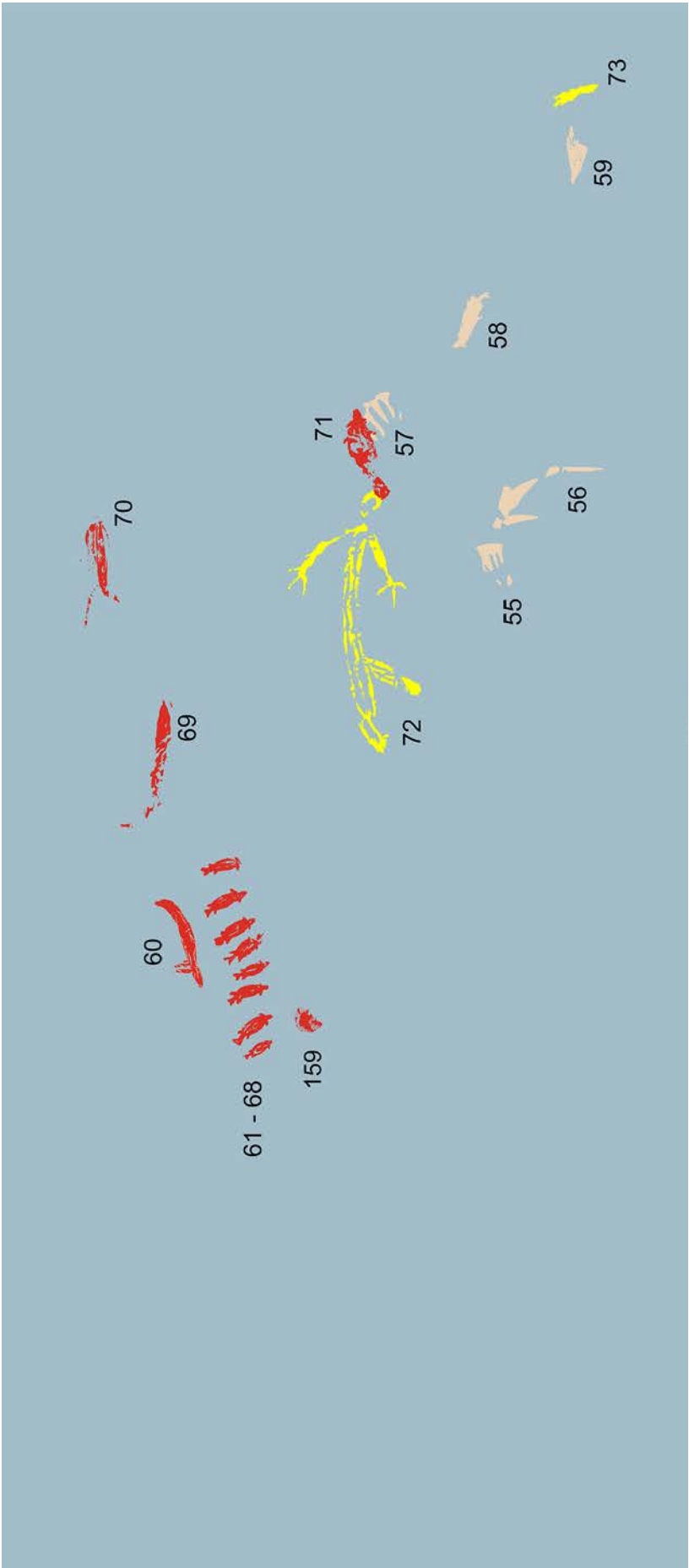


Figure 7.364: Panel K2 motif interpretations (iv)

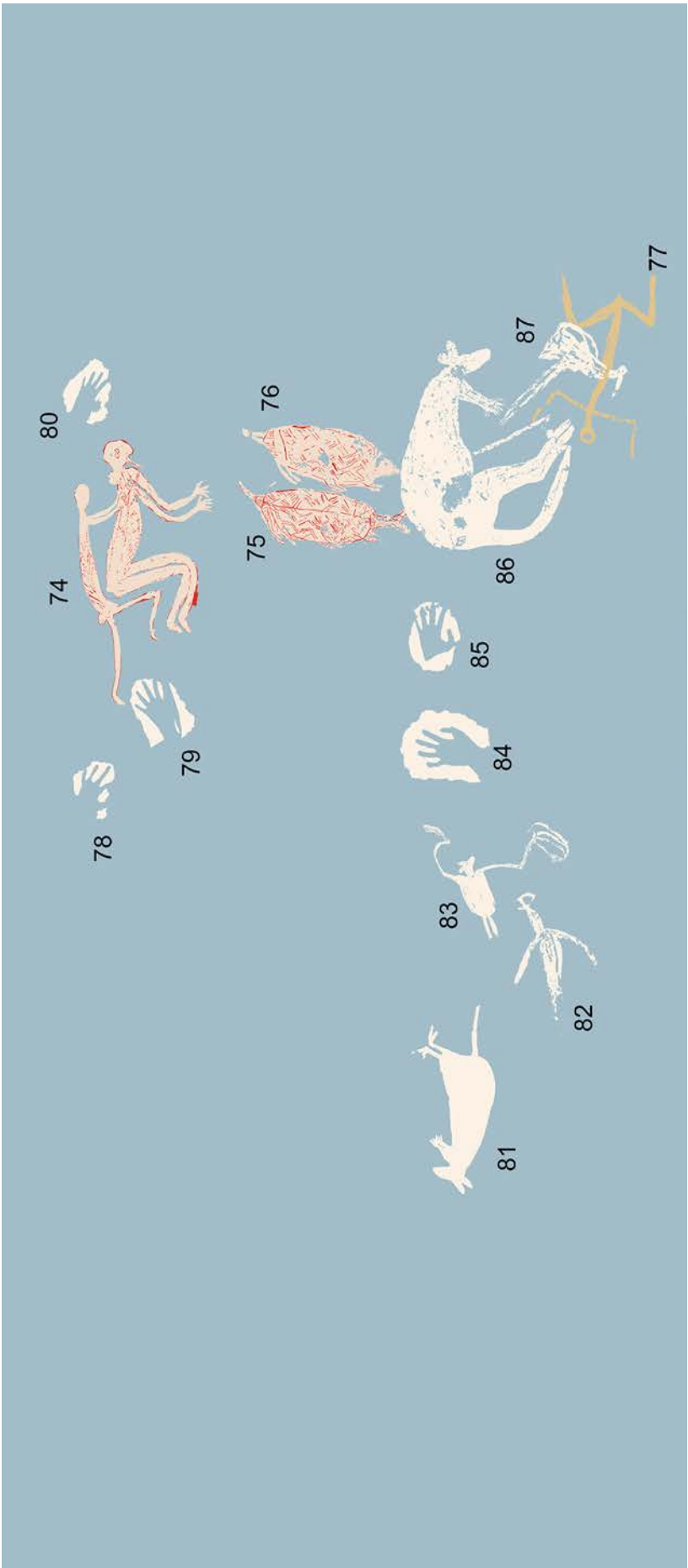


Figure 7.365: Panel K2 motif interpretations (v)

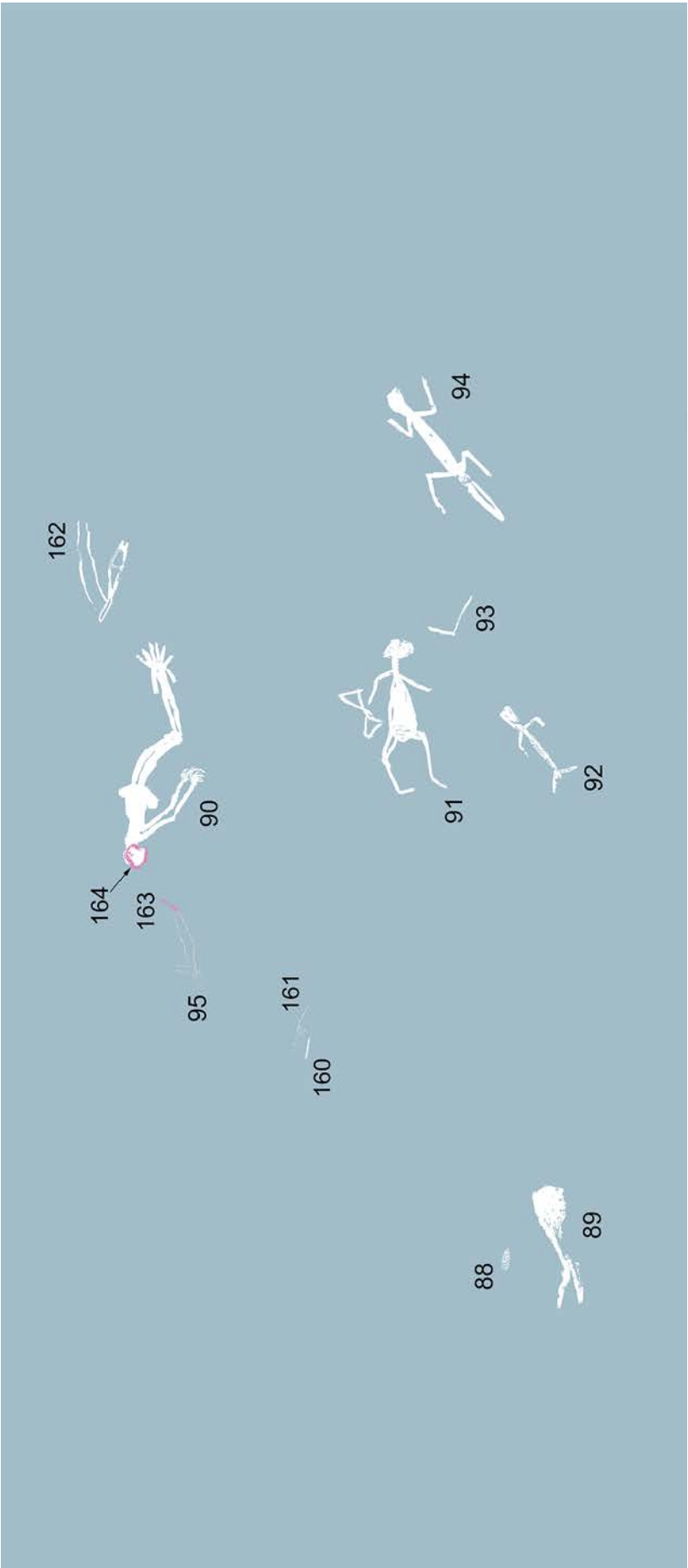


Figure 7.366: Panel K2 motif interpretations (vi)



Figure 7.367: Well preserved row of red fish on the eastern wall of the ceiling fracture (Motifs K-61 to 68)

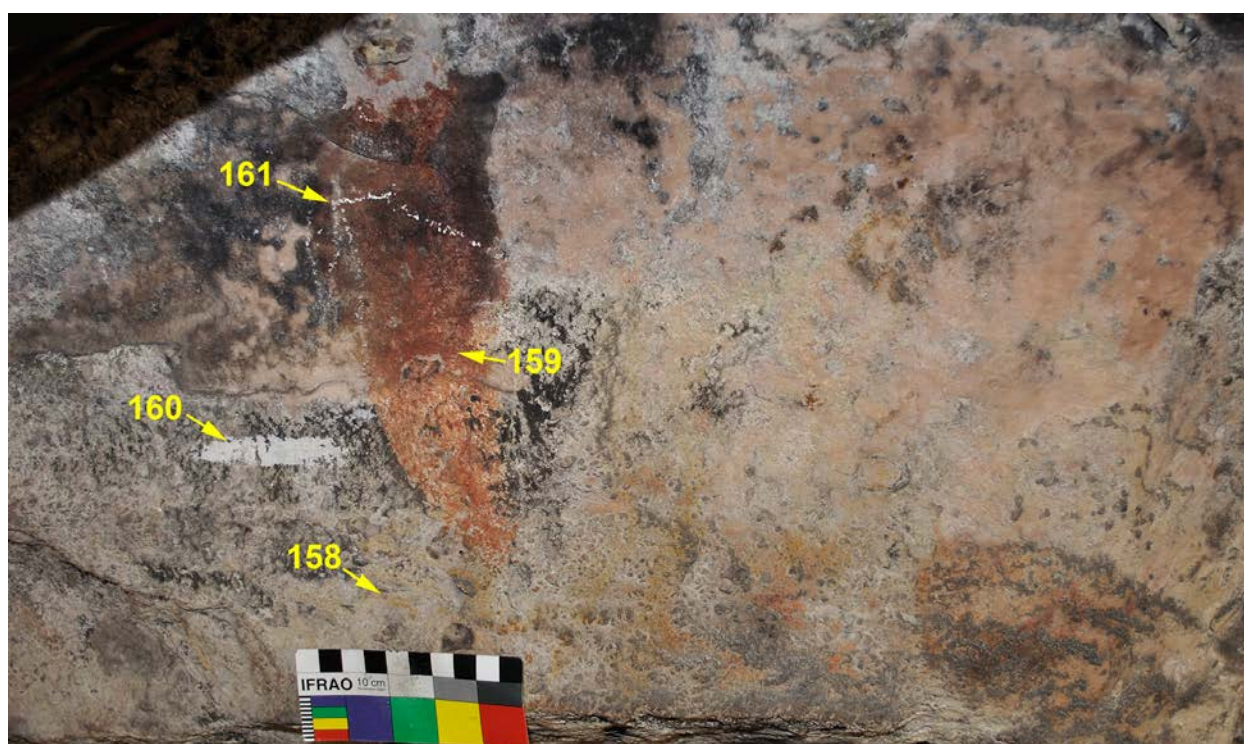


Figure 7.368: Poorly preserved motifs on the western wall of the fracture (Motifs K-158 to 161)



Figure 7.369: Red fish (Motif K-60) re-outlined in white dry pigment (Motif K-95) and then both over-painted by a pink line (Motif K-163)



Figure 7.370: Copulating couple motif (Motif K-74) to which an enlarged penis (Motif K-162) was added at some later time

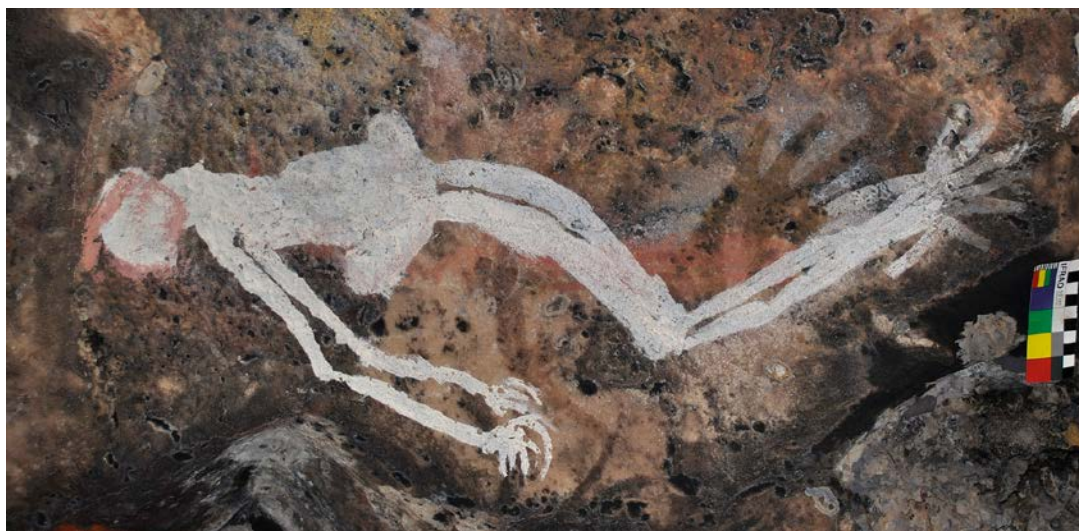


Figure 7.371: Head of anthropomorph (Motif K-90) subsequently outlined in pink (Motif K-164)



Figure 7.372: White anthropomorph overlying white speared macropod (motifs K-94 and K-86 respectively)

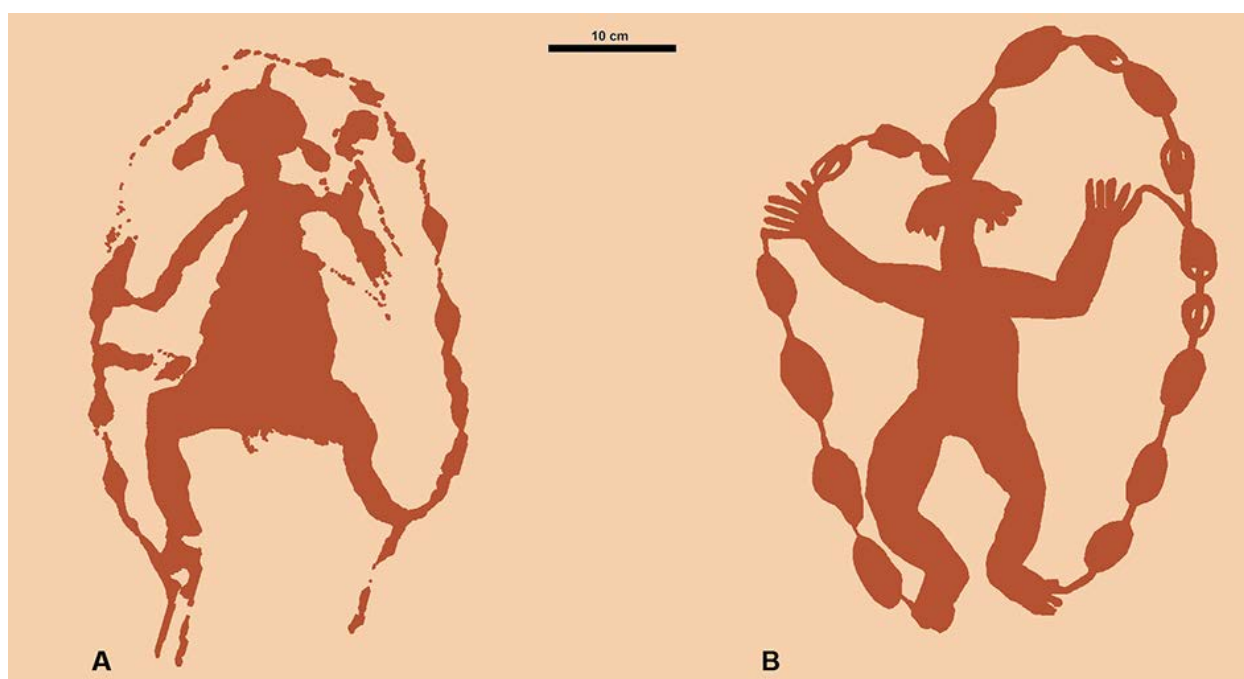


Figure 7.373: Similar anthropomorph depictions from two site complexes 10 km apart (ARN-074 and ARN-105 respectively)



Figure 7.374: Flying fox therianthrope with implements (Motif K-83)



Figure 7.375: Pair of composite fish (Motifs K-75 and 76)



Figure 7.376: A clear depiction of a bandicoot (Motif K-81)

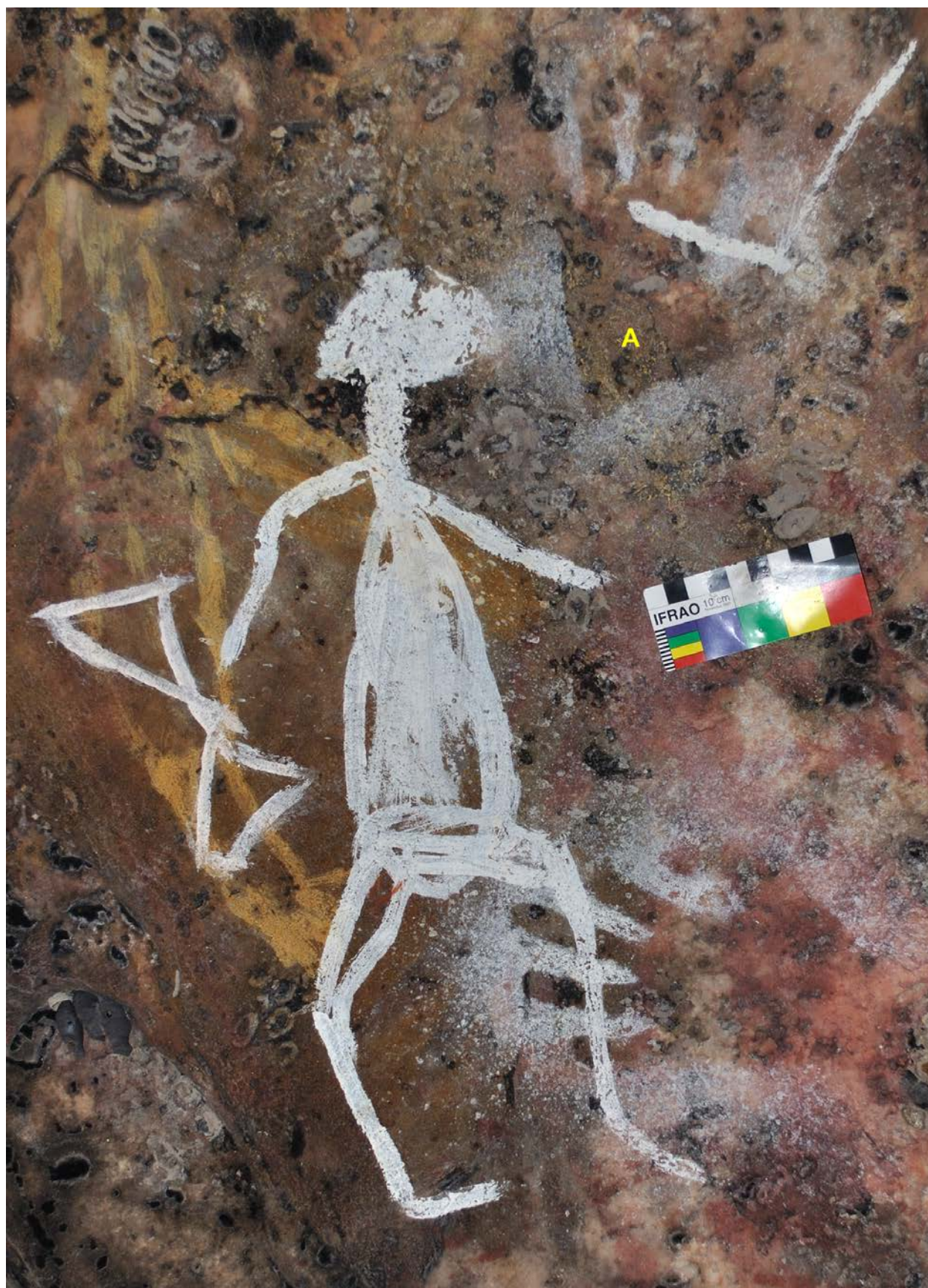


Figure 7.377: Sketchy anthropomorph with implement (Motif K-91) and unusual hand stencil (A: Motif K-85)

Panel K3

Panel K3 (Figures 7.378 and 7.379) is large and roughly rectangular in shape, measuring 3.8 × 2.0 m. Like the surface of the adjacent Panel K2, the surface of Panel K3 is pock-marked with numerous small cavities and divided by a major fracture with a central recessed pocket (Figure 7.380).

Panel K3 has 38 motifs (Table 7.34; Figures 7.381 to 7.385) of which 35 (92%) could be classified by Motif Type. The artwork is mostly concentrated at the southern (or inner) half of the panel, where the surface

is less pock-marked. There is no overall consistency in motif alignment and all but one of the motifs occur as monochrome motifs. The exception is a white brolga that at some stage has had a red dot applied to the position of the eye (Motif K-126).

The largest motif, Motif K-110 (128 cm tall; Figure 7.386), is placed in isolation on the eastern side of the panel (Figure 7.381). This anthropomorph is encircled by a 'string', with two axe-like objects protruding from its head (see Chapter 9). From their similar pigment colour and states of preservation, two long-necked turtles (Motifs K-108 and K-109) were probably painted

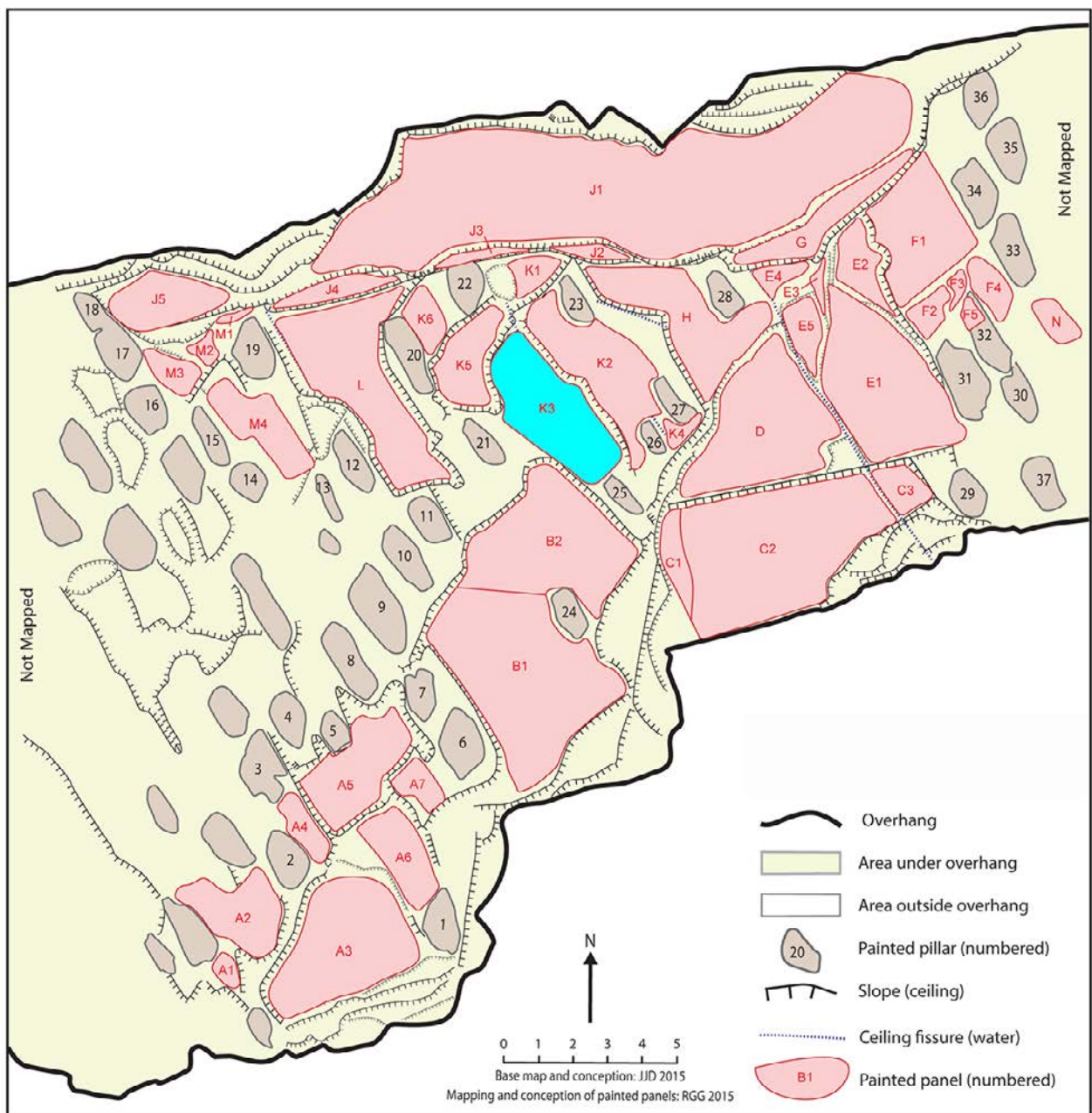


Figure 7.378: Location of Panel K3

at the same time as Motif K-110, but there is no clear compositional association between the two groups.

A second large yellow figure (Motif K-106) occurs on the opposite side of the panel and faces the opposite direction (Figures 7.381 and 7.387). This complex figure, however, is painted in a different hue of yellow and has a different form to Motif K-110. In contrast, it does appear to be contemporary with other faint yellow figures (Motifs K-103 to 105) at the southern end of the panel (Figure 7.383).

In common with several other panels at this site, a cream-coloured macropod (Motif K-113) has its feet extending beyond the margin of the panel and twisting down onto the adjacent bridge (Figure 7.388). Similarly, the neck and head of a white brolga (with a red eye; Motif K-126) have been placed to break away from the plane of the body by stretching up into one of the ceiling cavities (Figure 7.389). A bi-pronged multi-barbed spear (Motif K-127) has been placed over the brolga suggestive of it being speared. While multi-pronged spearheads such as this one tend to be generally associated with fishing spears, on the Arnhem Land plateau they were also used for general hunting (cf. Chaloupka 1993: 148).

Other motifs of interest include:

- Two therianthropes; one with a macropod head (Motif K-100) and one with the body of a snake (Motif K-98) (Figure 7.390);
- An anthropomorph with a 'bent' torso (Motif K-125; Figure 7.391);
- An unusual composition of two white motifs, a jabiru and an unknown bird species (Motifs K-121 and K-122), placed upside-down and head to tail to each other (Figure 7.392);
- A copulating couple in white (Motif K-129; Figure 7.393). The pose is reminiscent of that of the couple on Panel K2 (Motif K-74) but this version is smaller and lacks any red infill patterning;
- A pair of possums in red (Motifs K-172 and K-173); and
- A painting of a short-necked turtle in white. This painting is in excellent condition and clearly shows the brushwork throughout (Motif K-128; Figure 7.394).

Depictions of turtles, which elsewhere occur in small numbers, are the most frequent motif type on this panel (n= 6) among the better preserved artwork.

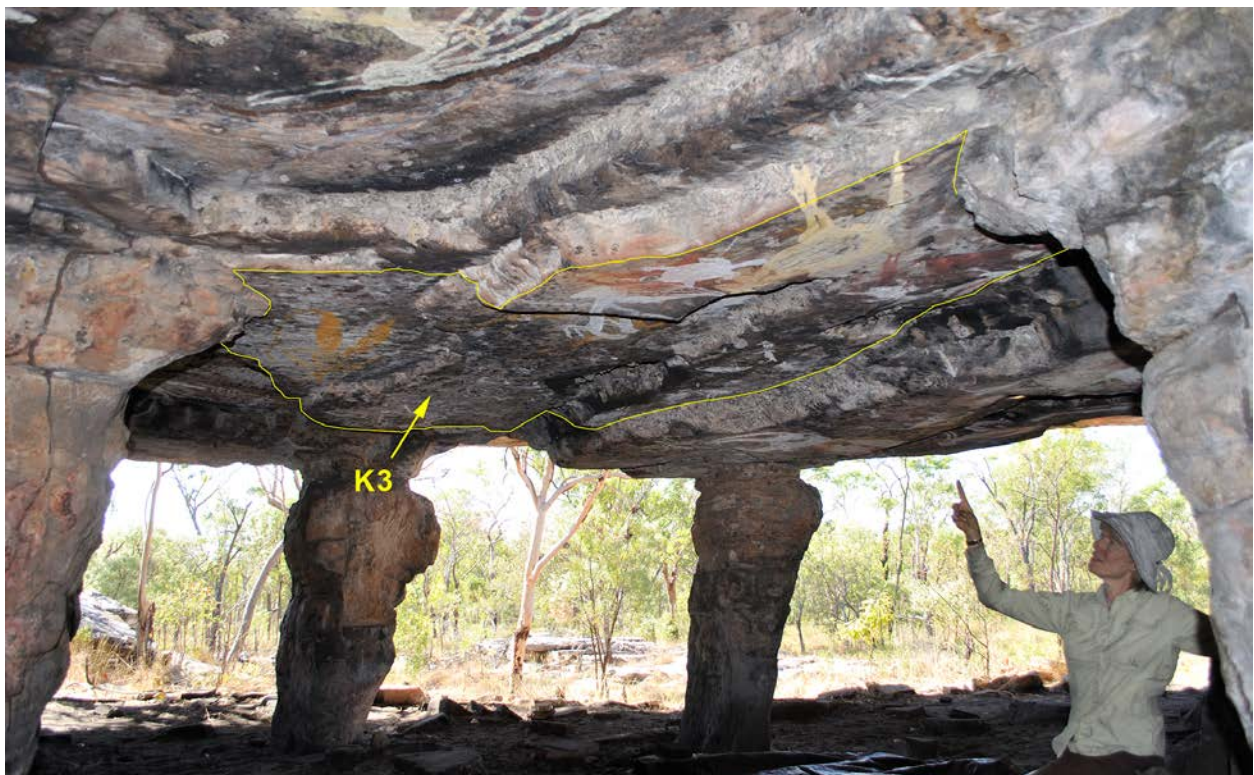


Figure 7.379: Location of Panel K3

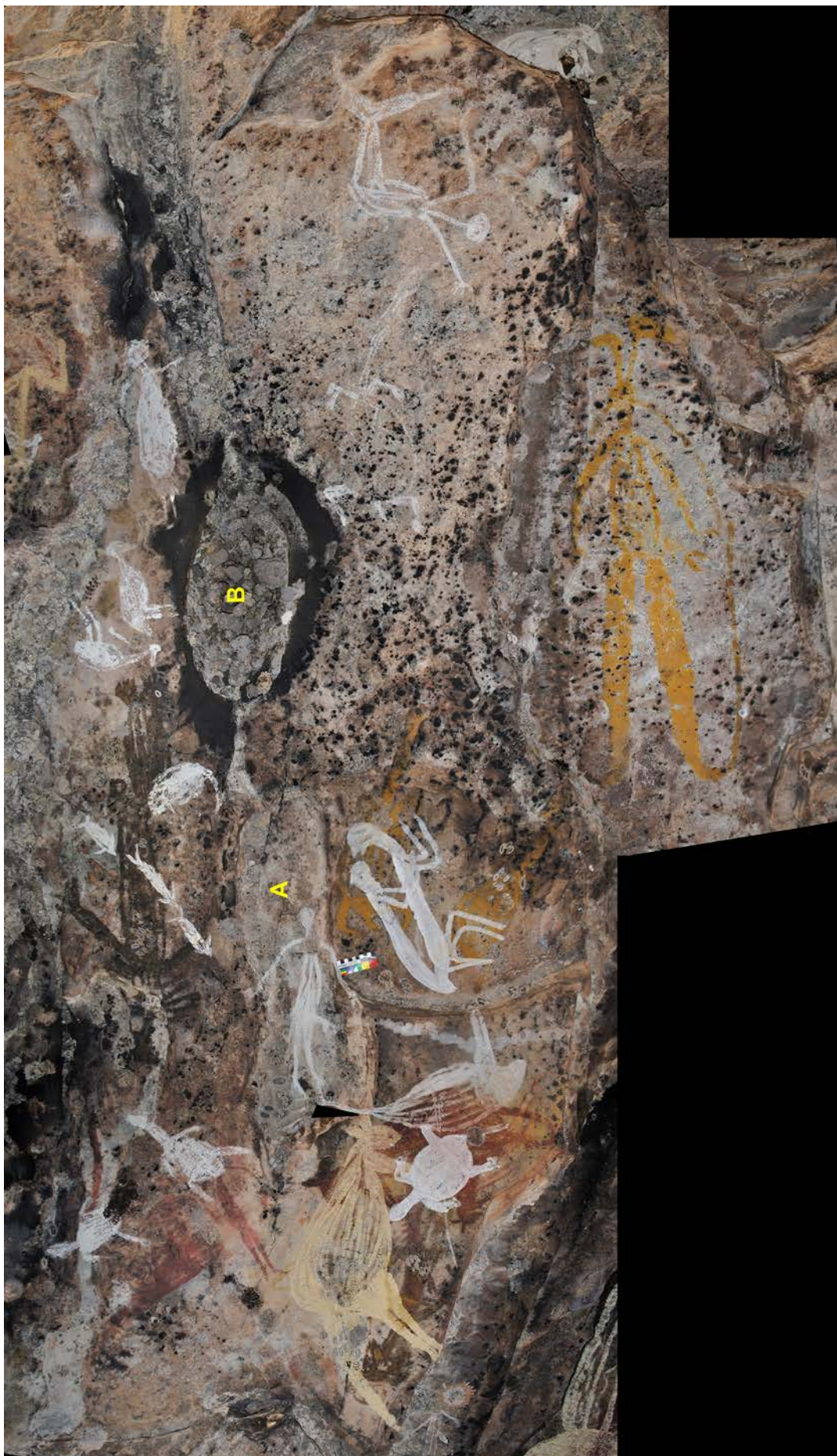


Figure 7.380: Panel K3 photomosaic
A and B: recessed pockets in ceiling

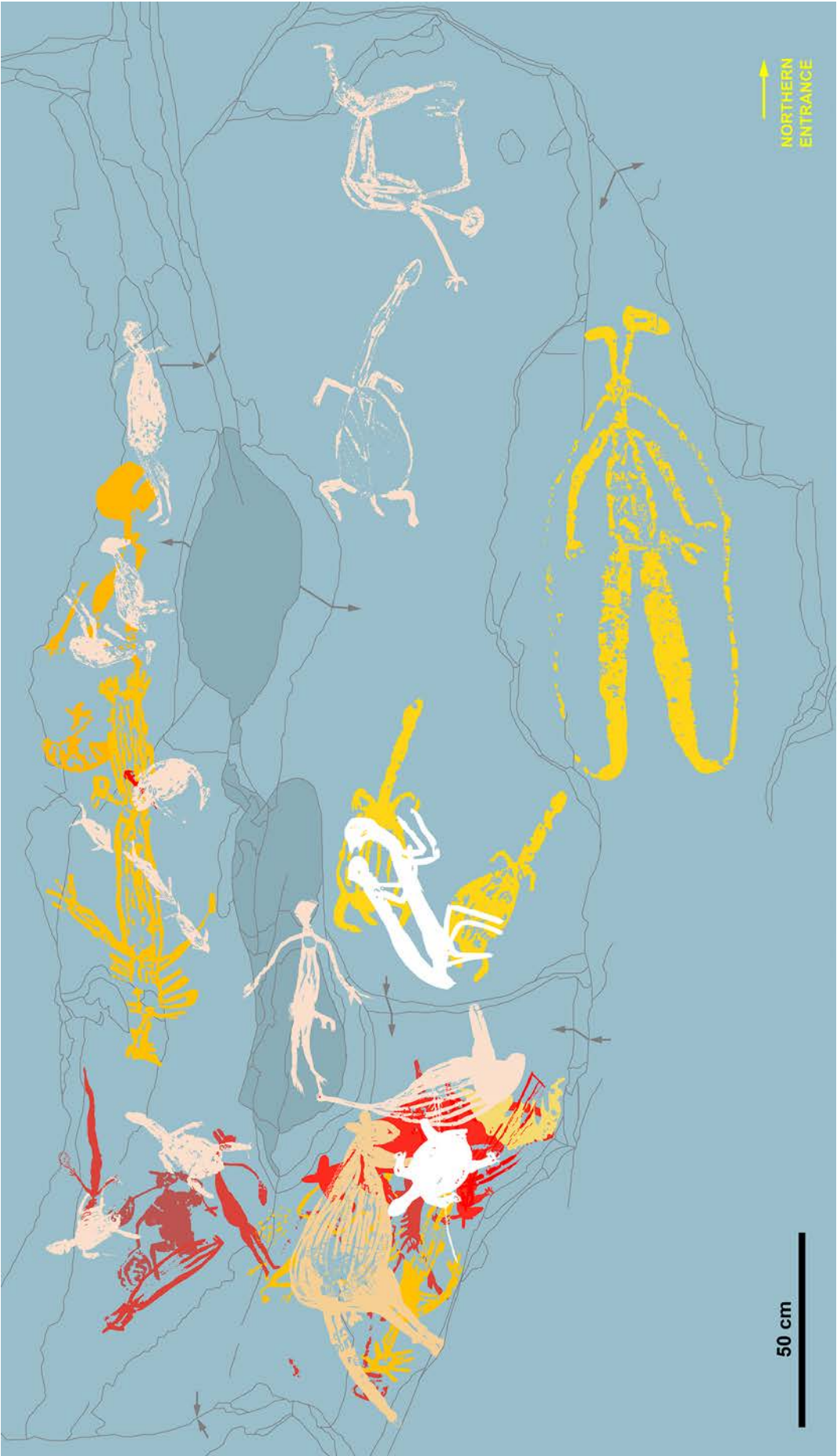


Figure 7.381: Panel K3 photo-tracing

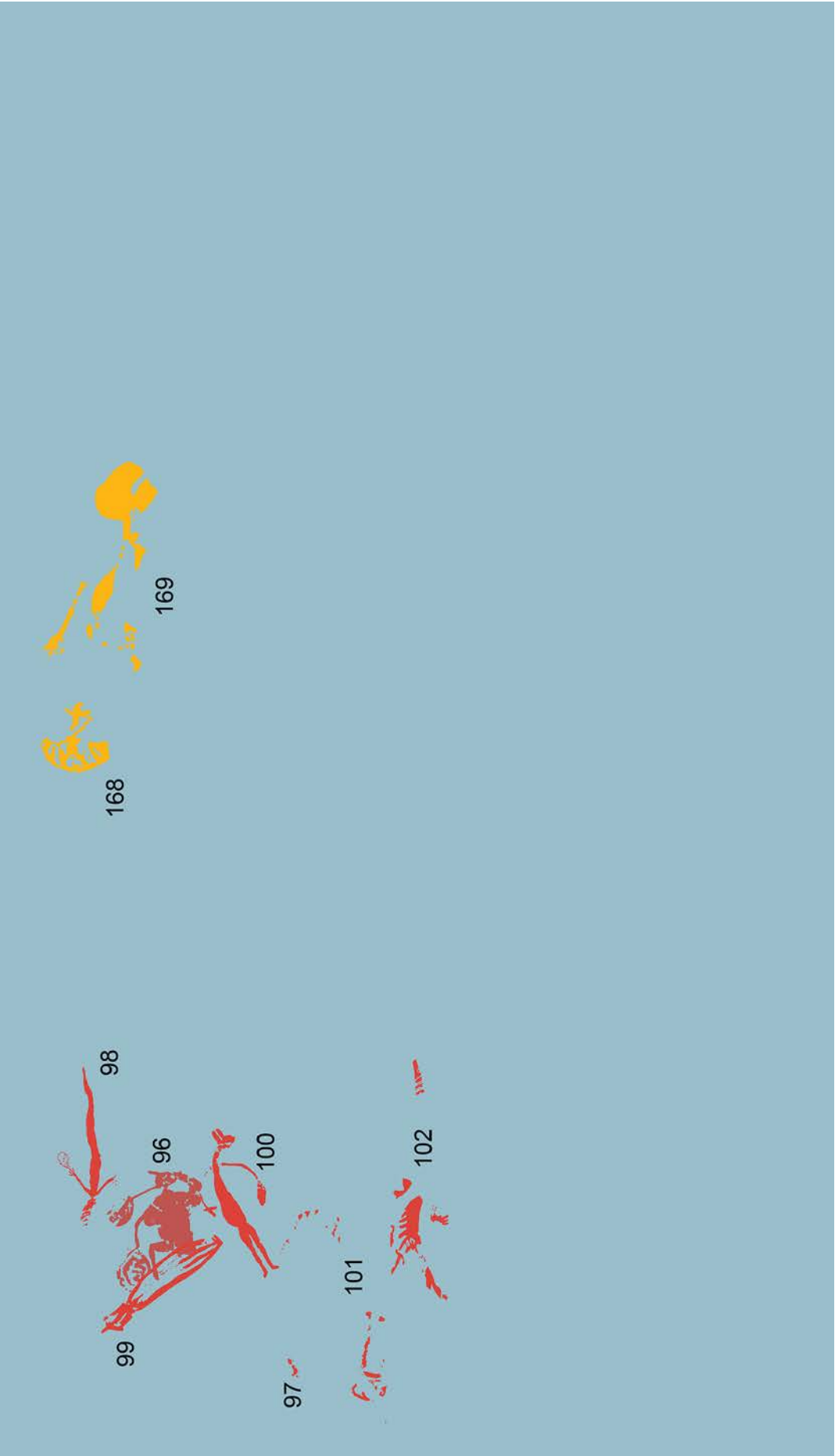


Figure 7.382: Panel K3 motif interpretations (i)

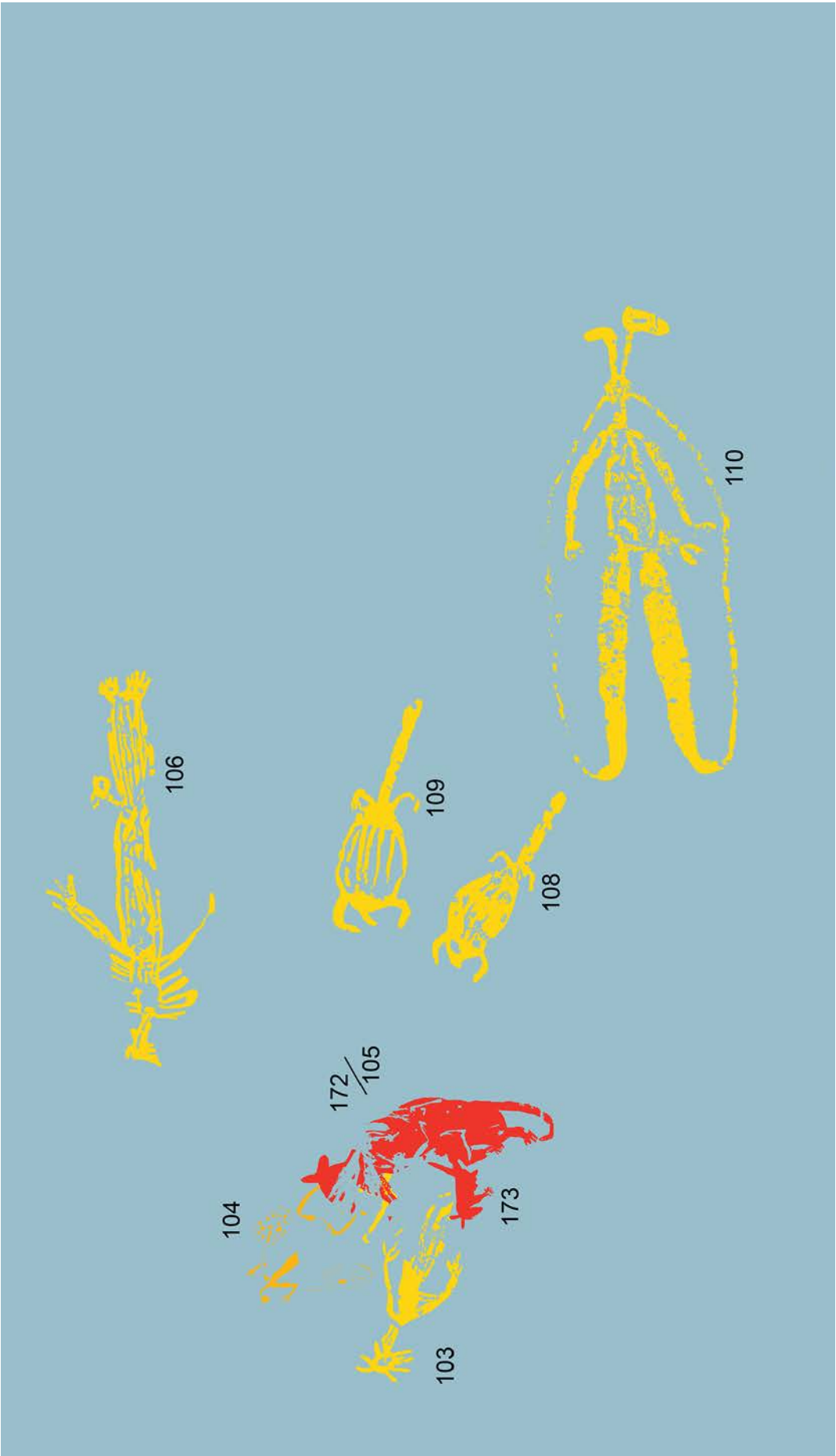


Figure 7.383: Panel K3 motif interpretations (ii)

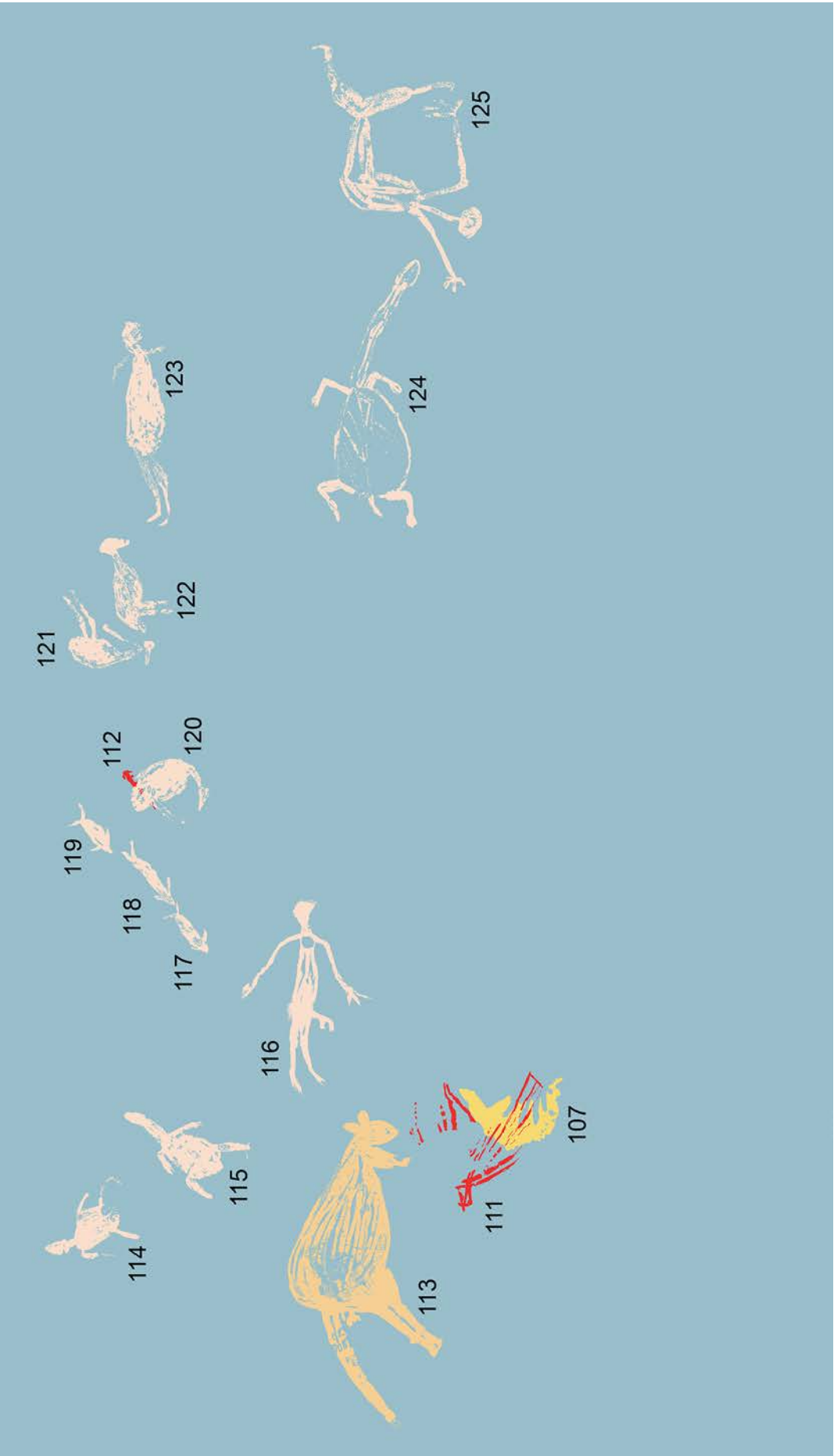


Figure 7.384: Panel K3 motif interpretations (iii)

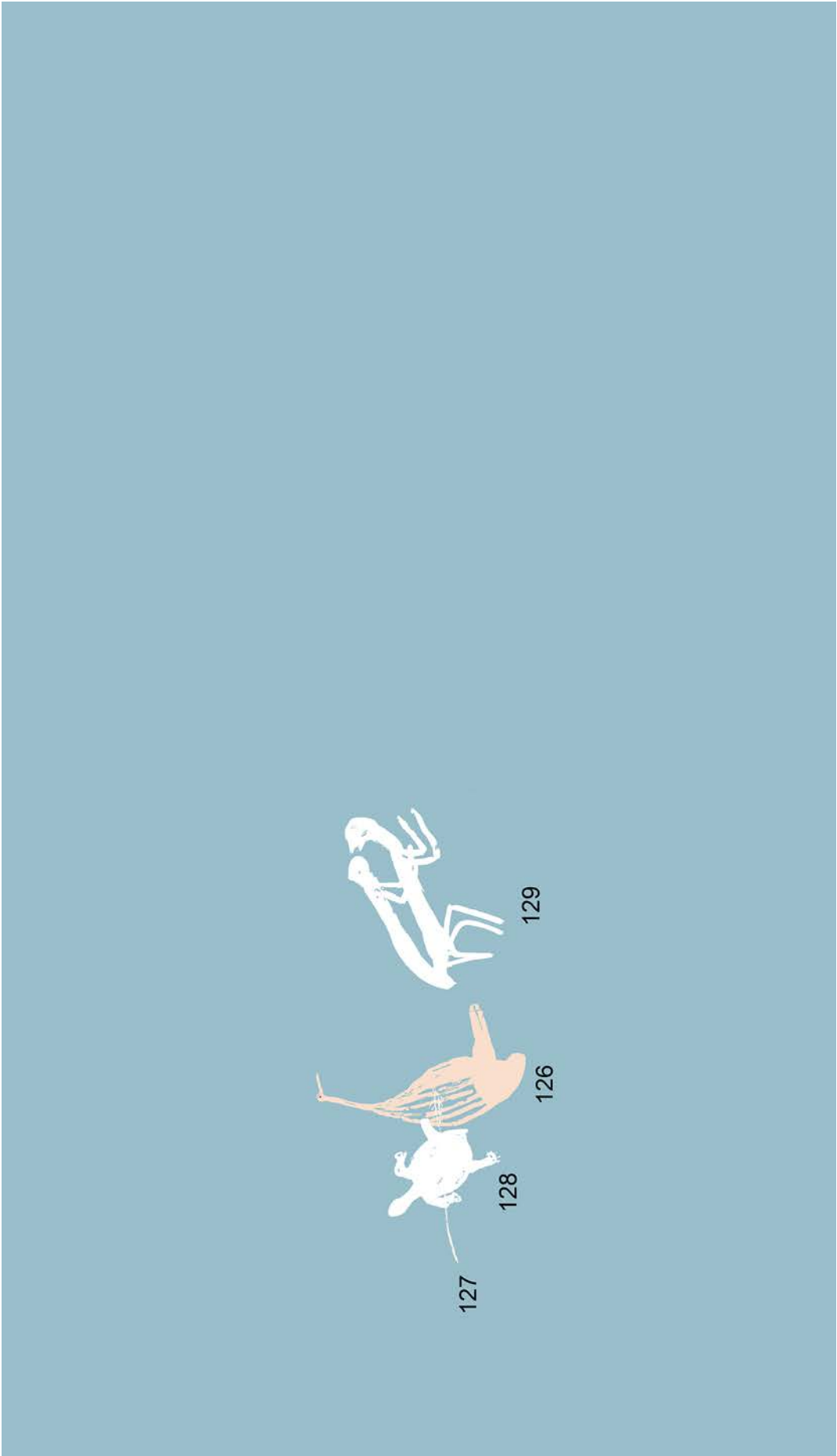


Figure 7.385: Panel K3 motif interpretations (iv)

Table 7.34: Panel K3 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
K-96	red	painting	solid+linear	anthropomorph	Anthropomorph female	very poor		
K-97	red	painting	linear	geometric	Bar	poor		
K-98	red	painting	solid+linear	therianthrope	Snake-body	poor	42	12
K-99	red	painting	outline+infill	simple design	Design regular	very poor		
K-100	red	painting	solid+linear	therianthrope	Macropod-headed	poor	34	15
K-101	red	painting	fragment	fragment	fragment	very poor		
K-102	red	painting	solid	reptile	Crocodile	very poor		
K-103	yellow	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
K-104	yellow	painting	linear+outline+infill	anthropomorph	Anthropomorph	very poor		
K-105	yellow	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
K-106	yellow	painting	outline+infill	anthropomorph	Anthropomorph	very poor	105	48
K-107	yellow	spray	stencil	hand	Hand right	fair		
K-108	yellow	painting	solid+outline+infill	reptile	Turtle long-necked	fair	54	17
K-109	yellow	painting	solid+outline+infill	reptile	Turtle long-necked	fair	58	19
K-110	yellow	painting	solid+outline+infill	anthropomorph	Anthropomorph male	fair	128	48
K-111	red	painting	outline+infill	fragment	fragment	poor		
K-112	red	painting	linear	geometric	Line	fair		
K-113	cream	painting	solid+outline+infill	mammal	Macropod male	good	83	50
K-114	white	painting	solid+linear	reptile	Turtle short-necked	good	25	15
K-115	white	painting	solid+linear	reptile	Turtle long-necked	good	33	16
K-116	white	painting	outline+infill+linear	anthropomorph	Anthropomorph male	good	51	13
K-117	white	painting	solid+linear	fish	Fish	good	15	5
K-118	white	painting	solid+linear	fish	Fish	good	20	6
K-119	white	painting	solid+linear	fish	Fish	good	14	6
K-120	white	painting	solid+linear	bird	Emu	good	20	16
K-121	white	painting	solid+linear	bird	Jabiru	good	29	13
K-122	white	painting	solid+linear	bird	Bird	good	26	16
K-123	white	painting	solid+linear	anthropomorph	Anthropomorph	good	60	23
K-124	white	painting	outline+infill+linear	reptile	Turtle long-necked	good	70	23
K-125	white	painting	outline+infill+linear	anthropomorph	Anthropomorph	good	81	43
K-126	white+red	painting	solid+outline+infill	bird	Emu	good	55	30
K-127	white	painting	linear	object	Spear	good		
K-128	white	painting	solid	reptile	Turtle short-necked	excellent	38	23
K-129	white	painting	solid+linear	anthropomorph	Copulating couple	excellent	52	26
K-168	yellow	painting	outline+infill+linear	bird	Bird	very poor		
K-169	yellow	painting	solid+linear	unknown	Unknown	very poor		
K-172	red	painting	solid	mammal	Possum	poor		
K-173	red	painting	solid	mammal	Possum	poor		

Panel K4

Panel K4 (Figures 7.395 to 7.397) is a small and triangular in shape, measuring 0.6×0.6 m along its axes, wedged between the tops of two pillars. The panel surface is smooth but stepped at the outer (southern) end. A band of white salt fringes the inner margins of the panel and part of the outer margin has been flaked.

Panel K4 has eight motifs (Table 7.35; Figure 7.398) of which five could be classified to Motif Type. Four of the motifs (Motifs K-132 to K-135) extend beyond

the edge of the panel up onto an inclined face at the top of a supporting pillar. The inclined face is a separate plane to that of the bridge between this pillar and another. All four of these motifs are very weathered.

The only outstanding motif on the panel is a centrally placed, black beeswax figure in very good condition (Motif K-137; Figure 7.399). Among the other motifs there is an apex-form simple design (Motif K-136), a small profile echidna (Motif K-131), and a faint yellow stencil of a right hand (Motif K-130).

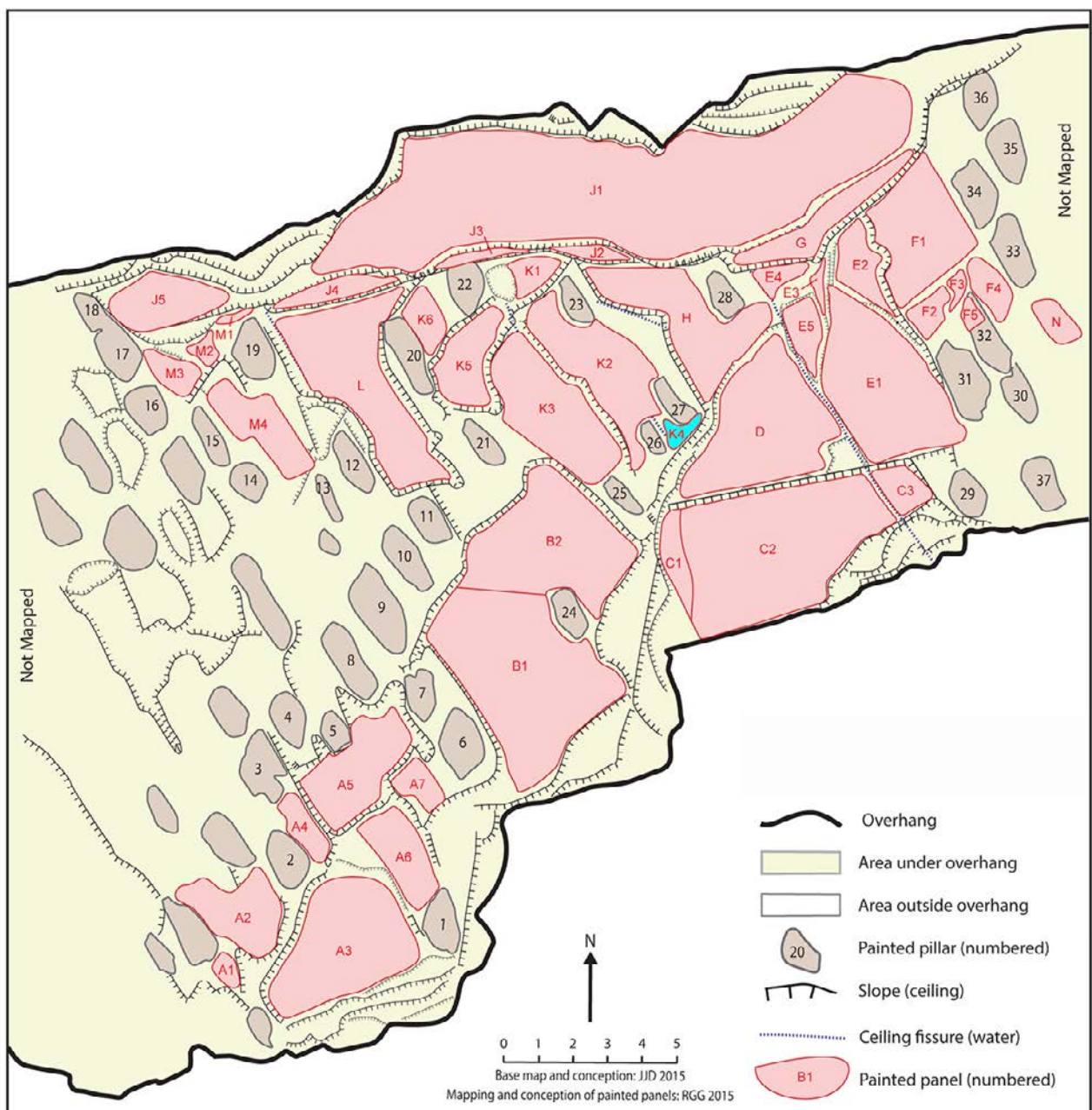


Figure 7.395: Location of Panel K4



Figure 7.396: Location of Panel K4

Table 7.35: Panel K4 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
K-130	yellow	spray	stencil	hand	Hand right	very poor		
K-131	red	painting	outline+linear	mammal	Echidna	very poor		
K-132	red	painting	linear	fragment	fragment	very poor		
K-133	red	painting	outline+infill	unknown	Unknown	very poor		
K-134	red	painting	fragment	fragment	fragment	very poor		
K-135	red	painting	outline+infill	fragment	fragment	very poor		
K-136	yellow	painting	linear	simple design	Design apex	poor		
K-137	black	appliqué	linear	anthropomorph	Anthropomorph	very good	15	13

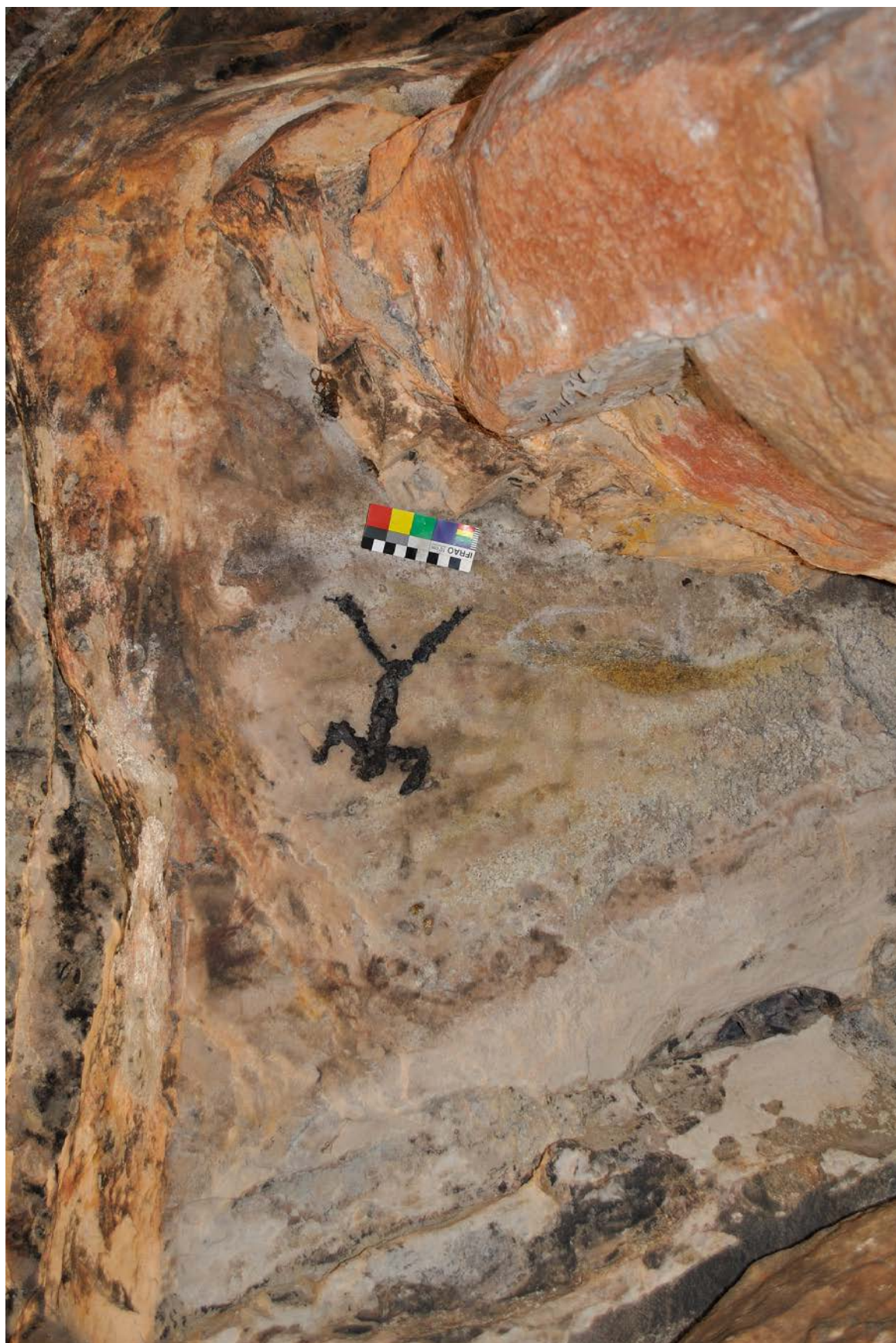


Figure 7.397: Panel K4 photograph

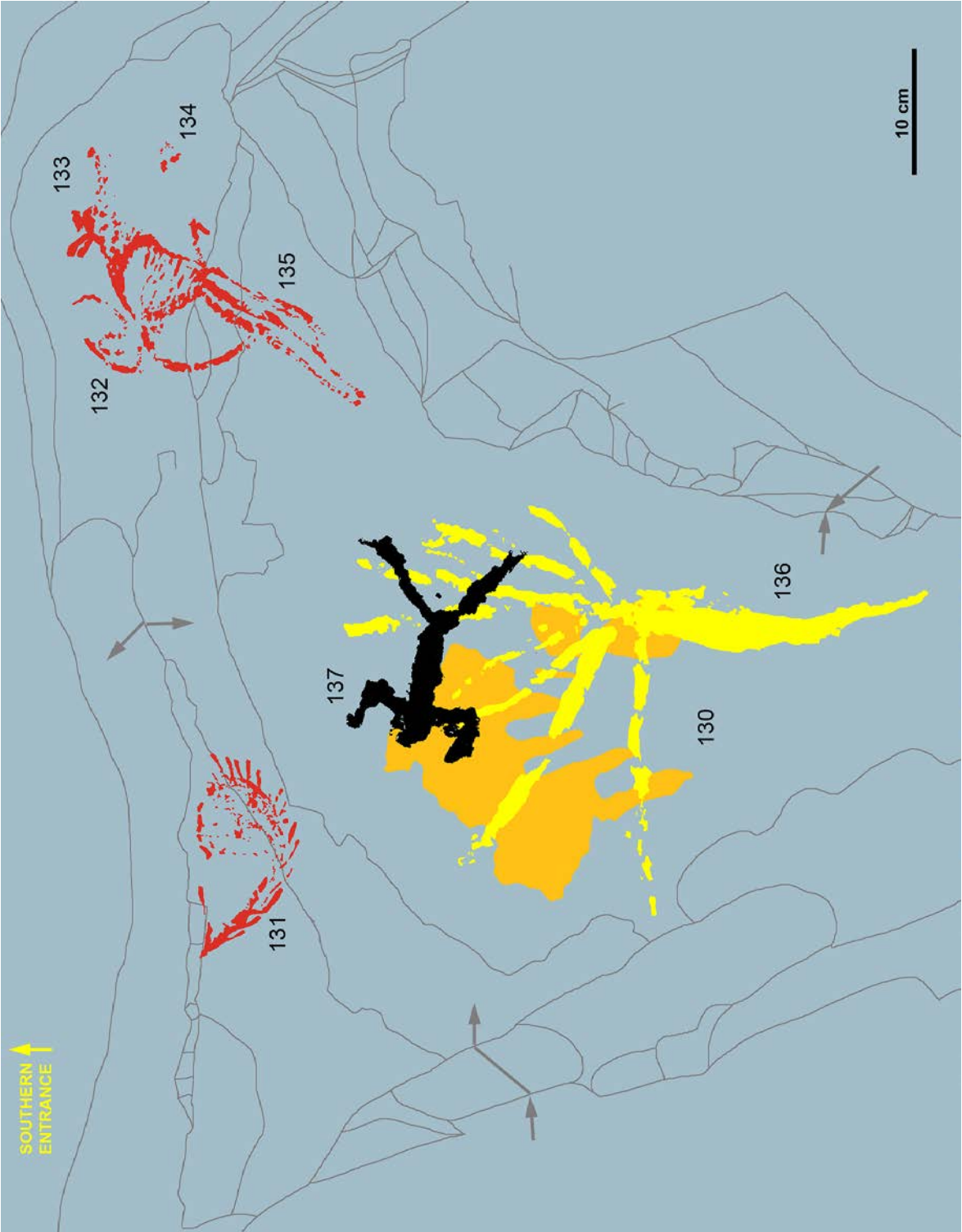


Figure 7.398: Panel K4 photo-tracing and interpretation



Figure 7.399: Beeswax figure Motif K-137

Panel K5

Panel K5 (Figures 7.400 to 7.403) is roughly rectangular in shape and measures 2.3 × 1.2 m. The panel has a central cavity that has been used as an art surface and an extensive surface salt deposit that has been avoided (Figure 7.402). The surface is flat but with an irregular texture.

Panel K5 has 17 motifs (Table 7.36; Figures 7.406 to 7.408) of which 15 (88%) could be classified to Motif Type. The motifs are widely dispersed on all suitable surfaces but with the most towards the southern, inner end of the panel (Figure 7.404).

The dominant figure is that of a female anthropomorph with elementary X-ray features and fine infill cross-

hatching (Motif K-167; Figures 7.407 and 7.408). The figure is outlined in an orange-red, while the infill, added later, is in a deep red. The eyes of the figure have been painted in what appears to be an unusual variation on the 'Y-eye' pattern (where the eye stems join to make a Y-shape in the face that then connects with backbone; cf. Gunn and Whear 2007: 17). The other motif with detailed infill is a long-necked turtle (Motif K-149), although here the pattern of infill is completely different, being a variant of the chevron pattern (Figure 7.409). The pattern is comparable, but more detailed, to that depicted on the pair of composite fish (Motifs K-75 and 76) on Panel K2 (Figure 7.375).

The small macropod, Motif K-146, has been positioned and carefully composed to fit within a natural oval-

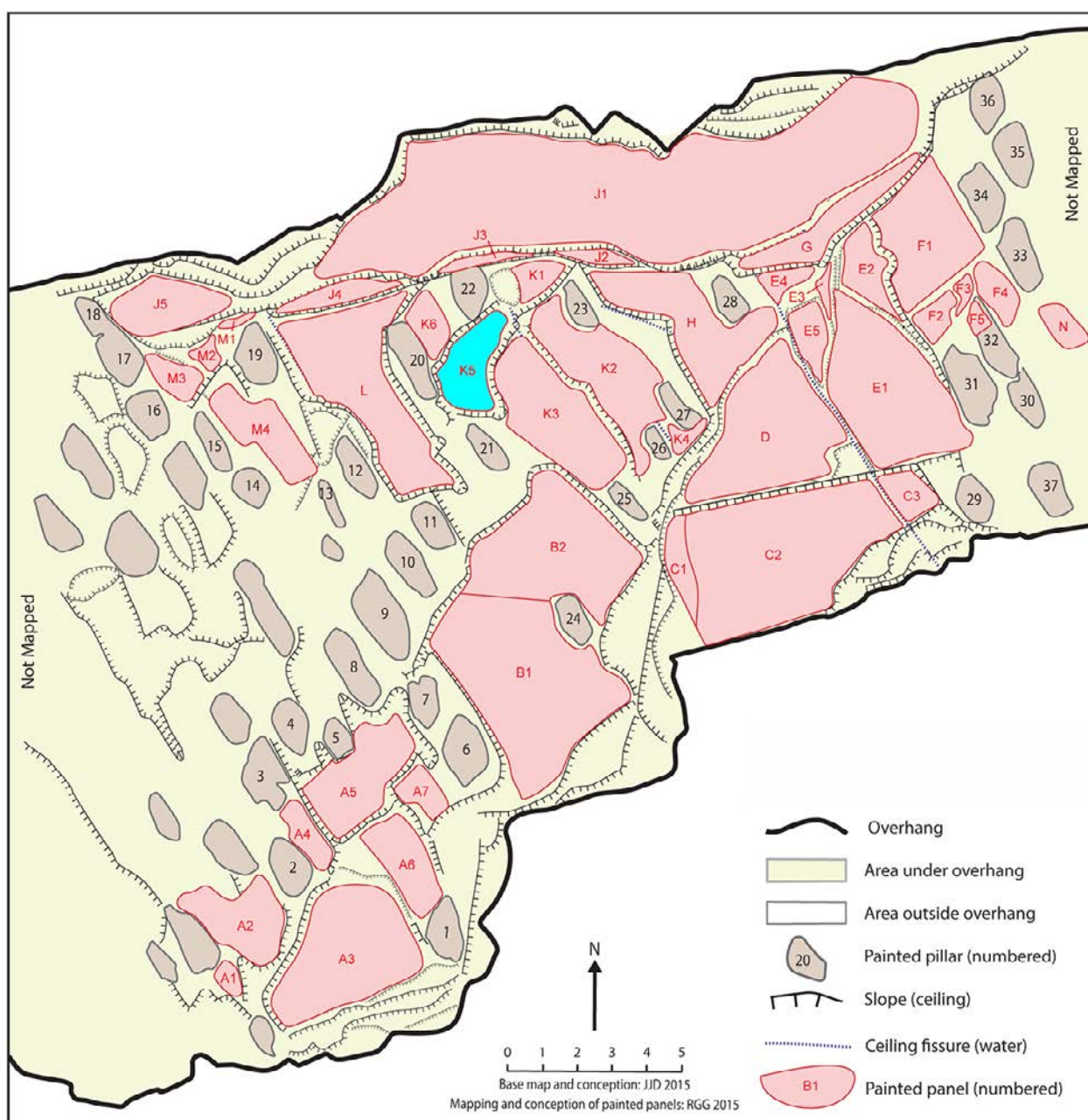


Figure 7.400: Location of Panel K5



Figure 7.401: Location of Panel K5

Table 7.36: Panel K5 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
K-138	red	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
K-139	red	painting	fragment	fragment	fragment	very poor		
K-140	red	painting	outline+infill	anthropomorph	Anthropomorph female	very poor		
K-141	red	painting	fragment	fragment	fragment	very poor		
K-142	cream+white	painting	solid+outline	reptile	Turtle long-necked	fair	63	26
K-143	white	painting	outline+infill+linear	reptile	Turtle long-necked	poor		
K-144	white	painting	solid	unknown	Unknown	fair		
K-145	white	drawing	outline+infill	simple design	Design irregular	fair		
K-146	white	painting	solid	mammal	Macropod	good	36	36
K-147	white	painting	solid	anthropomorph	Anthropomorph male	fair	40	29
K-148	white	spray	stencil	hand	Hand right	poor		
K-149	white+red	painting	solid+outline+infill	reptile	Turtle long-necked	good	43	23
K-150	white	painting	outline+infill	object	Dillybag	very good	76	26
K-151	white	painting	outline+infill	object	Dillybag	very good	44	15
K-152	white	painting	solid	fish	Catfish eel-tailed	good	29	9
K-171	white+yellow+red	painting	solid+outline+infill	anthropomorph	Anthropomorph female	good	78	32
K-172	white	spray	stencil	hand	Hand left	very good	mf 7.5	

shaped cavity within the panel's ceiling (Figure 7.410). One of the animal's ears has been placed obliquely to avoid the salt concretion, while the other is painted in its upright position and over the deposit. Such distinctly composed use of a natural formation is uncommon at

Nawarla Gabarnmang, and where it occurs at other Jawoyn sites, such enclosed positioning is generally restricted to hand stencil placement. Two white dillybags with slash-dotted infill, Motifs K150 and K-151, are in an excellent state of preservation (Figure 7.411).

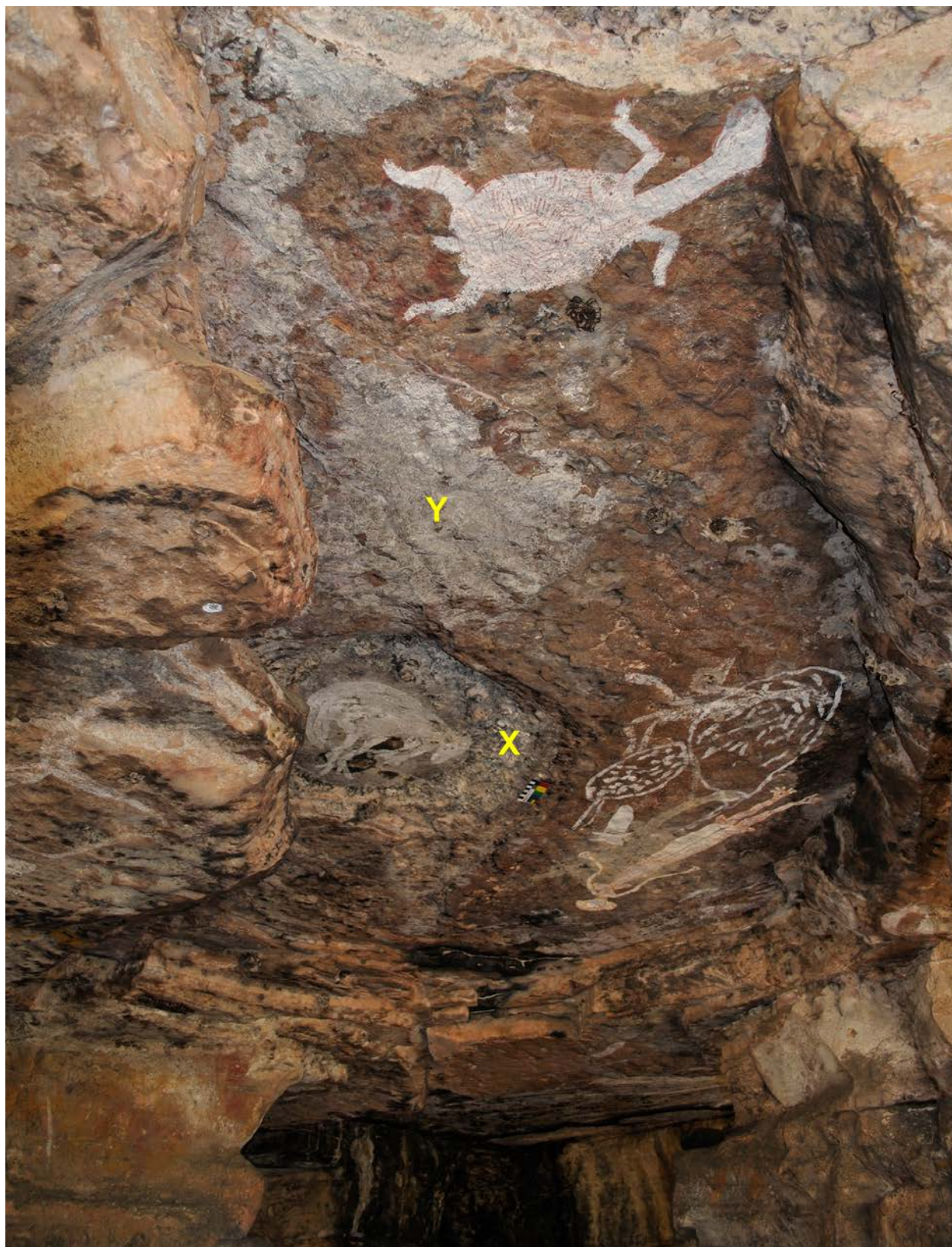


Figure 7.402: Oblique view of Panel K5 showing cavity (X) and extensive salt deposit (Y)



Figure 7.403: Panel K5 photomosaic



Figure 7.404: Panel K5 photo-tracing

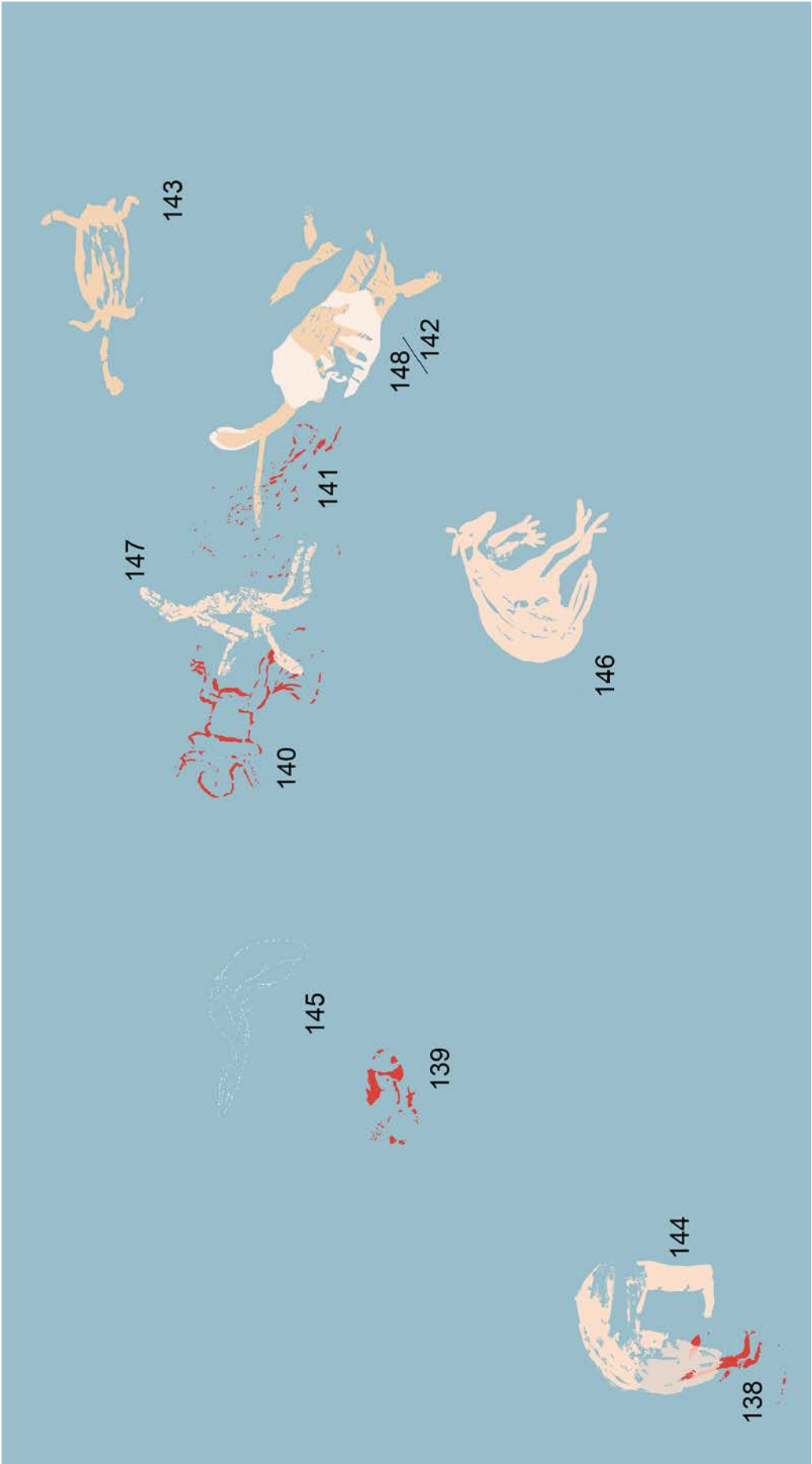


Figure 7.405: Panel K5 motif interpretations (i)



Figure 7.406: Panel K5 motif interpretations (ii)



Figure 7.407: Polychrome female figure with elementary X-ray features (Motif K-171)



Figure 7.408: Motif K-171 detailing the eye pattern



Figure 7.409: Turtle (Motif K-149) with highly patterned infill
A: Flash photograph B: DStretch_yre10



Figure 7.410: Macropod (Motif K-146) painted to fit within the smooth surface of a natural cavity



Figure 7.411: Dillybags (Motifs K-150 and K-151) in excellent condition

Panel K6

Panel K6 (Figures 7.412 to 7.414) is roughly rectangular in shape, measuring 1.3 × 0.8 m. The surface is textured by broad ripple-marks and an extensive thin salt deposit. The outer (northern) margin has been extensively flaked and, prior to the production of the current artwork, the northern third of the panel surface has been subject to extensive exfoliation.

Panel K6 has five motifs (Table 7.37; Figures 7.415 to 7.417) of which four could be classified to Motif Type. Visually, the panel is dominated by two large anthropomorphs, both occupying the full length of the available space. The more recent of these

anthropomorphs is a female in white with yellow and red outline and infill (Motif K-155; Figure 7.416), while the earlier is a male in red monochrome (Motif K-154; Figure 7.417). The more recent motif (Motif K-155), however, is very poorly preserved and is less visible than the earlier, underlying, red figure (Motif K-154).

The ears of the macropod (Motif K-157; Figure 7.417) are now unclear but it is possible that they originally extended beyond the margins of the panel but have not preserved.

A small catfish in white (Motif K-156; 21 cm long) has been painted at the very inner (southern) edge of the panel (Figure 7.414).

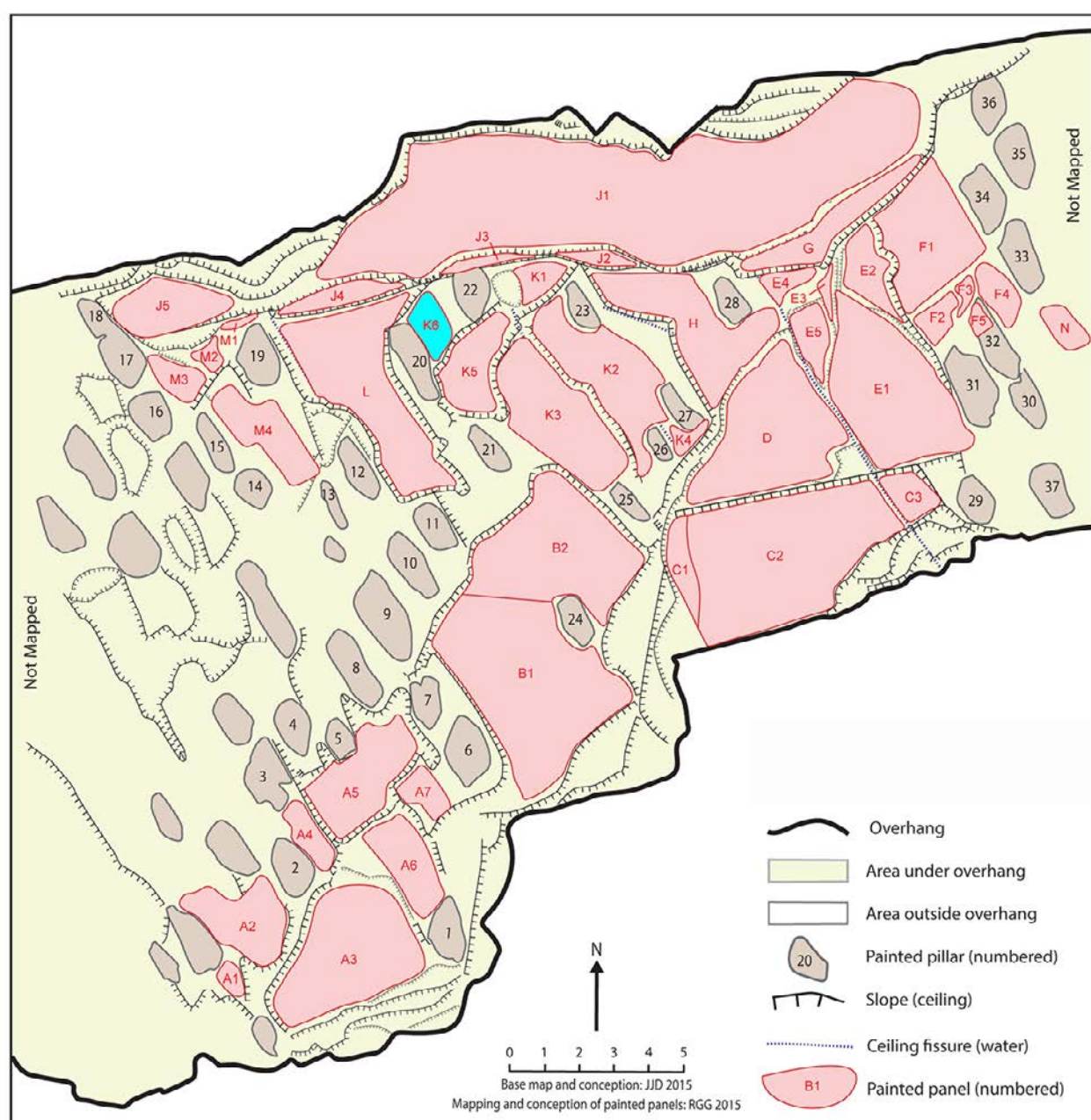


Figure 7.412: Location of Panel K6



Figure 7.413: Location of Panel K6

Table 7.37: Panel K6 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
K-153	red	painting	linear	fragment	fragment	very poor		
K-154	red	painting	outline+infill	anthropomorph	Anthropomorph male	fair	120	45
K-155	white+yellow+red	painting	solid+outline+infill	anthropomorph	Anthropomorph female	very poor	107	40
K-156	white	painting	solid	fish	Catfish eel-tailed	fair	21	4
K-157	white	painting	outline+infill+linear	mammal	Macropod	poor	46	23



Figure 7.414: Panel K6 photograph

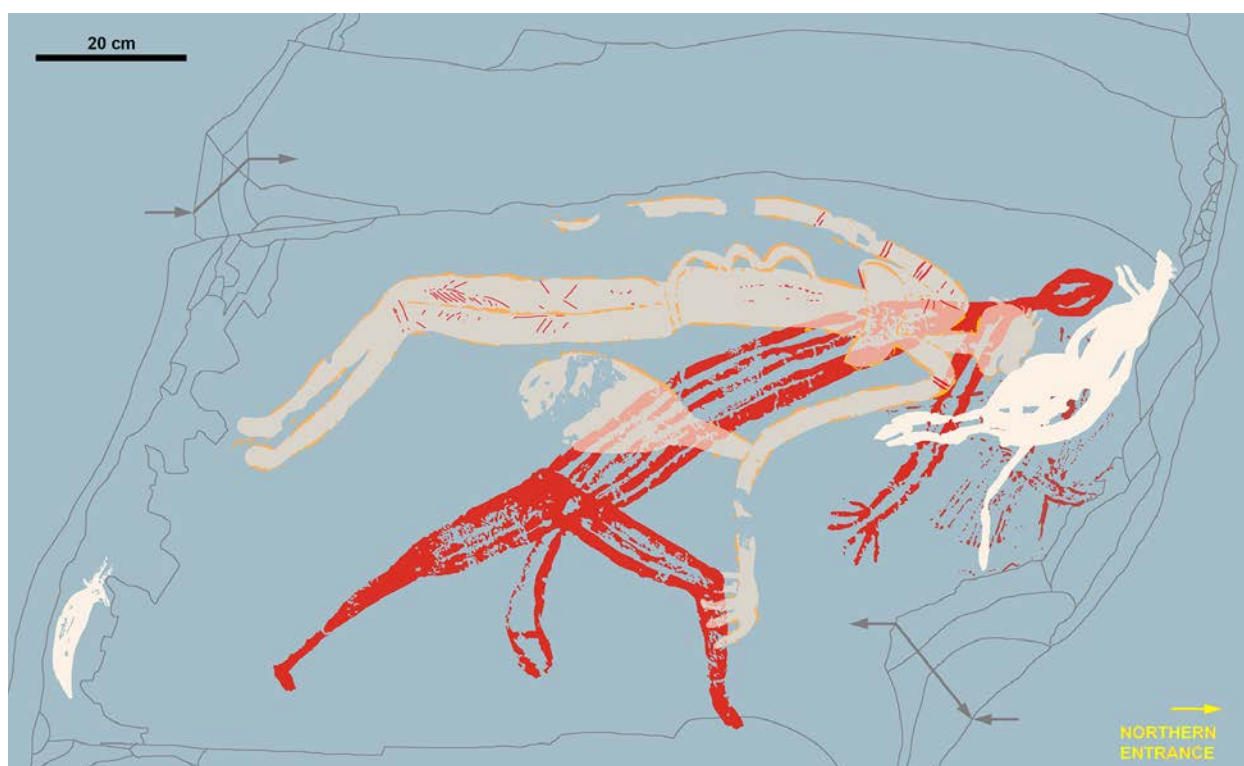


Figure 7.415: Panel K6 photo-tracing



Figure 7.416: Panel K6 motif interpretations (i)

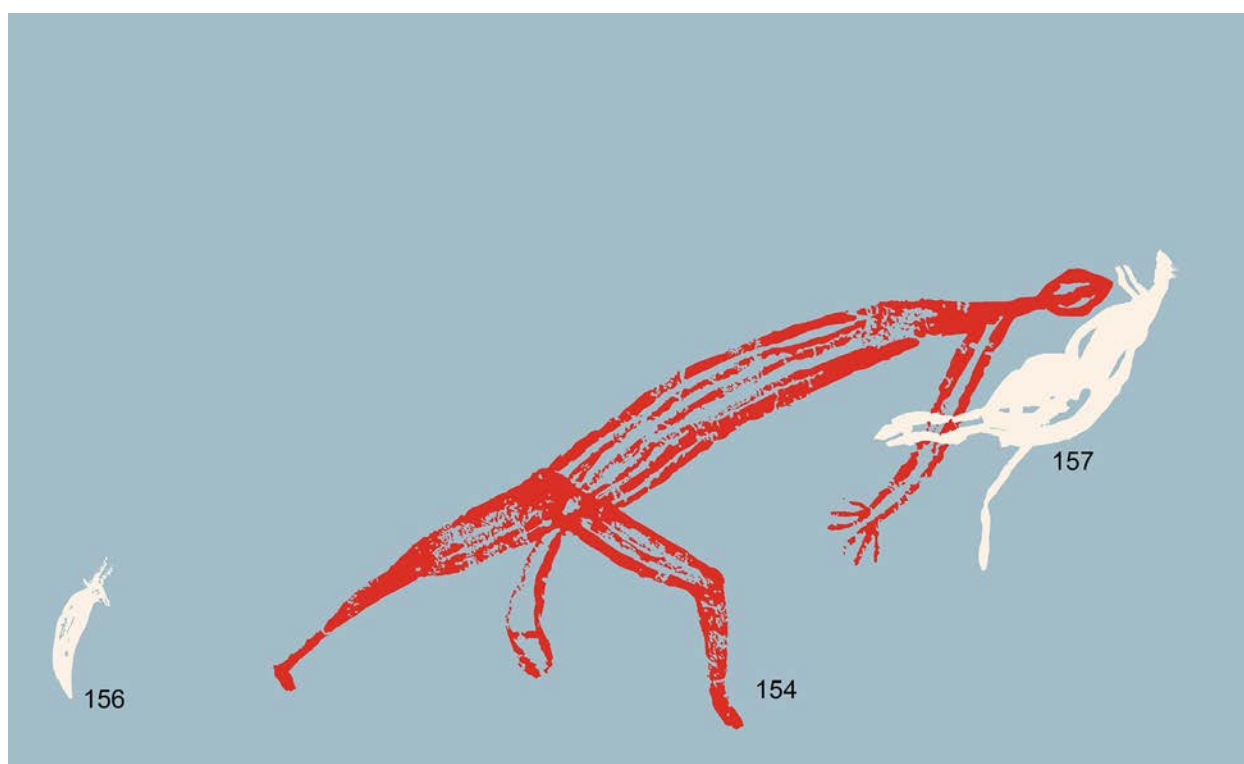


Figure 7.417: Panel K6 motif interpretations (ii)

Panel L

Panel L (Figures 7.418 to 7.420) is large and T-shaped, measuring 4.8×3.2 m across its two axes. The panel surface can be divided into two sections, northern and southern, on the basis of exfoliation and surface texture. The outer northern section consists of an undulating surface of gentle ripple marks, while the inner southern section has a smooth but lightly pock-marked surface. The northern section has been damaged by a fracture along the eastern margin, around which salt deposits have formed.

Panel L contains 58 motifs (Table 7.38; Figures 7.421 to 7.426), of which 50 were interpreted to Motif Type.

The motifs have been painted in two groups: an outer and an inner group reflecting the geomorphic sections mentioned above. The smoother surface of the southern section has been a focus for larger motifs, most of which are aligned along the long axis of the panel (Figure 7.427). The motifs of the northern group are more widely placed and show no preference in their orientation (Figure 7.421).

The most eye-catching motif on this panel is a large anthropomorph in red (Motif L-16) that was subsequently repainted in white (outline with infill) (Motif L-58; Figure 7.428). The outstanding feature of the figure is two long, thin antenna-like decorations

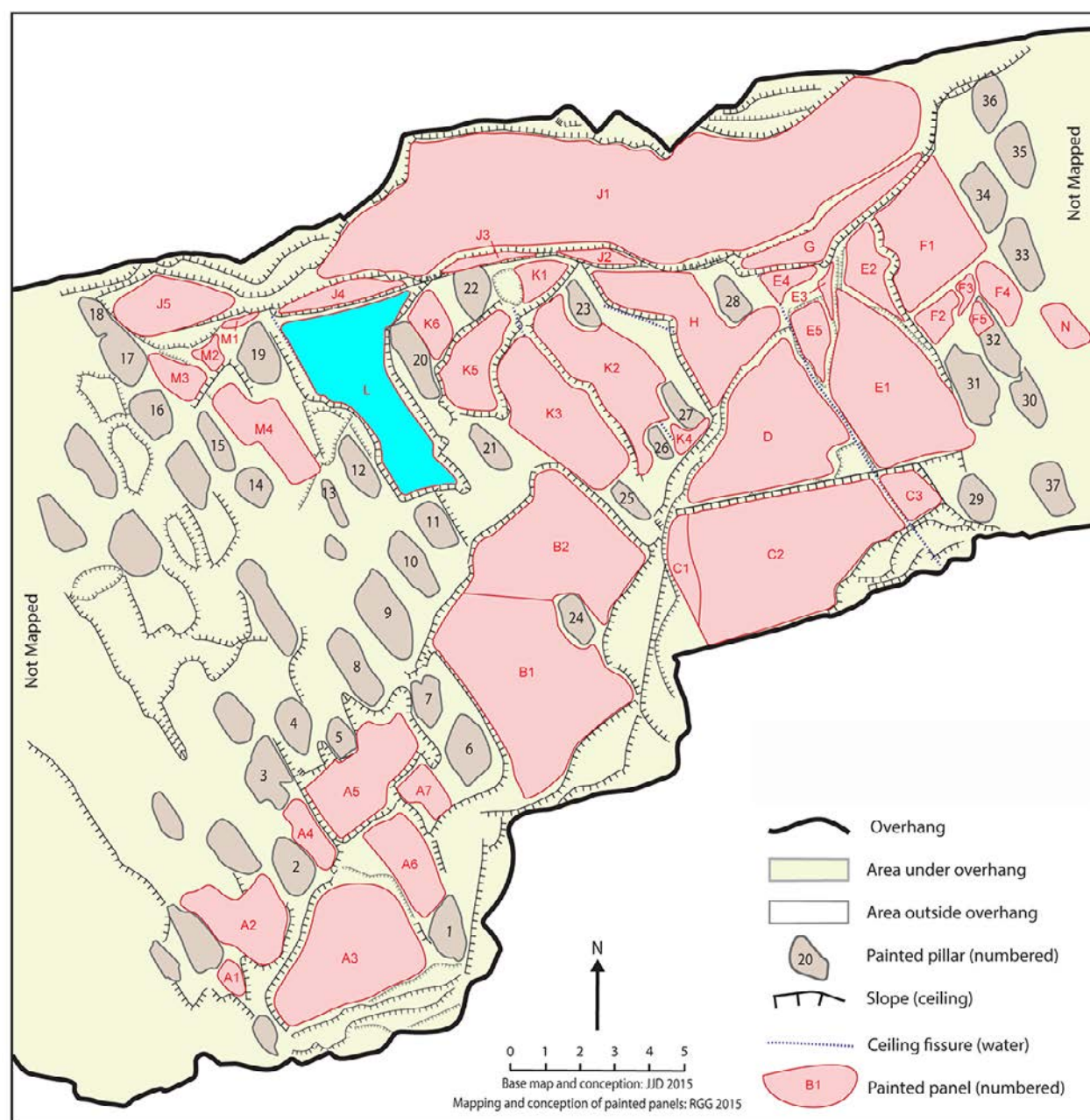


Figure 7.418: Location of Panel L

emanating from its head and curving down either side of its body.

Overlying Motif L-16 is a pair of intertwined male and female figures (Motif L-57; Figures 7.426 and 7.427). While here classified as a copulating couple, there is no impregnation, suggestive of either a pre or post coitus pose. The heads of both figures are vastly different, with the female having a bland oval face with a stylised hair arrangement (cf. that of the Jawoyn Lady motif; Gunn 1992), while her counterpart has the head of a macropod or flying-fox (Figure 7.727). Both figures are highly decorated although, unusually for Jawoyn rock art, the patterning is in yellow and hence not visually outstanding (Figure 7.429).

A different pair of sexual figures is seen in Motifs L-39 and L-40, tightly composed as a unit but with neither figure touching the other (Figure 7.430). These figures, originally in monochrome red, were later partially re-outlined in a thick white pigment. Again, such a tightly composed unit is uncommon in Jawoyn rock art.

Underlying several motifs is a depiction of an anthropomorph encircled by a 'string', with two axe-

like objects protruding from its head (Motif L-8; Figures 7.420 and 7.423) (see Chapter 9). The motif is faint but can be brought out clearly with DStretch enhancement (Figure 7.431).

Other motifs of note are:

- A bichrome possum with a regular linear infill and two eye-lines (Motif L-54; Figure 7.432). The eye-line differs again from the Y-eye line discussed with motif K-167 above, in that the two lines do not meet but run parallel;
- A single, very small, painted footprint 5.5 cm long (Motif L-2; Figure 7.433). As mentioned above (Panel K1), single human footprints are uncommon in Jawoyn rock art and this painting is only the second recorded within this shelter. It is also similar in size to the Panel K1 example (Motif K-7; Figure 7.356) but whereas the K1 example has four toes, this example has only three; and
- A pair of yellow female figures with white infill (Motifs L-55 and 56; Figure 7.434). On the basis of superimposition and preservation, these two figures appear to be the most recent on the panel.



Figure 7.419: Location of Panel L
Photograph: Leigh Douglas



Figure 7.420: Panel L photo-mosaic

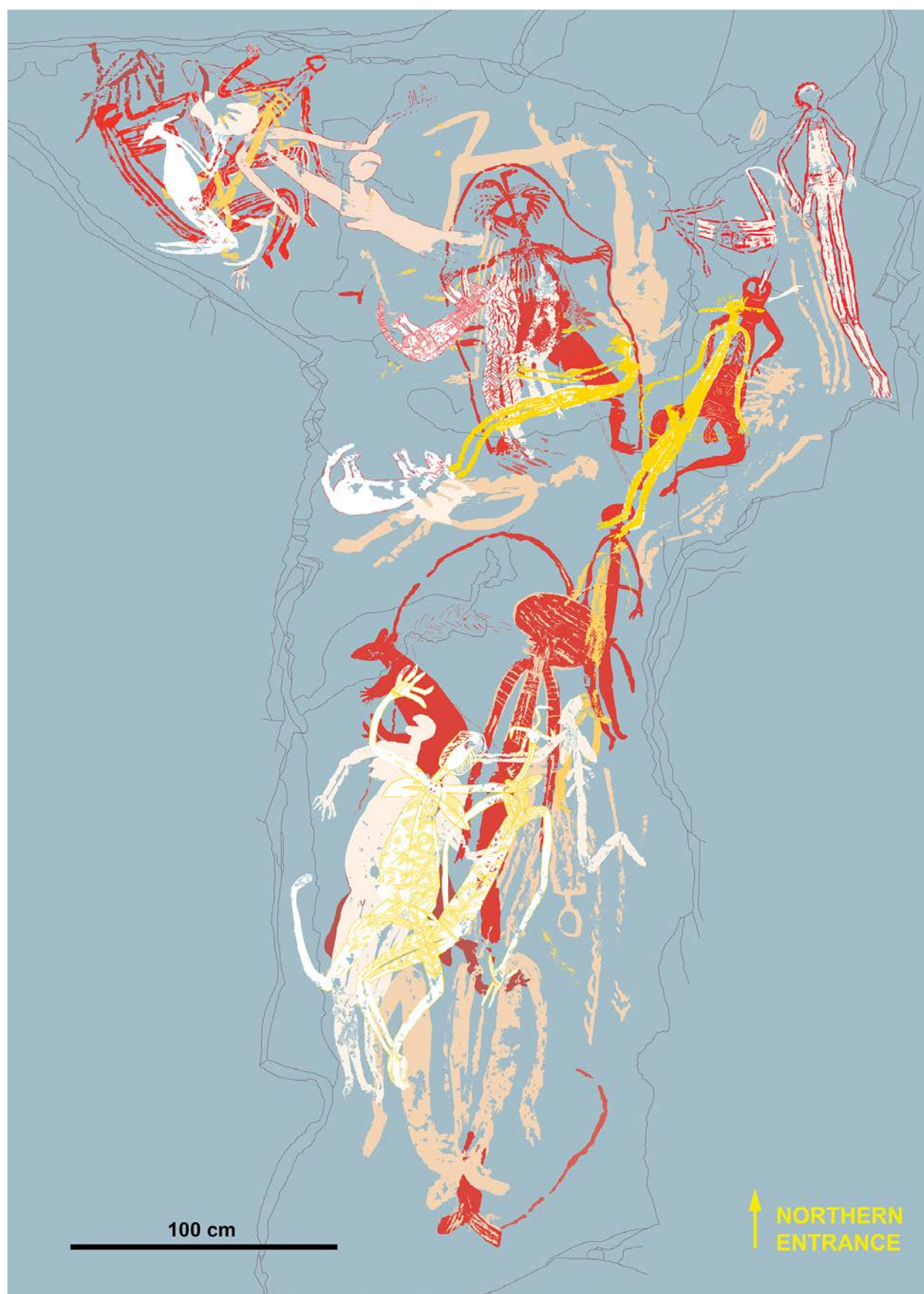


Figure 7.421: Panel L photo-tracing

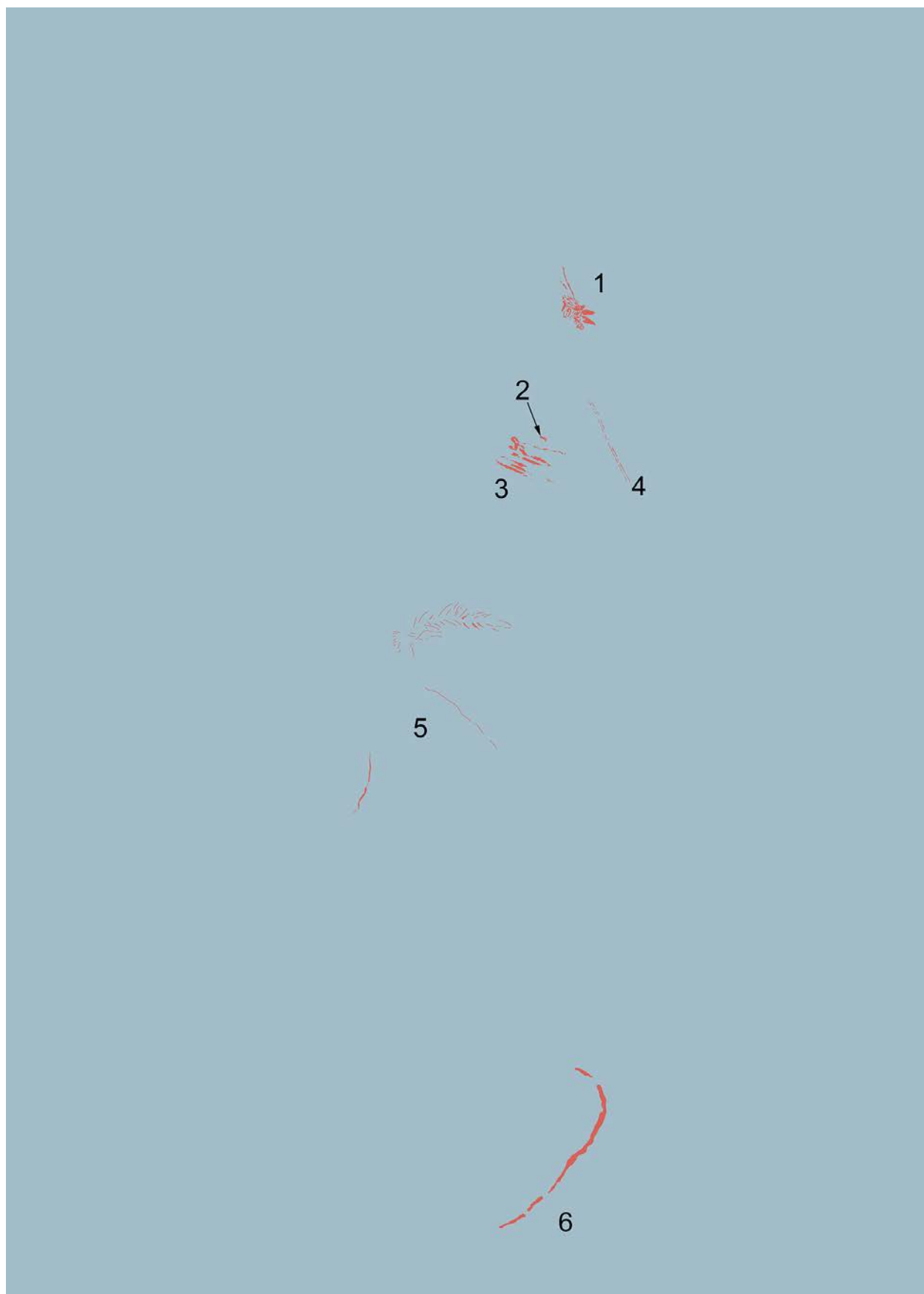


Figure 7.422: Panel L motif interpretations (i)

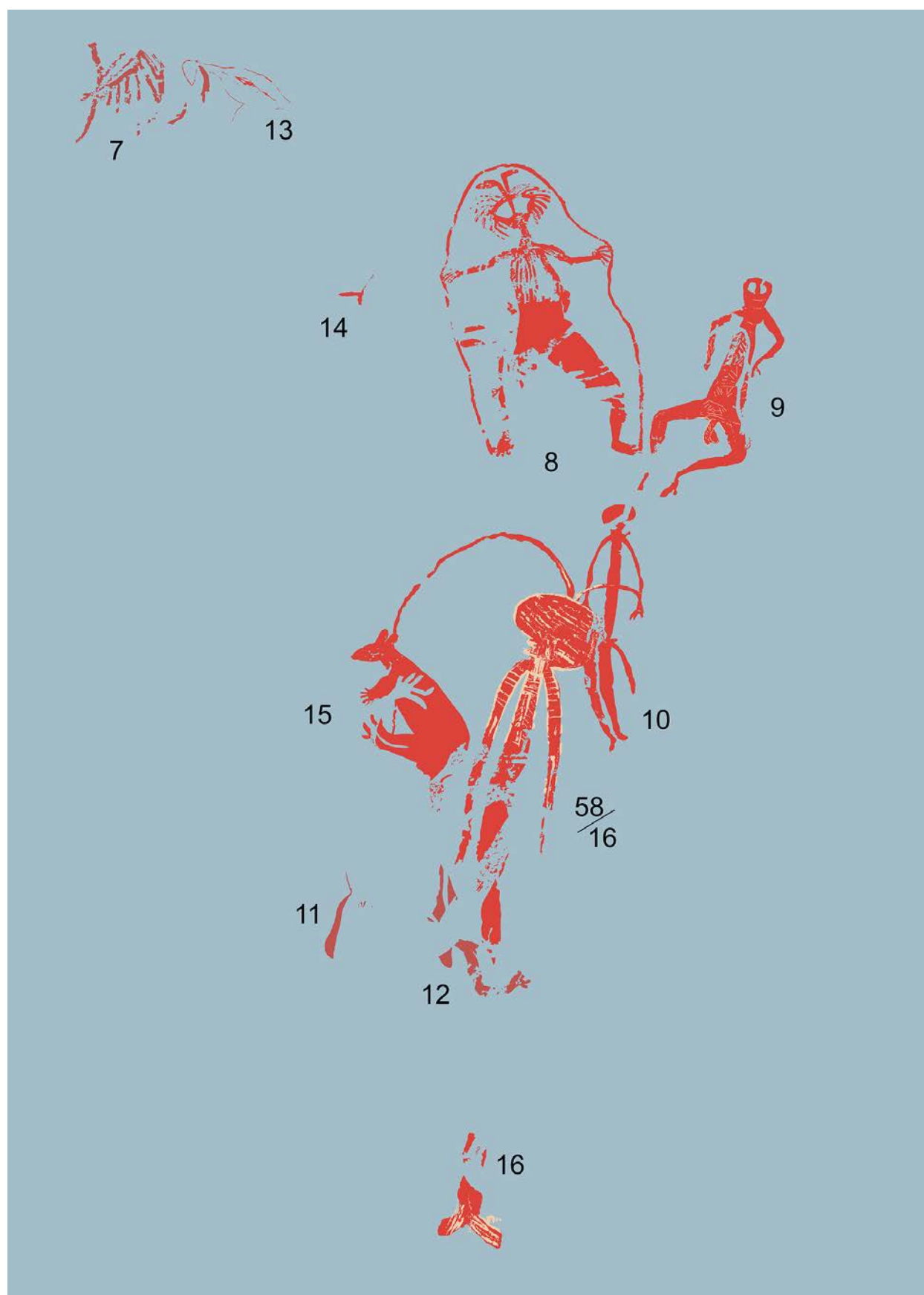


Figure 7.423: Panel L motif interpretations (ii)

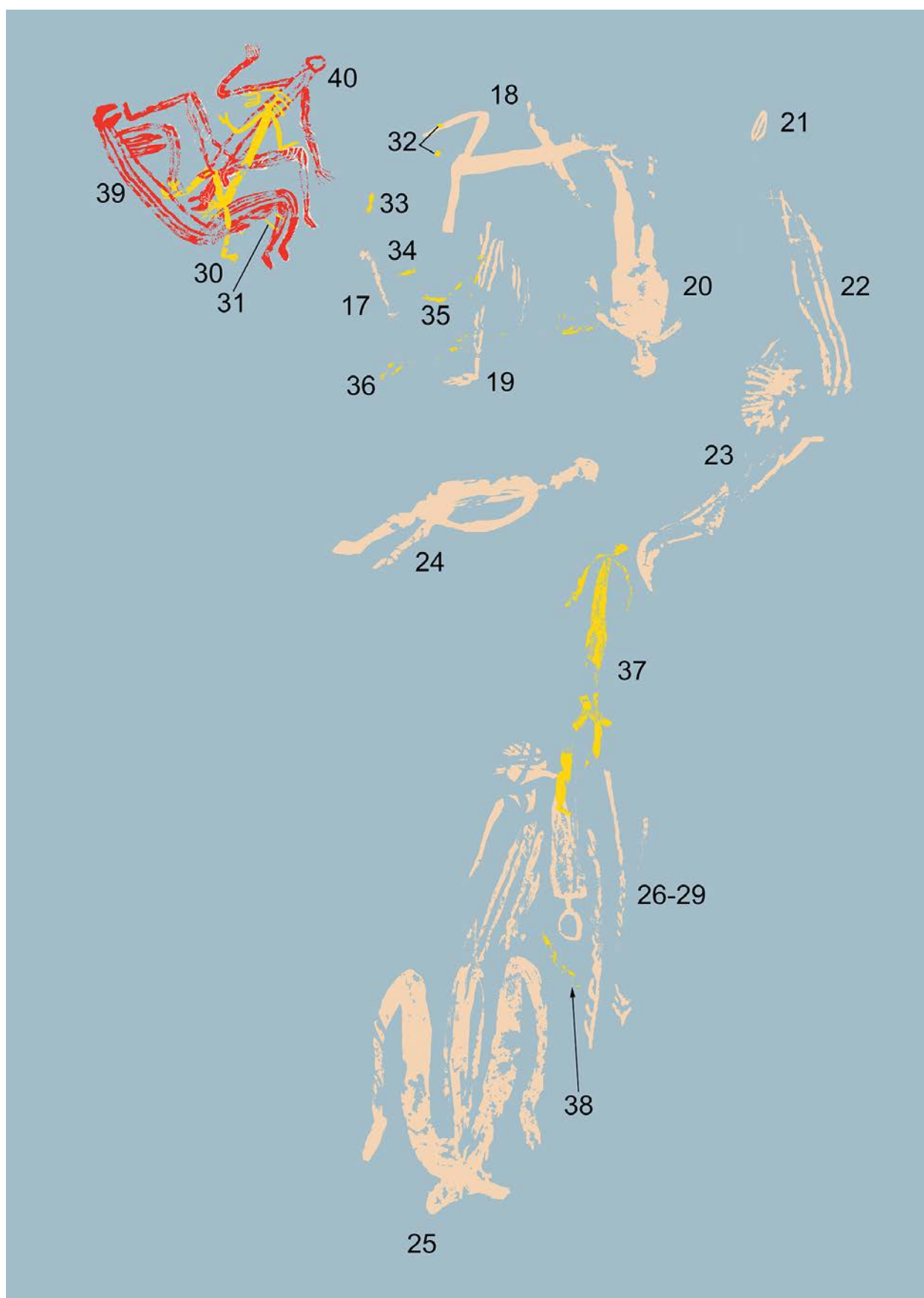


Figure 7.424: Panel L motif interpretations (iii)

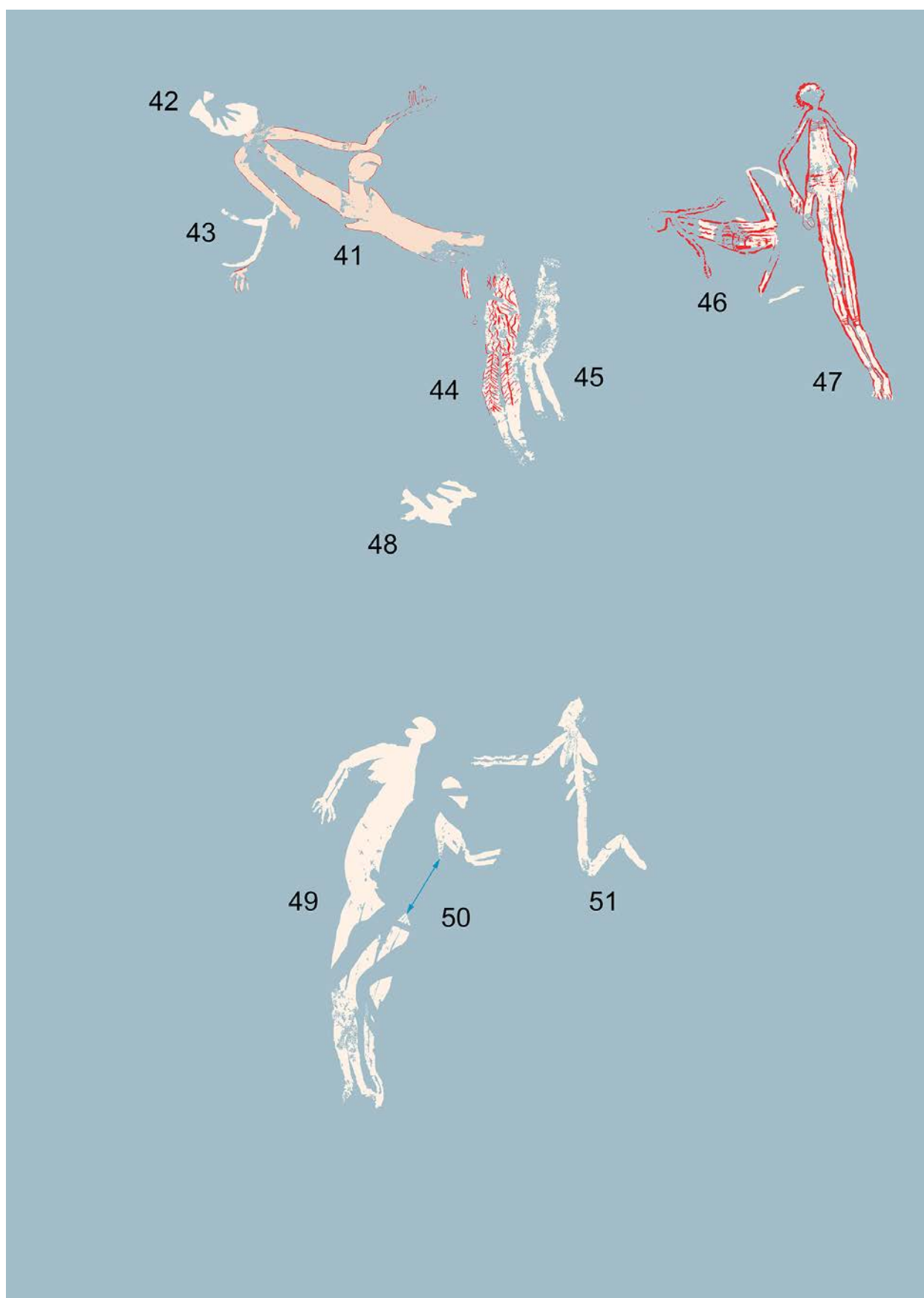


Figure 7.425: Panel L motif interpretations (iv)

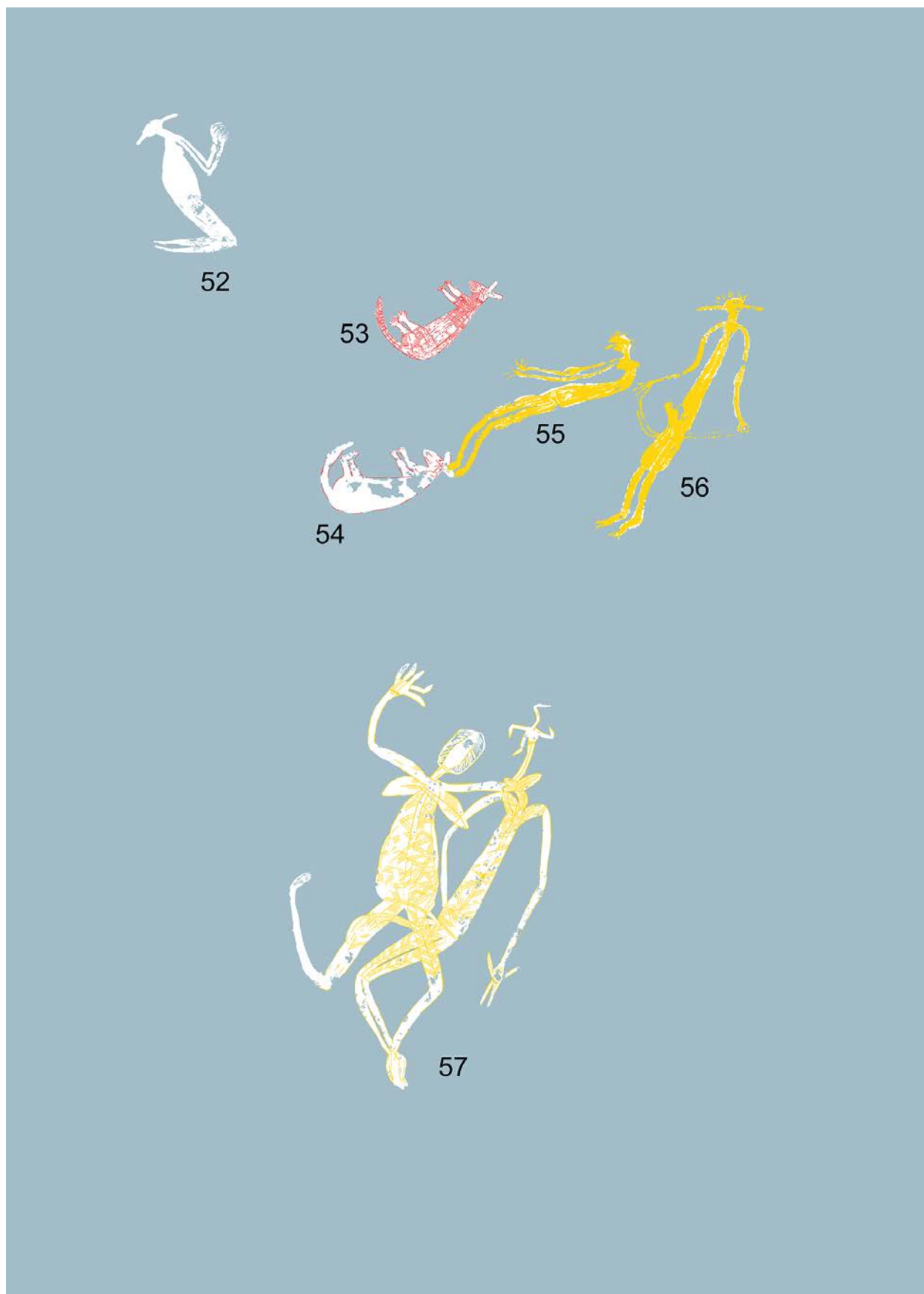


Figure 7.426: Panel L motif interpretations (v)

Table 7.38: Panel L motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
L-1	red	painting	outline+infill	fragment	fragment	very poor		
L-2	red	painting	solid	track	Footprint	fair	6	4
L-3	red	painting	linear	fragment	fragment	very poor		
L-4	red	painting	linear	geometric	Line pair	poor		
L-5	red	painting	linear	unknown	Unknown	very poor		
L-6	red	painting	linear	geometric	Arc	very poor		
L-7	red	painting	linear	fragment	fragment	very poor		
L-8	red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	poor		
L-9	red+white	painting	solid+infill	anthropomorph	Anthropomorph male	very poor		
L-10	red	painting	solid	anthropomorph	Anthropomorph male	very poor		
L-11	red	painting	fragment	fragment	fragment	very poor		
L-12	red	painting	solid	anthropomorph	Anthropomorph	very poor		
L-13	red	painting	outline+infill	bird	Bird	poor		
L-14	red	painting	linear	geometric	T-shape	fair		
L-15	red	painting	solid	mammal	Macropod	poor	48	30
L-16	red+white	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor	226	39
L-17	white	painting	linear	object	Spearthrower	fair		
L-18	white	painting	solid	anthropomorph	Anthropomorph	very poor		
L-19	white	painting	outline+infill	anthropomorph	Anthropomorph	very poor		
L-20	white	painting	solid	anthropomorph	Anthropomorph	poor	72	36
L-21	white	painting	outline+infill	simple design	Design regular	poor		
L-22	white	painting	outline+infill	simple design	Design regular	poor		
L-23	white	painting	outline+infill	bird	Bird	very poor		
L-24	white	painting	solid	anthropomorph	Anthropomorph	very poor		
L-25	white	painting	outline+infill	anthropomorph	Anthropomorph female	very poor		
L-26	white	painting	outline+infill	object	Spearthrower	poor		
L-27	white	painting	linear	object	Spear	poor		
L-28	white	painting	linear	object	Spear	very poor		

L-29	white	painting	linear	fragment	fragment	very poor		
L-30	yellow	painting	linear+outline	anthropomorph	Anthropomorph male	fair	55	36
L-31	yellow	painting	linear	geometric	Bar pair	good		
L-32	yellow	painting	dot	geometric	Dot pair	good		
L-33	yellow	painting	linear	geometric	Bar	fair		
L-34	yellow	painting	linear	geometric	Bar	fair		
L-35	yellow	painting	linear+outline	anthropomorph	Anthropomorph	very poor		
L-36	yellow	painting	fragment	fragment	fragment	very poor		
L-37	yellow	painting	solid+linear	anthropomorph	Anthropomorph	poor	70	25
L-38	yellow	painting	fragment	fragment	fragment	very poor		
L-39	red+white	painting	outline+infill	anthropomorph	Anthropomorph female	good	62	55
L-40	red+white	painting	outline+infill	anthropomorph	Anthropomorph male	good	86	41
L-41	white+red	painting	outline+infill	anthropomorph	Anthropomorph male	poor		
L-42	white	spray	stencil	hand	Hand right	poor		
L-43	white	painting	linear	simple design	Design irregular	fair		
L-44	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	poor		
L-45	white	painting	solid+outline	anthropomorph	Anthropomorph	poor		
L-46	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph	very poor		
L-47	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	poor	70	25
L-48	white	spray	stencil	hand	Hand left	poor		
L-49	white	painting	solid+linear	anthropomorph	Anthropomorph female	poor		
L-50	white	painting	solid+linear	anthropomorph	Anthropomorph	very poor		
L-51	white	painting	solid+linear	anthropomorph	Anthropomorph female	very poor		
L-52	white	painting	solid+linear	anthropomorph	Anthropomorph female	good		
L-53	white+red	painting	solid+outline+infill	mammal	Possum	very good		
L-54	white+red	painting	solid+outline+infill	mammal	Possum	poor	45	32
L-55	yellow+white	painting	solid+outline+infill	anthropomorph	Anthropomorph female	good	85	30
L-56	yellow+white	painting	solid+outline+infill	anthropomorph	Anthropomorph female	good	112	42
L-57	white+yellow	painting	solid+outline+infill	anthropomorph	Copulating couple	good		
L-58	white	painting	outline+infill	anthropomorph	Anthropomorph	fair		

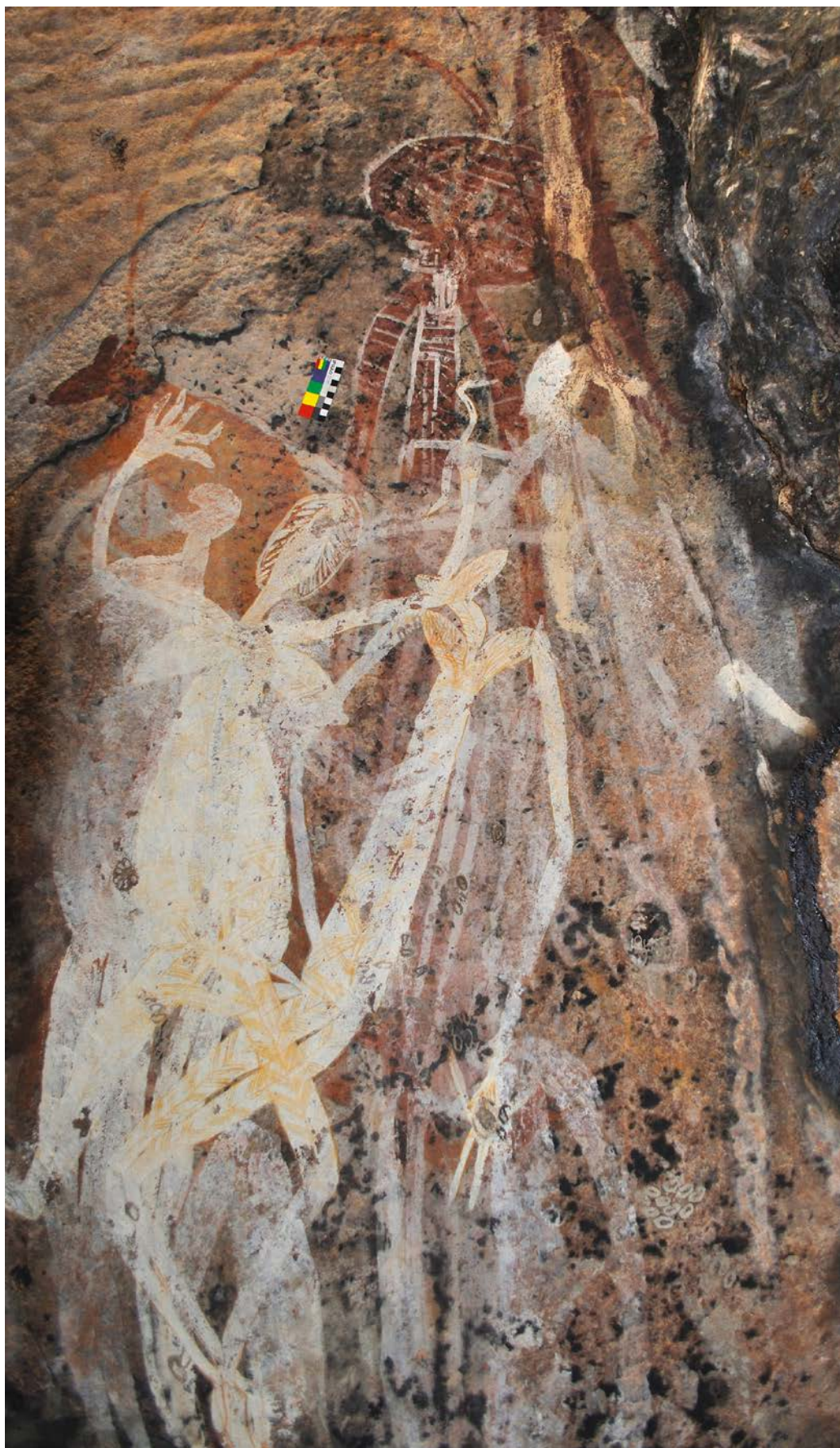


Figure 7.427: Detail of the Panel L inner group of figures



Figure 7.428: Anthropomorph with 'antenna' headdress (Motif L-16) later outlined and infilled with white patterning (Motif L-58)

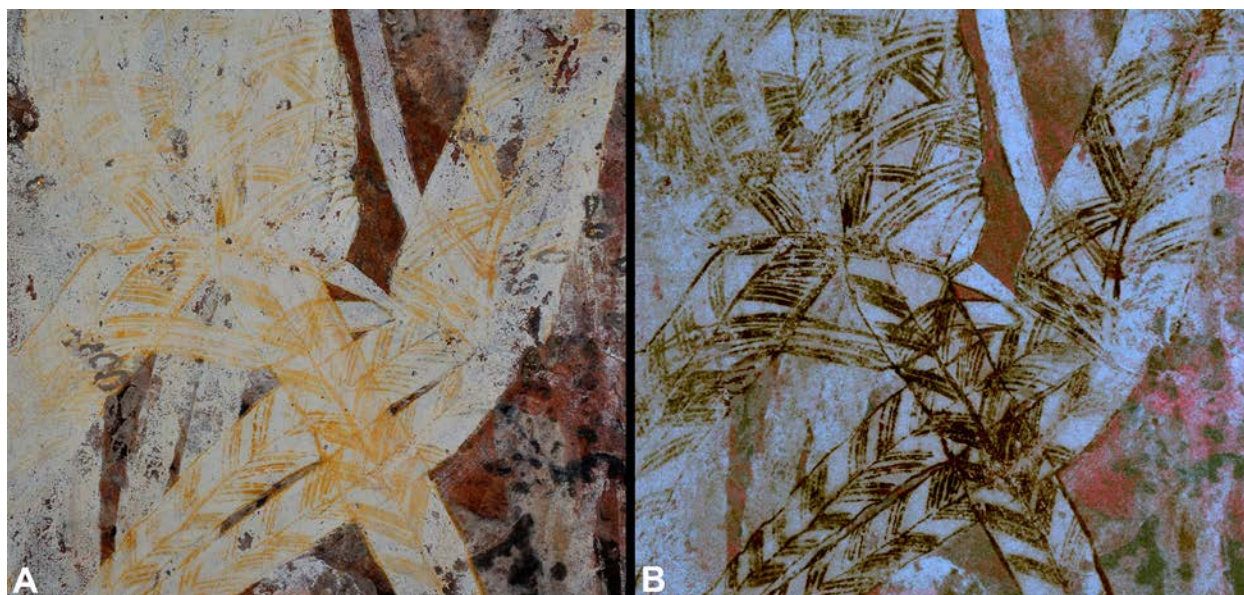


Figure 7.429: Detail of the yellow infill patterns on the entwined couple (Motif L-57)
A: Flash photograph B: DStretch_lye10



Figure 7.430: Composed couple in red, later outlined in white
A: Photo-tracing B: Daylight photograph C: DStretch_lre10



Figure 7.431: Faint red anthropomorph with accoutrements (Motif L-8)



Figure 7.432: Possum with regular linear infill pattern and paired eye-lines (Motif L-54)



Figure 7.433: Very small single foot track 5.5 cm long (Motif L-2)



Figure 7.434: Pair of yellow female figures with white outline and infill (Motifs L-55 and 56)

Panel M1

Panel M1 (Figures 7.435 to 7.437) is one of four small panels at the north-western corner of the shelter that make up Group M. The panel is roughly rectangular in shape and measures 0.9×0.3 m. The surface is flat, with only minor areas of exfoliation. The outer edge of the panel has been extensively flaked.

Panel M1 has four motifs (Table 7.39; Figures 7.437 and 7.438), all of which were interpreted to Motif Type. The four motifs are restricted by the small size of the panel and overlap each other.

Central to the panel is a small macropod in an orange-red (Motif M-1) which is one of the two earliest motifs. The overlapping zigzag design (Motif M-2) is very unusual in Jawoyn rock art and Motif M-2 has no parallel within Nawarla Gabarnmang.

The yellow hand stencil (Motif M-3) was orientated at right angles to the macropod (Motif M-1) and partially covers it.

The white line (Motif M-4) is tapered rather than of uniform width in the manner of a stroke rather than a bar or line of uniform width.

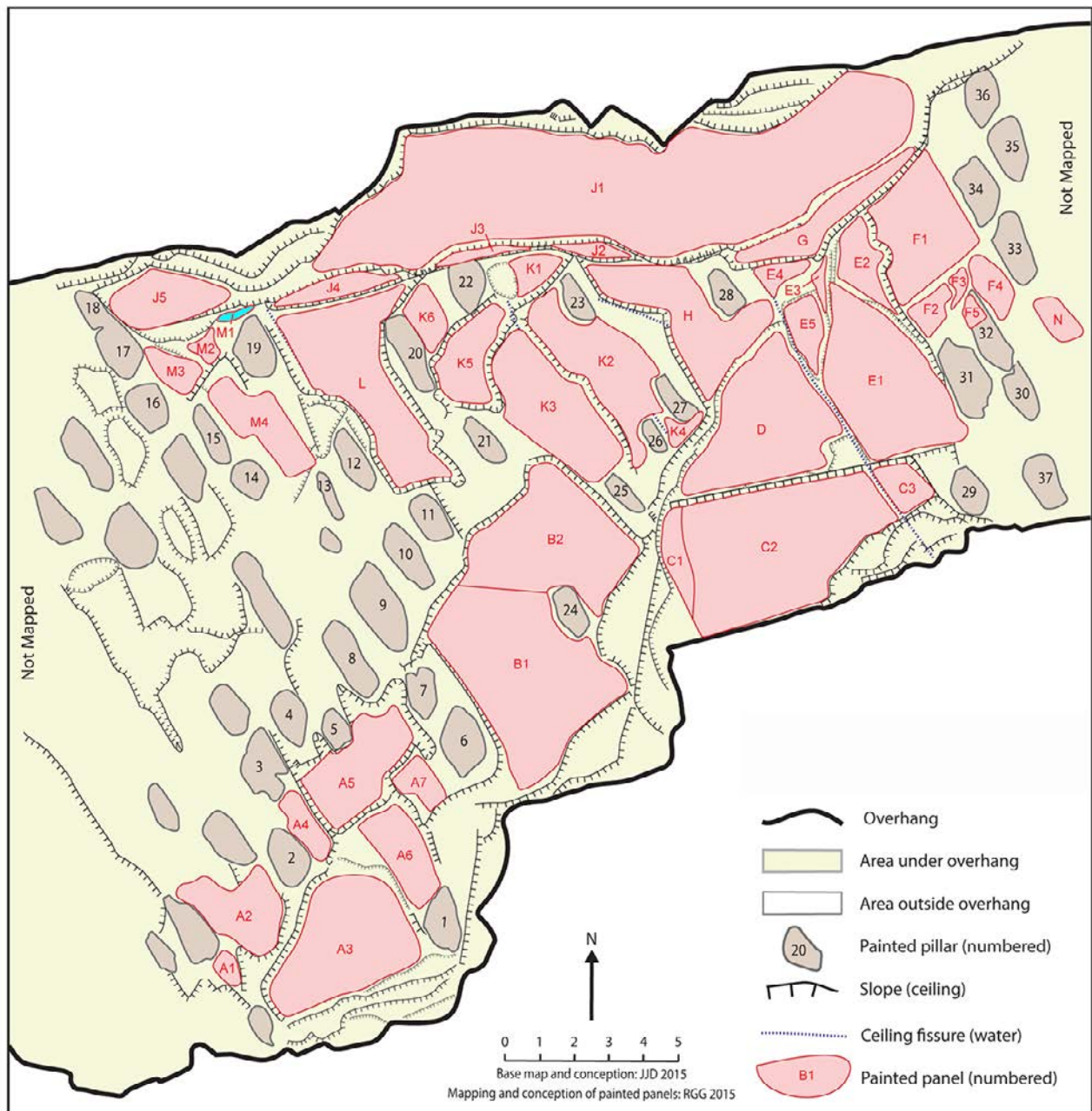


Figure 7.435: Location of Panel M1



Figure 7.436: Location of Panel M1



Figure 7.437: Panel M1 photograph

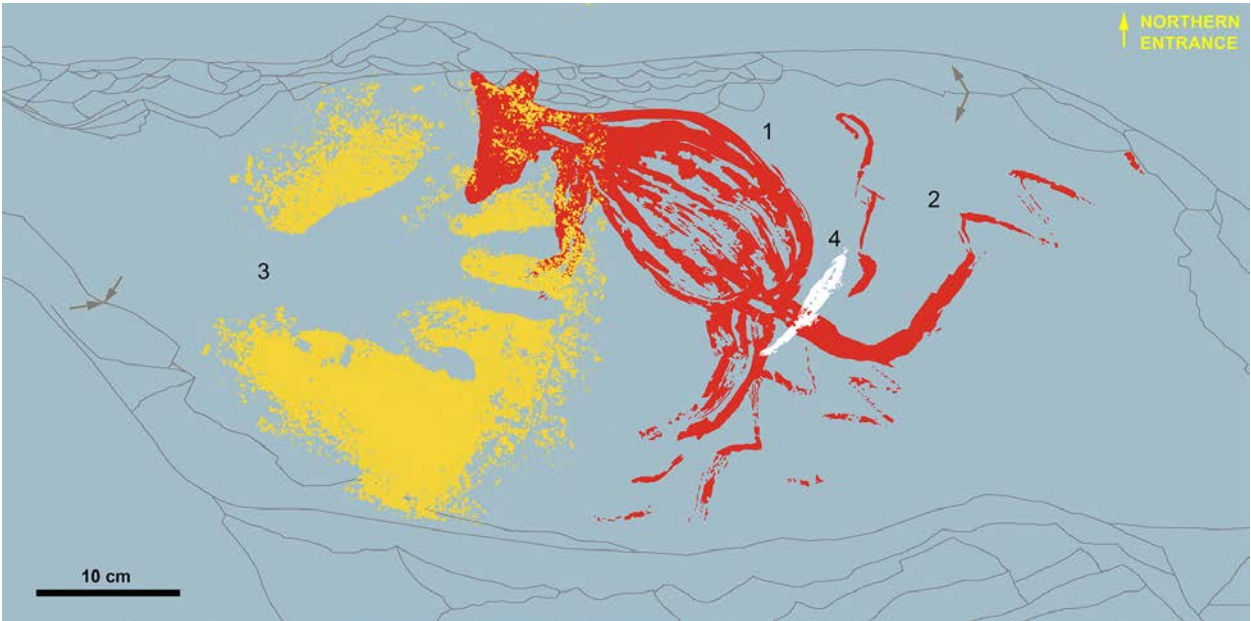


Figure 7.438: Panel M1 photo-tracing

Table 7.39: Panel M1 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
M-1	red	painting	outline+infill	mammal	Macropod	fair	37	24
M-2	red	painting	linear	simple design	Zigzag	fair	47	19
M-3	yellow	spray	stencil	hand	Hand left	poor	mf 7.5	
M-4	white	painting	linear	geometric	Line	excellent	10	4

Panel M2

Panel M2 (Figures 7.439 to 7.441) is 0.8×0.8 m in maximum dimensions and roughly rhomboidal in shape, tapering to 0.4m wide at its inner end. The panel surface is flat and free of significant surface damage or encrustations.

Panel M2 contains eight motifs (Table 7.40; Figures 7.442 to 7.445) of which five were interpreted to Motif Type. The motifs have been placed to utilise most of the available surface, causing all motifs to be involved in superimpositions (Figure 7.442). With the exception of the small flying-fox (Motif M-12), which is at right

angles to the other motifs, motif alignment follows the panel's long axis, and towards the outer edge of the panel.

Motif M-10 extends beyond the edges of the panel in both directions, with its head 10 cm over the northern edge of the panel and onto the vertical face of a small bridge (Figure 7.446), while its feet extend a further 10 cm off the southern edge of the panel. Further, the extension of the head of the anthropomorph around and onto the bordering bridge provides the figure with a three-dimensional aspect, whereby the figure is placed looking out from the shelter and over the site's northern landscape. While such use of plane-changes

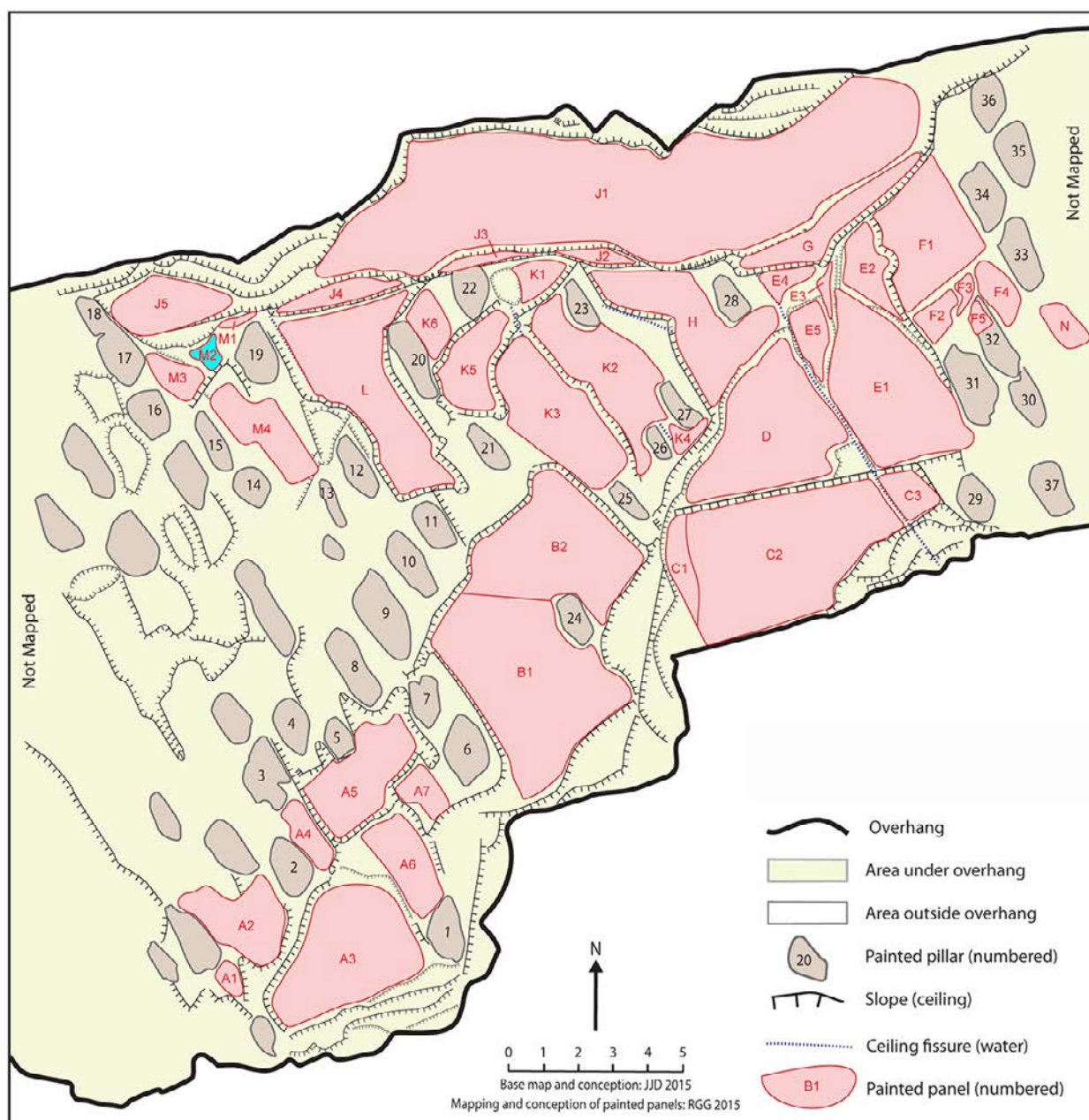


Figure 7.439: Location of Panel M2

as an artistic device is often used with the placement of macropod feet or ears, its use with the head of an anthropomorph is uncommon.

Two other of the motifs here are uncommon for the Jawoyn repertoire. The first is Motif M-9, a small zoomorph with a macropod head and a thin tail wrapped up under its body (Figure 7.447). Such zoomorphs are termed Rainbow Serpents, known to the Jawoyn as *Bolung* (see Chapter 9). According to Taçon et al. (1996: 117), this form of motif occurs within their

‘modern’ group, from 4000 BP to the present (based on chronologically defined attributes; though the attributes are not well defined and the chronological models are largely speculative). The second uncommon motif (Motif M-8) is what appears to be a depiction of a flowering waterlily plant with two sinuous stems and seed heads visible, although the remnant of another seed head suggests it may originally have been more elaborate (Figure 7.448). No similar motif is known in Jawoyn rock art although a small number of other plant forms have been recorded in nearby site complexes.



Figure 7.440: Location of Panel M2

Table 7.40: Panel M2 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
M-5	red	painting	outline+infill	fragment	fragment	very poor		
M-6	red	painting	linear+outline+infill	fragment	fragment	very poor		
M-7	red	painting	solid	fragment	fragment	very poor		
M-8	red	painting	linear+outline+infill	flora	Waterlily	very poor		
M-9	red	painting	solid	zoomorph	Bolung	fair	46	22
M-10	yellow	painting	outline+infill+linear	anthropomorph	Anthropomorph male	good	92	43
M-11	yellow	painting	linear	geometric	Line	poor		
M-12	yellow	painting	outline+infill+solid	mammal	Flying fox	poor		



Figure 7.441: Panel M1 photograph



Figure 7.442: Panel M1 photo-tracing



Figure 7.443: Panel M2 motif interpretations (i)

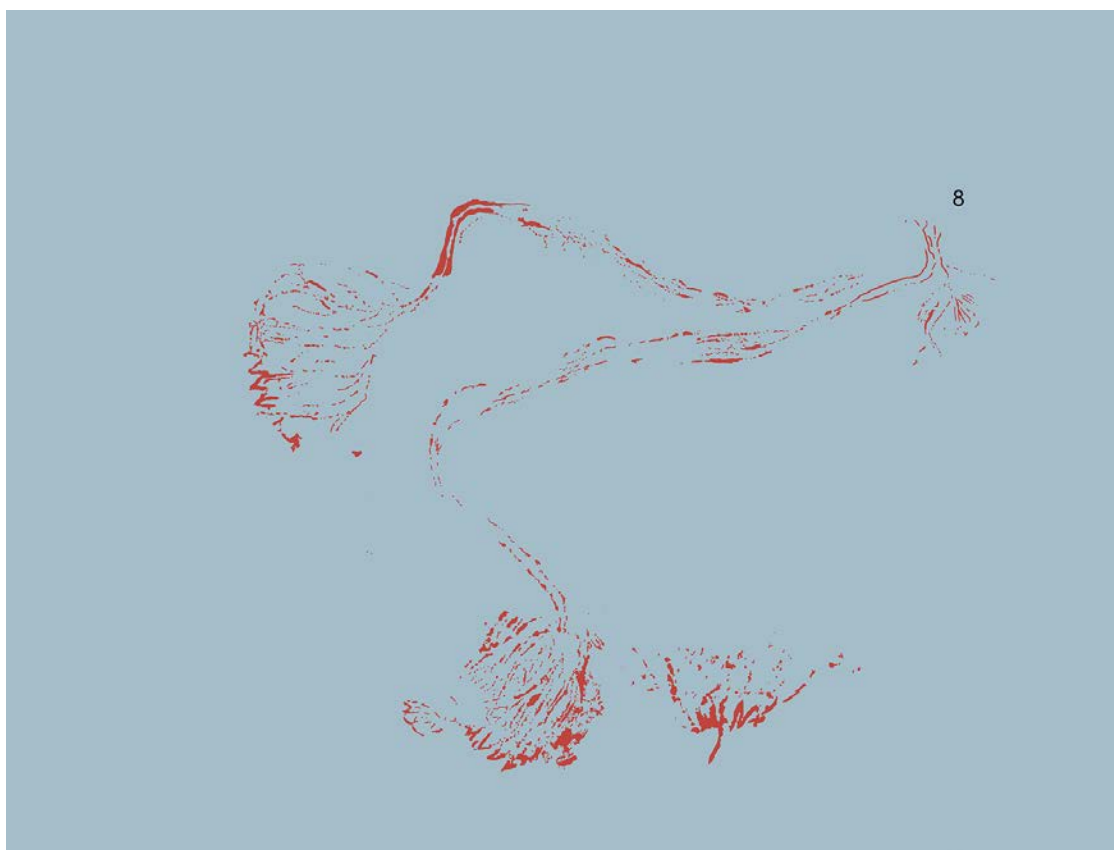


Figure 7.444: Panel M2 motif interpretations (ii)

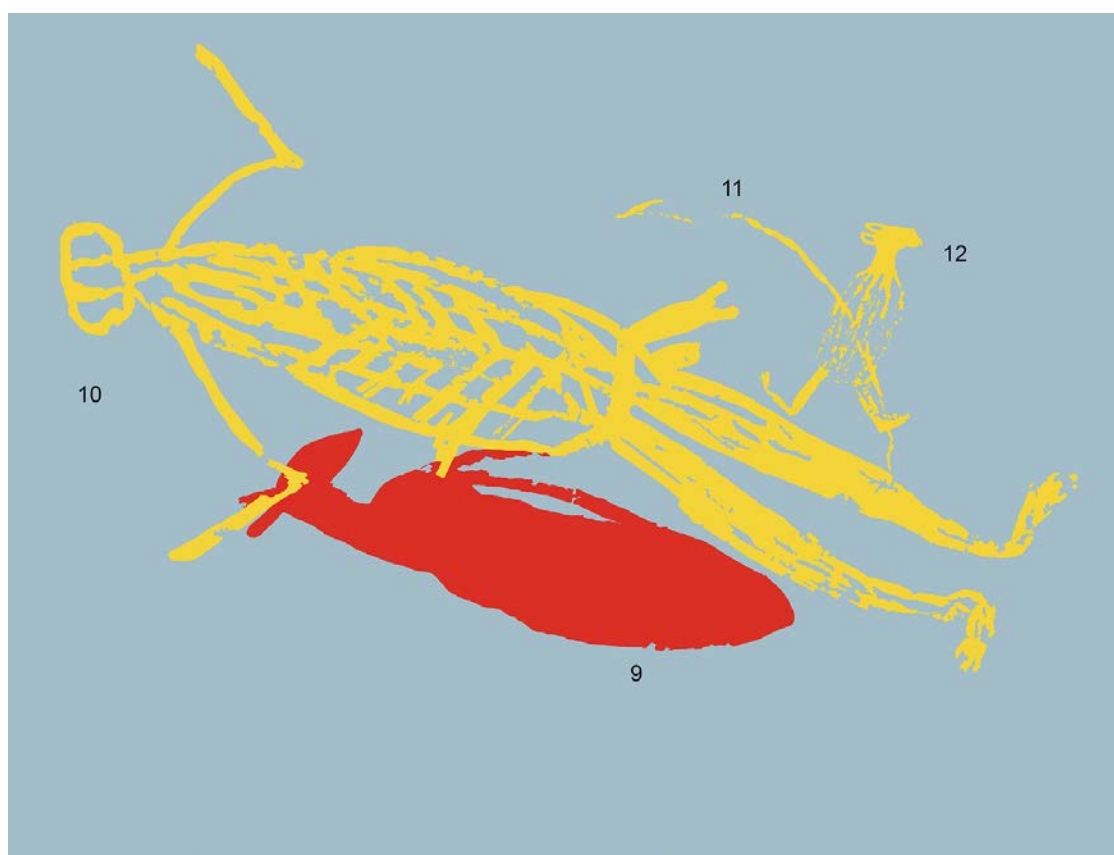


Figure 7.445: Panel M2 motif interpretations (iii)

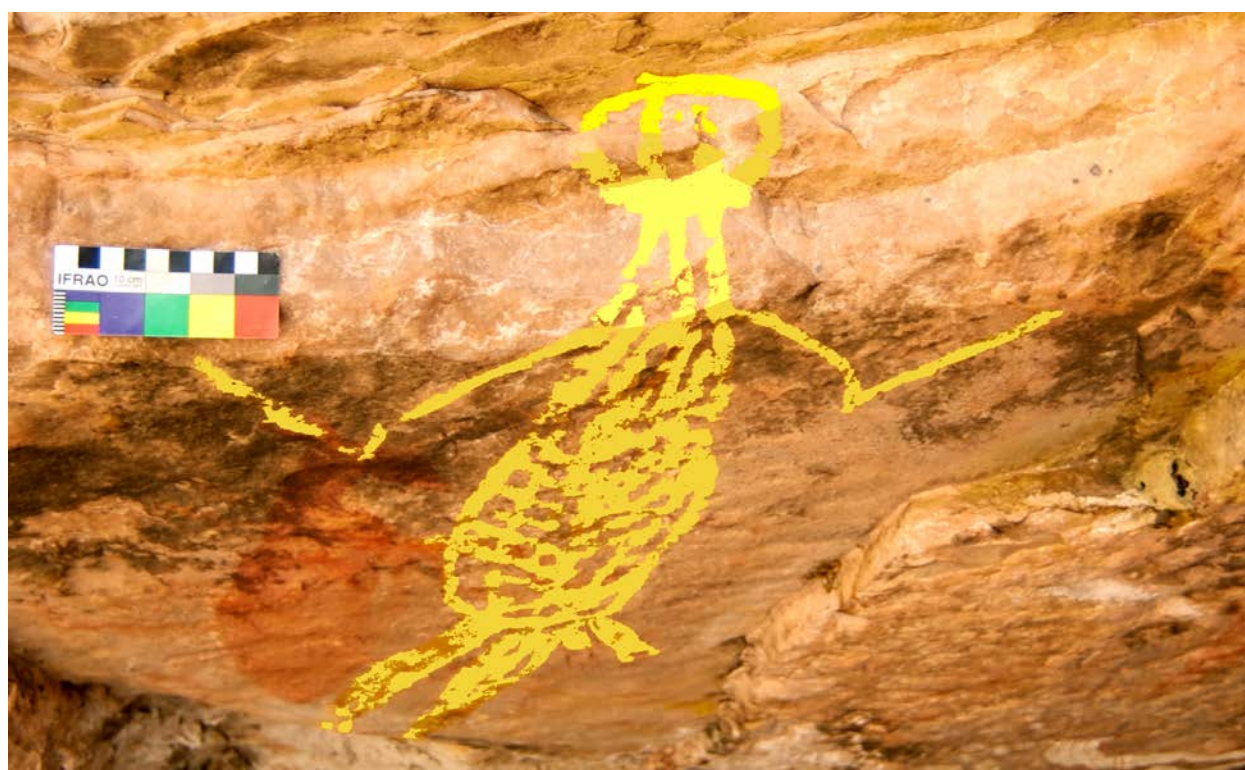


Figure 7.446: Motif M-10 showing its extension from panel M2 around and onto the bordering bridge. Motif artificially coloured to highlight its three-dimensional aspect.



Figure 7.447: Small Bolung motif in red (Motif M-9; 46 cm)

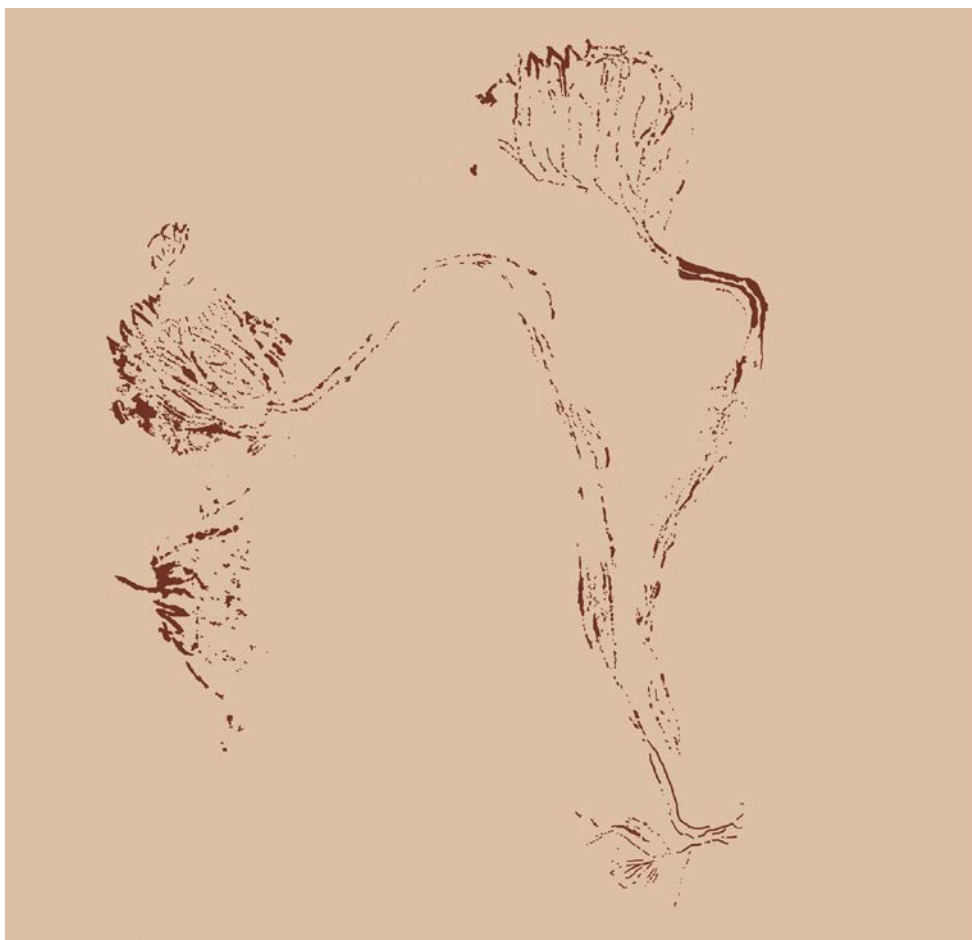


Figure 7.448: Unusually naturalistic rendition of a waterlily plant (Motif M-8; c.65 cm)

Panel M3

Panel M3 (Figures 7.449 to 7.450) consists of two small sub-panels (M3a and M3b). Panel M3a is the larger of the two, measuring, 0.9×0.4 m, but narrower at the northern (outer) end than the southern end. The surface is flat but with small and shallow ripple marks providing a light texture (Figure 7.451). Panel M3b, measuring just 0.3×0.2 m, lies to the bottom right of Panel M3a, but on a lower sandstone layer.

Panel M3 has nine motifs (Table 7.41; Figures 7.452 and 7.453) of which all but one were interpreted to Motif Type. Sub-panel M3a has eight motifs, the largest of which (a male anthropomorph; Motif M-17) extends the full length of the surface, with its feet curving and accommodating to the panel shape. The figure has an extended tongue similar to that on Motif C-18 discussed above. An adjacent male anthropomorph (Motif M-18) has been partially painted over an earlier Jawoyn Lady motif (Motif M-16) and, unusually,

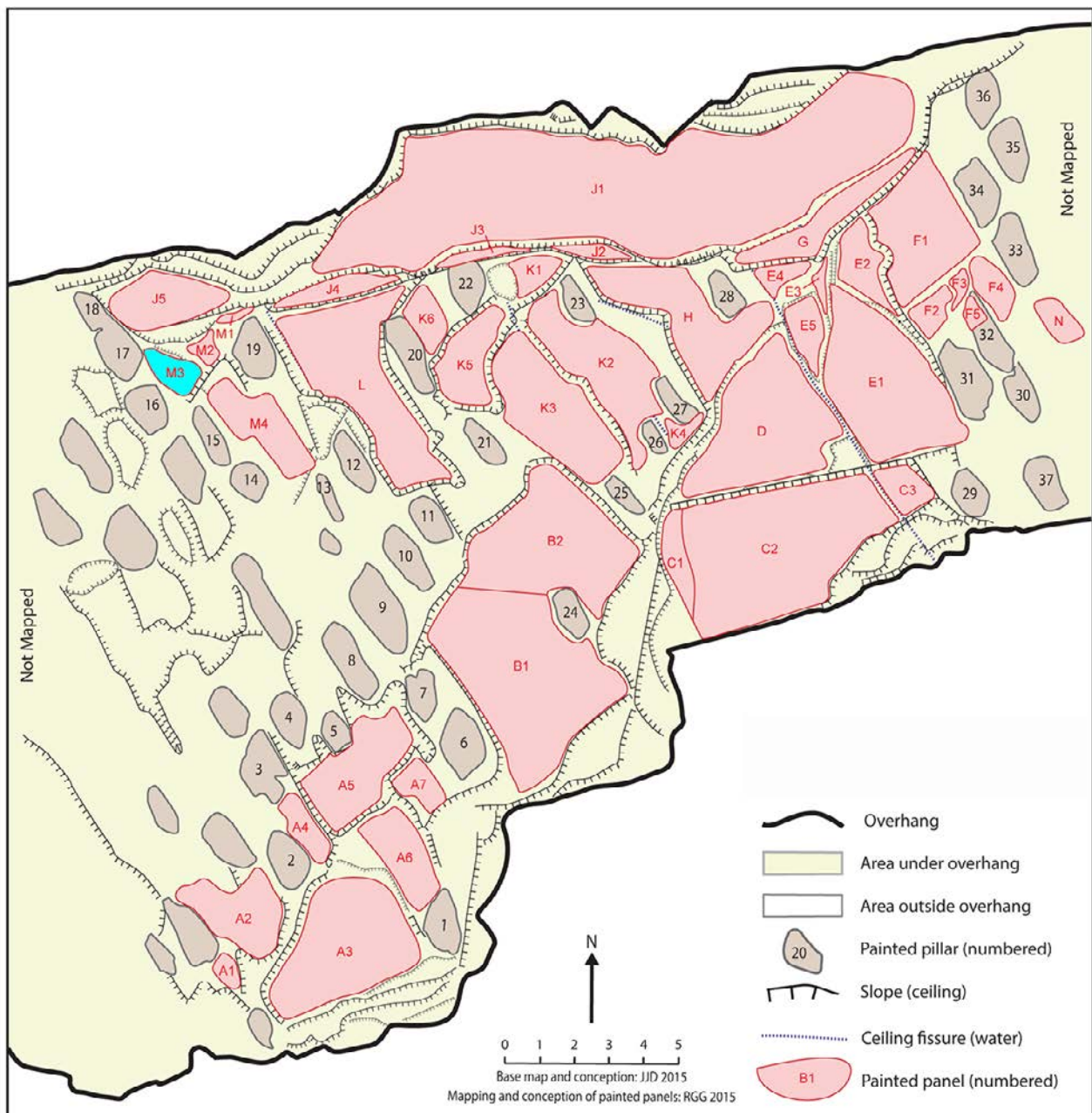


Figure 7.449: Location of Panel M3

incorporates her lower limbs as his own (Figure 7.454). The infill patterning of the Motif M-16 is finely painted in red. Motif M-17, which overlies M-16, has a similar infill but it is painted with less finesse, while the red embellishment on Motif M-18 is limited to partial outline (Figure 7.454).

Motif M-13 is a unimarginal barbed spear whose shaft passes over the margins of the panel and down onto a lower step (Figure 7.455). In a similar manner, one

hand of Motif M-18 is placed on a higher step (Figure 7.452).

The best preserved motif on the panel is a yellow fish (Motif M-19) although its colour, on the pale rock background, makes it less obvious than the underlying motifs (Motifs M17 and 18) (Figure 7.454).

Sub-panel M3b contains a single small, yellow painted, enclosed design (Motif M-21; Figure 7.455).



Figure 7.450: Location of Panel M3

Table 7.41: Panel M3 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
M-13	red	painting	linear	object	Spear	fair	92	4
M-14	red	painting	solid+linear	fragment	fragment	fair		
M-15	red	painting	solid	geometric	Disc	very poor		
M-16	white+red	painting	solid+outline+infill	anthropomorph	Jawoyn Lady	good	60	23
M-17	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph male	good	154	19
M-18	white+red	painting	solid+outline	anthropomorph	Anthropomorph male	fair	102	17
M-19	yellow	painting	solid	fish	Bream	fair	38	10
M-20	yellow	painting	linear	geometric	Line	fair		
M-21	yellow	painting	outline+infill	simple design	Design irregular	poor		

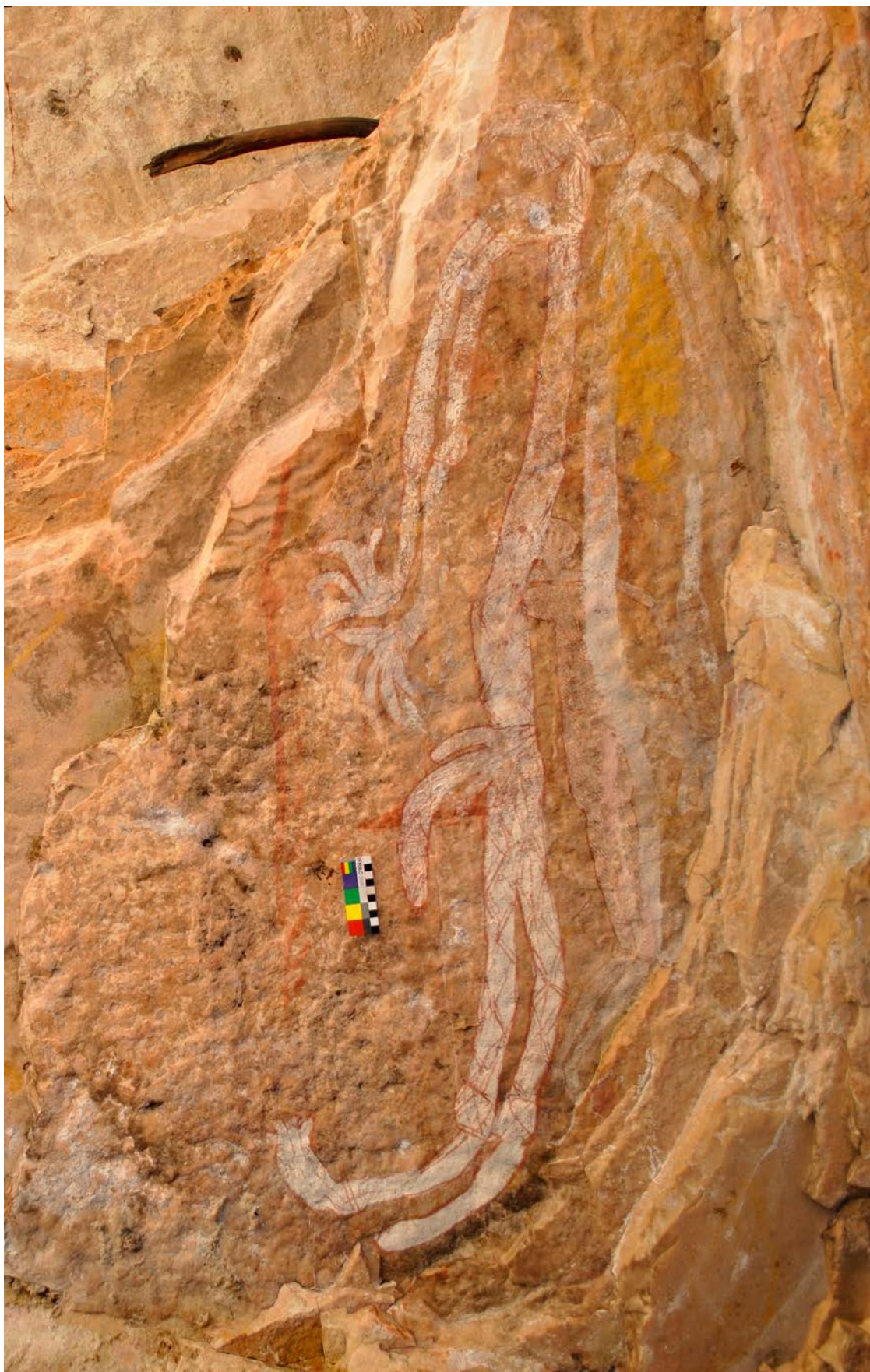


Figure 7.451: Panel M3 photograph
Note wooden dillybag hook wedge into the crevice

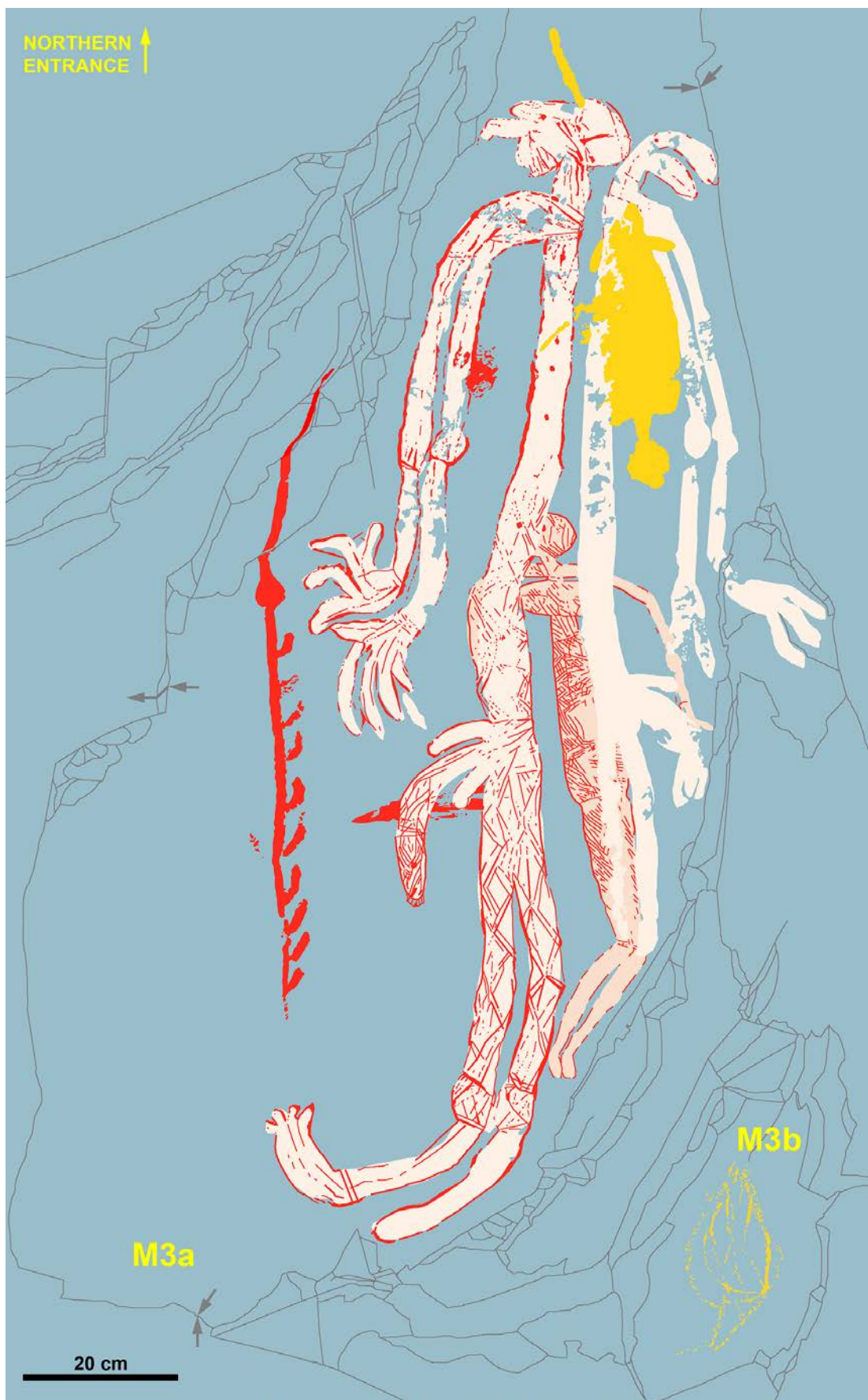


Figure 7.452: Panel M3 photo-tracing

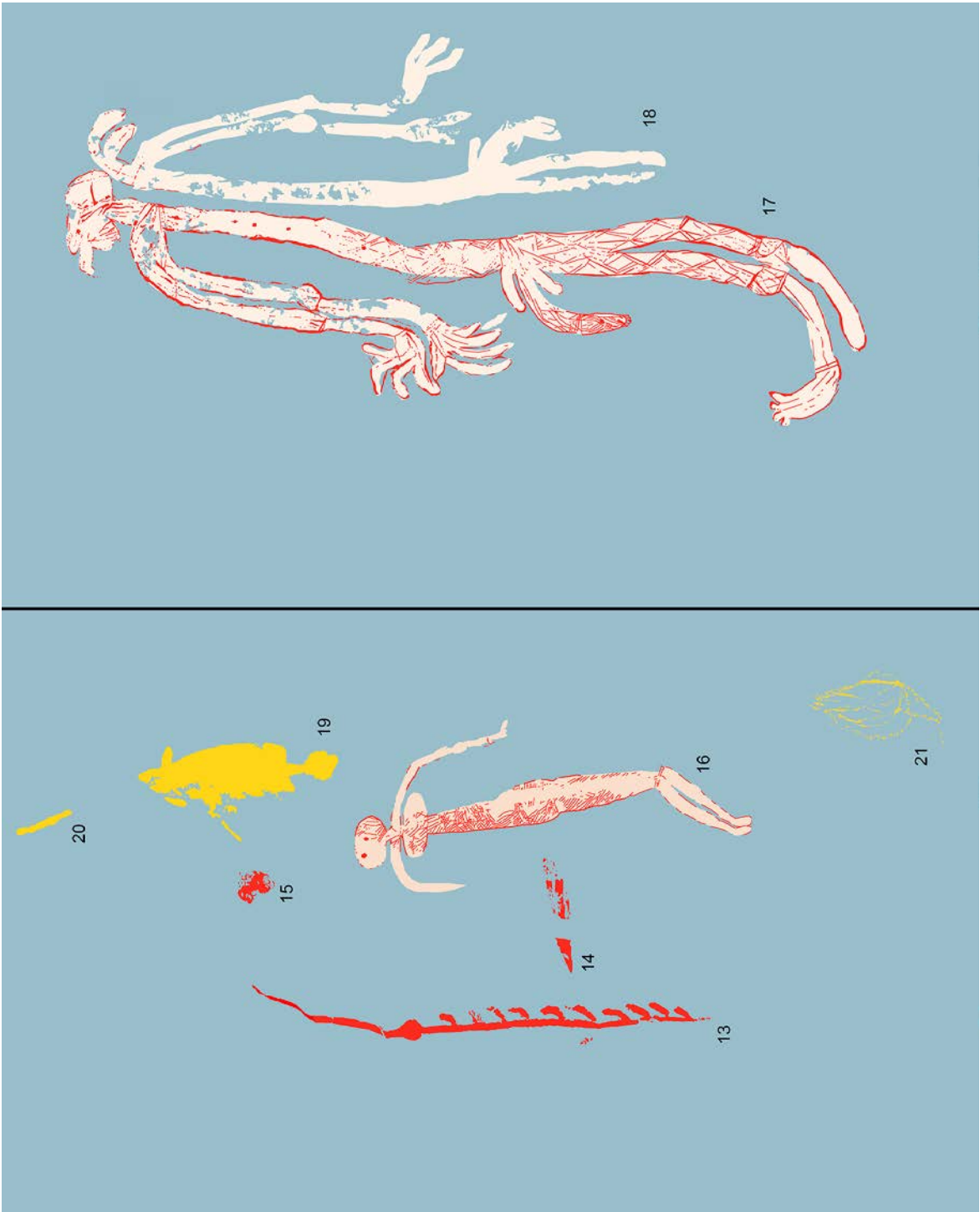


Figure 7.453: Panel M3 motif interpretations

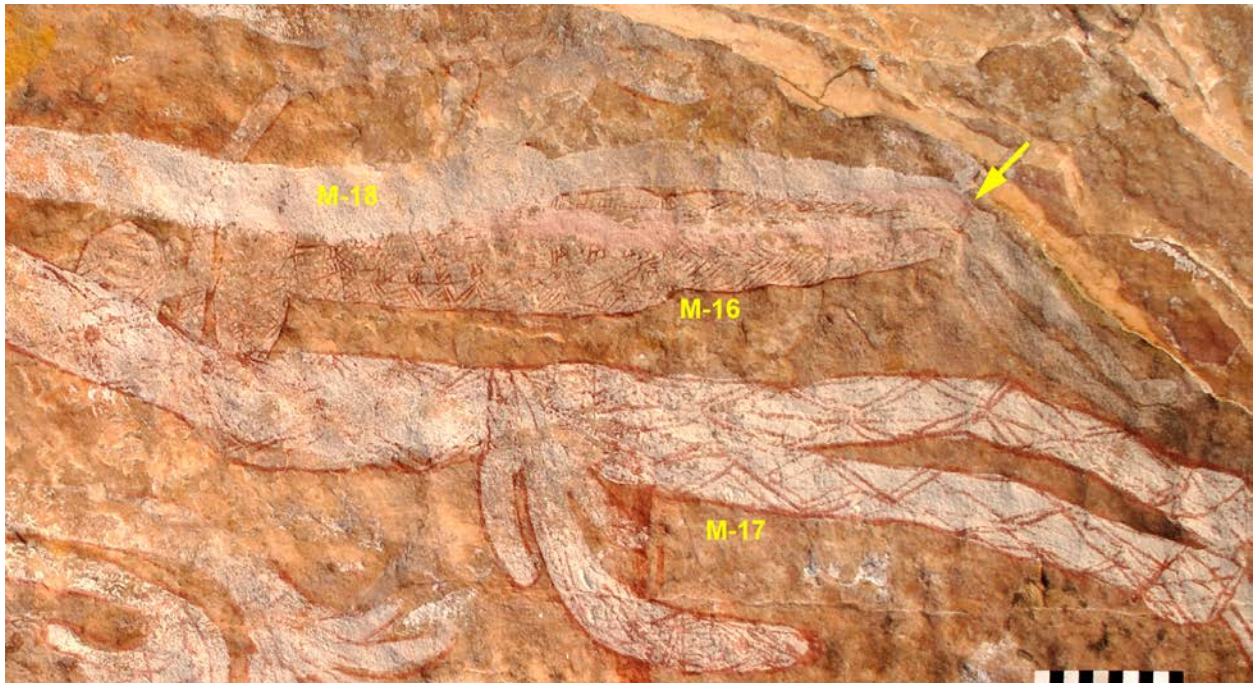


Figure 7.454: Detail of Motifs M-16 and 18 showing the incorporation of the lower legs of M-16 by the overlying M-18 figure. Note also the complex infill patterning on motifs M-16 and 17.

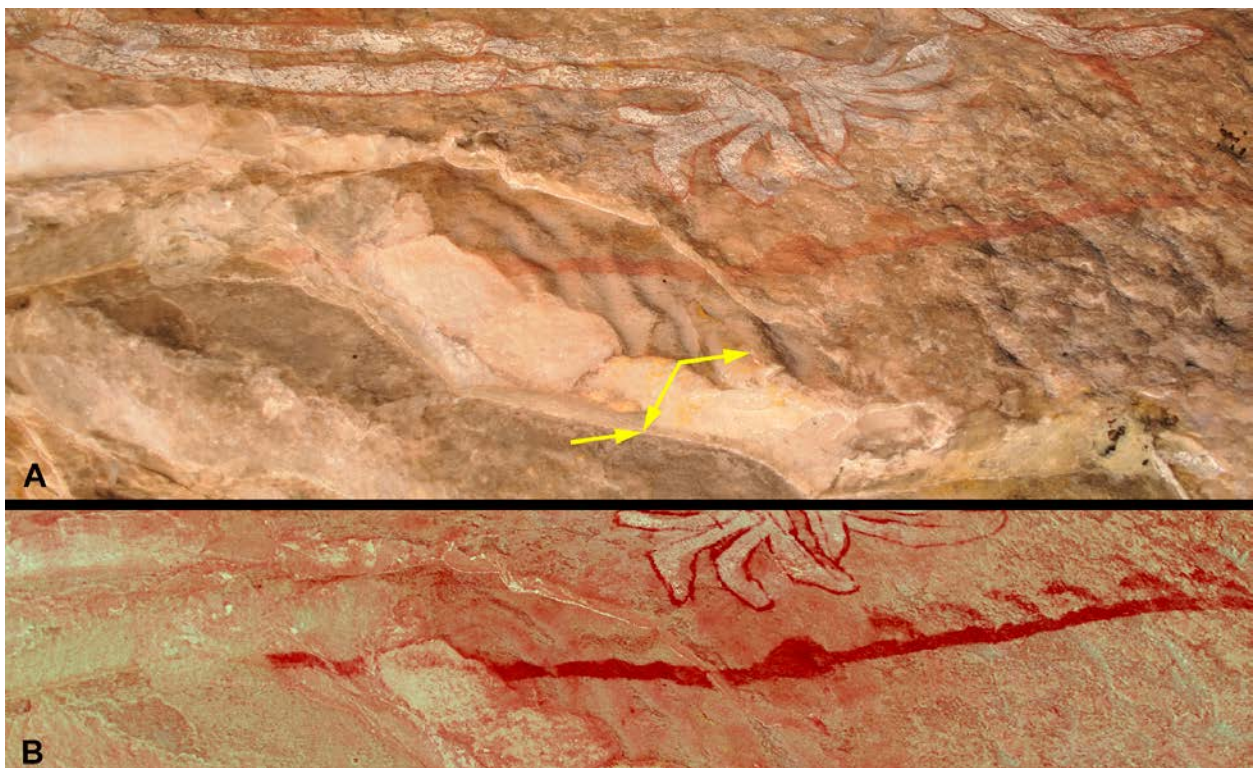


Figure 7.455: Detail of the spear shaft (Motif M-13) traversing the edge of the panel
A: daylight photograph B: DStretch_yre10

Panel M4

Panel M4 (Figures 7.456 to 7.458) is irregular in shape within a maximum area of 2.0×1.3 m. The panel surface is essentially flat but with shallow ripple marks (Figure 7.458). The artwork is distributed in two groups: inner or southern group, and outer or northern group. The majority of the motifs are on the inner section, with only a single macropod on the outer section. Motif alignment in both groups tends to follow the main axis of the panel; however, there is no preferred orientation of the figures.

Panel M4 has 16 motifs (Table 7.42; Figures 7.459 to 7.461) of which all were interpreted to Motif Type.

The dominant, and most recent motifs here, consist of a series of skeletal anthropomorph body parts in either white with red outline and patterned infill or white: head, torso and pelvis (Motif M-34), arms and shoulder blades (Motif M-35), legs with macropod feet (Motif M-36) and ejaculating genitalia (Motif M-37) (Figures 7.461 and 7.462). These occur as a closely arranged set in the inner group. Disarticulated skeletal anthropomorphs such as this one are not common

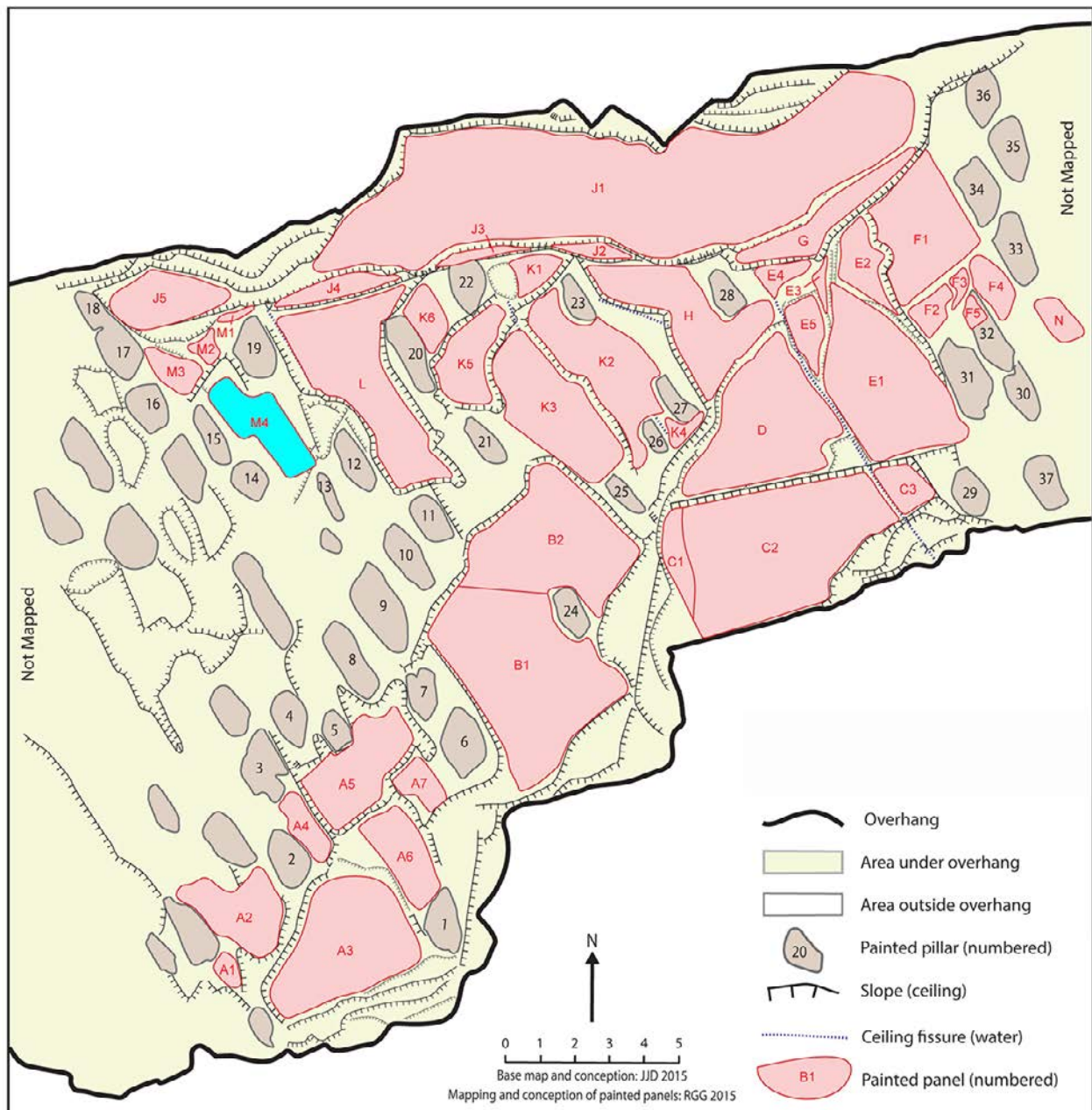


Figure 7.456: Location of Panel M4

in either Jawoyn rock art or that of their northern neighbours.

The other clear motif on the panel is that of a yellow macropod in the outer group (Motif M-30; Figure 7.463). The tail of the animal closely follows a natural curved formation in the rock surface and yet the legs extend beyond the margin of the panel onto an adjacent but irregular surface (cf. motifs M-10 and M-13 discussed above). It appears then, that the curved rock formation

may have been an inducement to position the motif at this location.

At least four hand stencils in red occur among a suite of poorly preserved red motifs that underlie the other motifs in the inner group. One of these hand stencils is of the 3MF type (Figure 7.464). This is the only definite red 3MF hand stencil recorded from the shelter, although two in yellow were recorded on panel A2.



Figure 7.457: Location of Panel M4



Figure 7.458: Panel M4 photomosaic

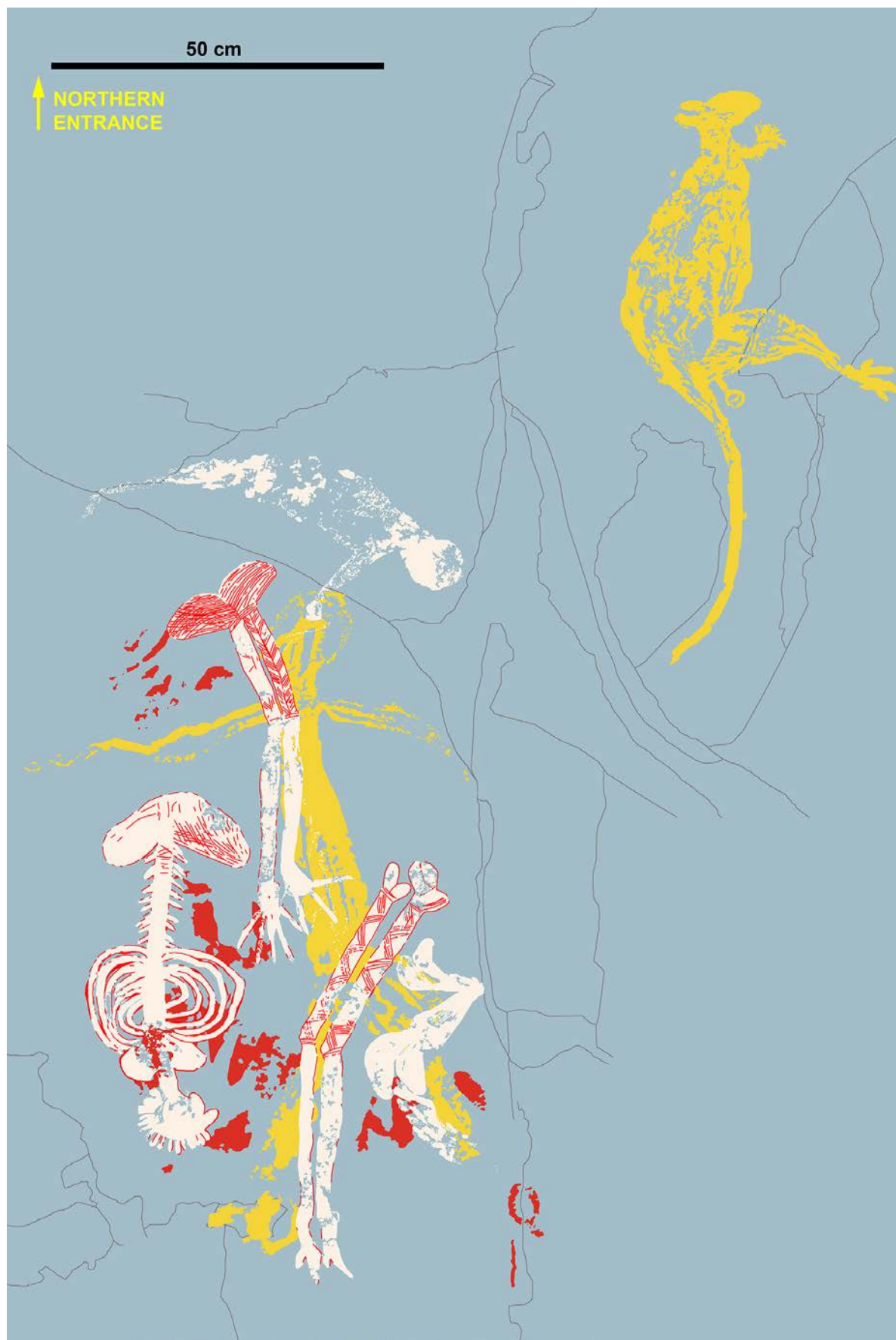


Figure 7.459: Panel M4 photo-tracing

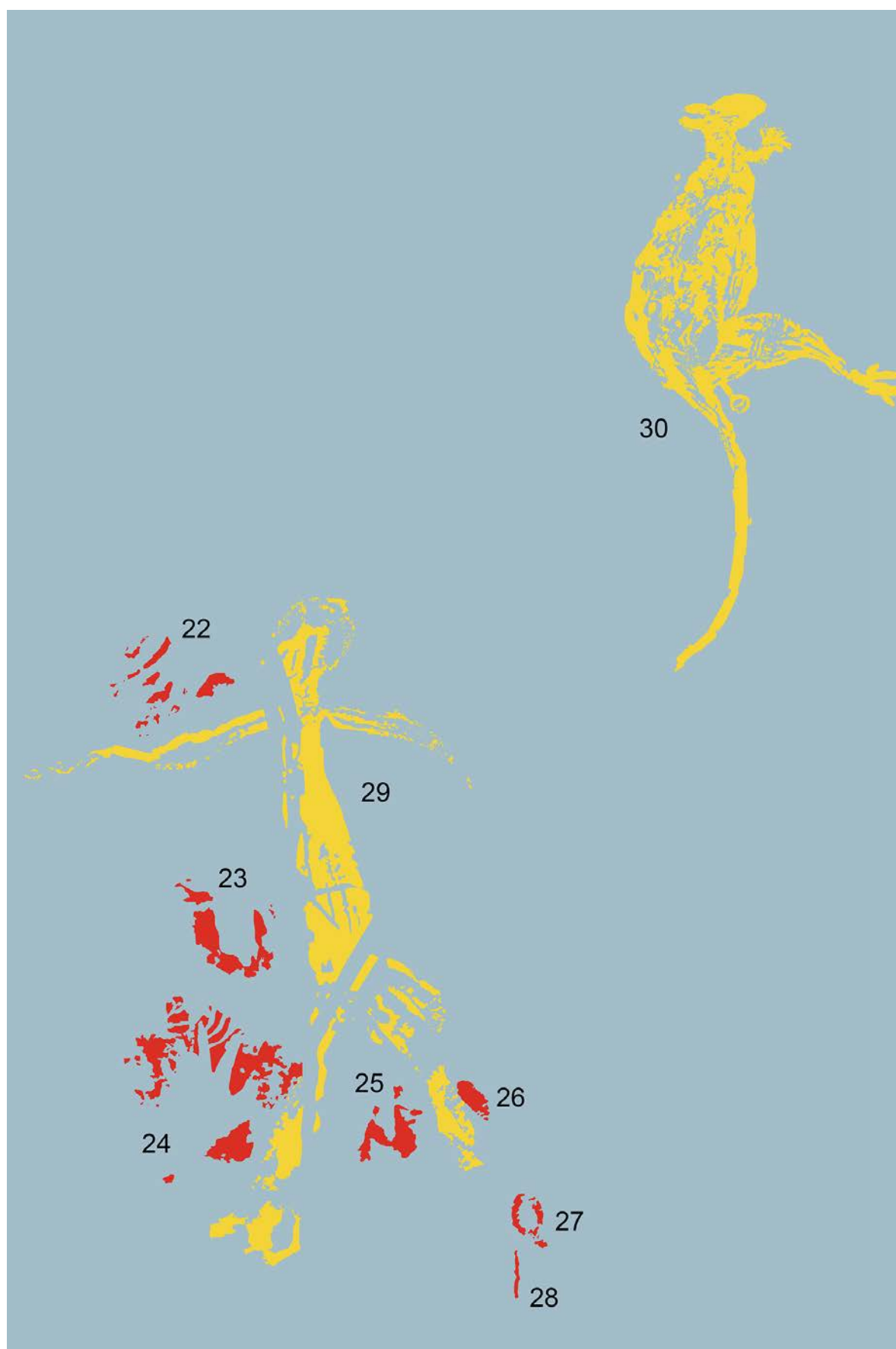


Figure 7.460: Panel M4 motif interpretations (i)

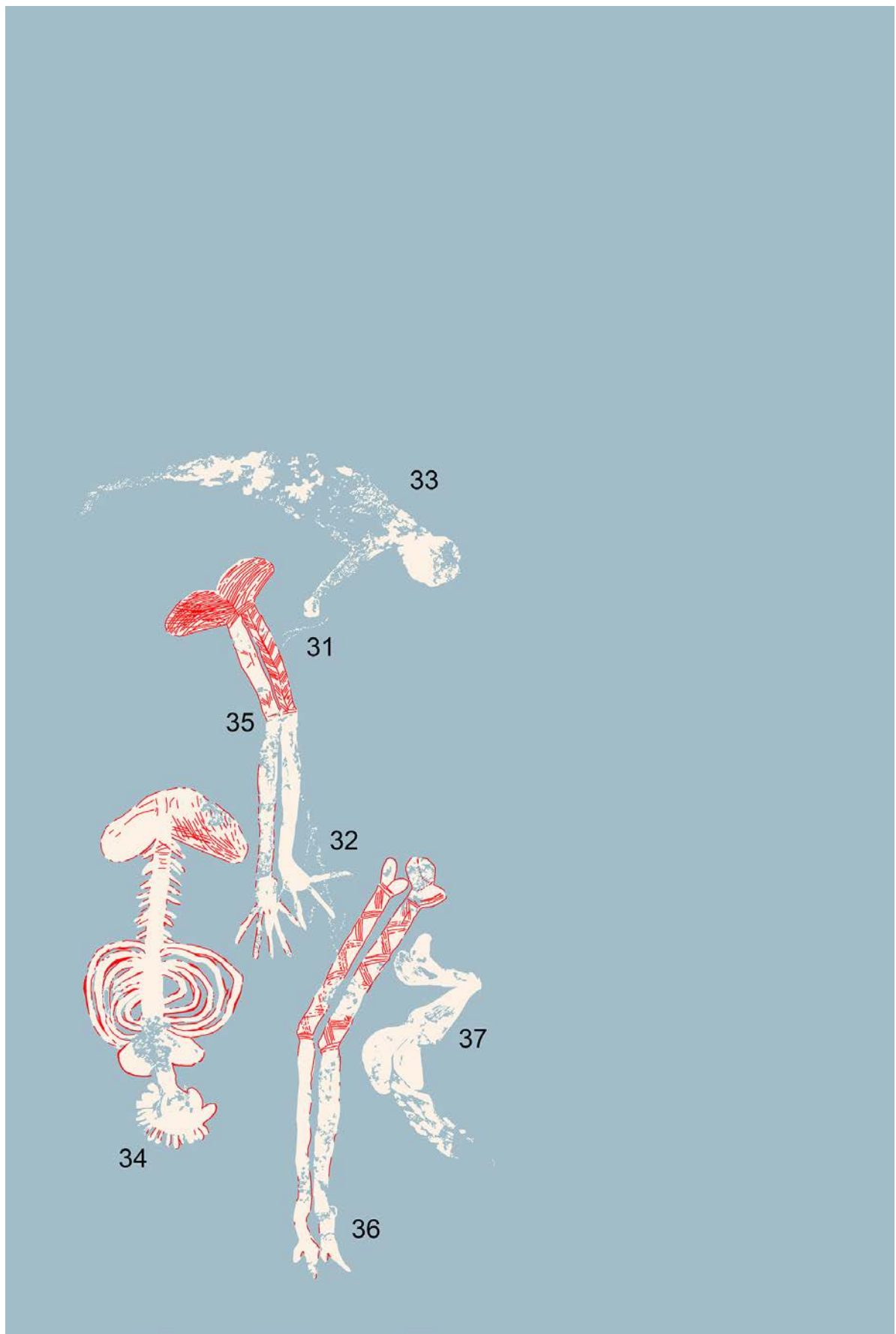


Figure 7.461: Panel M4 motif interpretations (ii)

Table 7.42: Panel M4 motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
M-22	red	spray	stencil	hand	Hand	very poor		
M-23	red	spray	stencil	hand	Hand 3MF	very poor		
M-24	red	spray	stencil	hand	Hand left	very poor		
M-25	red	spray	stencil	hand	Hand	very poor		
M-26	red	painting	solid	geometric	Disc	very poor		
M-27	red	painting	linear	simple design	Q-shape	very poor		
M-28	red	painting	linear	geometric	Line	very poor		
M-29	yellow	painting	solid+outline+infill	anthropomorph	Anthropomorph male	poor		
M-30	yellow	painting	solid	mammal	Macropod	fair	93	40
M-31	white	drawing	linear	geometric	Y-shape	poor		
M-32	white	drawing	linear	simple design	Design irregular	poor		
M-33	white	painting	solid	anthropomorph	Anthropomorph	poor	60	9
M-34	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph torso	fair	54	21
M-35	white+red	painting	solid+outline+infill	anthropomorph	Anthropomorph arms	fair	60	19
M-36	white+red	painting	solid+outline+infill	anthropomorph	Legs macropod-footed	fair	64	9
M-37	white	painting	solid	anthropomorph	Genitals male	fair	23	12



Figure 7.462: Detail of the 'sorcery' composition

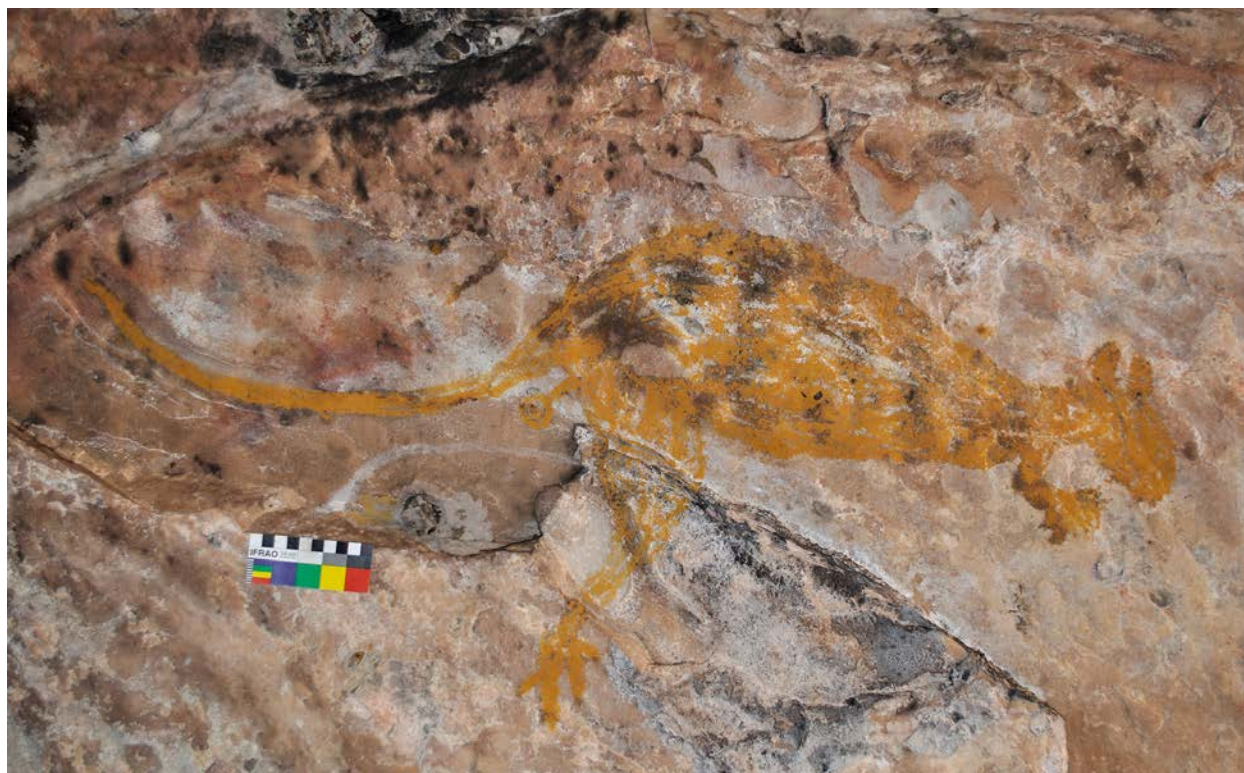


Figure 7.463: Yellow macropod (Motif M-30)

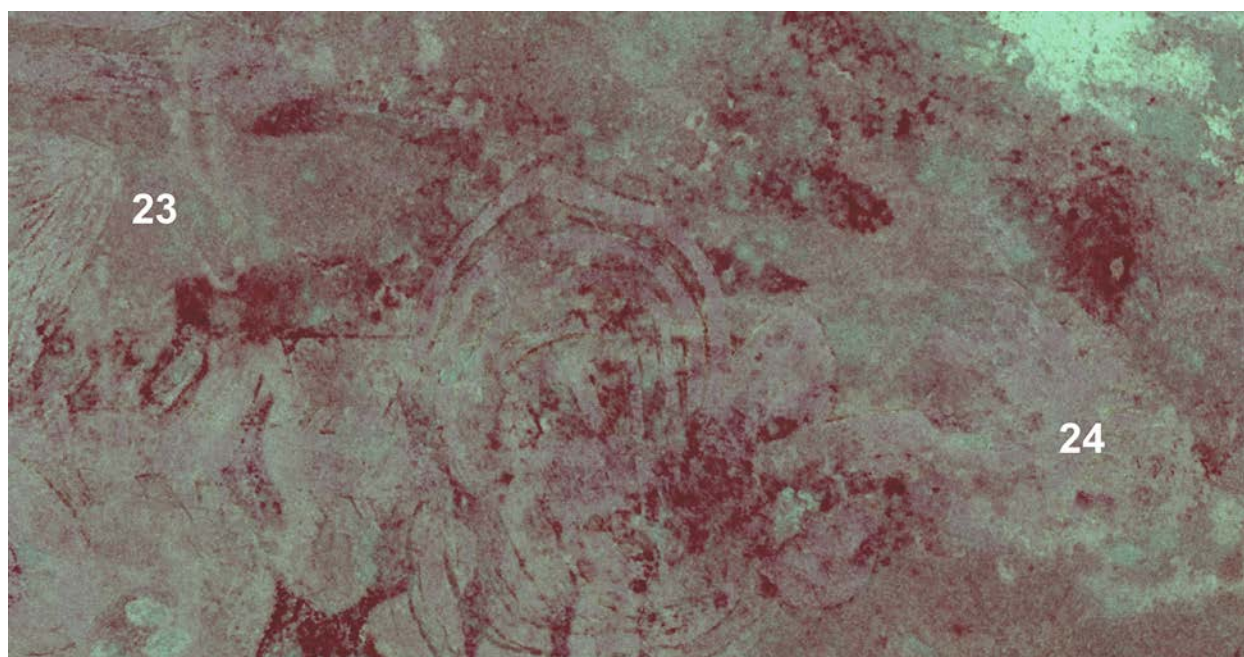


Figure 7.464: Faint red hand stencils
Motif M-23: 3MF type Motif M-24: standard type

Panel N

Panel N (Figures 7.465 to 7.467) measures 1.3×0.5 m and is roughly rectangular in shape. The panel is at the rear of an enclosed area that opens onto the shelter's southern entrance. The surface of the panel is flat and only lightly textured. Mud-wasp nests have been built over Motif N-6, and other nests occur on adjacent areas of the panel.

Panel N contains seven motifs (Table 7.43; Figures 7.468 to 7.470), of which five were interpreted to Motif Type.

The largest and most visually prominent motif on the panel, Motif N-6, is an outlined Saratoga in a bright

white pigment (Figure 7.467). Next to this is a smaller painting in cream of an unknown animal/bird or object.

The underlying marks (Motifs N-1 to 3) consist of two fragments and an unknown type of bird. As the three motifs were painted in a similar colour and have parallels in overall form, it is possible that they represented a set of three similar birds placed evenly across the panel. Another larger bird of similar shape, Motif N-5, was added at some later time. Motifs N-4 and N-5 are in the same coloured pigment and form (outline with striped infill), although Motif N-5 overlies Motif N-4 (Figure 7.467).

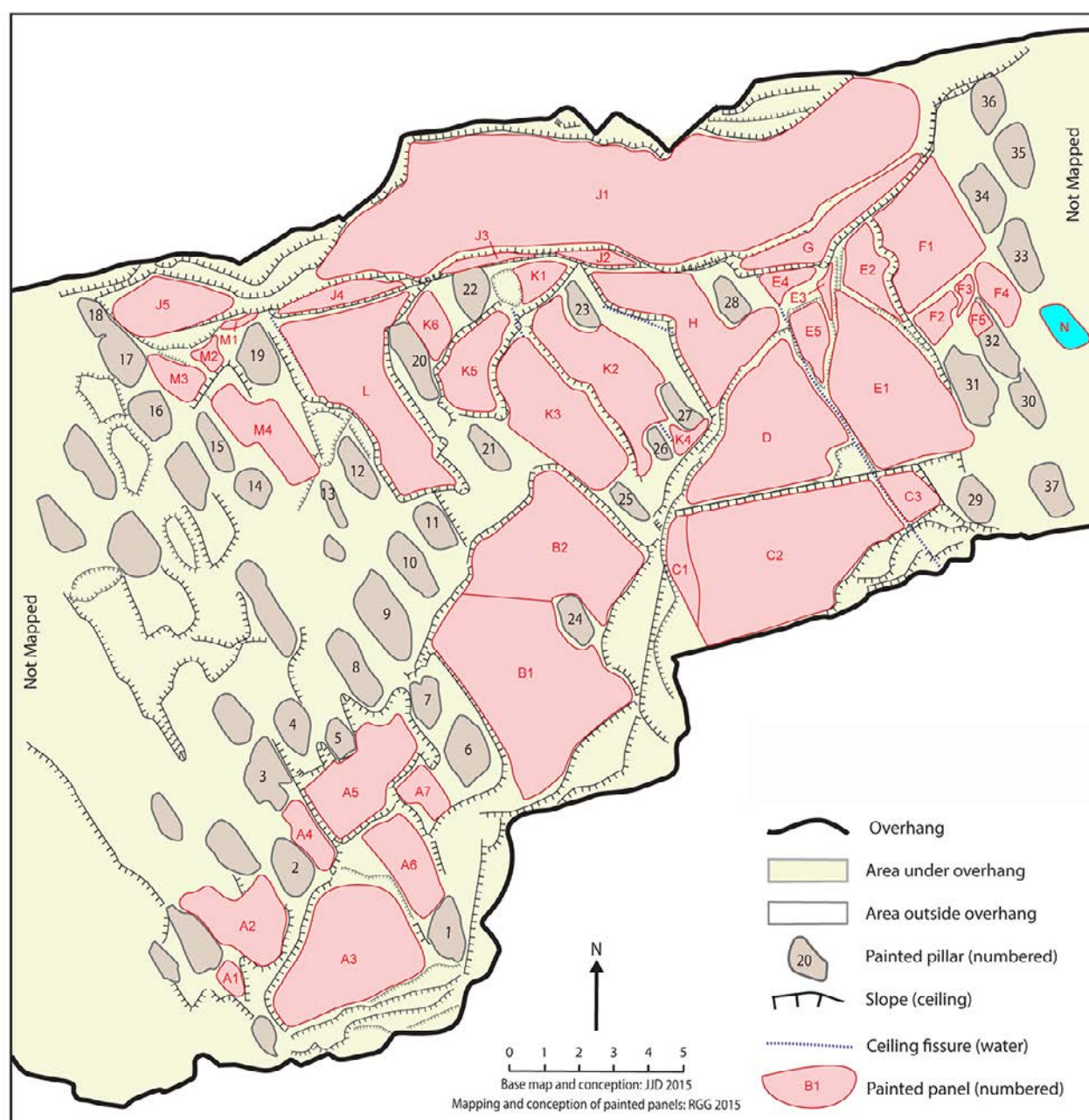


Figure 7.465: Location of Panel N



Figure 7.466: Location of Panel N



Figure 7.467: Panel N photograph



Figure 7.468: Panel N photo-tracing



Figure 7.469: Panel N motif interpretations (i)

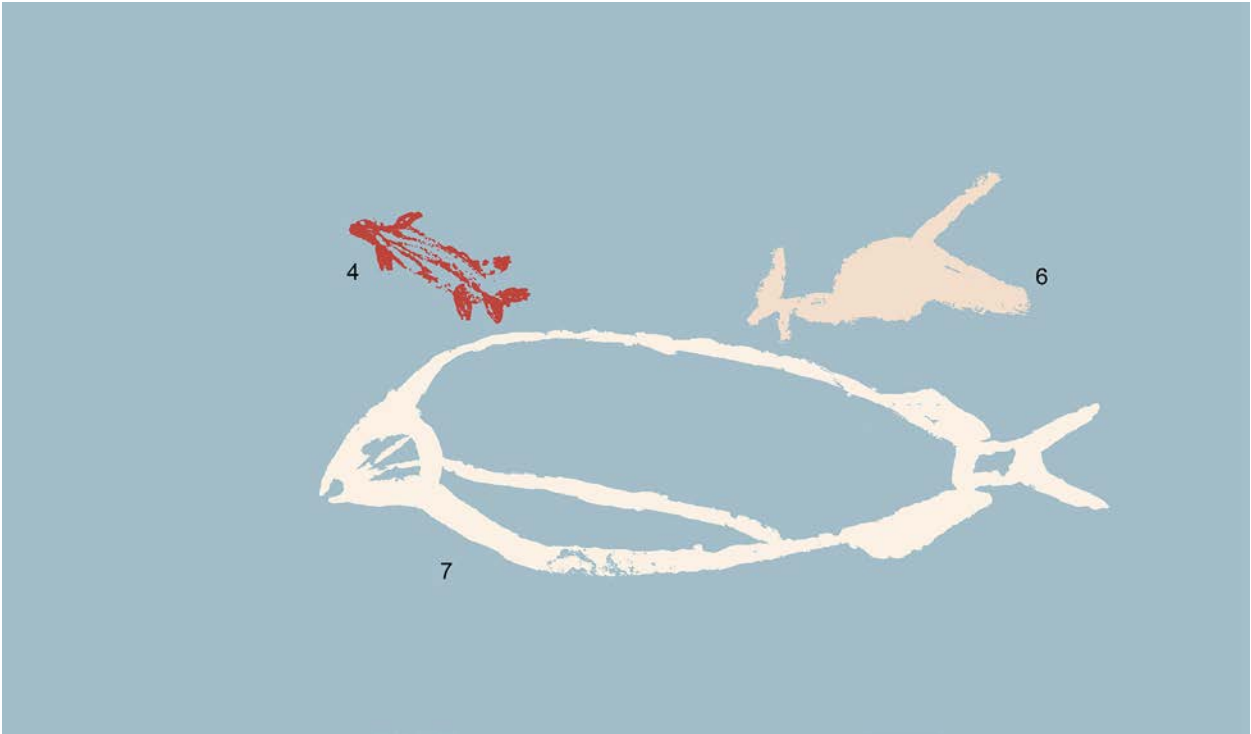
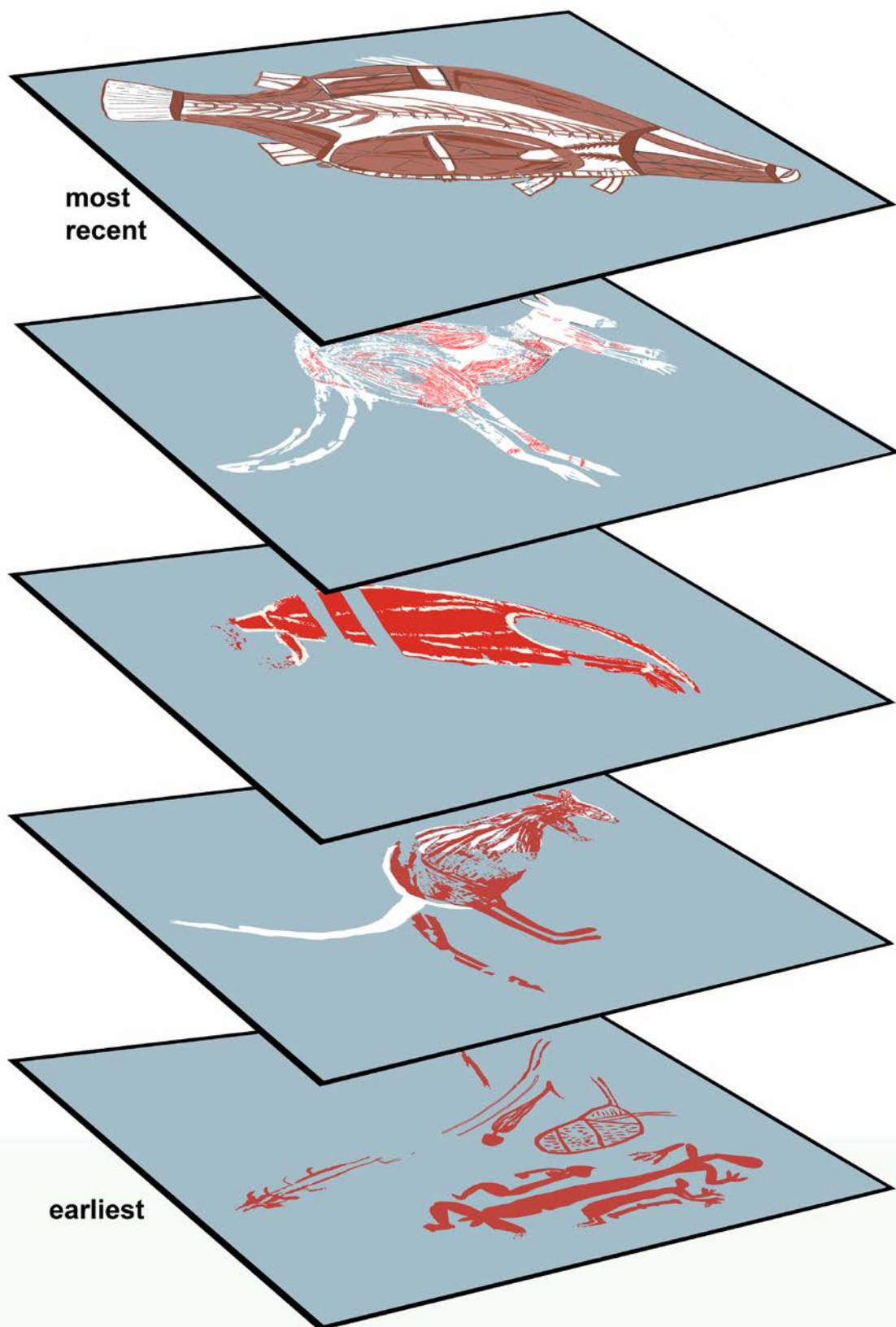


Figure 7.470: Panel N motif interpretations (ii)

Table 7.43: Panel N motif list

Motif No.	Colour	Technique	Motif Form	Motif Class	Motif Type	Condition	Length (cm)	Width (cm)
N-1	red	painting	linear	fragment	fragment	very poor		
N-2	red	painting	solid+linear	fragment	fragment	very poor		
N-3	red	painting	solid+linear	bird	Bird	very poor		
N-4	red	painting	outline+infill+solid	fish	Fish	good	20	8
N-5	red	painting	outline+infill+linear	bird	Emu	good	54	32
N-6	white	painting	solid	unknown	Unknown	very good	30	16
N-7	white	painting	outline+infill	fish	Saratoga	very good	84	26



Superimposition: layers of motifs over time



8. LAYERS OF TIME



This painting is from my great, great grandfather my father my father my fathers and it had been on from generation to generation.
Margaret Katherine 2009

In order to investigate temporal patterns in the motifs as determined by their superimpositions, micro-stratigraphic sequences need to be established for each panel. Radiocarbon dates obtained from individual motifs, and motifs dated by other means (e.g. first arrival of horses in the region constraining the age of Nawarla Gabarnmang's horse painting on Panel D), can then also be incorporated into the sequences, providing absolute ages for specific phases on particular panels. These individual panel chronologies can then provide a basis for determining spatial patterns and temporal trends in the rock art of Nawarla Gabarnmang as a whole.

The primary aim of this chapter is to systematically construct the chronological sequences for each of the ceiling art panels at Nawarla Gabarnmang. The individual sequences are constructed by first producing a Harris Matrix of all superimpositions within a panel and, once these have been taken into account, similar motifs on the panel can be assembled into individual chronological horizons on the basis of similarities in colour, style and/or Morellian attributes (see Chapter 5); keeping aware, however, that 'technical similarities do not necessarily imply the same authorship [unless] they are strongly supported by stylistic elements' (Fiorio 2014:158). In the following chapter, Chapter 9, the panel layers will be correlated across space to construct an overall chronology for the totality of Nawarla Gabarnmang's ceiling art.

In the Harris Matrices diagrams presented here, which show the Layer and Phase interpretations by individual panel, the solid lines represent direct superimpositions between motifs or sets of motifs and the dotted grey lines indicate inferred associations generally based on apparent differences or similarities in pigment preservation or Morellian features. Such similarities or differences within individual panels are equated here with relative age. The colour of a motif (and the major component colour of bi-chrome or poly-chrome motifs) is indicated by the colour of its numbered square on the diagram. For graphic convenience, white, off-white, cream and pink pigments (all white-based) are represented by blue squares. Black motifs (grey pigment, charcoal and beeswax) are represented by grey squares and mulberry-coloured pigments by magenta squares. Red squares cover the hues and tones from magenta through to red-orange, orange squares

cover deep to light orange, and yellow squares cover pale yellow to deep brown. While motifs are designated by a combination of their Group and Motif number (e.g. Motif A-34), for convenience and ease of readability, the panel Group prefix (e.g. the 'A-' of A-34) is not included in the Harris Matrices.

Within the Harris Matrices, the uppermost layer is termed Layer 1, with underlying layers numbered in consecutive order down through the sequence. Layers are composed of motifs on the one panel with similar attributes that can be grouped as a single artistic event, as long as they do not contradict their position on the Harris Matrix. For example, when a number of white motifs outlined with similar line-work quality and colour, are in similar states of preservation and can be grouped without contradicting the Harris Matrix, they are accorded a common layer. Layers are numbered using Arabic numerals (1, 2, 3, etc.). In a small number of cases, where clearly contemporaneous motifs are superimposed, or where the superimposition sequence is uncertain (particularly in the earlier layers of a panel), the layers are enveloped into a single unit but with the layer's internal integrity remaining consistent. As an example, on Panel F1, Layers 12 and 13 are assembled into a single unit as, although Layer 12 is superimposed over Layer 13, both layers contain similarly preserved yellow paintings of comparable form and colour (hue and chroma), and, hence, it appears that the two layers were painted within a very short time of each other and without any other motifs intervening.

The individual layers are then grouped into phases on the basis of particular shared attributes, in a more general manner than the aggregating of motifs into layers. For example, again on Panel F1, Layers 1 to 15 are grouped as a single phase (Phase VII) on the basis of the similar preservation of the various white motifs and therefore must also include the intervening red, yellow and beeswax motifs. The phases are labelled in Roman numerals (e.g. Phase VII) to distinguish them from the Arabic numbers of the layers. As the phases represent relative time periods, the phase with the lowermost layer is the earliest phase and is designated Phase I and the motifs within that phase are the earliest surviving motifs on the panel. Further, to distinguish the individual phases from each panel, each is labelled with a combination of panel number and phase number (for example, Panel A2 Layer IV is labelled as Phase A2/IV).

Group A motif sequences

Panel A1

Panel A1 has two superimposed motifs (Table 8.1; Figure 8.1A), with the upper white motif being well preserved and the lower red motif very poorly preserved. These two motifs form two separate, superimposed layers that constitute two separate phases (Table 8.2; Figure 8.1B):

- **Phase A1/I:** the earliest phase on this panel consists of a single hand stencil in red; and
- **Phase A1/II:** the later phase contains a white macropod with striped infill.

Although mostly but not always the case (cf. Clarke 1978 with Brandl 1973:171-173; Lewis 1988:3-5; and personal observations within Jawoyn Lands), in this instance, the clear difference in preservation between the two motifs implies a considerable time difference separating the two art events.

Table 8.1: Panel A1 motif superimpositions

Motif No.	Underlying Motifs (A-)
A-2	1

Table 8.2: Summary of the Panel A1 art phases

A1 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	1	1	white	solid	macropod
I	1	1	red	stencil	hand

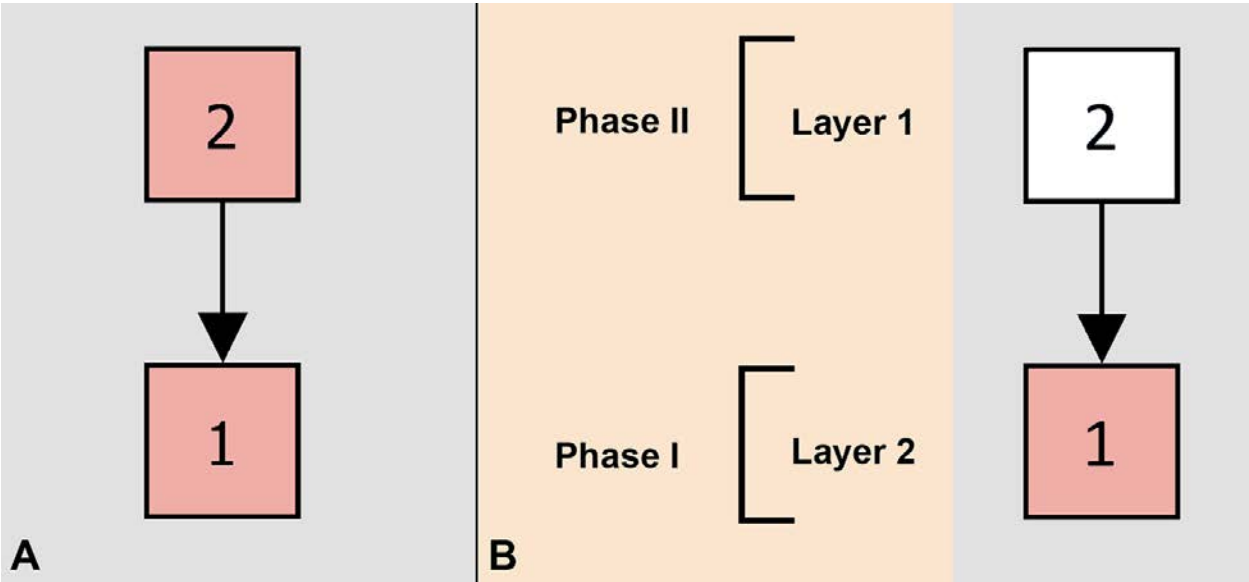


Figure 8.1: Harris Matrix of the Panel A1 superimpositions (A) and interpretation with motif number and base colour indicated (B).
Image available online at tinyurl.com/9781789690705-onlinecontent

Panel A2

Although only two clear instances of superimposition occur on Panel A2 (Table 8.3; Figure 8.2), the 21 motifs on this panel were aggregated into four layers. From these layers, three phases were identified (Table 8.4; Figure 8.3):

- **Phase A2/I:** the earliest phase, consisting a single layer of red hand stencils (including the 3MF type);
- **Phase A2/II:** this phase consists of two layers: one of two yellow hand stencils (Layer 2) and another of two red solid areas (Layer 3). The relative sequence of these two layers is unclear, as both are equally poorly preserved and they do not occur in superimposition. The red paintings of Layer 3 are of a considerably brighter hue than the underlying red pigment of the Layer 4 stencils; and
- **Phase A2/III:** a single layer consisting of a charcoal drawing. This motif is differentiated on the basis of its far better preservation relative to the adjacent artwork. This drawing, Motif A-8 (Figure 8.4), is considered to be the most recent motif on this panel as it is by far the best preserved.

Table 8.3: Panel A2 motif superimpositions

Motif No.	Underlying Motifs (A-)	Motif No.	Underlying Motifs (A-)
A-3	3:4 unclear	A-14	13:14 unclear
A-4	3:4 unclear	A-19	12
A-13	13:14 unclear	A-22	18

Table 8.4: Summary of the Panel A2 art phases

A2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	1	black	drawing	simple design
I	2	4	red, yellow	stencil, painting	hand, fragment
I	1	20	red	stencil	hand

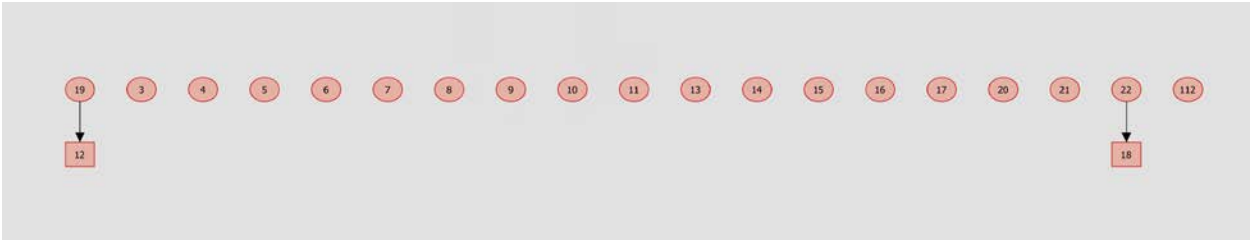


Figure 8.2: Harris Matrix of the Panel A2 superimpositions.
Image available online at tinyurl.com/9781789690705-onlinecontent

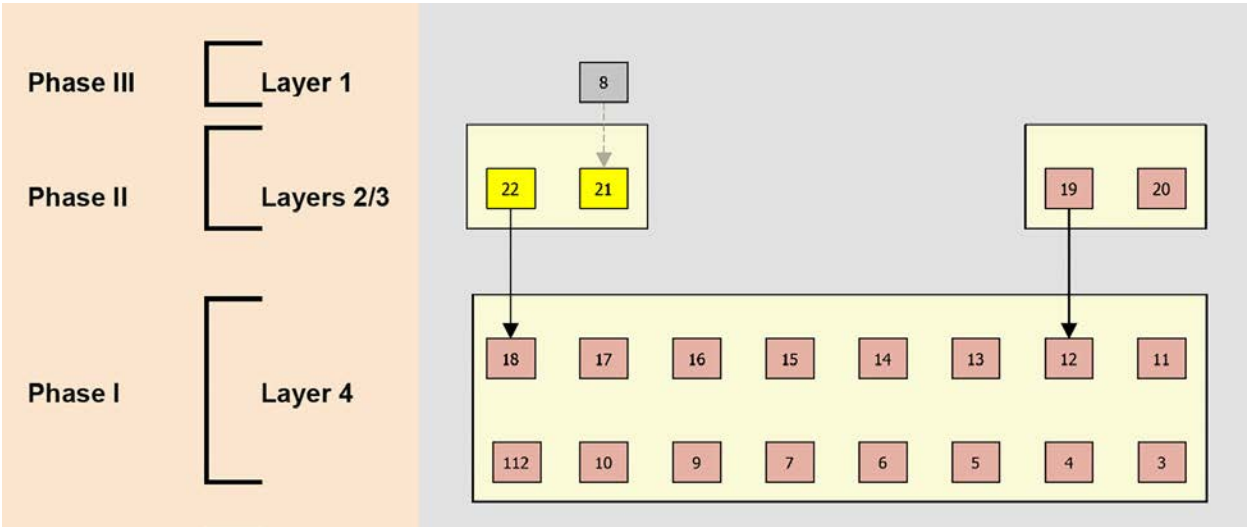


Figure 8.3: Interpretation of the Panel A2 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

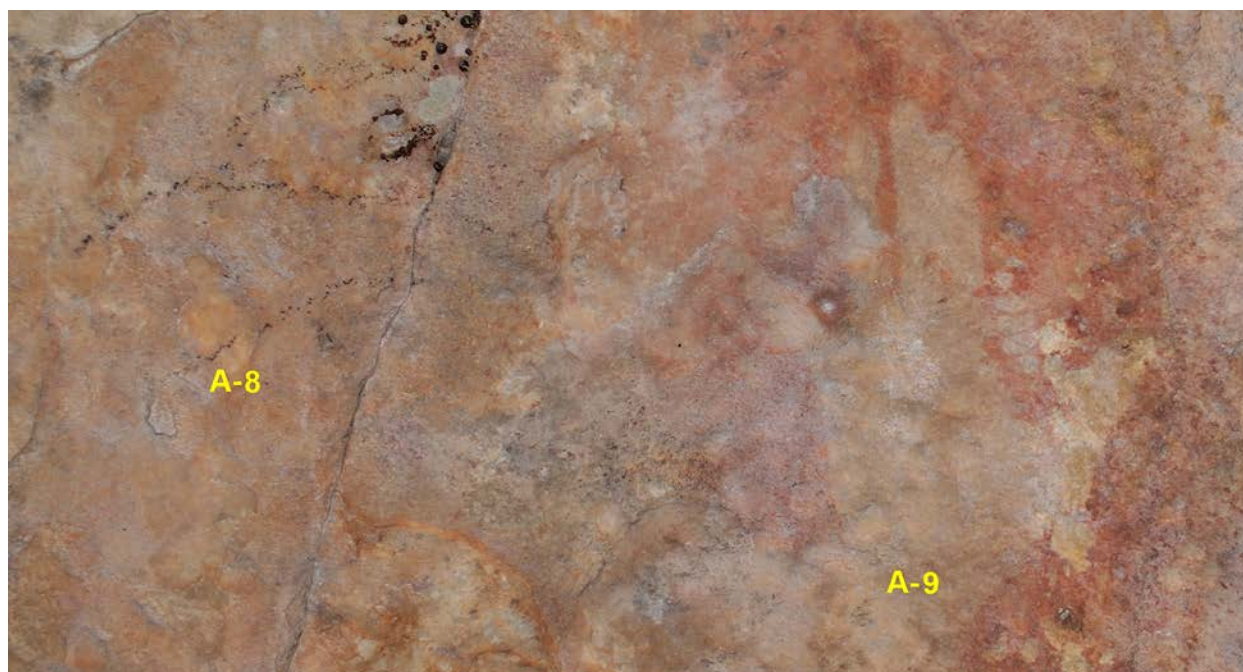


Figure 8.4: Photograph showing the preservational differences between the charcoal Motif A-8 and hand stencil Motif A-9

Panel A3

Fifty of the 55 motifs on Panel A3 are involved in superimpositions (Table 8.5; Figure 8.5). Based on their patterns of superimposition, these 55 motifs were aggregated into 16 layers (including the six motifs from Panel A3b), and then the layers into six phases (Table 8.6; Figure 8.6):

- **Phase A3/I:** the earliest phase consists of a single mulberry red stencil from Panel A3a (Motif A-23);
- **Phase A3/II:** a phase consisting of three layers of 20 red monochrome motifs including Motif A-27 that overlies a mud-wasp nest. Four red motifs that are not involved in any superimpositioning (Motif A-31, 38, 39 and 41) are ascribed to this phase, as are the three lower motifs from Panel A3b (Motifs A-72 to A-74);
- **Phase A3/III:** two layers of four yellow paintings (including a large yellow macropod with red outline and patterned infill);
- **Phase A3/IV:** a phase of two layers of ten red monochrome paintings including the three upper motifs from Panel A3b (Motifs A-75 to A-77);
- **Phase A3/V:** a phase of five layers of 14 white monochrome paintings and a single yellow motif (Motif A-59); and
- **Phase A3/VI:** the final phase of two layers of four bichrome motifs (painted as white silhouettes with either red or black outline+infill) and two small white monochrome paintings.

The position of the yellow foot motif (Motif A-59; Figure 8.7) within this sequence is anomalous to these phases as it does not appear to be technically or thematically related to any other motif on the panel; it clearly occurs during the time of Phase A3/V as it overlies Motif A-57, but is not as well preserved as motifs in Phase A3/VI (layers 12-15).

With the exception of the lowest layer, large motifs (>80 cm long) occur throughout the sequence, with the largest being the yellow+red macropod (Motif A-44) from Phase A3/III. The mulberry hand stencil of Phase A3/I is considerably less well preserved than those motifs in overlying phases (Figure 8.8), suggesting Phase A3/I concluded some time before the beginning of Phase A3/II. Paintings of macropods and anthropomorphs dominate all six phases, although the most recent motif is the large and centrally placed bichrome emu.

Unlike the majority of art panels here, and throughout much of Arnhem Land, the majority of the motifs are concentrated around the centre of the panel while areas around the periphery remain little used. This suggests that at least some of the superimpositioning here was intentional and meaningful (cf. Clegg 1971).

Radiocarbon dates were obtained from two remnant wasp nests (Delannoy et al. 2017). The older of the two, which is a mud nest, provided a calibrated age range of 11,624-12,024 cal BP, with a median age of 11,833 cal BP (Table 8.7). This nest underlay a red linear painting from Phase II (Motif A-27; Figure 8.9) and hence provides a maximum age for the painting and the phase. The

relationship of this mud-nest to the mulberry coloured hand stencil in the lowest layer, Layer 26 (Motif A-23), is unknown and so whether or not the date reflects a time prior to the panels use for rock art is unknown.

The more recent of the wasp nests provided a calibrated age range of cal AD 1519-1950, with a median of cal AD 1638 (Table 8.7). The wasp nest overlies Motif A-57, indicating that this motif was painted prior to the formation of the wasp nest. From oral testimony, no major artwork was added to the ceiling after AD 1935 (see Chapter 6) and, as this nest overlies Motif A-57, which is itself overlain by

two motifs (which the interpretation of the Harris Matrix involves six art layers and 13 motifs), the cal AD 1948-1950 (0.3% probability) age bracket can be disregarded in relation to the dating of the artwork. Hence, the minimum age range for Motif A-57 and Layer 7 can be taken as cal AD 1519-1798 (Table 8.7). This then indicates that all the motifs from Layers 7 to 16 pre-date this time (i.e. they were all painted more than 200 years ago). This does not, however, necessarily mean that Layers 1 to 6 were produced more recently than 200 years ago as there is no direct association of the wasp nest with any of the more recent layers in this panel.

Table 8.5: Panel A3 motif superimpositions

Panel	Motif No.	Underlying Motifs (A-)	Panel	Motif No.	Underlying Motifs (A-)
A3a	A-24	23	A3a	A-63	54,48,45,29,33
	A-25	44		A-64	57,48,45
	A-33	32		A-65	56,44,42,40,24
	A-35	34		"	60,49,44,43
	A-40	24,23		"	57,25,44
	A-42	40,24,23		"	52
	A-44	43,42,40, 28,24,23		A-66	65,57,44,42,40,24
	A-45	29,30,33,36,37		A-67	65,52
	A-46	44,43,28		"	65,25,44
	A-48	45,30,37		"	65,56,46,44,28
	A-49	46,44,42,40,24,23		"	65,57,53,50,48,44,28
	A-50	48,45,29,30		A-68	65,26
	A-51	48,26,27		A-69	51,26
	A-53	50,48,45		A-70	45,35,36
	A-54	48,45,29,33		A-71	68,65,26
	A-55	42,40		"	68,65,60,61,44
	A-56	48,44,43,42,40		"	68,65,26,56,57
	A-57	53,51,50,48,45,27,25		"	67,65,25,44
	A-58	45,36,35,34		"	66,65,56,46,44
	A-59	57,51,48		"	49,46,44
	A-60	49,46,44,43		"	47
	A-61	46,44,28	A3b	A-76	72
	A-62	29,33,44		A-77	73

Table 8.6: Summary of the Panel A3* art phases

A3 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VI	3	6	white+red	solid+outline+infill	bird, macropod, anthro
V	5	14	white	outline+striped infill, solid	macropod, anthro
IV	2	10	red	solid, outline+striped infill	anthro, macropod
III	2	4	yellow	solid+outline+infill, outline+striped infill, outline	macropod, anthro
II	3	20	red	outline	anthro, animal, reptile, fish
I	1	1	mulberry	stencil	hand

*The panel A3b motifs equate with Phases A3/II Layer 15 (Motif A-72 to A-74) and A3/IV Layer 10 (Motif A-75 to A-77)

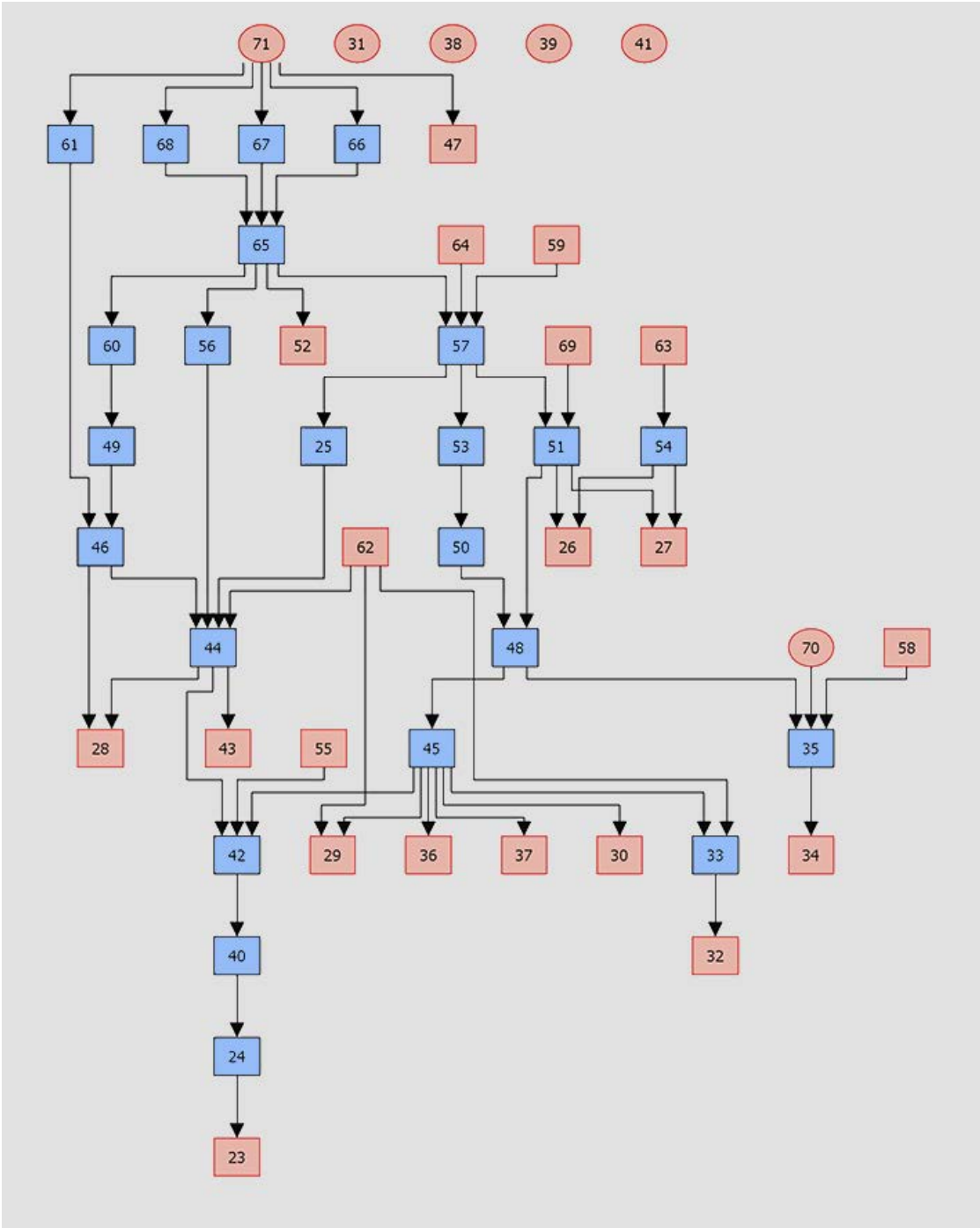


Figure 8.5: Harris Matrix of the Panel A3a superimpositions.
Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.7: Radiocarbon dates from wasp nest samples on Panel A3

Lab. No.	$\delta^{13}\text{C}\text{‰}$	% Modern	^{14}C Age (BP)	Calibrated Age AD (95.4% probability)	Median Calibrated age
Wk-31731*	-12.2 \pm 0.2	96.7 \pm 0.3	267 \pm 29	1519-1593 (39.1%) 1619-1668 (53.4%) 1782-1797 (7.3%) 1948-1950 (0.3%)	cal AD 1638
Wk-31730	na	28.2 \pm 0.1	10,154 \pm 40	11624–11675 (5.7%) 11693–12024 (94.3%)	11,833 cal BP

(data courtesy of Bruno David, pers. comm. 2015)

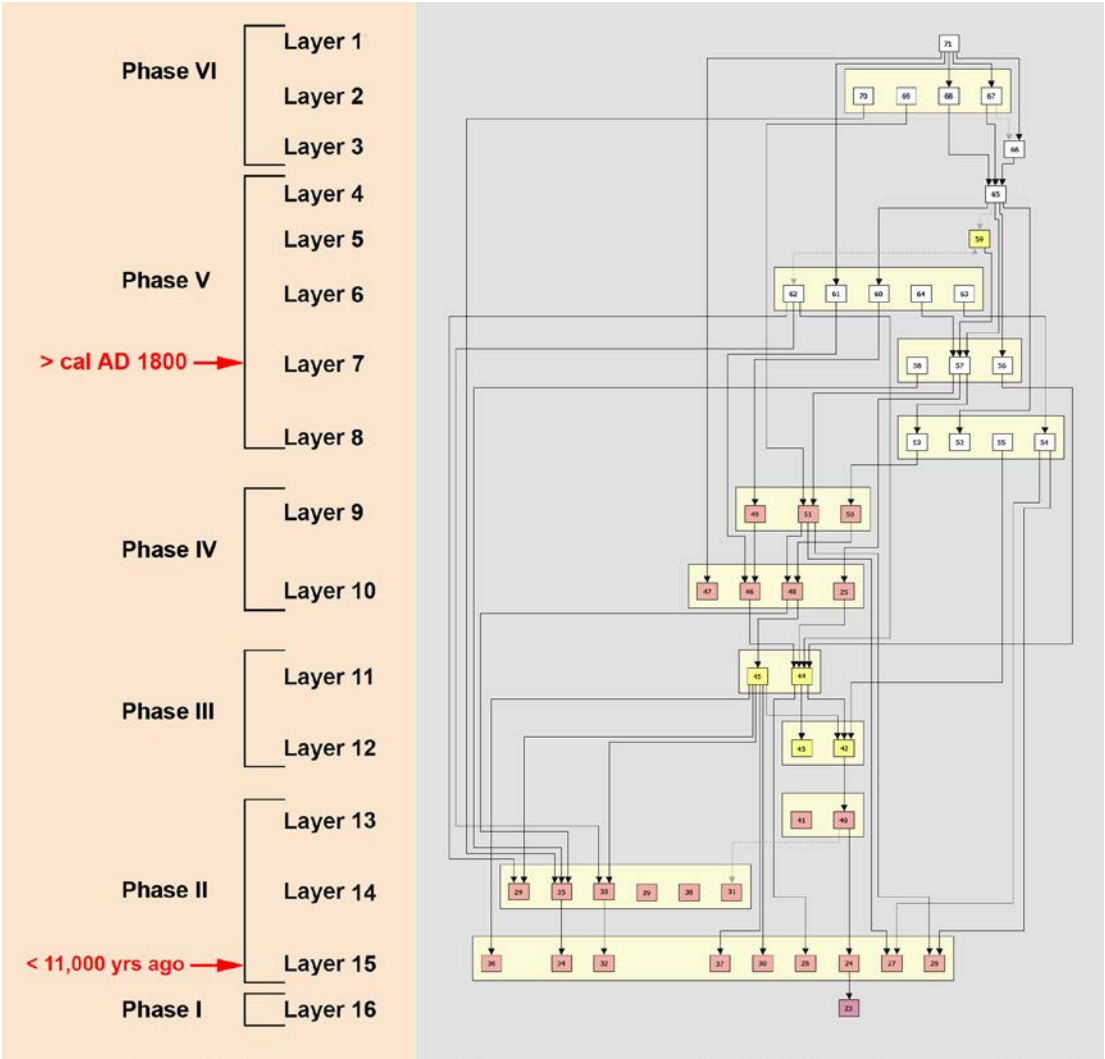


Figure 8.6: Interpretation of the Panel A3a Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

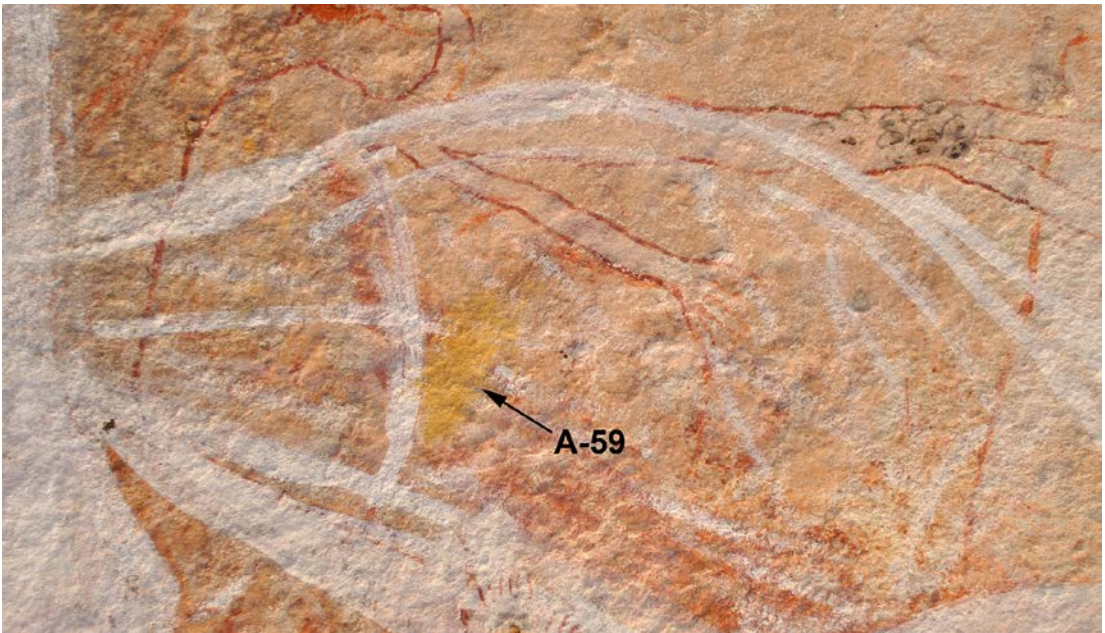


Figure 8.7: Detail of the singular yellow foot motif (Motif A-59)

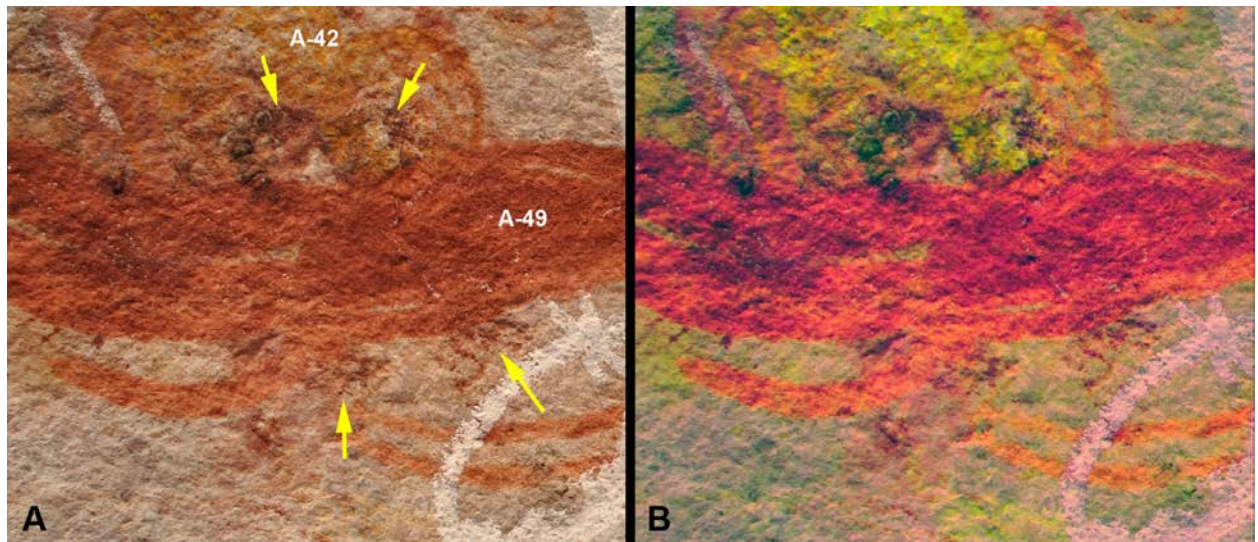


Figure 8.8: Detail of the underlying mulberry coloured hand stencil (Motif A-23; arrowed)
A: Flash photograph B: DStretch enhancement_yds10

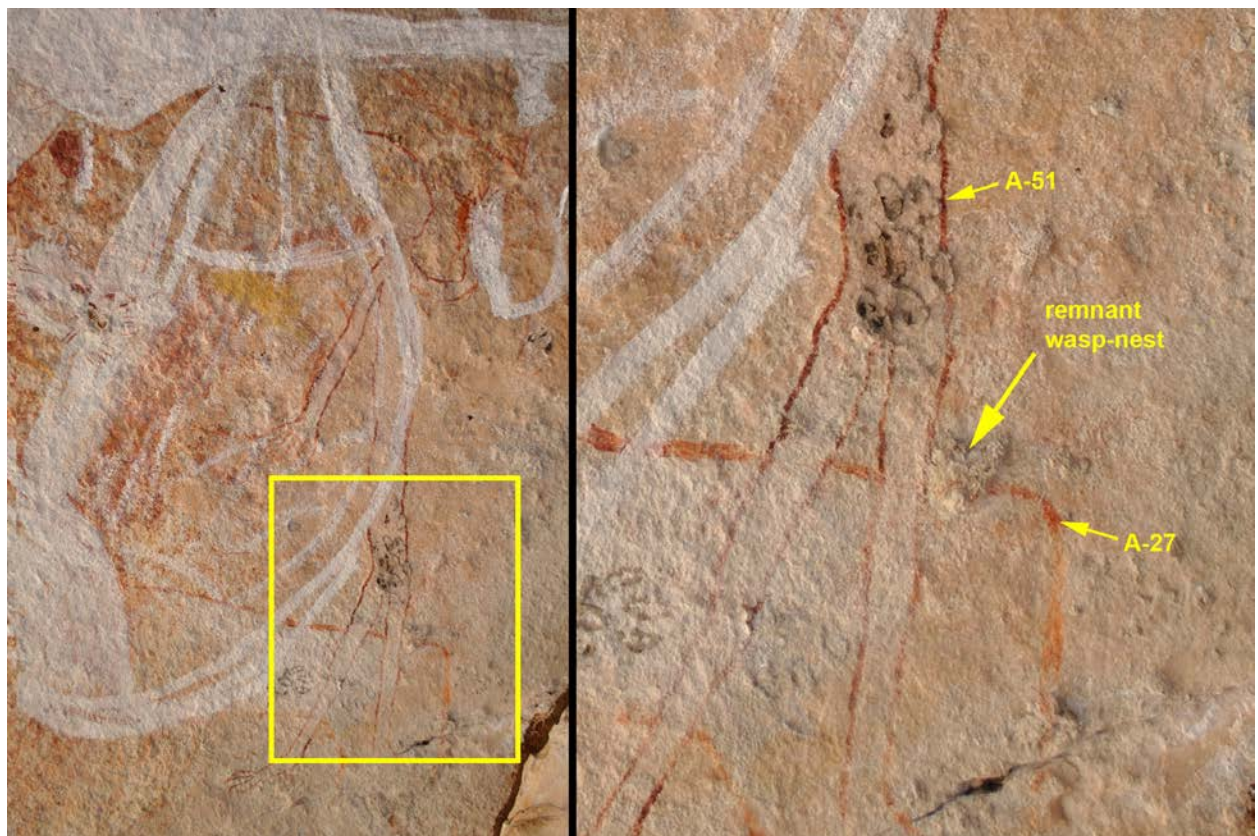


Figure 8.9: c.11,000 year old mud-wasp nest underlying Motif A-27

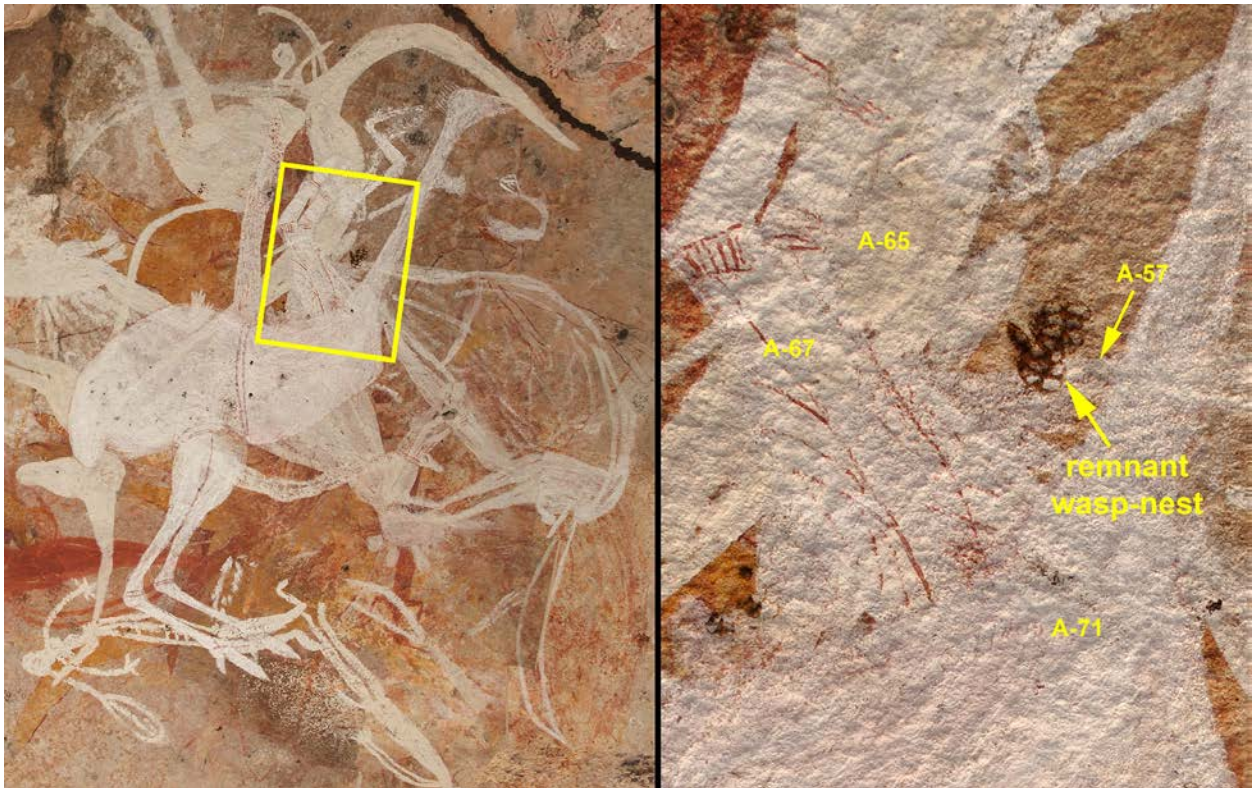


Figure 8.10: Wasp nest (c. cal AD 1638) overlying Motif A-57

Panel A4

Three of the seven motifs on Panel A4 are involved in superimpositions (Table 8.7; Figure 8.11A). These form the basis of three superimposed layers, each of which constitutes a distinct temporal phase (Table 8.8; Figure 8.11B):

- **Phase A4/I:** the earliest phase, consisting of a red hand stencil and red fragments;
- **Phase A4/II:** an intermediary phase consisting of a single red outlined design; and

- **Phase A4/III:** a white simple design and a white hand stencil (Motif A081; Figure 8.11).

Table 8.7: Panel A4 motif superimpositions

Motif No.	Underlying Motifs (A-)
A-80	79
A-81	79,80
A-82	81

Table 8.8: Summary of the Panel A4 art phases

A4 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	2	white	stencil, linear	hand, simple design
II	1	1	red	outline	simple design
I	1	3	red	stencil	hand

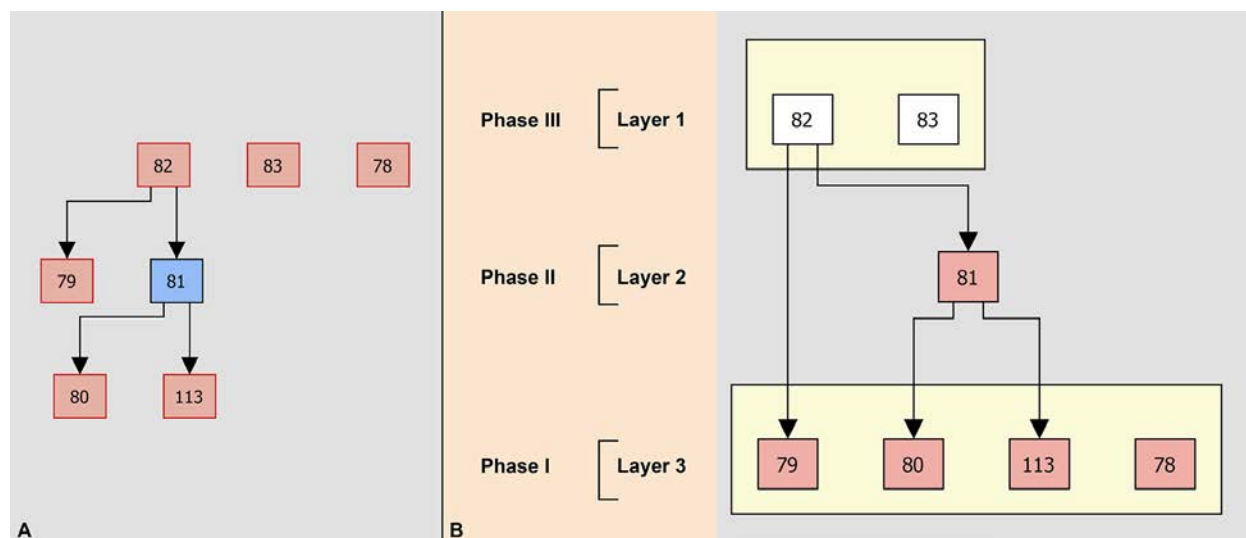


Figure 8.11: Harris Matrix of the Panel A4 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

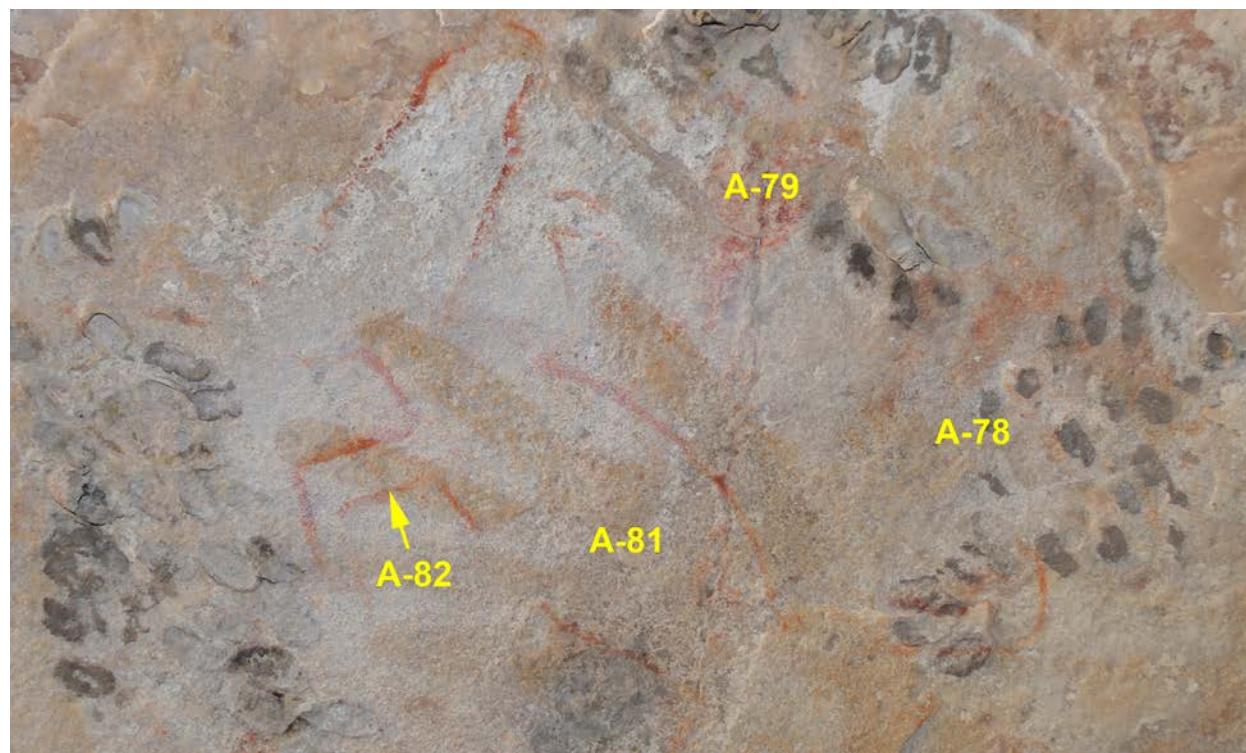


Figure 8.12: Panel A4 detail of superimpositioning
Red painting (Motif A-82) over white hand stencil (Motif A-81) over red fragment (Motif A-79)

Panel A5

Four of the five motifs on Panel A5 are involved in superimpositions (Table 8.9; Figure 8.13A). The five motifs were aggregated into four layers, and the layers into two phases (Table 8.10; Figure 8.13B):

- **Phase A5/I:** two layers of three deep red paintings (macropod and unknown), and

- **Phase A5/II:** two layers of two superimposed, solid white paintings (fish and unknown).

Table 8.9: Panel A5 motif superimpositions

Motif No.	Underlying Motifs (A-)
A-85	84
A-88	87

Table 8.10: Summary of the Panel A5 art phases

A5 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	2	2	white	solid	fish
I	2	3	red	outline+infill	macropod

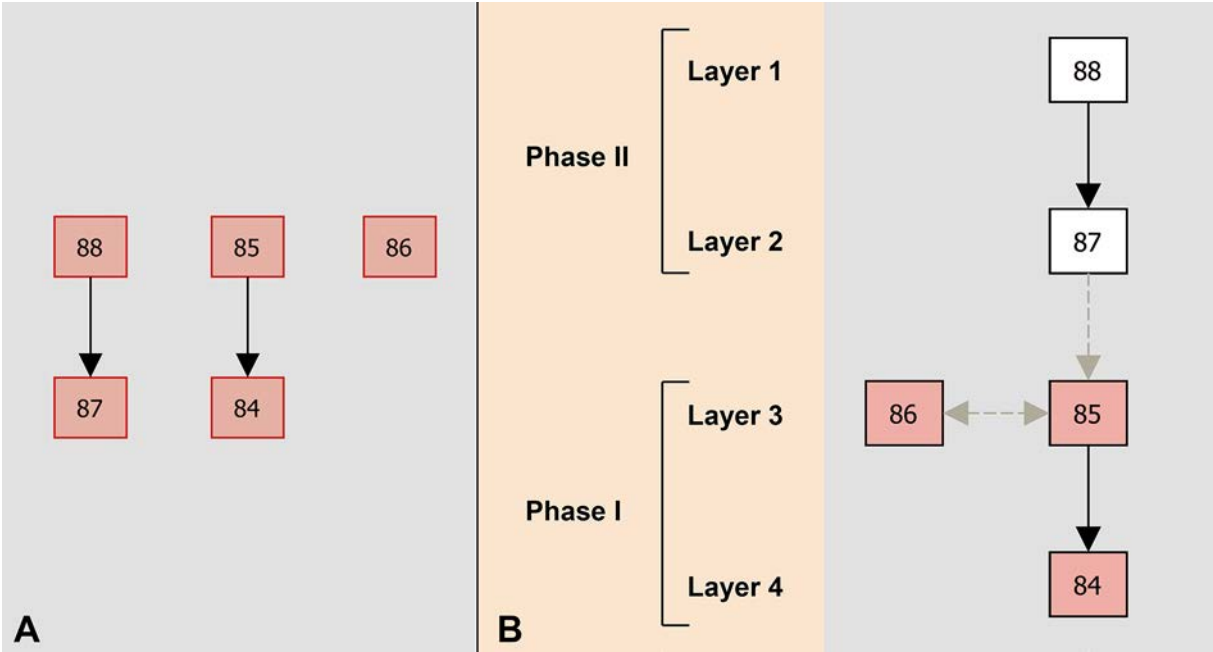


Figure 8.13: Harris Matrix of the Panel A5 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Panel A6

All of the 13 motifs on Panel A6 are involved in superimpositions (Table 8.11; Figure 8.14). Based on patterns of superimposition, these 13 motifs were aggregated into seven layers, and the layers then into four phases (Table 8.12; Figure 8.15):

- **Phase A6/I and Phase A6/II:** Phase A6/I consists of a layer of two red motifs, and Phase A6/II of a layer of two yellow motifs. It has not been possible to determine the sequential relationship between these two layers as they are not in superimposition with each other, and both are similarly poorly preserved. However, they have no common stylistic features, to indicate that they might they may have been contemporary;
- **Phase A6/III:** a single, intermediate phase consisting of a layer of three red motifs, including two large birds; and
- **Phase A6/IV:** the most recent phase consisting of four layers of white paintings, four of which are outlined in black (Motifs A-96 to A-100). The similarity in colour and form suggests that these four motifs may have been painted over a short period of time, possibly by the same artist. The most recent motif (Motif A-101), although its placement is compositionally aligned to Motif

A-99, is in a brighter white pigment and has no outline, suggesting that it was done by a second artist on a later occasion.

Motif A-101, a therianthrope with macropod feet and bone-line thigh, is the most recent on the panel. The white pigment of this and other motifs on this panel is fugitive and, although Motifs A-97 to A-100 all use a similar convention (white silhouette with black outline), they exhibit a clear superimposition sequence (Figure 8.16). Anthropomorphs and aquatic fauna dominate the white-based paintings that form the more recent artwork, while terrestrial and avian fauna are featured in the earlier red and yellow paintings.

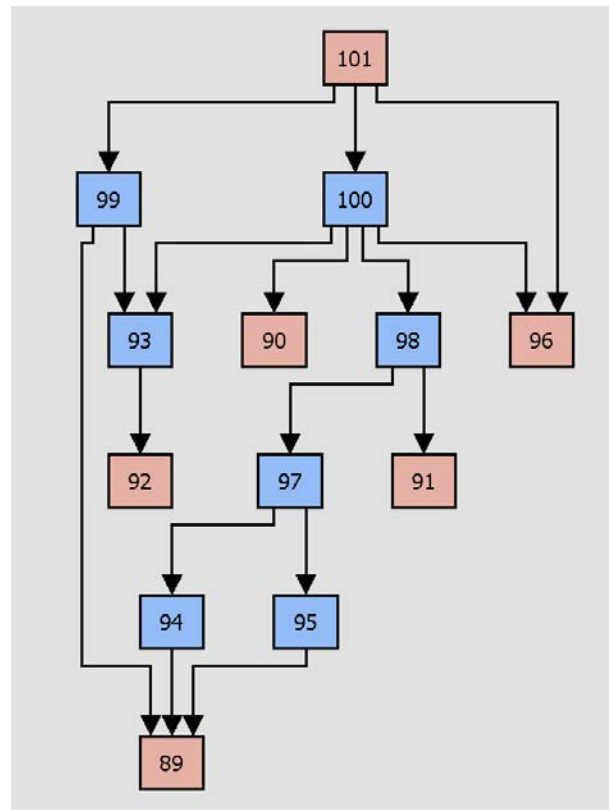


Figure 8.14: Harris Matrix of the Panel A6 motif superimpositions. Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.11: Panel A6 motif superimpositions

Motif No.	Underlying Motifs (A-)
A-93	92
A-94	89
A-95	89
A-97	89,94,95
A-98	91,95,97
A-99	89,93
A-100	90,93,96,98
A-101	93,96,99,100

Table 8.12: Summary of the Panel A6 art phases

A6 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
IV	4	6	white+black,	solid+outline	anthro, reptile
III	1	3	red	outline, solid	bird
II	1	2	yellow	outline, linear	reptile
I	1	2	red	outline+infill	macropod

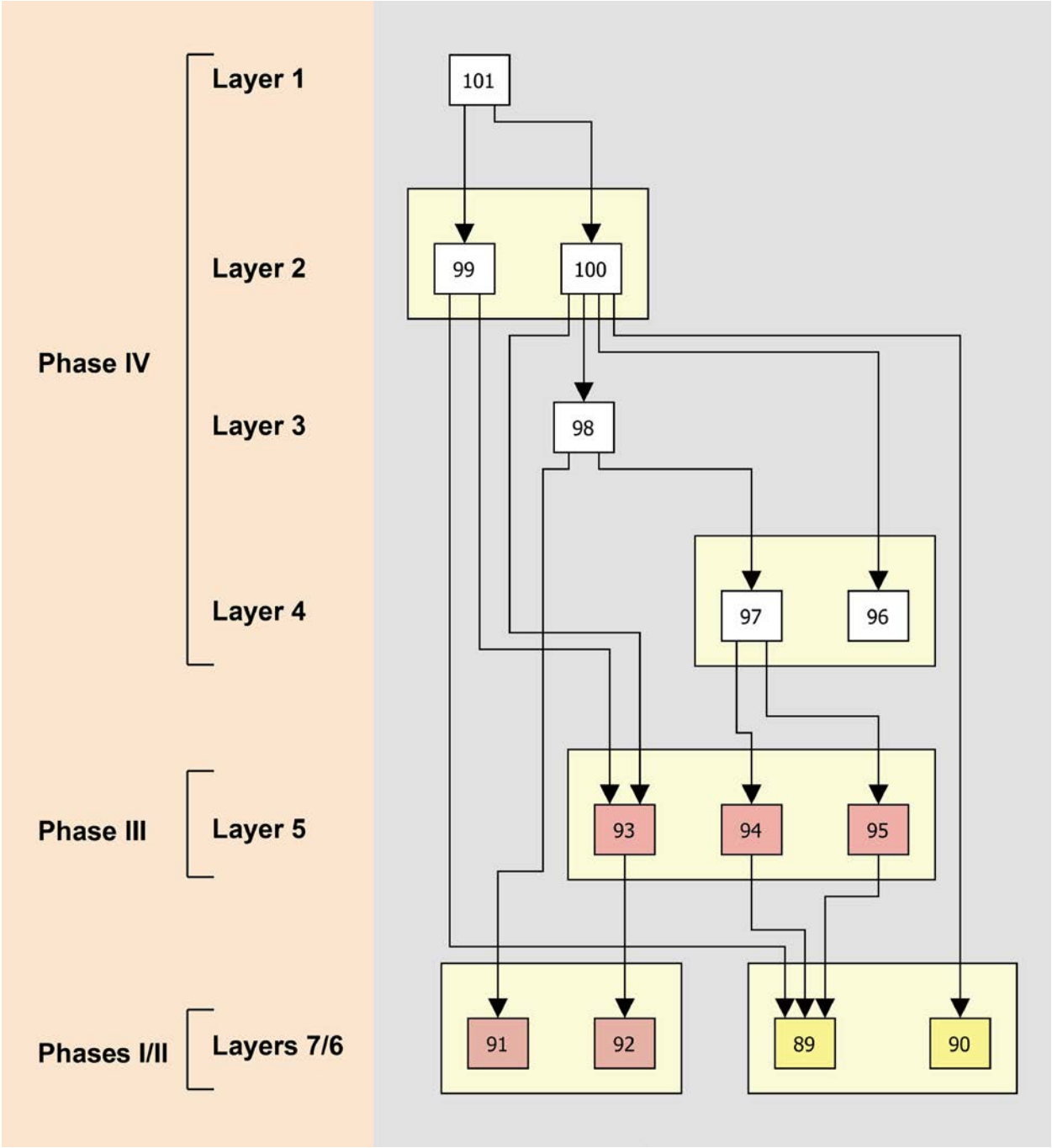


Figure 8.15: Interpretation of the Panel A6 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

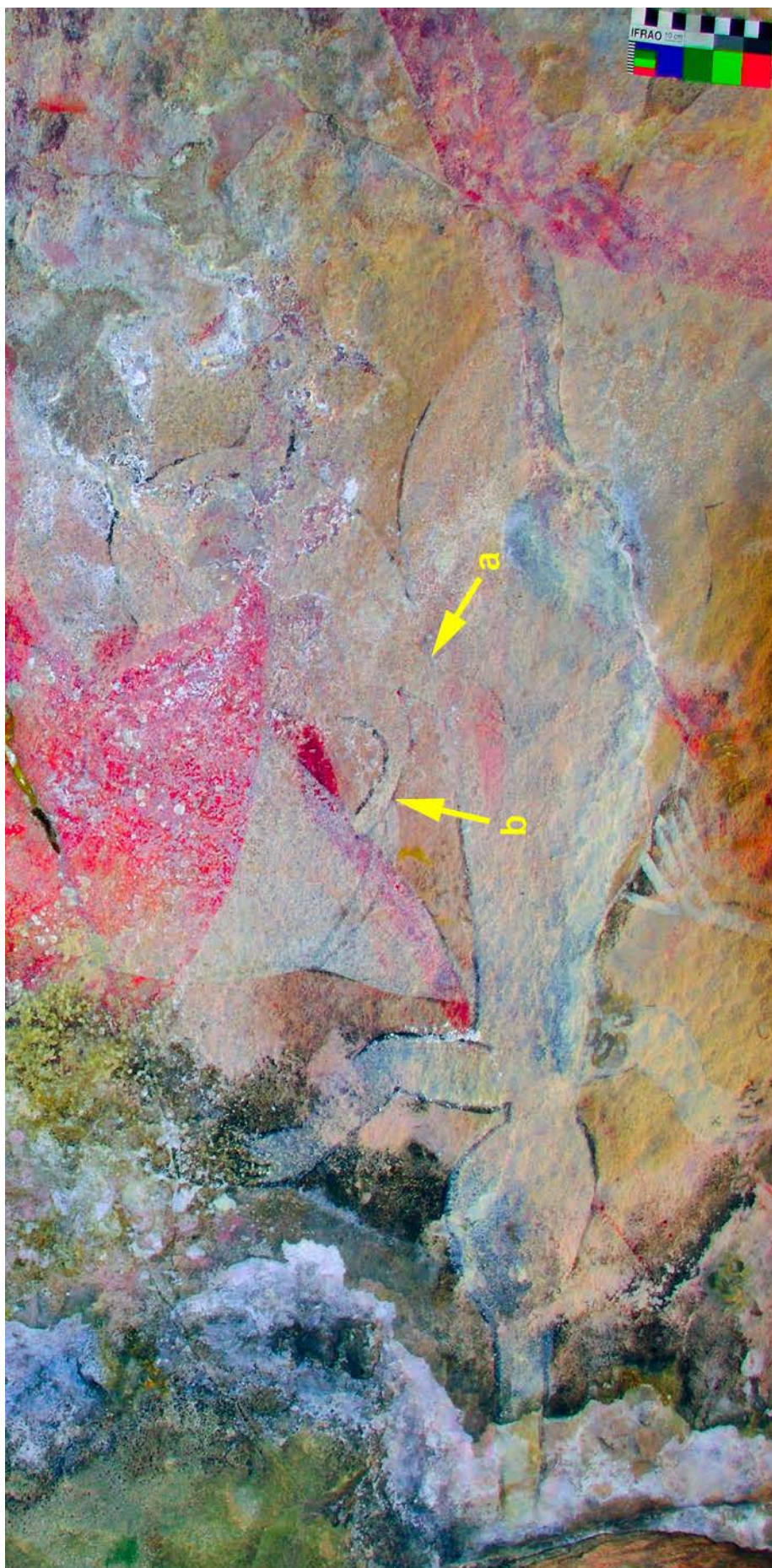


Figure 8.16: Panel A6 detail of select points of superimpositioning of three motifs with similar forms
a: crocodile (Motif A-100) over turtle (Motif A-98) b: turtle (Motif A-98) over fish (Motif A-97)
(Enhancement: DStretch_lab10)

Panel A7

Seven of the ten motifs on Panel A7 are involved in superimposition (Table 8.13; Figure 8.17A). Based on their pattern of superimposition, these ten motifs were

Table 8.13: Panel A7 motif superimpositions

Motif No.	Underlying Motifs (A-)
A-103	102
A-108	102,103
A-109	102,103,108
A-110	102,103,108,109,
A-111	102,103,108,109,110
A-111	106

aggregated into six layers, and the layers then into three phases (Table 8.14; Figure 8.17B):

- **Phase A7/I:** the earliest two layers consisting of red monochrome paintings and a remnant red stencil;
- **Phase A7/II:** two white monochrome paintings, one of which overlies the other; and
- **Phase A7/III:** a large white silhouette female figure with red and black embellishment.

As mentioned in Chapter 7, pigment from Motif A-110 was removed with the painting of the overlying Motif A-111 (Figure 8.18). In contrast, the pigment of Motif A-109, that underlies both Motifs A-110 and A-111, was unaffected by the painting of either of the overlying motifs.

Table 8.14: Summary of the Panel A7 art phases

A7 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	1	white+red+black	solid+outline+infill	anthro
II	2	2	white	solid	anthro
I	3	7	red	outline	reptile

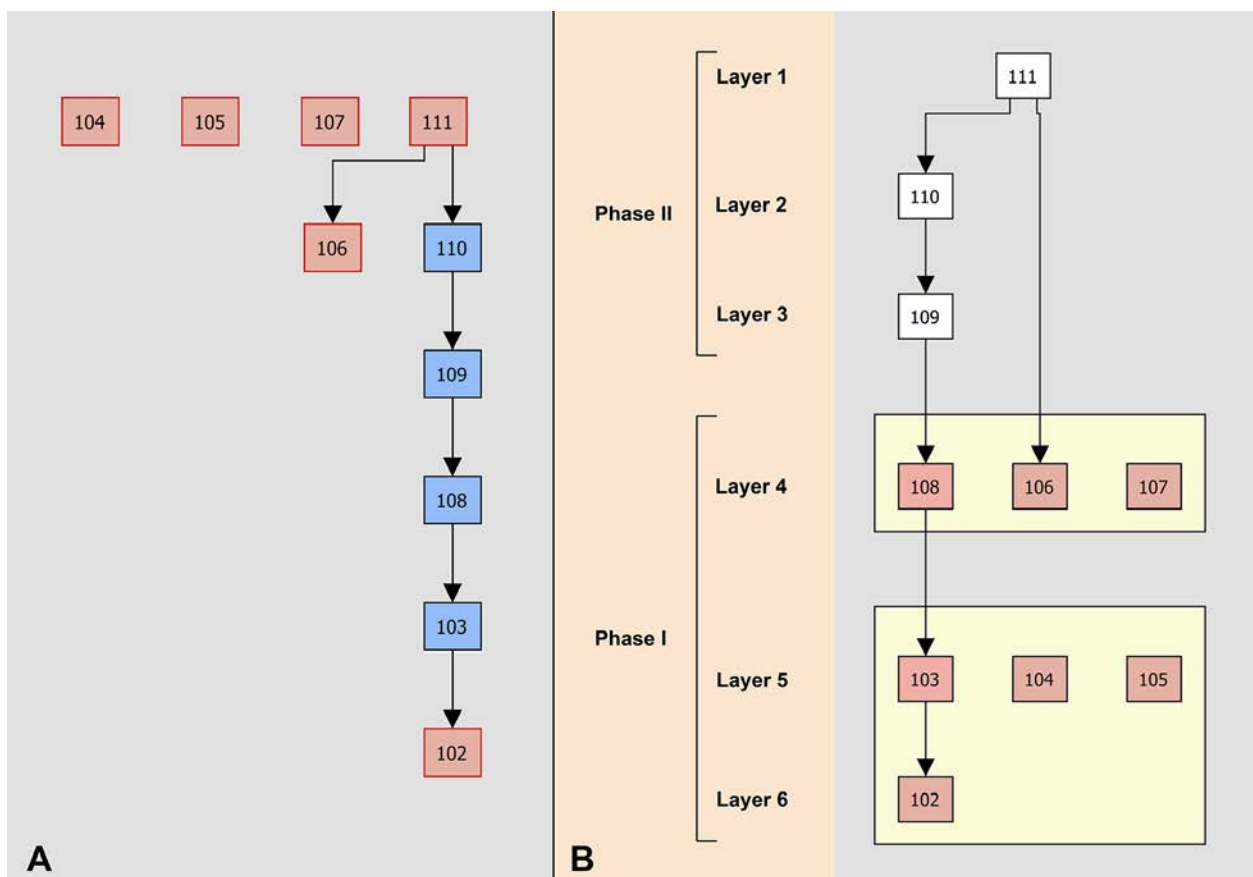


Figure 8.17: Harris Matrix of the Panel A7 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

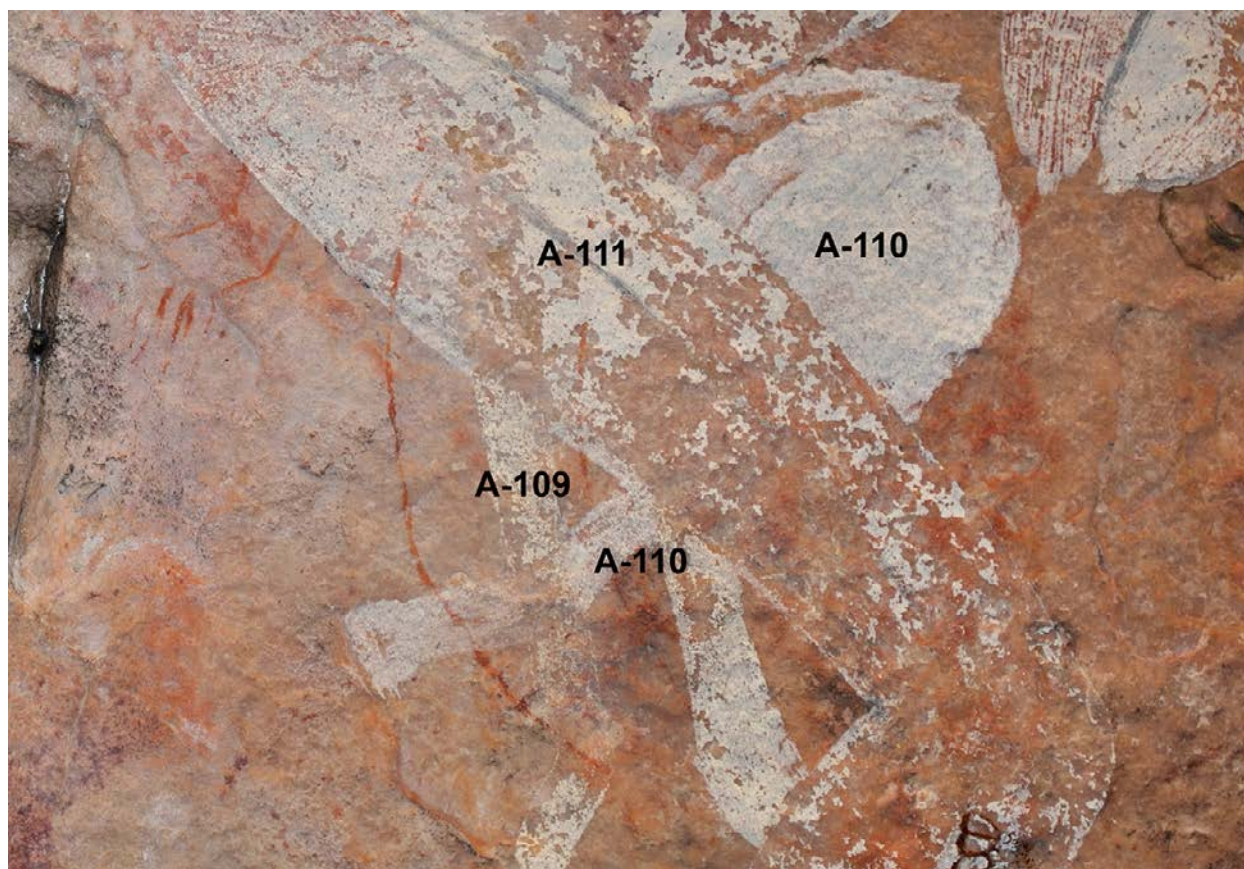


Figure 8.18: Detail of the area of pigment removal from Motif A-110

Group B motif sequences

Panel B1

Forty-five of the 47 motifs on Panel B1 are involved in superimpositions (Table 8.15; Figure 8.19). Based on their pattern of superimposition, these 47 motifs were aggregated into 12 layers, and the layers then into six phases (Table 8.16; Figure 8.20):

- **Phase B1/I:** this phase consists of two layers and seven motifs. These include a fine-line mulberry-coloured fragment (Motif B-1) and fine-line red paintings including a large outline macropod (Motif B-2);
- **Phase B1/II:** a single layer of five yellow paintings. The motifs have a range of different forms including fine-line linear (Motif B-7), solid (an animal with added red claws; Motif B-8), and outline+infill (Motif B-10). This layer appears to represent a transition between the fine line work of Phase B1/I and the more solid forms of Phase B1/III;
- **Phase B1/III:** a layer of 11 red paintings. All of the interpreted motifs are animals (large Emu, Macropod, Snake and an unknown animal). The superimposition sequence involving the Snake (Motif B-68), Motif B-19, and Motif B-20 is unclear;
- **Phase B1/IV:** three layers of nine red paintings in various forms, and a red hand stencil (Motif B-22). The paintings include an outlined quadruped with basic X-ray features (Motif B-28); two solid profile echidnas Motifs B-25 and B-26 (Motif B-26 was later repainted in yellow as Motif B-27 in the subsequent phase; Figure 8.21); a large stylised macropod (Motif B-31); and, most recently, a solid red fish with a skeletal pattern infill in white (Motif B-32);
- **Phase B1/V:** a single yellow motif (Motif B-27) that was a repainting of Motif B-26 from the previous phase; and
- **Phase B1/VI:** four layers of 13 white paintings. Eleven of the paintings are white silhouettes, of which six have embellishments in red or red+black. The two macropods of this phase (Motifs B-42 and B-43) are the largest and most visually dominant on the panel. Both these motifs are painted in the Jawoyn X-ray convention. The most recent motifs are fish in white outline+infill (Motifs B-44 and B-45) placed above Motif B-43.

There is no consistent pattern between the preservation of motifs on the panel and their position within the superimposition sequence, as the earlier Motif B-28 is better preserved than the later, overlying Motif B-43.

A single painting of an anthropomorph occurs amongst the 32 earlier motifs, while six occur among the 13 most recent motifs. The head of Motif B-37 is indistinct and it is possible that the figure was either an anthropomorph with a two-pronged headdress (similar to that of Motif

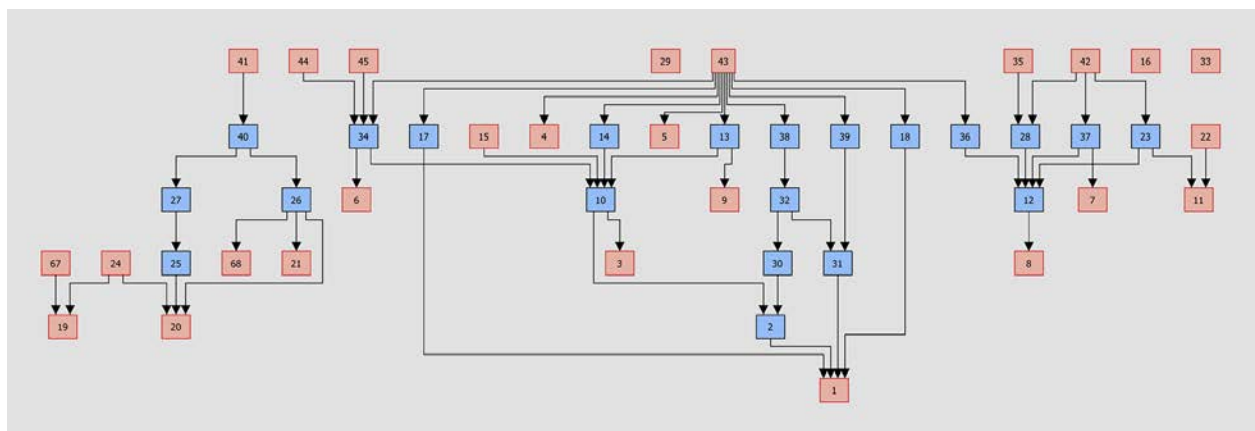
B-41), or a macropod-headed therianthrope. Aquatic fauna are only represented in the uppermost and therefore most recent layers, while X-ray features occur in the top four layers. Large motifs occur throughout the superimposition sequence.

Table 8.15: Panel B1 motif superimpositions

Motif No.	Underlying Motifs (B-)	Motif No.	Underlying Motifs (B-)
B-2	1	B-31	2,17
B-8	12	B-32	2,10,13,30,31
B-12	8	B-34	6,10
B-13	2,3,10	B-35	12,28
B-14	10	B-36	8,9,12,29
B-15	10	B-37	7,8,12
B-17	2	B-38	2,10,13,31,32
B-18	2	B-39	2,31
B-20	68	B-40	19,20,25,26,27
B-22	11	B-41	20,25,26,27,40, 68
B-23	12	B-42	8,12,23,28,29,34,37
B-24	19	B-43	1,2,4,5,6,9,10,12,13,14,17,
B-25	19,20	"	18,29,30,31,32,34,36,38,39
B-26	21,68	B-44	34
B-27	19,20,25	B-45	34
B-28	12	B-67	19
B-30	2		

Table 8.16: Summary of the Panel B1 art phases

B1 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VI	4	13	white+red+black, white, white+red	X-ray, solid, solid+outline+infill	macropod, anthro
V	1	1	yellow	solid	animal
IV	3	10	red	solid	macropod, animal
III	1	11	red	solid	bird, macropod
II	1	5	yellow	solid, outline+infill	macropod, anthro
I	2	7	red	outline, linear	macropod

Figure 8.19: Harris Matrix of the Panel B1 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

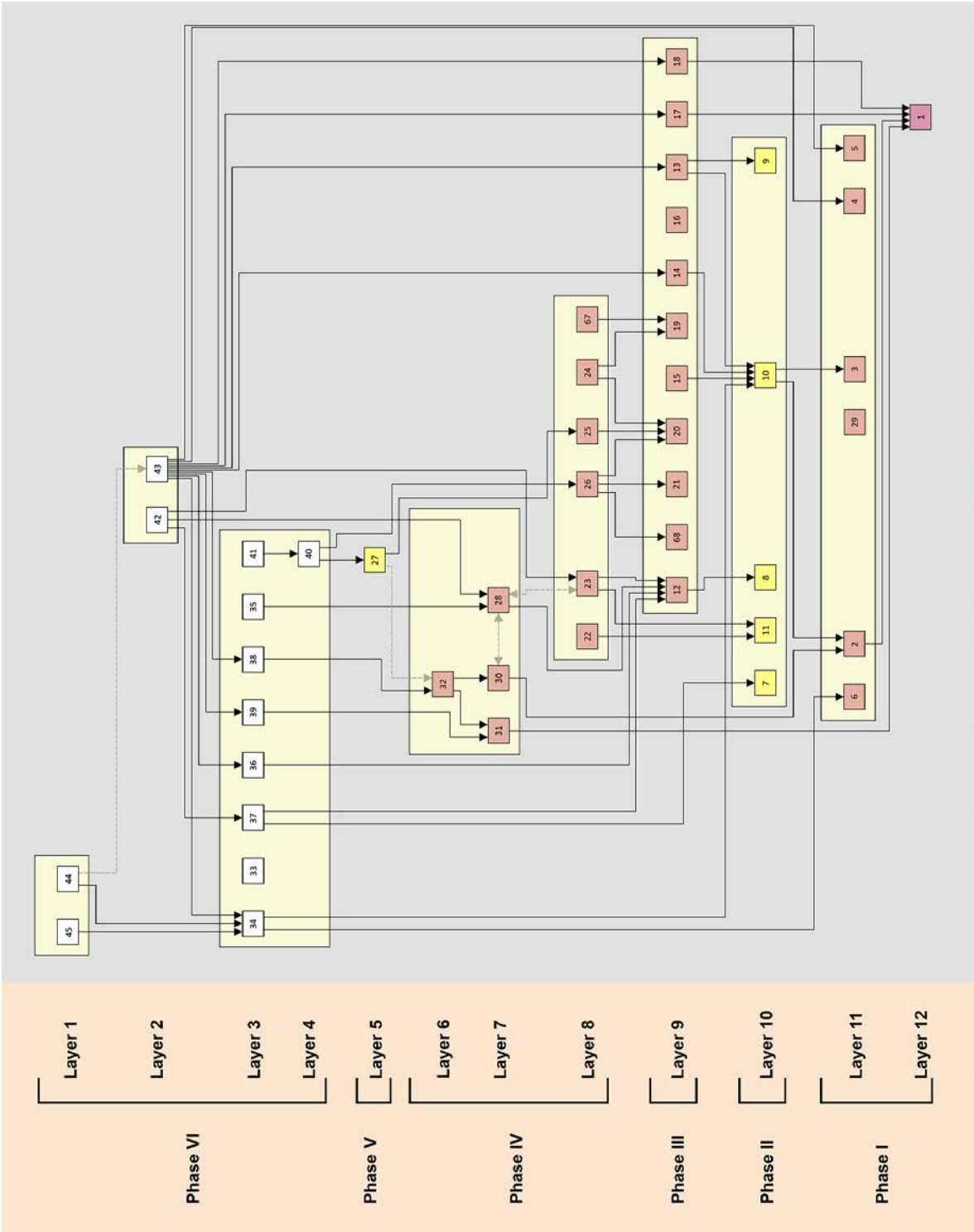


Figure 8.20: Interpretation of the Panel B1 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent



Figure 8.21: Red echidna (Motif B-25; facing right) repainted at some later stage in yellow (Motif B-27)

Panel B2

Nineteen of the 21 motifs on Panel B2 are involved in superimpositions (Table 8.17; Figure 8.22). Based on their pattern of superimposition, these 21 motifs were aggregated into seven layers, and the layers then into three phases (Table 8.18; Figure 8.23):

- **Phase B2/I:** a layer of primarily yellow monochrome paintings but including a yellow macropod that has been embellished with red claws and white infill (Motif B-46). As with the yellow macropod (Motif B-9) on panel B1, it is not known whether this embellishment was done at the time of the original painting or at a later time;
- **Phase B2/II:** combines three red motifs from two layers. Motif B-53 is more orange-red in colour (apparently due to discolouration) and better preserved than Motifs B-51 and B-52, and hence it is assumed to be the youngest of the three. The layers are combined into a single phase on the basis of their common colour, form

and motif type (cf. macropods, Motifs B-52 and B-53); and

- **Phase B2/III:** combines three layers of white paintings (Layers 4, 6 and 7) and one that is cream-yellow in colour (Layer 5): The lowest layer consists of white monochromes; the intermediary white silhouettes with red embellishment; and the upper with both monochrome and embellished white paintings (Figure 8.24). The yellow anthropomorph (Motif B-60) of Layer 3 is included within this phase due to the similarity in its form to the white anthropomorph in the underlying Layer 5 (Motif B-57). The bichrome crocodile (Motif B-64) in Layer 7 is distinguished from the bichrome motifs in Layer 6 by its use of a brighter white pigment (a pigment similar to that used in Motifs B-65 and B-66).

Macropods and anthropomorphs occur within each motif group and in most layers. The two crocodile motifs occur only in the most recent layers, with both placed at the rear of the panel, spatially within the same motif group.

Table 8.17: Panel B2 motif superimpositions

Motif No.	Underlying Motifs (B-)	Motif No.	Underlying Motifs (B-)
B-51	49	B-60	49,51,53,59
B-52	50	B-61	46
B-53	49	B-62	46,48
B-54	46	B-63	52,56,57,58
B-56	(56:57 unclear)	B-64	49,53,60
B-57	52; (56:57 unclear)	B-65	46,48,61,62
B-59	51	B-66	50

Table 8.18: Summary of the Panel B2 art phases

B2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	4	13	white+red, white	solid+outline+infill,	macropod, anthro, reptile
II	2	3	red	outline+striped infill	macropod, anthro
I	1	5	yellow	solid, outline+striped infill	macropod

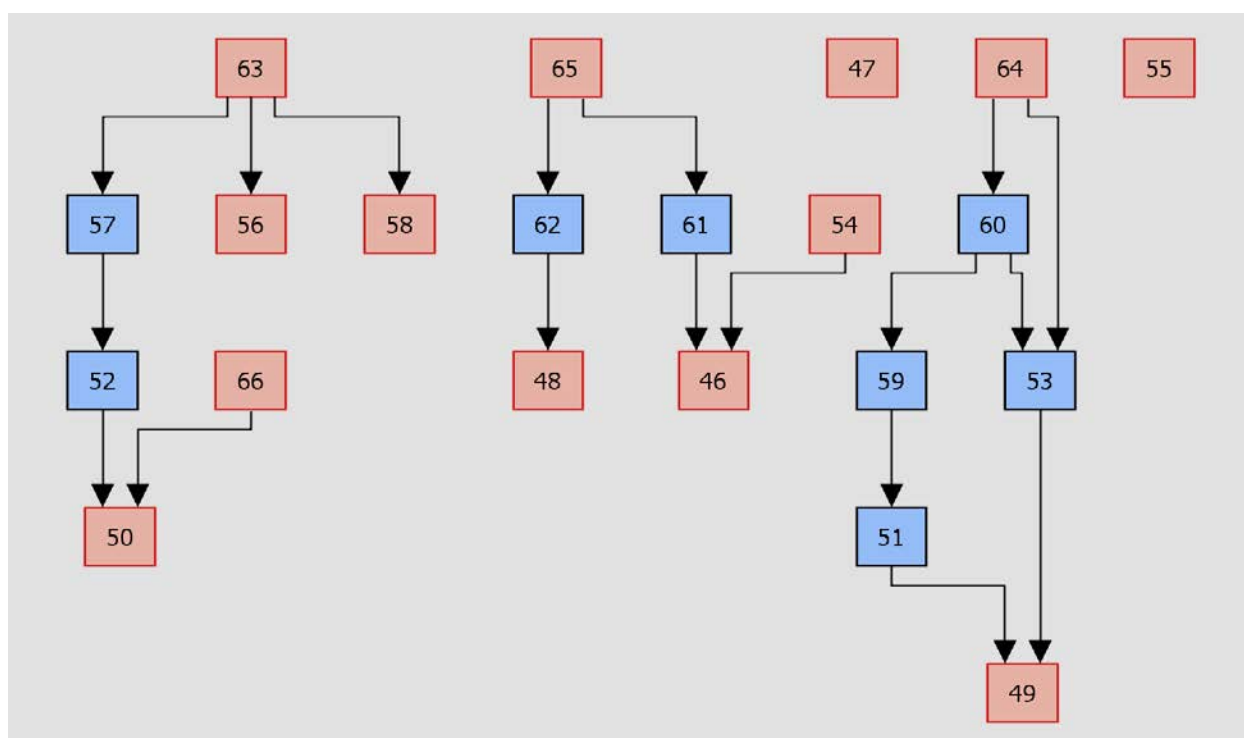


Figure 8.22: Harris Matrix of the Panel B2 superimpositions. Image available online at tinyurl.com/9781789690705-onlinecontent

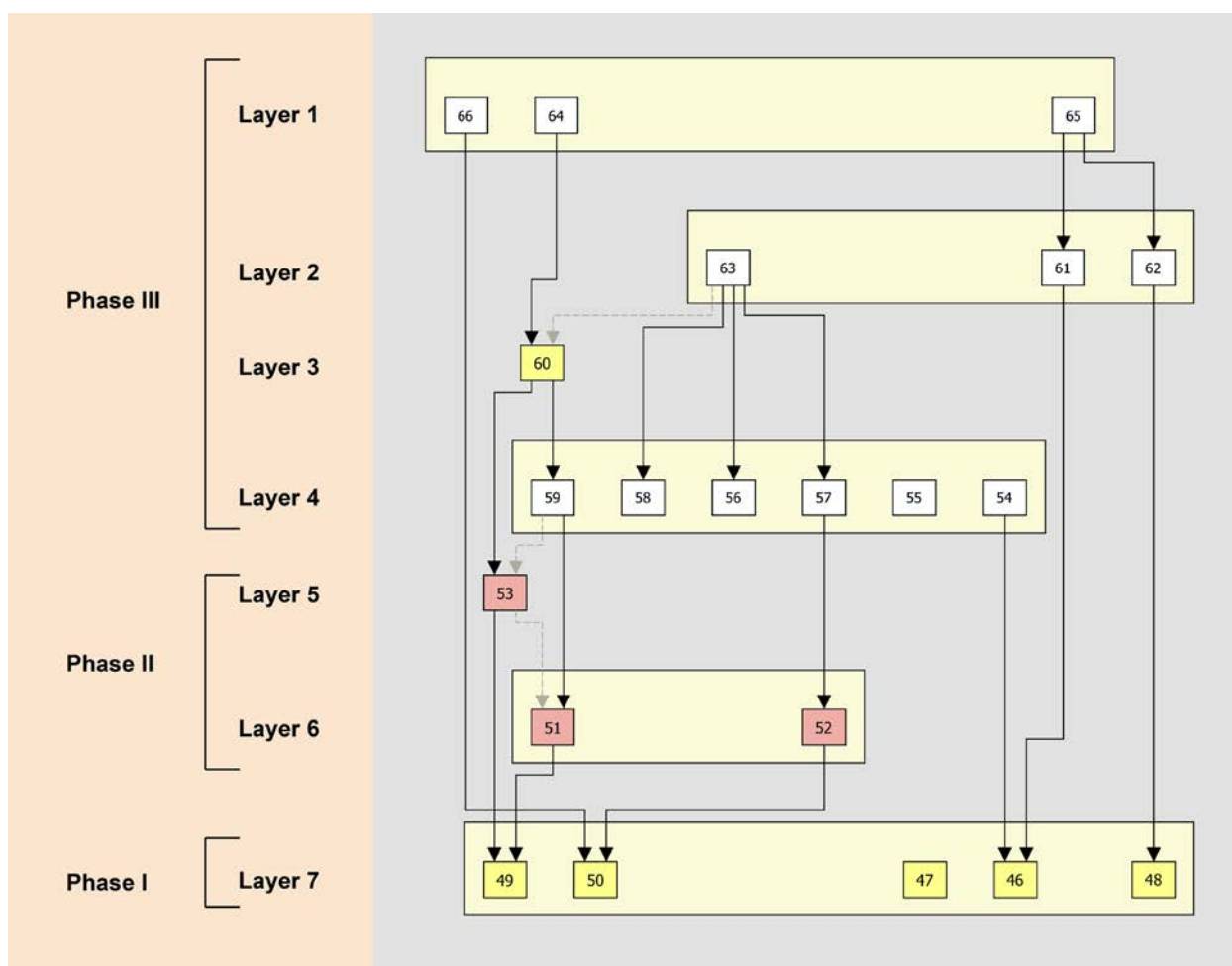


Figure 8.23: Interpretation of the Panel B2 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

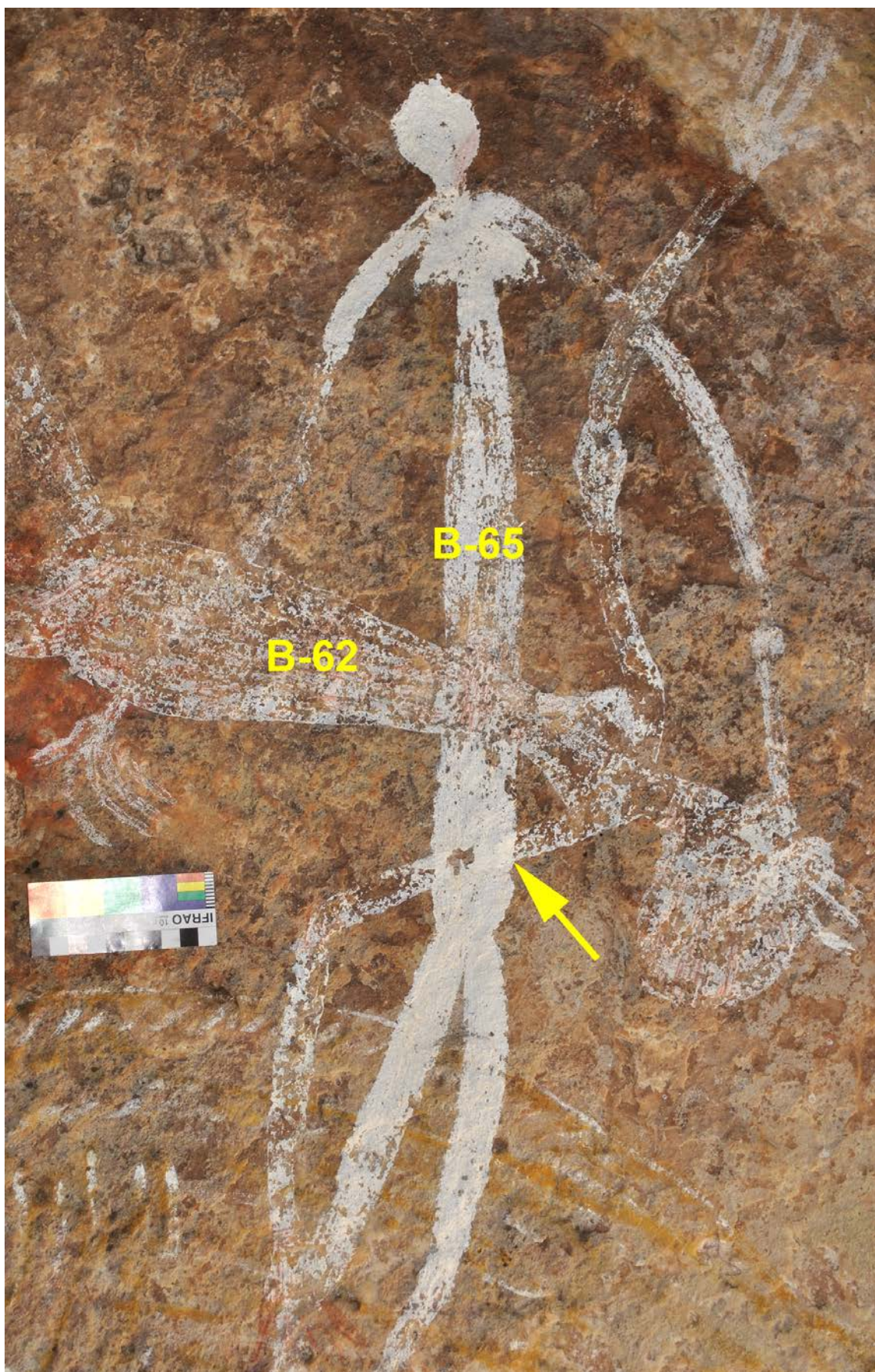


Figure 8.24: Detail of the clear superimposition of the monochrome Motif B-65 over the bichrome Motif B-62

Group C motif sequences

Panel C1

Each of the five motifs on Panel C1 is involved in superimpositions (Table 8.19; Figure 8.25A), with each motif constituting a separate layer. These layers were then grouped into four phases (Table 8.20; Figure 8.25B):

- **Phase C1/I:** a single underlying white hand stencil (Motif C-1);
- **Phase C1/II:** two red anthropomorphs with similar headdresses. The smaller anthropomorph (Motif C-4), which also has traces of white infill, overlies the more poorly preserved larger anthropomorph (Motif C-2);
- **Phase C1/III:** a yellow circular design (Motif C-3); and
- **Phase C1/IV:** a white fish in outline+infill (Motif C-5).

The sequential relationship between Motifs C-4 and C-3 is unclear; on the basis of differences in preservation, however, Motif C-4 would pre-date Motif C-3.

The red anthropomorph (Motif C-3) holds a short broad spearthrower and a pair of crossed sticks (a pair of throwing sticks?) (Figure 7.86). According to Lewis’ chronology, paintings depicting broad spear-throwers must be greater than 1000 years old (cf. Lewis 1988: 105), although, as mentioned in Chapter 5, Lewis’s suggested ages are very much speculative. Although its preservation suggests a considerable age, there is no indication here to either support or refute Lewis’ claim for the age of this motif. Motif C-2, although very poorly preserved, appears to be a larger and earlier version of the same kind of anthropomorph portrayed in Motif C-3.

Table 8.19: Panel C1 motif superimpositions

Motif No.	Underlying Motifs (C-)
C-2	1
C-3	1,2
C-4	1,2
C-5	1,2,4

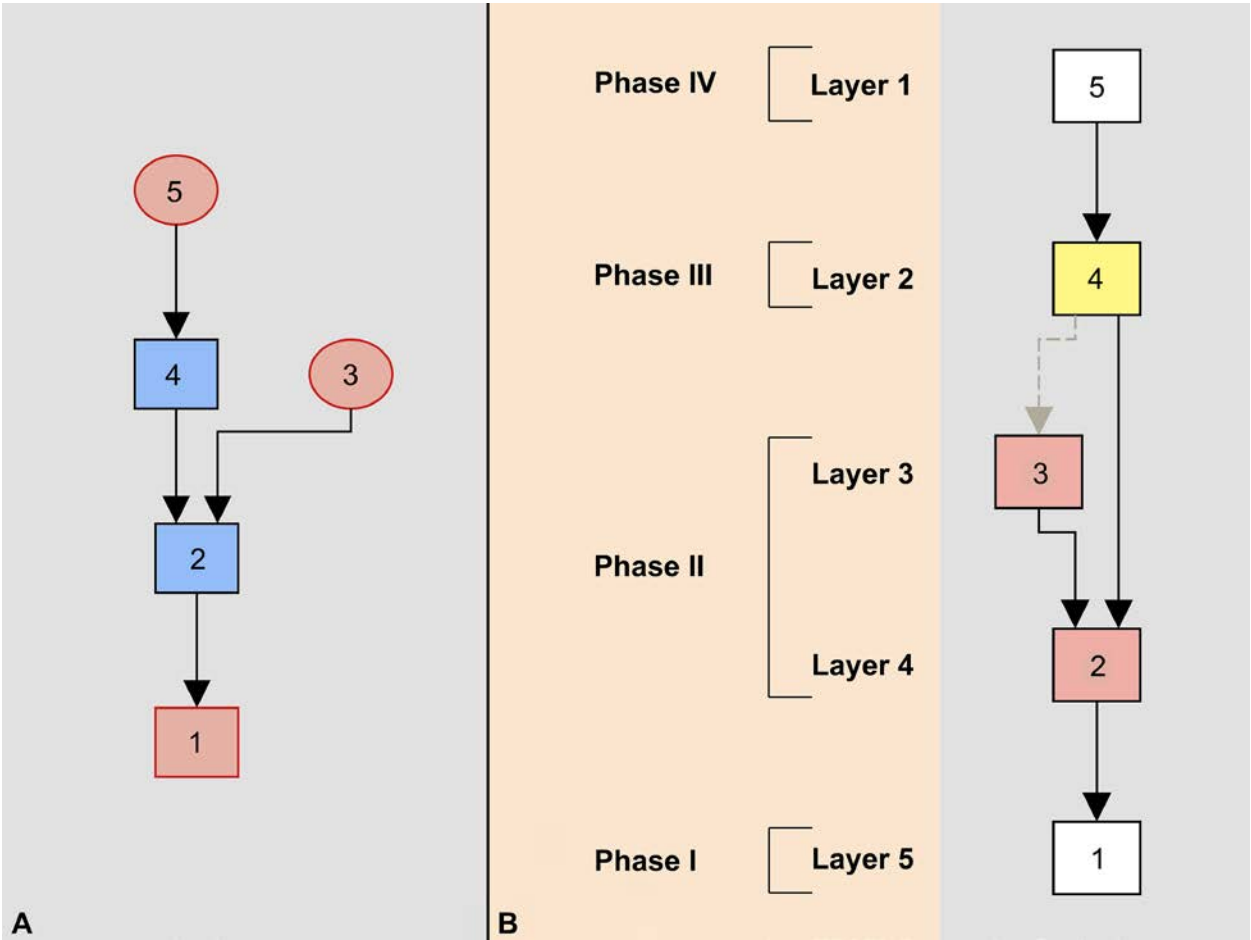


Figure 8.25: Harris Matrix of the Panel C1 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.20: Summary of the Panel C1 art phases

C1 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
IV	1	1	white	outline+infill	fish
III	1	1	yellow	outline+infill	simple design
II	2	2	red	solid+infill	anthro
I	1	1	white	stencil	hand

Panel C2

Eighty-two of the 84 motifs on Panel C2 are involved in superimpositions (Table 8.21; Figure 8.26). Based on their pattern of superimposition, these 84 motifs were aggregated into 15 layers, and the layers then into six phases (Table 8.22; Figure 8.27):

- **Phase C2/I:** the earliest two layers consist of red linear paintings. These are mostly fragments but include an outlined anthropomorph with a protruding tongue (Motif C-18);
- **Phase C2/II:** three layers of monochrome red paintings and a layer of a single orange motif (Motif C55). The three red layers (Layer 11-13) of this phase differ from those in the underlying Phase I by their better preservation, and through a greater use of solid and infill forms, which includes a striped infill anthropomorph (Motif C41) and a fragmented figure composed of closely spaced dots (Motif C-38);
- **Phase C2/III:** two layers of white that utilise a similar range of motif and form types to the previous phase but are differentiated on the basis of a change to white pigment and better preservation;
- **Phase C2/IV:** two layers of primarily yellow motifs. Macropod Motif C-72 has had a white patterned infill added over the yellow, but whether this was done as part of the original painting (as the one painting event) or at some later date (and therefore representing two painting events) is unknown. The snake, Motif C-89, is a reworking in yellow of an earlier orange snake (Motif C-55). The repainting, however, has blended the yellow with the underlying orange-red colour to produce an overall stronger orange colour. As Motif C-89 overlies another yellow painting (Motif C-71), the yellow repainting of

Motif C-89 is likely to have been done some time later than the original orange motif;

- **Phase C2/V:** two layers involving primarily white silhouette figures, two of which (Motif C-74 and C-76) also have irregular red infill patterns;
- **Phase C2/VI:** White monochrome and white+red bichromes. The infill patterns used in the lower layer (Layer 10) of this phase are less regular than those used in the more recent figures (Layers 12 and 13), and their line-work is less carefully applied; and
- **Phase C2/VII:** the most recent of the phases on this panel, Phase C2/VII is distinguished by the combined use of polychrome colouring (Motif C-87 and 88), the X-ray depiction of internal organs (Motif C-86 and 88), and the use of bold line-work (Motif C-85, 86 and 87). On the basis of similar line-work and state of preservation, Motifs C-85 and C-86 constitute a comparable pair, and are also the most recent paintings on the panel (based on their pattern of superimposition). The polychrome turtle, Motif C-87 (primarily red but painted over a white base), is another of the more recent artworks on this panel. The line-work of the yellow infill design (the most uppermost pigment layer) on this turtle motif only loosely follows the underlying original pattern. This disregard for the original design suggests that it was probably added by another artist at a later date (Figure 8.28). The better preservation of the turtle motif (Motif C-87) also suggests that it post-dates the adjacent polychrome fish (Motif C-88). Large motifs (>1 m long) occur throughout the sequence, but a greater amount of pigment (and time) was spent in producing the artworks in the upper layers (Layers V and VI).

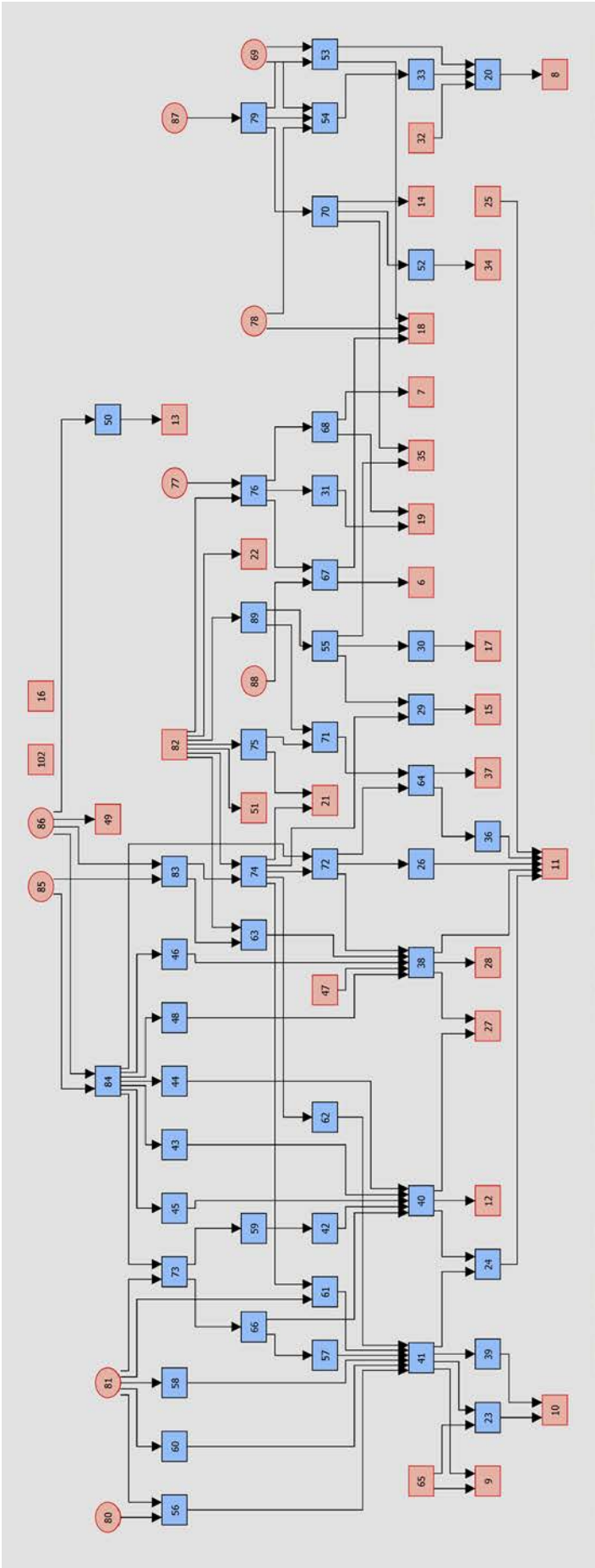


Figure 8.2.6: Harris Matrix of the Panel C2 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

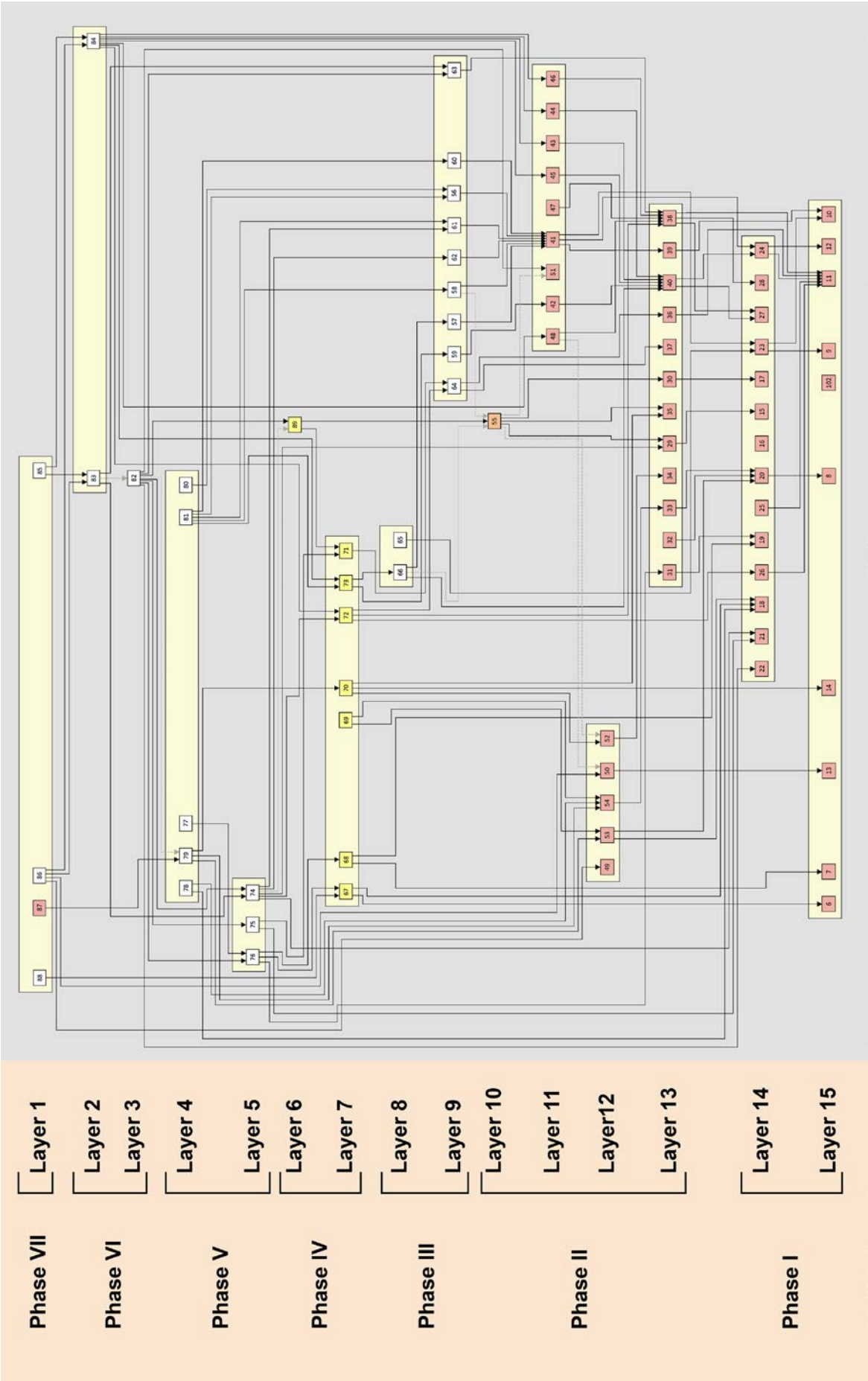


Figure 8.27: Interpretation of the Panel C2 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent



Figure 8.28: Turtle Motif C-87 highlighting the later yellow pattern over-painting

Table 8.21: Panel C2 motif superimpositions

Motif No.	Underlying Motifs (C-)	Motif No.	Underlying Motifs (C-)
C-20	8	C-60	11,24,41
C-23	9,10	C-61	11,41
C-24	11,12	C-62	11,41
C-25	11	C-63	11,38
C-26	11	C-64	11,36,37
C-29	15	C-65	9,23
C-30	17	C-66	10,24,40,41,57
C-31	19	C-67	6
C-32	20	C-68	7,19
C-33	20	C-69	20,53,54
C-36	11	C-70	14,35,52
C-38	11,27,28	C-71	11,36,64
C-39	10	C-72	11,26,36,38,64
C-40	11,12,24,27	C-73	11,12,24,39,40,41,42,57,59,66
C-41	9,10,11,23,24,39	C-89	17,29,30,35,36,37,55,64,71
C-42	12,40	C-74	11,21,23,29,38,41,61,62,72
C-43	27,40	C-75	11,21,64,71
C-44	27,40	C-76	6,18,19,31,67,68
C-45	27,40	C-77	19,31,76
C-46	27,28,38	C-78	18,20,33,54
C-47	28,38	C-79	20,34,52,53,54,70
C-48	38	C-80	9,23,56,58
C-50	13	C-81	11,24,41,56,58,60,61,66,73
C-52	34	C-82	11,22,36,38,51,55,63,64,71,
C-53	18,20	"	72,74,75,76,89
C-54	20,33	C-83	26,37,38,63,64,72,74
C-55	17,29,30,35	C-84	27,38,43,44,45,46,48,72,73
C-56	9,10,23,39,41	C-85	38,48,72,83,84
C-57	39,41	C-86	13,38,49,50,72,83,84,83,72
C-58	11,23,24,41	C-87	14,35,53,70,79
C-59	11,24,42,40	C-88	18,67,76

Table 8.22: Summary of the Panel C2 art phases

C2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VII	1	4	white+red, polychrome	X-ray, solid+outline+infill	fish, reptile
VI	2	3	white+red	X-ray, solid+outline+infill	macropod, anthro
V	2	8	white+red	solid+outline+infill	macropod
IV	2	8	yellow	solid, outline+striped infill	reptile, macropod, bird
III	2	11	white	solid	reptile, fish
II	4	27	red	solid, outline+infill	reptile, anthro, fish, animal
I	2	24	red	outline, linear	anthro

Panel C3

All of the 12 motifs on Panel C3 are involved in superimpositions (Table 8.23; Figure 8.29). Based on their pattern of superimposition, these 12 motifs were aggregated into four layers, with each layer representing a discrete phase (Table 8.24; Figure 8.30):

- **Phase C3/I:** an underlying layer of red fragments and traces;
- **Phase C3/II:** a layer of five yellow paintings. The sequential relationship between Motif C-92 (anthropomorph) and Motif C-93 (bird) is not evident due to their poor preservation and the similarity of the pigment colours. However, given the solid form of the bird, it is likely to be the more recent as the linear form of the anthropomorph would be lost if it were painted over the bird (Figure 7.107);
- **Phase C3/III:** a single red anthropomorph with an elaborate headdress; and
- **Phase C3/IV:** a layer of five white solid paintings. Although the most recent on the panel, these motifs are in varying states of preservation due to variable water and salt damage, with the result that the underlying motifs (red Motif C-96 and yellow Motif C-95) are more distinct than the overlying motifs (white Motif C-100 and Motif C-101).

The anthropomorph (Motif C-92) has a hook-shaped head and is similar to those that Chaloupka recorded to the north of the Arnhem Land plateau and which he termed 'hooked-faced' figures (Chaloupka 1993: 148). Such 'hooked-faced' figures are common in the art of the northern plateau region (Lewis 1988; Mountford 1956). Lewis puts this style of anthropomorph within his Long Spearthrower Period, that he estimated to have begun c.2000 BP and continued to the present (Lewis 1988: 105), whereas Chaloupka (1993: 89, 148) appears to place them in his late Estuarine Phase (c.4000-1500 BP).

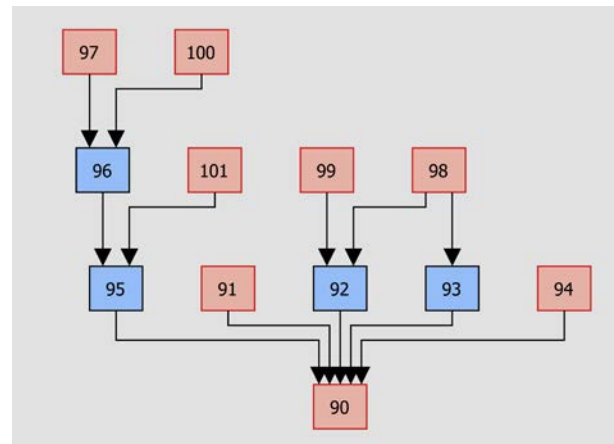


Figure 8.29: Harris Matrix of the Panel C3 motifs.
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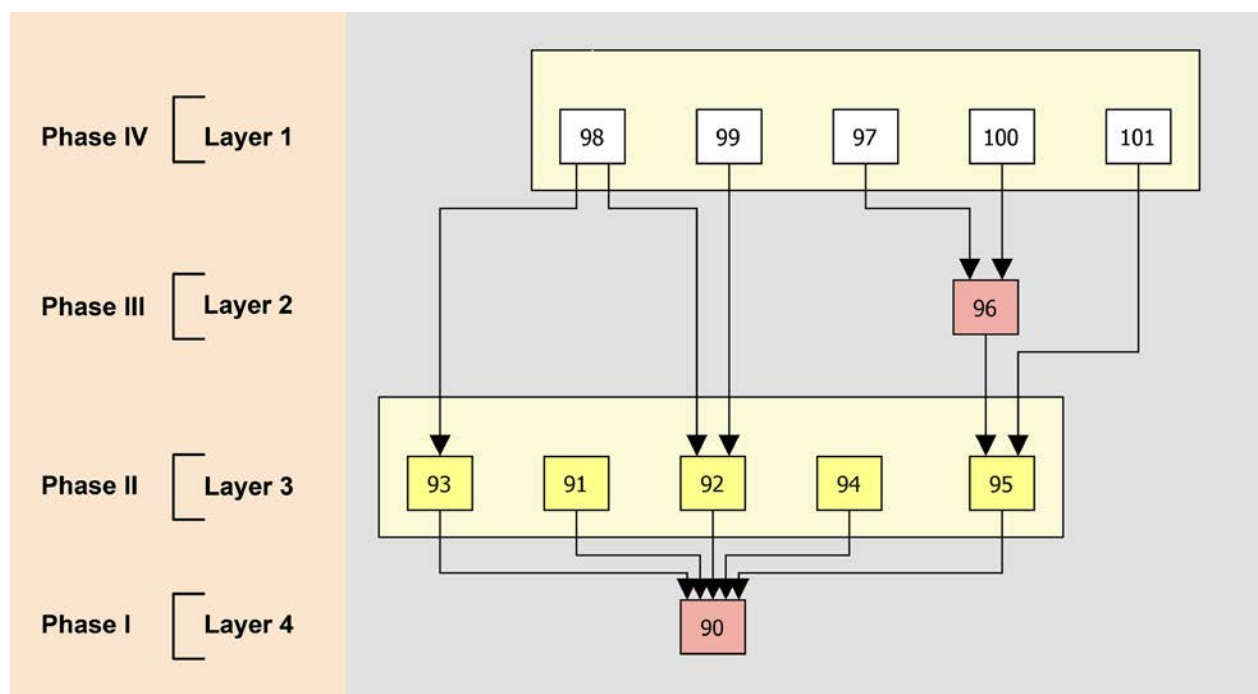


Figure 8.30: Interpretation of the Panel C3 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.23: Panel C3 motif superimpositions

Motif No.	Underlying Motifs (C-)	Motif No.	Underlying Motifs (C-)
C-91	90	C-97	90,96
C-92	90	C-98	90,92,93
C-93	90	C-99	90,92
C-94	90	C-100	90,95,96
C-95	90	C-101	90,95
C-96	90,95		

The relationship between motifs 92 and 93 is unclear

Table 8.24: Summary of the Panel C3 art phases

C3 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
IV	1	5	white	solid	macropods, anthro
III	1	1	red	solid+linear	anthro
II	1	5	yellow	solid+linear	reptile, anthro
I	1	1	red	fragment	fragment

Group D motif sequences

Panel D

All but one of the 66 motifs on Panel D are involved in superimpositions (Table 8.25; Figure 8.31). Based on their pattern of superimposition, these 66 motifs were aggregated into 15 layers, and the layers then into four phases (Table 8.26; Figure 8.32):

- **Phase D/I:** the earliest phase consists of a layer of nine red monochrome motifs (Layer 15), of which only a macropod (Motif D-1) and simple design (Motif D-6) could be interpreted to Motif Type;
- **Phase D/II:** two layers (Layers 13 and 14) of yellow paintings. Two motifs from Layer 13 overlie two motifs from Layer 14. Two female anthropomorphs (Motifs D-5 and D-13), a bird (Motif D-10) and a simple design (Motif D-22) were interpreted to Motif Type;
- **Phase D/III:** nine layers (Layers 3 to 12) of 35 white monochrome or white silhouettes with red outline and infill, including a layer of pink-white paintings (Layer 5). Phase D/III also contains a fine red fragment (Motif D-47; Layer 7) that is apparently incomplete, and may have been destined to become a further white-red painting as the line-work is similar to that of the underlying white+red macropod (Motif D-44). The phase also includes a painting of a horse (Motif D-48; Layer 6) that must be less than 170 years old; the time when horses were first introduced to Arnhem Land (see below).

All paintings superimposed over this horse motif must therefore be less than 170 years old. Consequently, all motifs within Layers 1 to 5 must postdate this time. The paintings of this Phase show a gradual transition over time from white monochrome to white silhouettes decorated with red outline and infill; and

- **Phase D/IV:** two layers (Layers 1 and 2) form this final and most recent phase on Panel D. Phase D/IV consists of seven fish exhibiting internal X-ray features. The X-ray designs of six of these motifs (Motif D-59, D-60, D-62 to D-66) are of the Northern X-ray form. One other of the fish has the Jawoyn X-ray form (Motif D-61), indicating that, on this panel at least, both forms of X-ray were being produced contemporaneously (cf. Figure 5.16).

A motif of special significance on this panel is that of the painted horse (Motif D-48). The motif is 3.47 × 2.36 m in size and occupies the greater portion of the panel (see Figures 7.118 and 7.122). It is one of the largest paintings at Nawarla Gabarnmang, and has been retouched at least twice. Hence, it has been directly engaged with on at least two occasions. This motif is also important more generally for rock art research across the region as it provides a maximum date for its production: it must post-date AD 1845, the year that horses were first brought onto the Arnhem Land plateau. Horses were first brought onto the plateau by Ludwig Leichhardt, who passed within 10 km of Nawarla Gabarnmang on the 12-13 November 1845 (Gunn et al. 2012b). Consequently, the 17 motifs that overlie the horse motif must also post-date this time. These 17 motifs consist of white or pink monochrome motifs, white+red

bichrome figures, and polychrome X-ray fish (see Figures 7.119 to 7.121). The X-ray fish are the most recent motifs on this panel and were painted prior to AD 1935, as their existence was noted by Aboriginal people who visited the site at that time (see Chapter 6).

On Panel D, then, 18 of the 66 motifs (27%) were produced a short period of less than 85 years: after 1845 (as determined by the horse painting) and, based on Wamud Nadjamerrek's testimony, before 1930 (Gunn et al. 2012b).

The Panel D layers suggest several temporal changes in the art of this panel:

- the production of red monochrome paintings decreased over time;
- white paintings show a transition from monochromes to white silhouettes with red infill, and then to polychrome paintings on white silhouettes;
- depiction of macropods cease following the depiction of the horse;
- polychrome fish with an X-ray form infill post-date the horse motif; and
- the Jawoyn Lady motifs here post-date the horse motif.

These trends are discussed further in Chapter 9.

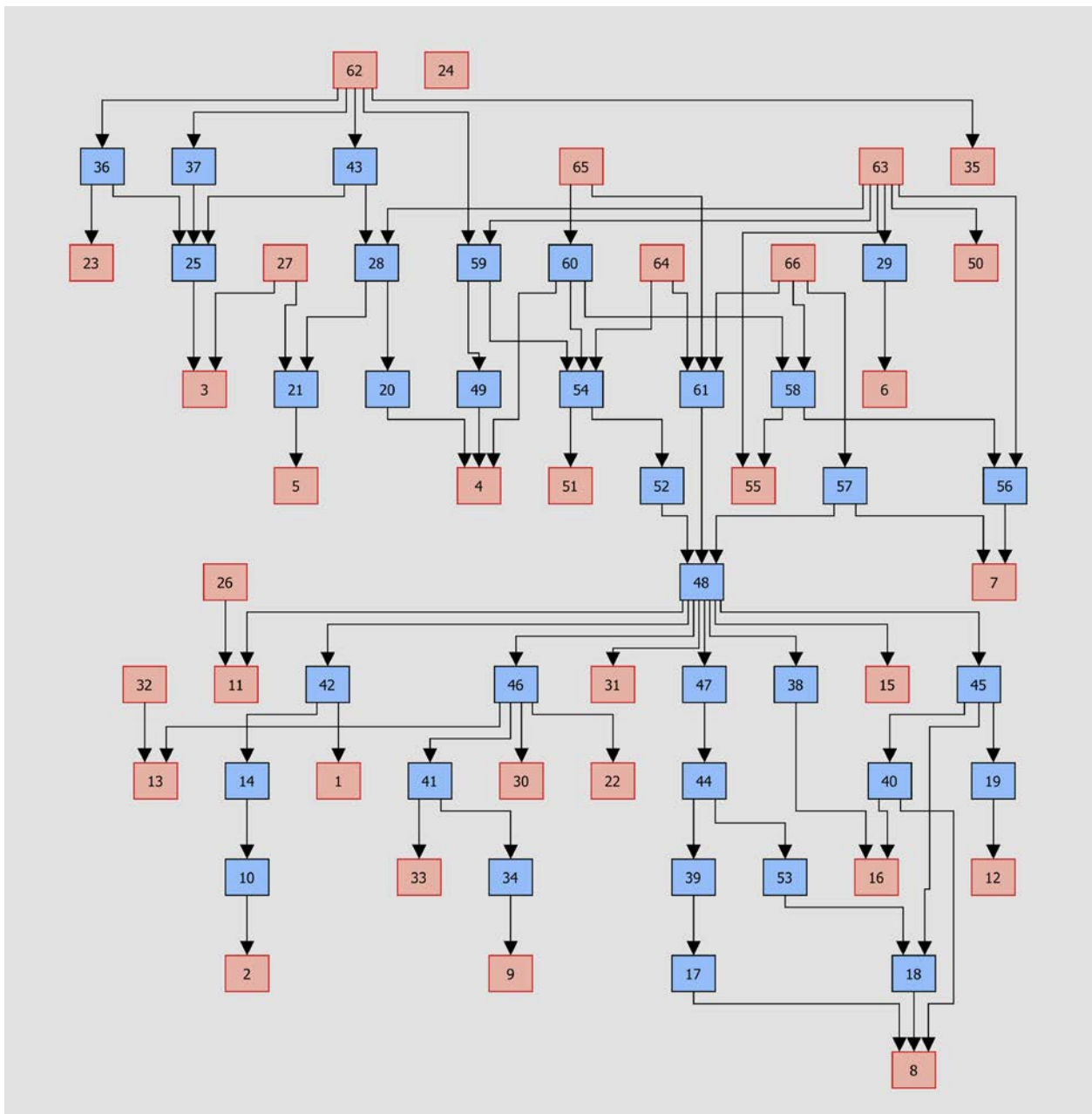


Figure 8.31: Harris Matrix of the Panel D motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.25: Panel D motif superimpositions

Motif No.	Underlying Motifs (D-)	Motif No.	Underlying Motifs (D-)
D-10	2	D-45	8,12,18,19,40
D-14	2,10	D-46	13,22,30,41
D-17	8	D-47	8,17,44
D-18	8	D-48	8,9,11,12,13,15,16,17,18,19,
D-19	12	"	22,31,33,34,38, 39,40,41,42,
D-20	4	"	44,45,46,47
D-21	5	D-49	4
D-25	3	D-52	48
D-26	11	D-53	8,18
D-27	3,21	D-54	8,16,18,39,40,48,51,52,53
D-28	4,20,21	D-56	7
D-29	6	D-57	7,46,48
D-32	13	D-58	7,55,56
D-34	9	D-59	4,8,48,49,52,54
D-36	23,25	D-60	8,48,51,54,55,58
D-37	3,25	D-61	40,45,46,48
D-38	16	D-62	1,4,8,15,23,28,35,36,37,42,
D-39	17	"	43,44,48,49,59
D-40	8,16	D-63	21,28,29,48,50,55,56,59,56
D-41	33,34	"	4,5,6,20
D-42	1,10,14	D-64	16,17,39,40,48,54,61
D-43	3,25,28	D-65	19,40,45,54,58,60,61
D-44	8,17,18,39,53	D-66	7,31,41,46,48,55,57,58,61

Table 8.26: Summary of the Panel D art phases

D Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
IV	2	8	polychrome	X-ray	fish
III	10	36	white+red	solid+outline+infill	anthro, animal
II	2	13	yellow	solid, linear	anthro
I	1	9	red	outline+striped infill	macropod

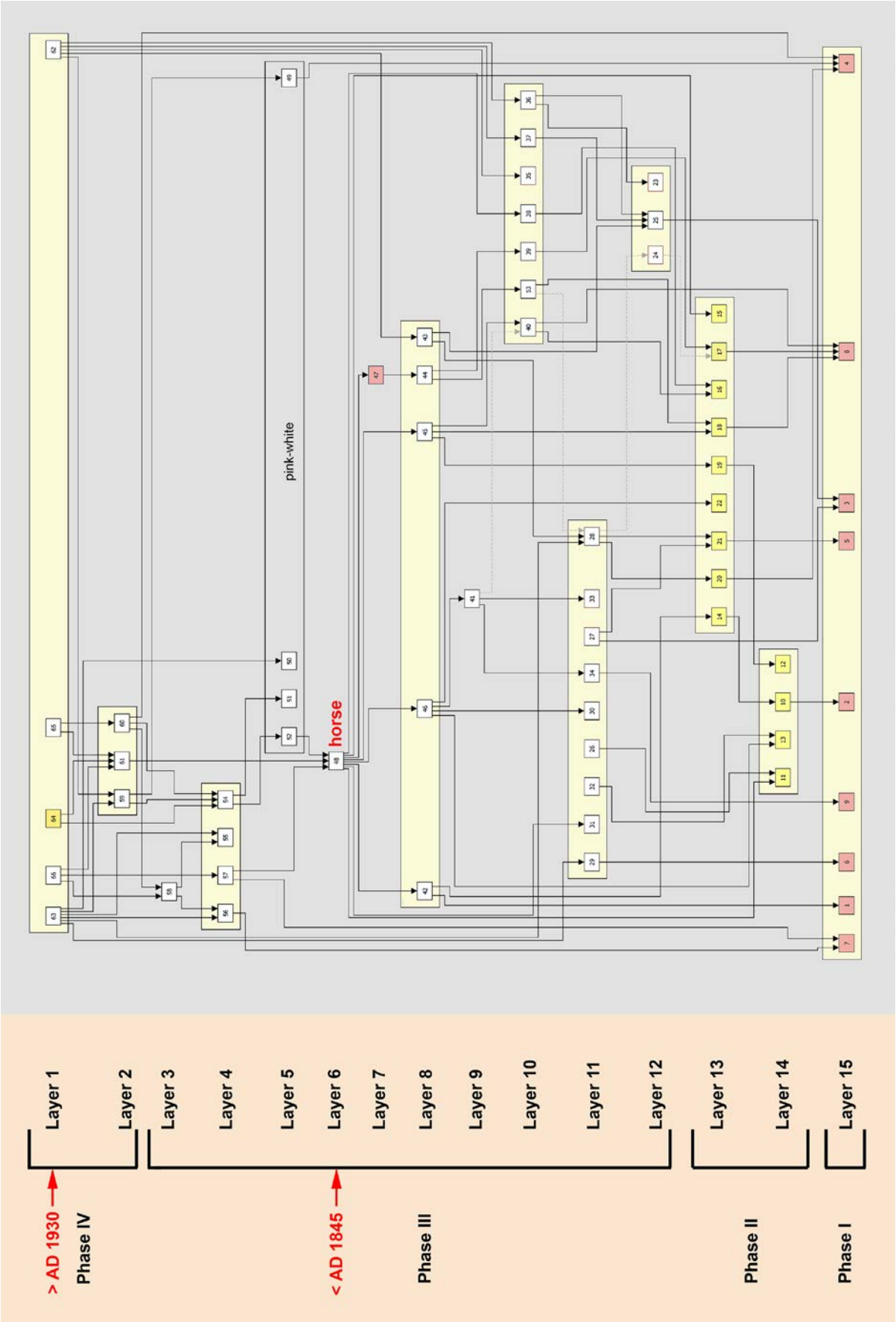


Figure 8.32: Interpretation of the Panel D Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

Group E motif sequences

Panel E1

All but one of the 82 motifs on Panel E1 are involved in superimpositions (Table 8.27; Figure 8.33). Based on their pattern of superimposition, these 82 motifs were aggregated into 15 layers, and the layers into six phases (Table 8.28; Figure 8.34):

- **Phase E1/I:** the earliest phase, Phase E1/I, consists of 21 red motifs in at least two separate layers (Layers 13 and 14). Of note is the presence of basic X-ray features (stylised backbone and ribs) in a monochrome red fish (Motif E-15) and a long snake (Motif E-11) with X-ray backbone, ribs and eggs (see Figures 7.135 and 7.141);
- **Phase E1/II:** a single layer of 12 yellow paintings; only one, a simple design, could be interpreted to Motif Type;
- **Phase E1/III:** consisting of a layer of four red fragments;
- **Phase E1/IV:** a phase with seven layers (Layers 5 to 11) of paintings in monochrome white (28), bichrome white+red (8) and white+yellow (1), and monochrome orange (2). The stratigraphic relationship between Layer 7 (white paintings with red infill) and Layer 8 (white monochrome paintings) is unclear, as both are equally poorly preserved and they do not occur in superimposition with each other. They are therefore seen as roughly contemporaneous and comprising a single layer. Layer 5 presents two anomalous anthropomorphs in orange, one of which (Motif E-46) also has a headdress in white. The white monochrome motifs and white silhouette bichrome motifs occur in overlapping layers, suggesting that here the two practices are contemporaneous and, hence, units of the same phase and repertoire;
- **Phase E1/V:** a single bichrome turtle motif in white and orange. This motif is distinctly

different from all underlying or overlying motifs; and

- **Phase E1/VI:** the most recent phase shows a further distinctive change dominated by two larger polychrome motifs in the Northern X-ray form. The elaborate X-ray macropod (Motif E-76) is unique at this site.

The presence of these X-ray features in the earliest layers (Phase I) is unusual as, elsewhere in this shelter, such features only occur in the more recent artwork.

The most recent motifs (Phases V and VI) show an abrupt change in the art to larger and more dramatic motifs. Overlying the bold striped turtle motif from Phase E1/V (Motif E-75; Figure 7.141), Phase E1/VI contains an uncommon a purple macropod with an unusual X-ray form (Motif E-76) painted over a smear pigment area, and two large polychrome X-ray barramundi (Motifs E-77 and E-78), both of which have been several times partially retouched. The most recent of these motifs is a painting of a barramundi that appears to have been left incomplete and partially smudged (Motif E-79; see Figures 7.141 to 7.145).

Overall, there is a change in colour from red to yellow, and from yellow to white and white-based polychrome. The quality of brushwork also changes noticeably through time. Earlier paintings, while occasionally painted rapidly with a broad brush, tend to incorporate fine-line brushwork. The more recent paintings, in contrast, tend to favour broader line-work and, even in their finer detail, to be applied in a coarser manner than earlier infill work. This is further supported by a later partial re-decoration of the largest barramundi (Motif E-77), where an orange mesh design uncomfortably overlies the pattern beneath, with the partial purple infilling not being confined to the pattern compartments (Figure 8.35). This pattern of design disjunction conforms to the alteration of the polychrome turtle on Panel C2 (Motif C-87) mentioned above (Figure 8.28).

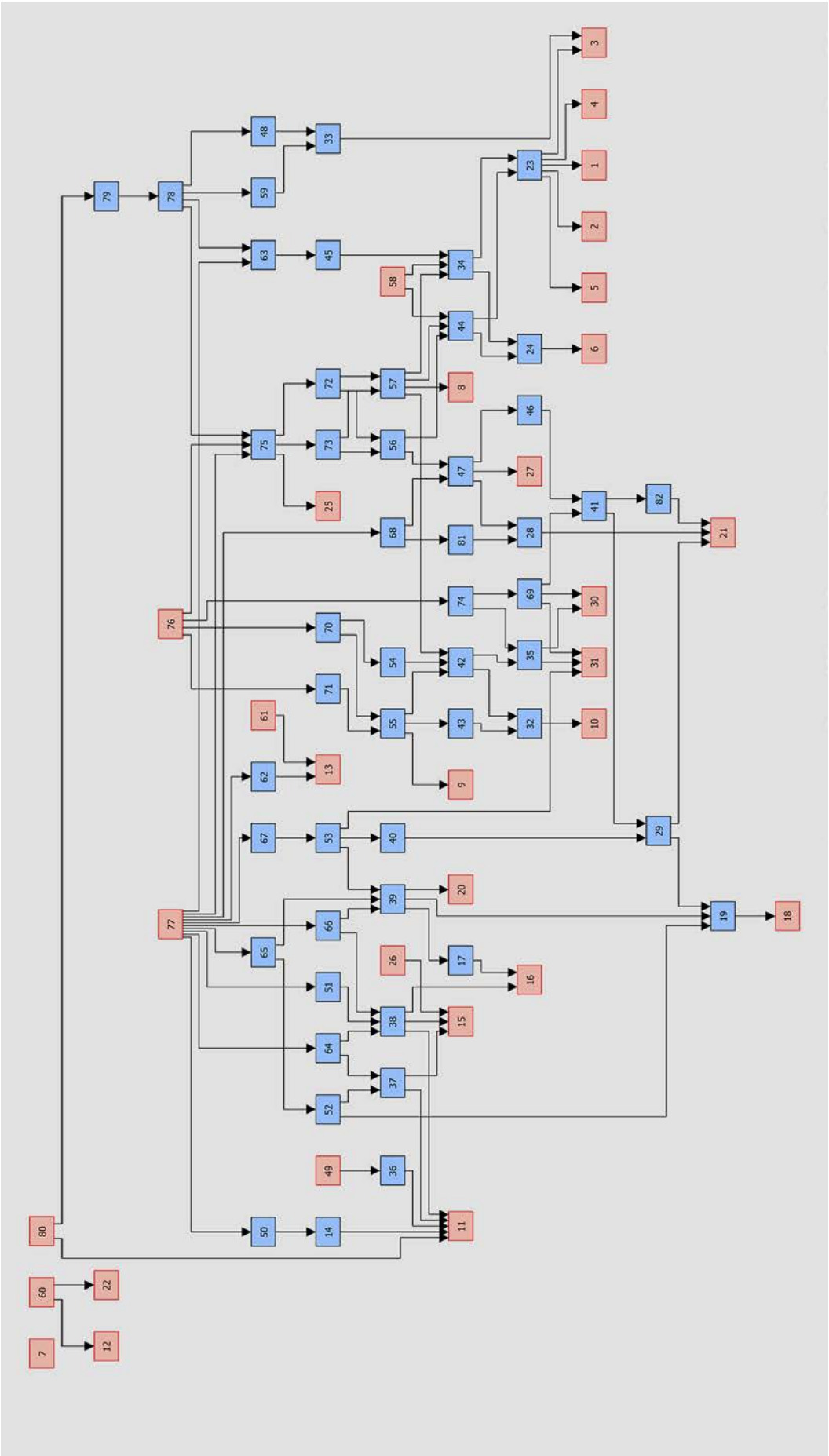


Figure 8.33: Harris Matrix of the Panel E1 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

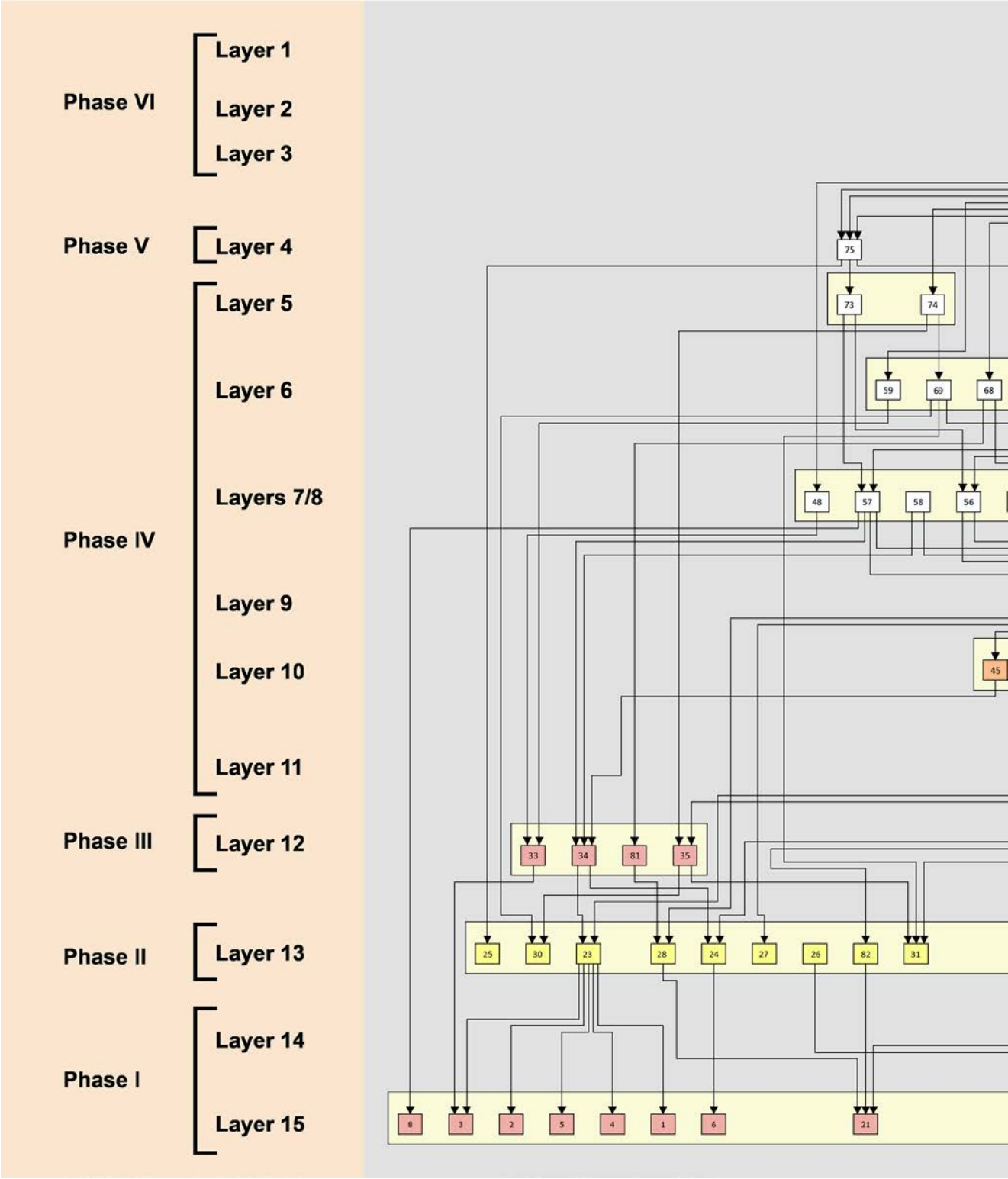
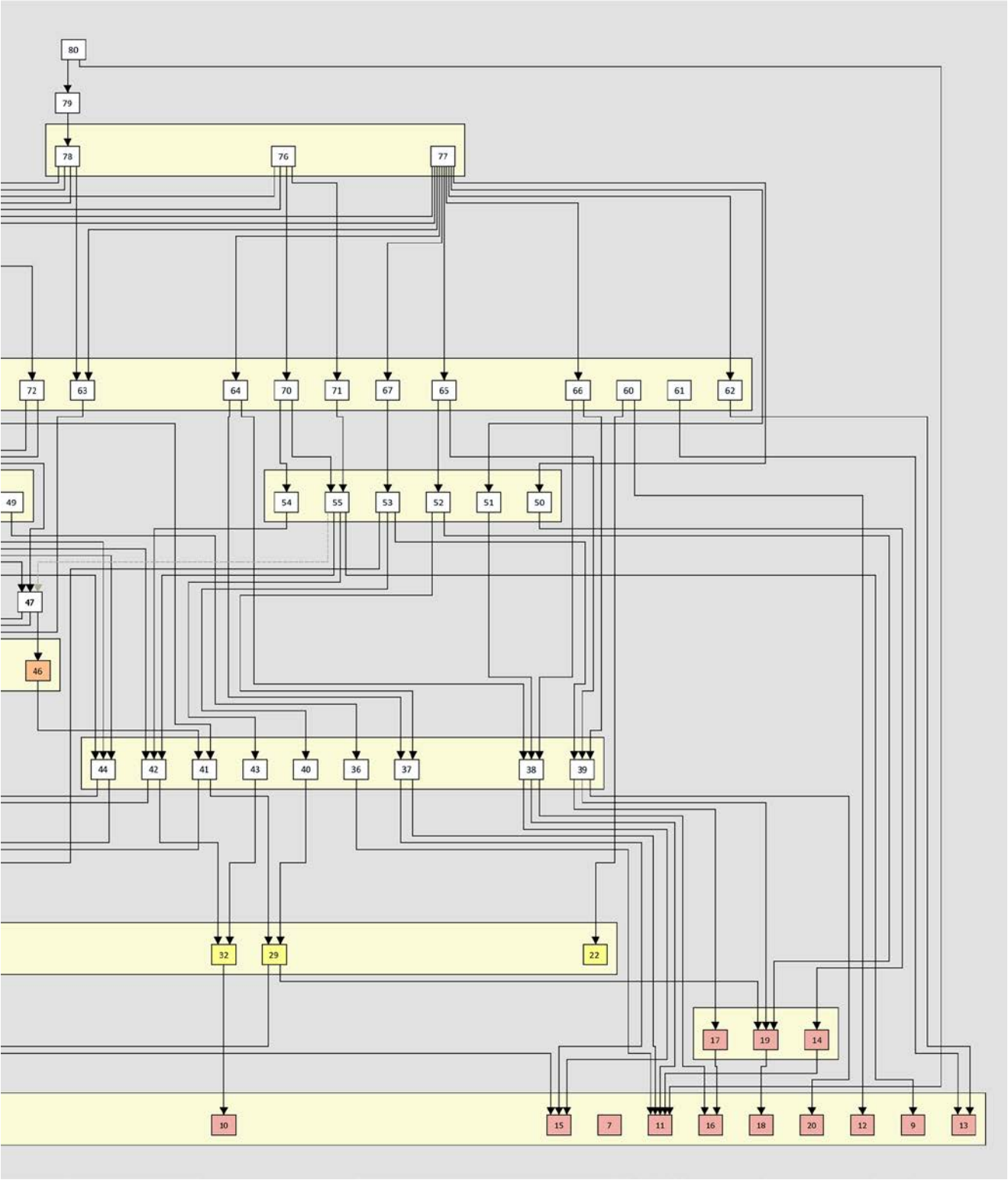


Figure 8.34: Interpretation of the Panel E1 Harris



Matrix with motif number and base colour indicated

Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.27: Panel E1 motif superimpositions

Motif No.	Underlying Motifs (E-)	Motif No.	Underlying Motifs (E-)
E-17	16	E-55	9,10,32,42,43,
E-19	18	E-56	44,46,47
E-23	1,2,3,4,5	E-57	5,8,23,24,34,44,47
E-24	6	E-58	2,5,23,34,44
E-26	15	E-59	3,33
E-28	21	E-60	12,22
E-29	19,21	E-61	13
E-32	10	E-62	13
E-33	3	E-63	34,45
E-34	1,2,4,5,23,24	E-64	11,15,37,38
E-35	30,31	E-65	11,16,17,18,37,39,52
E-36	11	E-66	16,17,38,39
E-37	11,15	E-67	19,20,21,29,39,53
E-38	11,15,16	E-68	19,28,29,41,46,47,81
"	(38:39 unclear)	E-69	29,30,31,41
E-39	16,17,18,19,20	E-70	32,42,54,55
"	(38:39 unclear)	E-71	9,32,55
E-40	29	E-72	8,23,24,34,44,56,57
E-41	29,82	E-73	44,47,56,57
E-42	30,31,32,35	E-74	30,31,35, 69
E-43	32	E-75	24,25,41,44,47,56,57,72,73
E-44	2,3,4,5,23,24,	E-76	30,32,35,44,47,54,55,56,57,
E-45	34	"	69,70, 71, 72,73,74,75
E-46	41,82	E-77	13,15,17,18,20,21,25, 28,
E-47	27,28,41,46	"	34,38,39,47, 50,51,62,63,
E-48	3,33	"	64,65,66,67,68,72,75,81
E-49	11,36	E-78	3,23,33,34,44,48,56,59,63,
E-50	11,14	"	72,75
E-51	11,38	E-79	78
E-52	11,18,19,37	E-80	11,63,79
E-53	19,29,31,39,40	E-81	21,28
E-54	30,42	E-82	21

Table 8.28: Summary of the Panel E1 art phases

E1 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VI	3	5	polychrome	X-ray	fish, macropod
V	1	1	white+orange	solid+outline+infill	reptile
IV	7	39	white, white+red	solid, solid+outline+infill	macropods, fish, reptile, anthro, bird
III	1	4	red	outline+striped infill	unknown
II	1	12	yellow	solid, outline	complex design
I	2	21	red	solid, outline+infill	reptile, fish



Figure 8.35: Detail of the retouching over the stomach pattern of Motif E-77
A=purple over-paint; arrows highlight the orange mesh pattern that preceded the purple over-paint

Panel E2

Twenty-five of the 28 motifs on Panel E2 are involved in superimpositions (Table 8.29; Figure 8.36). Based on their pattern of superimposition, these 28 motifs were aggregated into eight layers, and the layers then into six phases (Table 8.30; Figure 8.37):

- **Phase E2/I:** this phase consists of a single emu motif in red (Figure 8.38). This motif has stylistic similarities with Motif E-97 in Layer 4 (see Phase E2/III), through the use of linear infill of the body and solid delineation of the head and neck;
- **Phase E2/II:** this phase has of two layers: Layer 6 has four pale yellow motifs and Layer 7 consists of a single beeswax pellet (Motif E-83). The stratigraphic relationship between the paintings and the beeswax pellet is unclear as they do not occur in superimposition and no meaningful comparison of their states of preservation is possible given the different media used (paint and beeswax);
- **Phase E2/III:** two discrete layers together containing 13 red paintings (Layers 4 and 5). Most of the motifs of the underlying Layer 5 are poorly preserved fragments. The feet and belly of a macropod is evident in Motif E-90. A large, red, linear complex radial design (Motif E-93) is similar in colour, construction and size to others on Panels F1 and J that have been dated to around 400 BP (see below). In common with those on Panels F1 and J, Motif E-93 has a beeswax pellet at its centre and, in all cases the pellets clearly underlie the red painting (see Figure 7.159 above). The overlying Layer 4 is composed of six motifs that are spread across different areas of the panel. The layer includes a hooked-faced figure (Motif E-95) similar in motif form to Motif C-92 (Panel C3). Also, a well-defined macropod (Motif E-97) has a similar motif form to the earlier bird figure (Motif E-98) in Phase E2/I;
- **Phase E2/IV:** a layer of four yellow paintings (Layer 3). The stratigraphic relationship between Layer 3 and Layer 2, and hence between Phase E2/IV and Phase E2/V, is unclear as the layers are not superimposed and are in similarly poor states of preservation;
- **Phase E2/V:** a layer of two solid red profile anthropomorphs with tapering legs (Layer 2); and
- **Phase E2/VI:** the top-most layer, and hence the most recent, contains the largest motif on the panel: a centrally positioned Jawoyn Lady motif (Motif E-110).

Table 8.29: Panel E2 motif superimpositions

Motif No.	Underlying Motifs (E-)	Motif No.	Underlying Motifs (E-)
E-83	83:87 unclear	E-100	87,93
E-84	98	E-102	95
E-87	83:87 unclear	E-103	90,92,93,97
E-90	85	E-106	84,98
E-91	85	E-107	84,98
E-92	86	E-108	95,102
E-93	83, 86,87	E-109	104
E-97	85,86,90,92	E-110	85,87,90,91,92,93,94,97,98,
E-99	87,93	"	99,100,101,103,105,106,107

Table 8.30: Summary of the Panel E2 art phases

E2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VI	1	3	white+red	solid+outline+infill	anthro
V	1	2	red	solid	anthro
IV	1	4	yellow	solid+linear, outline	anthro
III	2	13	red	outline+striped infill, outline+infill, linear	anthro, macropod, complex design
II	2	5	yellow	fragments	fragments
I	1	1	mulberry	outline+infill	bird

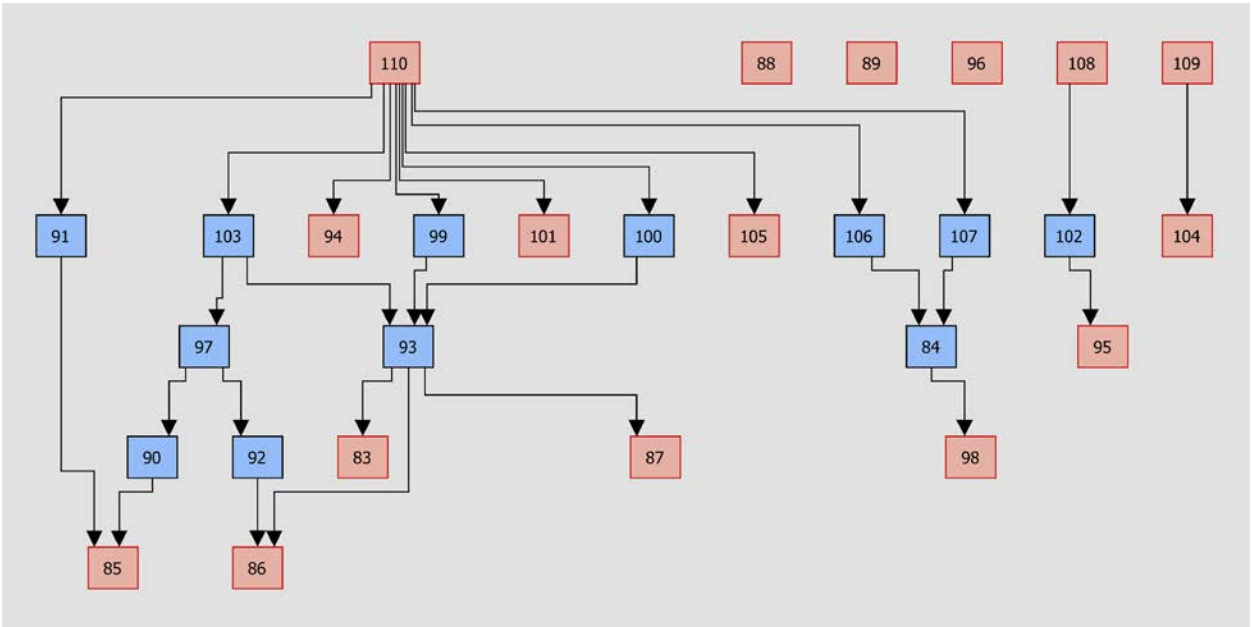


Figure 8.36: Harris Matrix of the Panel E2 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

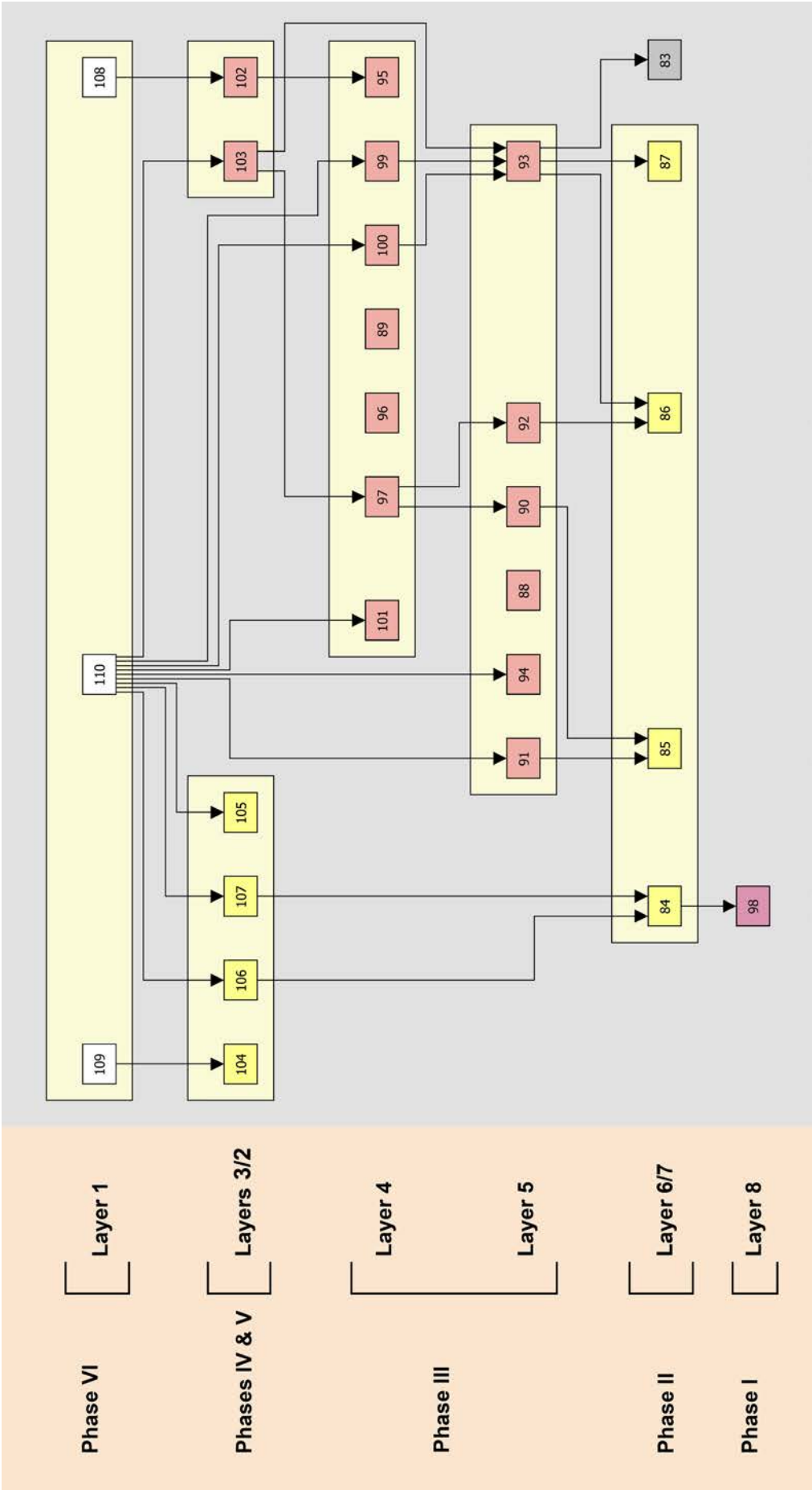


Figure 8.37: Interpretation of the Panel E2 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

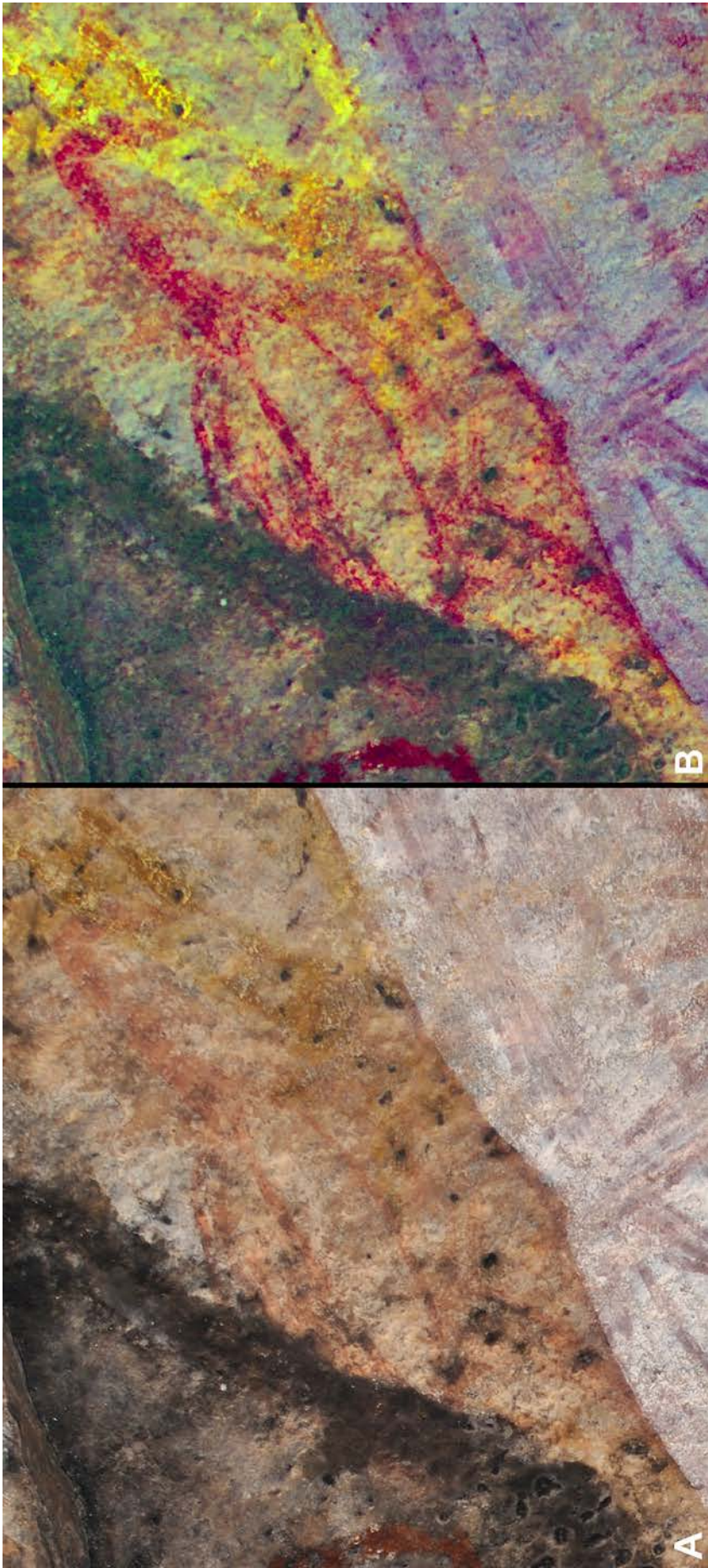


Figure 8.38: The earliest motif (Motif E-98) on Panel E2
A: Flash photograph B: DStretch_Ids10

Panel E3

Eight of the nine motifs on Panel E3 are involved in superimpositions (Table 8.31; Figure 8.39A). Based on their pattern of superimposition, these nine motifs were aggregated into five layers, and the layers then into three phases (Table 8.32; Figure 8.39B):

- **Phase E3/I:** a single layer of three remnant white paintings, one of which is an anthropomorph with an unusual head design (Motif E-113);
- **Phase E3/II:** a single layer of two red paintings, including a solid macropod (Motif E-89) that occupies most of the panel and broaches its legs onto the adjacent Panel E2; and
- **Phase E3/III:** three layers of four monochrome white motifs. A centrally placed painting of a

barramundi (Motif E-118) overlies a white drawn line (Motif E-117) that parallels the belly line of the overlying barramundi (Motif E-118), suggesting that it may have formed part of a preliminary sketch for the painting, and hence may have been contemporaneous with it (Figure 7.167).

Table 8.31: Panel E3 motif superimpositions

Motif No.	Underlying Motifs (E-)
E-89	111,112,113
E-115	89
E-116	89,112
E-117	89,111,115
E-118	89,111,112,115,117

Table 8.32: Summary of the Panel E3 art phases

E3 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	3	4	white	solid, linear	fish, unknown
II	1	2	red	solid+outline	macropod
I	1	3	white	linear+infill	anthro

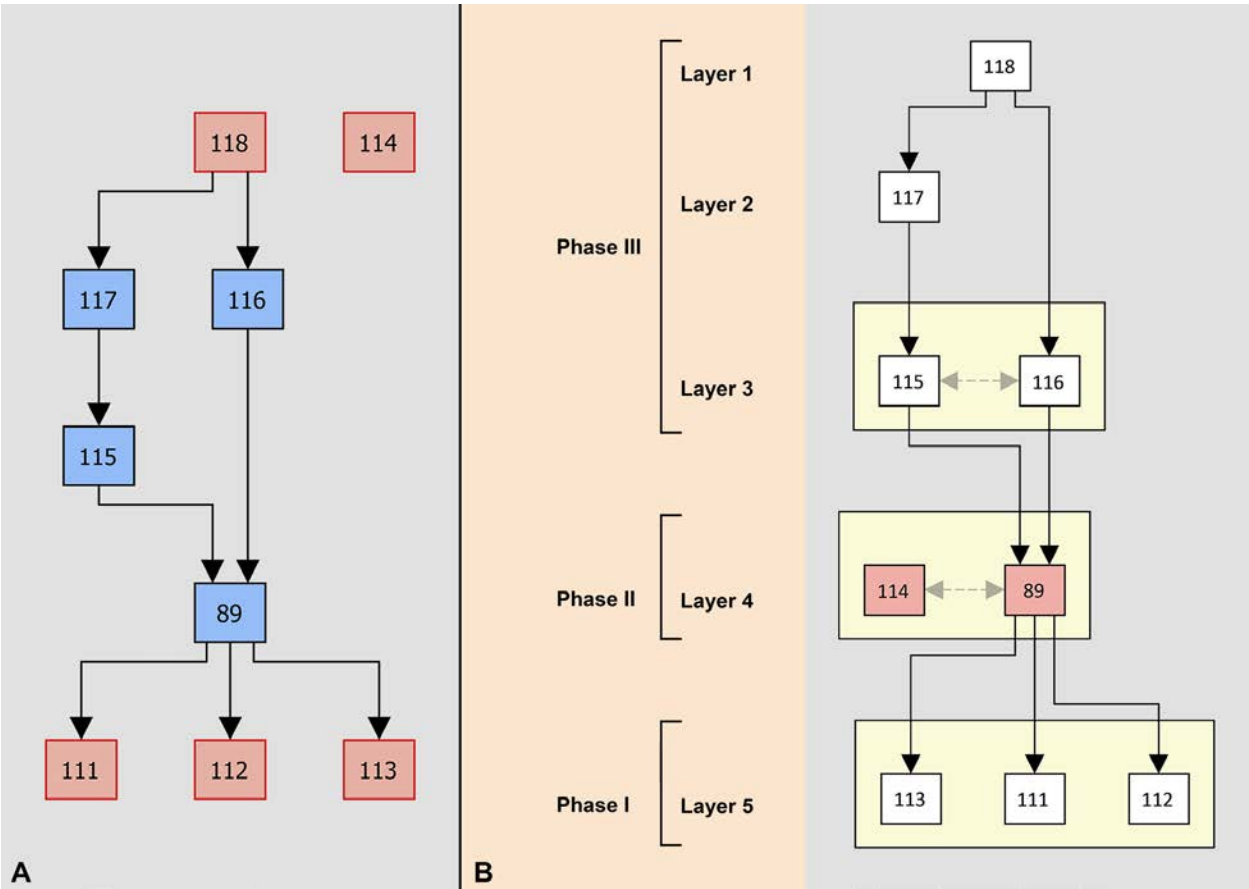


Figure 8.39: Harris Matrix of the Panel E3 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Panel E4

Five of the six motifs on Panel E4 are involved in superimpositions (Table 8.33; Figure 8.40A). These six motifs were aggregated into four layers, and the layers then into three phases (Table 8.34; Figure 8.40B):

- **Phase E4/I:** two layers with four red motifs. Motif E-119 appears to have been a macropod with striped infill. The stratigraphic relationship between the macropod (Motifs E-119) and the fragment (Motif E-120) is unclear, although they are in direct superimposition. Motif E-122 is a turtle with striped infill whose carapace was repainted in brown-yellow (Motif E123) at some later time (Figure 8.41);

- **Phase E4/II:** the orange repainting of Motif E-122; and
- **Phase E4/III:** the most recent phase consists of a single white profile anthropomorph with an unusual outline form.

Table 8.33: Panel E4 motif superimpositions

Motif No.	Underlying Motifs (E-)
E-119	119:120 unclear
E-120	119:120 unclear
E-122	119,121
E-123	122
E-124	121,122,123

Table 8.34: Summary of the Panel E4 art phases

E4 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	1	white	outline+linear	anthro
II	1	1	orange	outline+infill	Repainting of #122
I	2	4	red	outline+striped infill	reptile, macropod

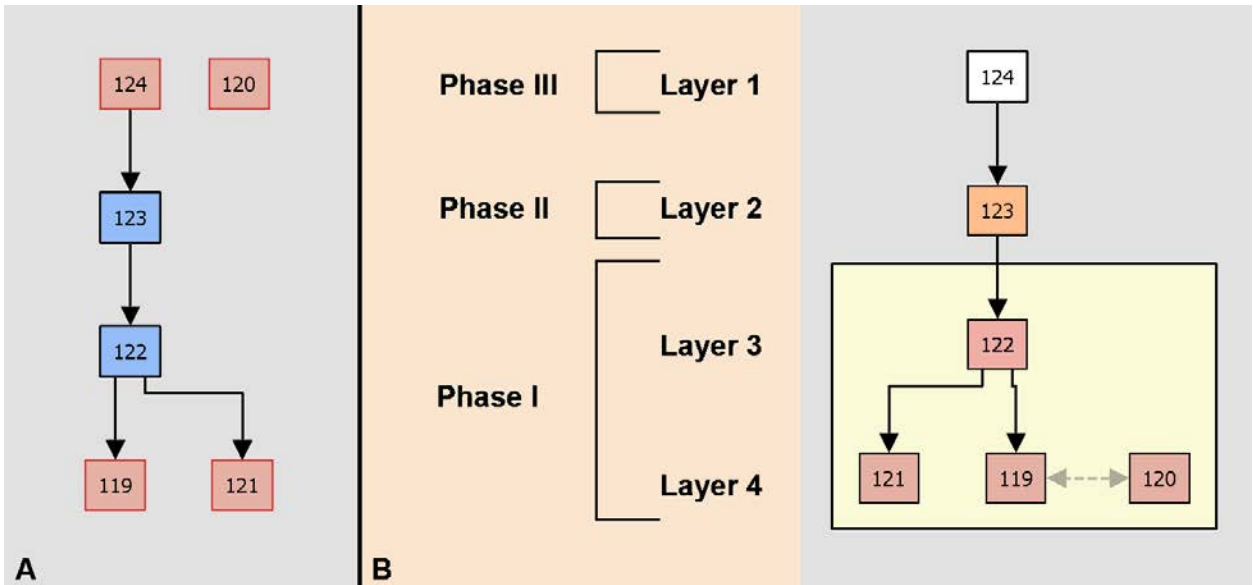


Figure 8.40: Harris Matrix of the Panel E4 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent



Figure 8.41: Red turtle (Motif E-122) highlighting the orange repainting of the carapace area (Motif E-123) (enhanced image with DStretch_lds10)

Panel E5

Two of the three motifs on Panel E5 are involved in superimpositions (Table 8.35; Figure 8.42A). The three motifs were aggregated into two layers, each of which represents a separate phase (Table 8.36; Figure 8.42B):

- Phase E5/I:** this is the earlier of the two phases. It consists of two fragments: one in yellow and a smaller one in red. Both motifs are diffuse and difficult to interpret, and their stratigraphic relationship is unclear; and
- Phase E5/II:** the most recent phase, consisting of a single white painting of an irregular simple design.

Table 8.35: Panel E5 motif superimpositions

Motif No.	Underlying Motifs (E-)
E-125	125:126 unclear
E-126	125:126 unclear
E-127	126

Table 8.36: Summary of the Panel E5 art phases

E5 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	1	1	white	linear	simple design
I	2	2	yellow, red	fragments	fragments

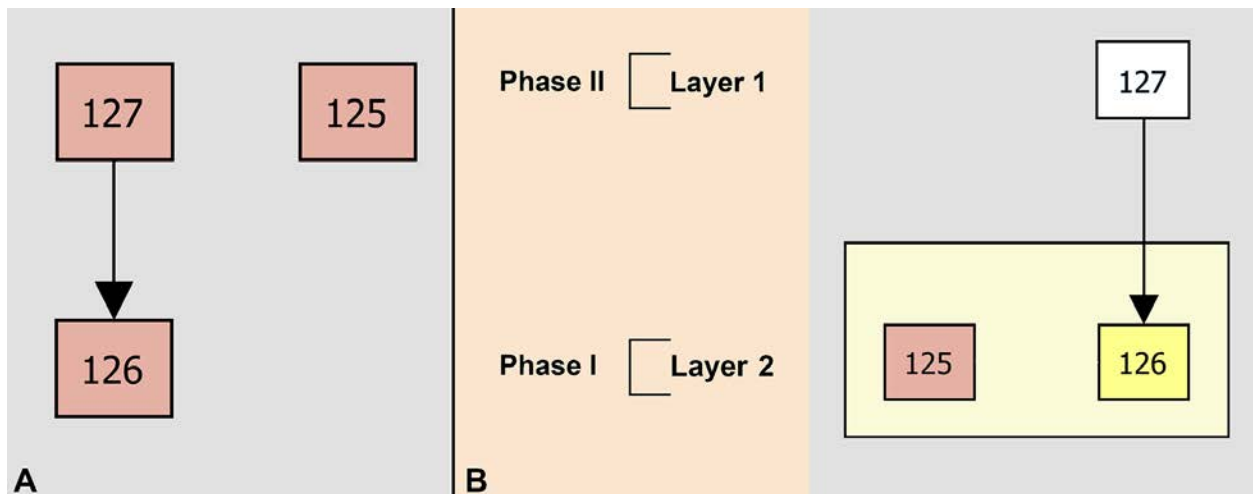


Figure 8.42: Harris Matrix of the Panel E5 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Group F motif sequences

Panel F1

All of the 126 motifs on Panel F1 are involved in superimpositions (Table 8.37; Figure 8.43). Based on their pattern of superimposition, these 126 motifs were aggregated into 33 layers, and then the layers grouped into seven phases (Table 8.38; Figure 8.44):

- **Phase F1/I:** the earliest of the phases, Phase F1 consists of a single layer (Layer 33), with five very poorly preserved yellow paintings including a solid yellow animal (macropod?) whose tail is partially outlined in red;
- **Phase F1/II:** a phase of six layers involving 23 motifs (Layers 27 to 32). The relative sequence of Layers 27 to 29 is unclear, as all are equally poorly preserved and they do not occur in superimposition. Layer 27 consists of a single white painted fragment (Motif F-26); Layer 28 has four red paintings with white elaboration; and Layer 29 has five monochrome red fragments. Based on their stratigraphic relationship and their similar state of preservation, these three layers are seen as roughly contemporaneous. Layers 30 to 32 consist of red fragments. It is unclear whether the fine white line embellishments that decorate Motifs F-56 to F-58, and F-126 (Layer 28) were painted as part of the original motifs or added at a later time. The most prominent motif of this Phase is a remnant large striped snake (Motif F-12). The snake appears to have partially encircled the panel in a similar manner to that of the early red snake motif on Panel E1 (Motif E-11);
- **Phase F1/III:** a phase of five layers and 37 motifs. Layer 25 consists of four beeswax pellets (Motifs F-27 to F-30). Layer 24, dominated by compositions of small fish (Motifs F-32, F-33, F-38 to F-41; and F-42 to F-48), overlies Layer 26, which contains a composition of a profile anthropomorph and artefacts (Motifs F-34 to F-37). However, the commonality in colour (an unusual purple red), paintwork, the presence of compositions on a panel where compositions are uncommon, and similar states of motif preservation suggests that the two layers are largely contemporaneous. Layer 23, that overlies Layer 24, also includes a composition of anthropomorphs and artefacts (Motifs F-75 to F-83). The artefacts, spears, long spearthrower and dillybag, closely resembling those in Layer 26 (Motifs F-34 to F-37) although their degree of detail differs, suggesting they are not part of the same painting event;
- **Phase F1/IV:** three layers of nine paintings. The lower layer contains six orange motifs (including an echidna, Motif F-60, and two eel-tailed catfish, Motifs F-62 and F-63). Above this there is a fragmented white painting (Layer 20, Motif F-25) and a pair of solid form possums in red and decorated with white dotted infill along the tail and hind quarters (Motifs F-49 and F-50);
- **Phase F1/V:** two layer of eight white paintings including a solid form female figure (Motif F-71), an anthropomorph outlined in red (Motif F-64), a remnant outlined snake (Motif F-70) and several small fish (Motifs F-65 to F-69);
- **Phase F1/VI:** a single layer of three discrete red paintings (fish, macropod and female anthropomorph; Motifs F-72 to F-74), each with fine red infill decoration. The infill design on the

fish resembles its skeletal bone structure and is likely to be a variation of the X-ray form, as the macropod has what appears to be a stylised alimentary canal; and

- **Phase F1/VII:** 15 layers of 40 paintings in a variety of colours and styles, all within a dominant suite of white silhouette motifs (either monochrome or with red embellishments). Layers 1 and 2 cannot be stratigraphically differentiated, nor can Layers 3 to 5. The key to this phase is in its diversity, as it consists of a series of events (sets of motifs) that utilised different artistic traits but connected by a range of attributes (particularly of colour and form). This phase also contains four sets of beeswax pellets (Motifs F-105 to F-108) added to an anthropomorph painted in white (Motif F-104). These beeswax pellets are in similar states of preservation to that of Motif K-137 (see below). The stratigraphic order of Layer 3 to Layers 4 and 5, Layer 4 to Layers 3 and 5, and Layer 14 to Layer 15 could not be identified, while that of Layer 13 to Layer 14 is inferred on the basis of relative states of preservation. As with Layers 24 and 26 of Phase III, Layers 9 and 10, and Layers 11 and 12 here are both deemed to comprise sub-groups within this Phase.

The paintings of Phase F1/VII consist variously of:

- white linear fragments, and female anthropomorphs and macropods with red outline and infill. One of the female figures (Motif F-88), appears to be in coitus with a poorly preserved male, while one of the macropods has minor X-ray features (Motif F-86: heart/lungs);
- five yellow paintings of solid form (silhouette) animals: three flying foxes, an echidna and a macropod;
- three red radial designs that overlie the beeswax of Phase II; and

- twelve white monochrome paintings (with either solid or outline forms); a coiled white snake with red simple X-ray infill (showing spine and internal eggs: Motif F-122); a meandering snake in orange with white infill (also showing internal eggs: Motif F-112); and a yellow meandering snake (Motif F-110). This phase also includes the only example of an amorphous sprayed area within the shelter (Motif F-125).

Radiocarbon dates have been obtained from two of the eight beeswax pellets on Panel F1 (Motifs F-27 and F-28; Table 8.39). Motif F-27 is a beeswax pellet that underlies a red design motif (Motif F-55) and a yellow snake (Motif F-110); and Motif F-28 is a smaller pellet central to another red design that it underlies (Motif F-99; Figures 8.45 and 8.46). The stratigraphic relationship of Motif F-28 with the apparently underlying yellow flying fox (Motif F-95) remains unclear. The radiocarbon dates from the beeswax in Motifs F-27 and F-28 have median calibrated ages of cal AD 1470 and cal AD 1497 respectively (Calib 7.1, using IntCal13; Reimer et al. 2013), suggesting that all four of these pellets were applied at, or approximately at, the same time. The stratigraphic relationship of the beeswax pellets to the overlying red radial motifs (Motifs F-55 and F-99), however, does not appear to be consistent, with the design (Motif F-55) over Motif F-27 being older than the designs (Motifs F-91, F-98 and F-99) that overlie beeswax pellets Motifs F-28 to F-30. Note that the age and placement of these pellets in relation to radial design motifs is similar to those of pellets J-53 and J-54 on Panel J1 (see below).

The majority of motifs that pre-date the dated pellets on Panel F1 are poorly preserved monochrome fragments. Within this group, however, are the long encircling snake (Motif F-12) mentioned above, and three motifs in red with fine-line white, hatched infill (Motifs F-56, F-57 and F-58), indicating that this type of infill was practiced prior to c.406±30 BP (Figure 8.47).

Table 8.38: Summary of the Panel F1 art phases

F1 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VII	15	40	white, white+red, yellow	solid+outline+infill, solid, linear	reptile, anthro, macropod, animal
VI	1	3	red+white	X-ray	anthro, macropod, fish
V	2	8	white	solid+linear	anthro, fish
IV	3	9	red, orange	solid	animal
III	5	37	red	solid, linear	anthro, fish, implements
II	6	23	red	solid, outline+infill	reptile, fragment
I	1	6	yellow	fragment	fragment

Beeswax Motifs F-105 to F-108 are undated but, as they are considerably blacker in colour and the beeswax is more coherent (less crazed) than dated Motifs F-27 to F-30, it is most likely that they are younger than the dated group (cf. Nelson 2000). Further, being in a comparable state of preservation to a beeswax figure on Panel K4 (motif K-137) radiocarbon dated to 153±30 BP (Gunn et al. 2012b:4; see below), these two groups of beeswax motifs (Motifs F-105 to F-108, and K-137) are

likely to be of similar age. Consequently, the motifs in the overlying layers are younger, and the underlying motifs older, than c. cal AD 1778.

Two white female figures (Motifs F-120 and F-121), among the most recent artwork on Panel F1, have similar poses, orientation and states of preservation, and are positioned at opposite corners of the panel (Figure 8.48; see Chapter 9).

Table 8.37: Panel F1 motif superimpositions

Motif No.	Underlying Motifs (F-)	Motif No.	Underlying Motifs (F-)
F-7	1	F-76	1,7,51,55
F-8	1	F-77	7,51
F-10	4	F-78	7,54
F-11	4	F-79	51
F-12	3	F-80	51
F-13	12	F-81	51,52
F-15	2	F-82	6,51,52
F-16	2	F-83	6
F-17	2	F-84	56,57,58
F-17	17:18 unclear	F-85	3,10,12,16,21,34,35,36,37,64,67,70,72,73
F-18	17:18 unclear	F-86	4,10,23,42,45,46,49,70,73,74
F-19	1,8,9	F-87	49,50,62,63
F-20	15,2	F-88	49,50,70
F-21	2	F-89	5,50
F-22	4	F-90	5,58,84
F-23	4	F-91	30,84,111
F-25	4,62,63,126	F-92	57
F-26	8,18,19	F-93	19,57,74,92
F-29	56	F-94	5,50,58,88,89,90
F-33	13	F-95	9,19,57,92,93
F-34	2,12	F-96	9,56
F-35	2,12	F-97	84
F-36	12	F-98	9,19,28,56,57,92,93,95,96
F-37	3,12	F-99	9,29,57,59,84,96
F-38	34,35	F-100	53,54
F-40	2, 20	F-101	51,76,79,80,81,82,
F-41	15,20	F-102	4,11,22,23,43,60,71,86
F-42	4,23	F-103	4,11,22,23,43,46,49,60,70,71,87,102
F-43	4,23	F-104	10,49,50,70,71,74,86,87,88,94,102
F-45	4	"	104:125 unclear
F-46	4,23	F-105	10,70,104
F-47	4	F-106	10,70,104
F-48	24	F-107	104
F-49	4,10,25,126	F-108	104

F-50	5	F109	6,51,52,79,81,82,101
F-52	6	F-110	4,11,19,27,43,49,50,55,57,60,70,71,
F-55	27	"	74,87,88,92,93,94,98,102,104,124,125
F-56	9	F-111	30,57,58,59,84
F-59	84	F-112	1,6,8,10,18,19,26,53,54,55,56,57,70,
F-60	4,44	"	74,75,76,77,78,82,109,110,125
F-61	4,43,126	F-113	57,92,93,98,110
F-62	4	F-114	84,90,111
F-63	4	F-115	84,90,111
F-64	12,13,14,15,20,38,39,40,41	F-116	30,84,91,111
F-65	12,37	F-117	25,49,102,104,110
F-66	37	F-118	4,25,49,102,104,110
F-67	37	F-119	4,49,61,71,102,110
F-68	3,12	F-120	2,14,20,33,38,39,41,64,72,85,
F-69	3,12	F-121	59,84,91,111,114,115,116,123
F-70	4,10,45,49	F-122	1,2,8,17,18,19,26,74,75,86,112,125
F-71	4,11,43,44,47,49,60,61	F-123	57,84,90,92,96,98,111
F-72	13,14,31,32,33	F-124	74
F-73	3,4,10,11,12,37,68,69,70	F-125	17,18,74
F-74	10,17	F-126	4
F-75	8,19,26		

Table 8.39: Radiocarbon dates from Nawarla Gabarnmang beeswax samples

Panel	Motif No.	Lab. No.	Material	$\delta^{13}C\text{‰}$	% Modern	14C Age (BP)	Calibrated Age BP (95.4% probability)	Calibrated Age AD (95.4% probability)
F1	F-28	Wk- 26414	Beeswax pellet	-23.3 \pm 0.2	95.1 \pm 0.2	406 \pm 30	517 – 429 (84.9%) 360 – 328 (14%) 375 – 367 (10%)	1433 – 1521 (84.9%) 1575 – 1583 (1.0%) 1590 – 1622 (14.1%)
F1	F-30	Wk- 26415	Beeswax Pellet	No result due to insufficient carbon				
F1	F-27	Wk- 26416	Beeswax pellet	0.0 \pm 0.2*	95.3 \pm 0.2	383 \pm 30	506 – 426 (67.2%) 392 – 319 (32.8%)	1444 – 1524 (67.2%) 1558 – 1631 (32.8%)
H	H-122	Wk- 28101	Beeswax stick-figure	-22.9 \pm 0.2	97.9 \pm 0.3	173 \pm 30	292 – 253 (18.9%) 226 – 135 (54.2%) 116 – 72 (7.1%) 34 – 0 (19.8%)	1658 – 1697 (18.9%) 1724 – 1815 (54.2%) 1834 – 1878 (7.1%) 1916 – 1952 (19.8%)
J1**	J-53	Wk-31721	Beeswax Pellet			340 \pm 25	477 - 314 (100%)	1473 – 1636 (100%)
J1**	J-54	Wk-31722	Beeswax Pellet			327 \pm 31	472 - 307 (100%)	1478 – 1643 (100%)
K4	K-137	Wk- 26418	Beeswax stick-figure	-24.8 \pm 0.2	98.1 \pm 0.2	153 \pm 30	284 - 242 (17.1%) 232 - 166 (34.3%) 154 - 123 (12.0%) 119 - 62 (17.6%) 39 - 0 (19.0%)	1666 - 1708 (17.1%) 1718 - 1784 (34.3%) 1796 - 1827 (12.0%) 1831 - 1888 (17.6%) 1911 - 1953 (19.0%)

* Because of the small size of this sample the $\delta^{13}C$ value was measured on prepared graphite using the AMS spectrometer. Since this can differ from $\delta^{13}C$ of the original material it is not shown. The $\delta^{13}C$ value shown here is not correct (a default value of 0 has been added by the Waikato Radiocarbon Laboratory database program) (F. Petchey, pers. comm., 2011). On the basis of similarities in preservation of the beeswax of Motif K-137 and Motifs F-105 to F-108, the five motifs are all assumed to be c.200 years old.
(adapted from Gunn et al. 2012b:58, and **pers. comm. Bruno David 2015)

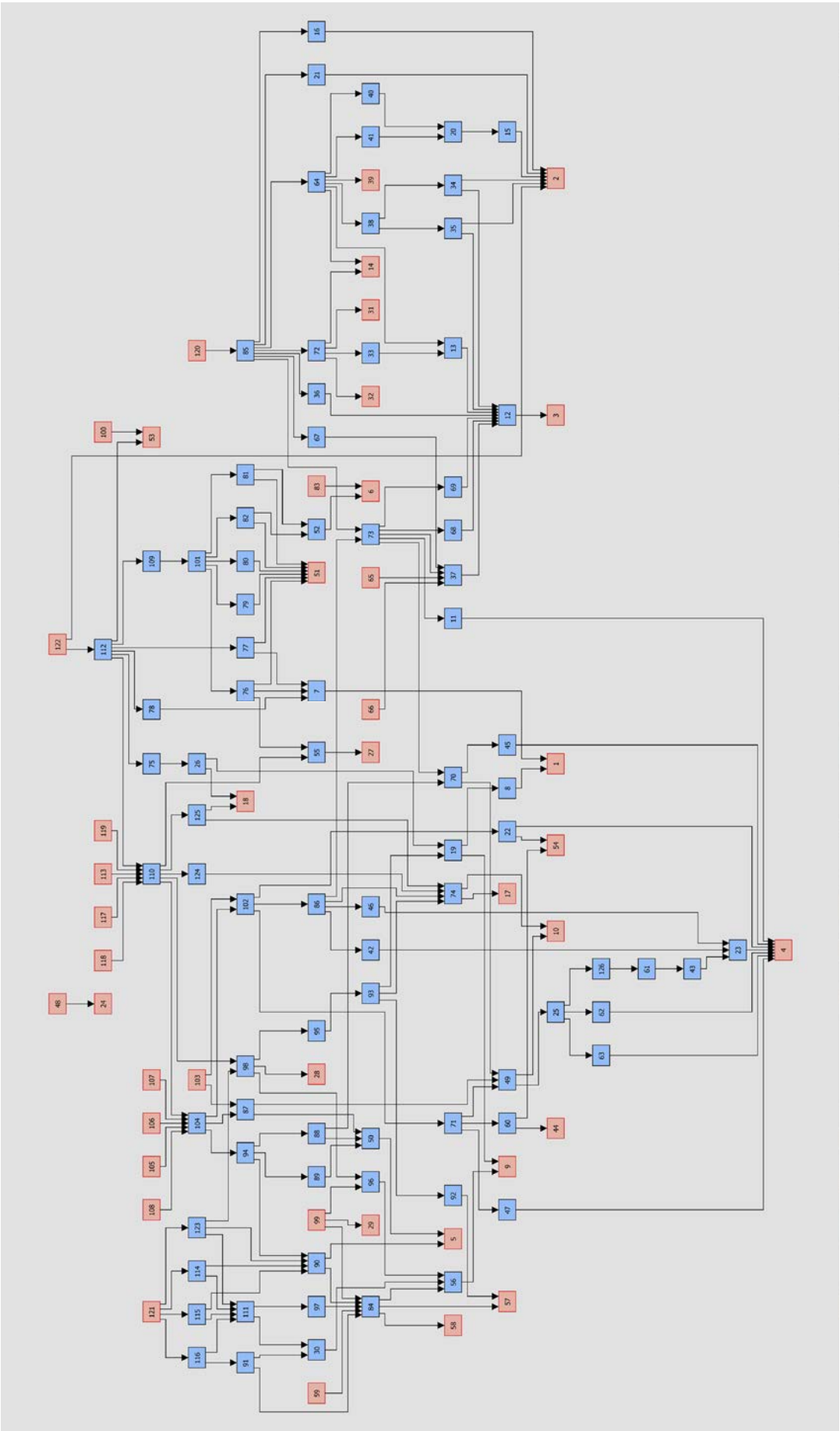


Figure 8.43: Harris Matrix of the Panel F1 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

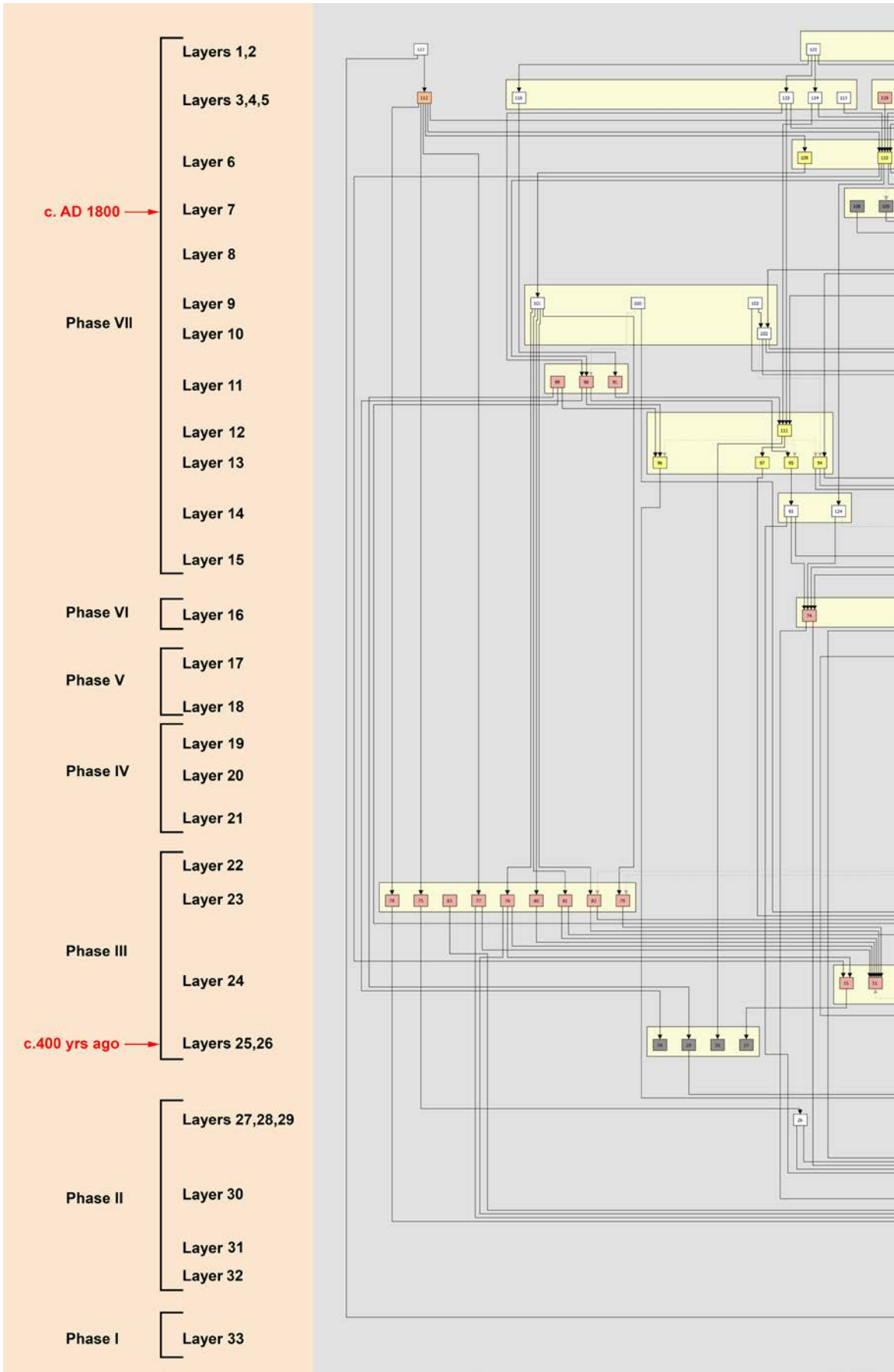
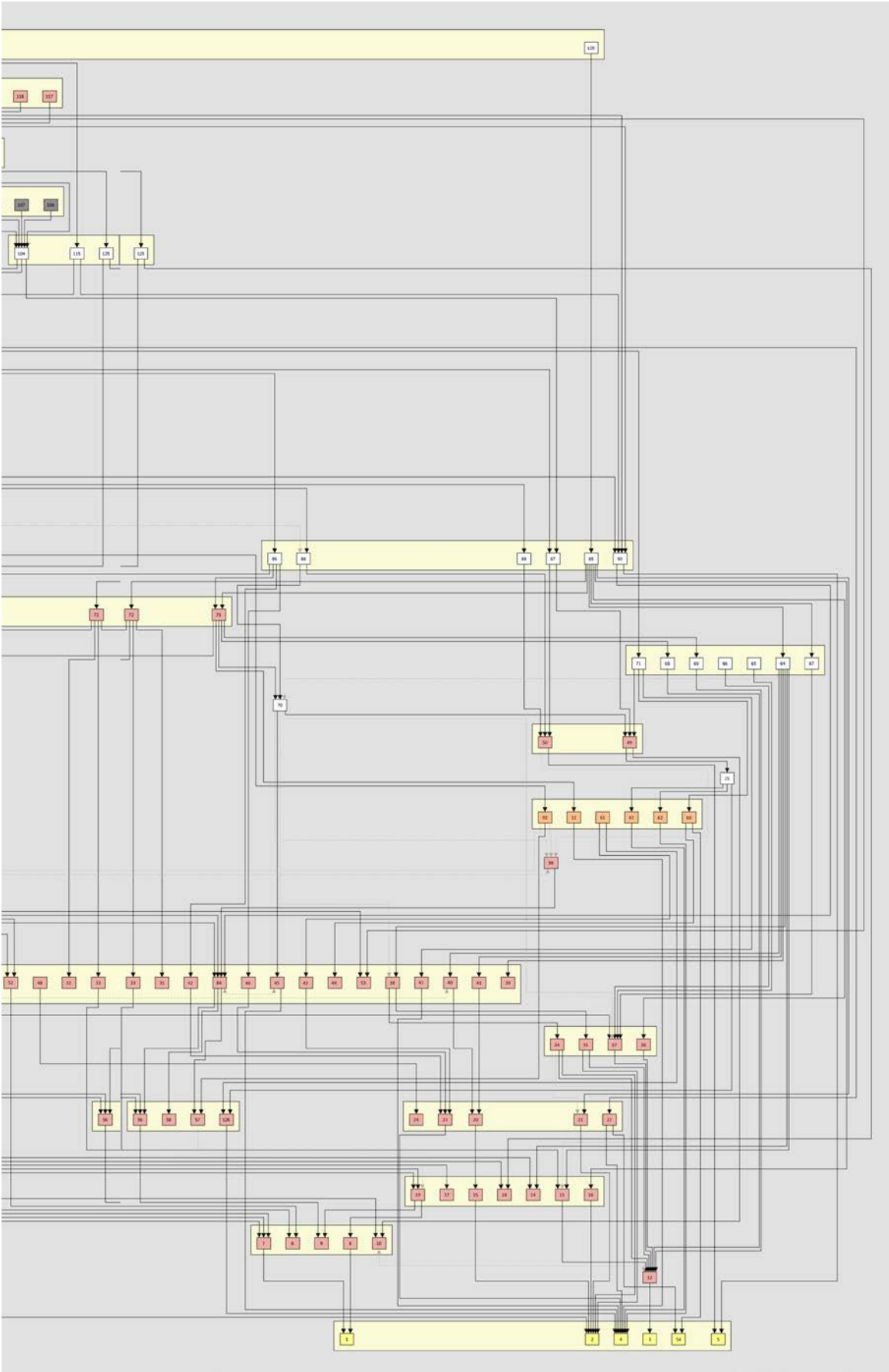


Figure 8.44: Interpretation of the Panel F1 Harris



Matrix with motif number and base colour indicated

Image available online at tinyurl.com/9781789690705-onlinecontent

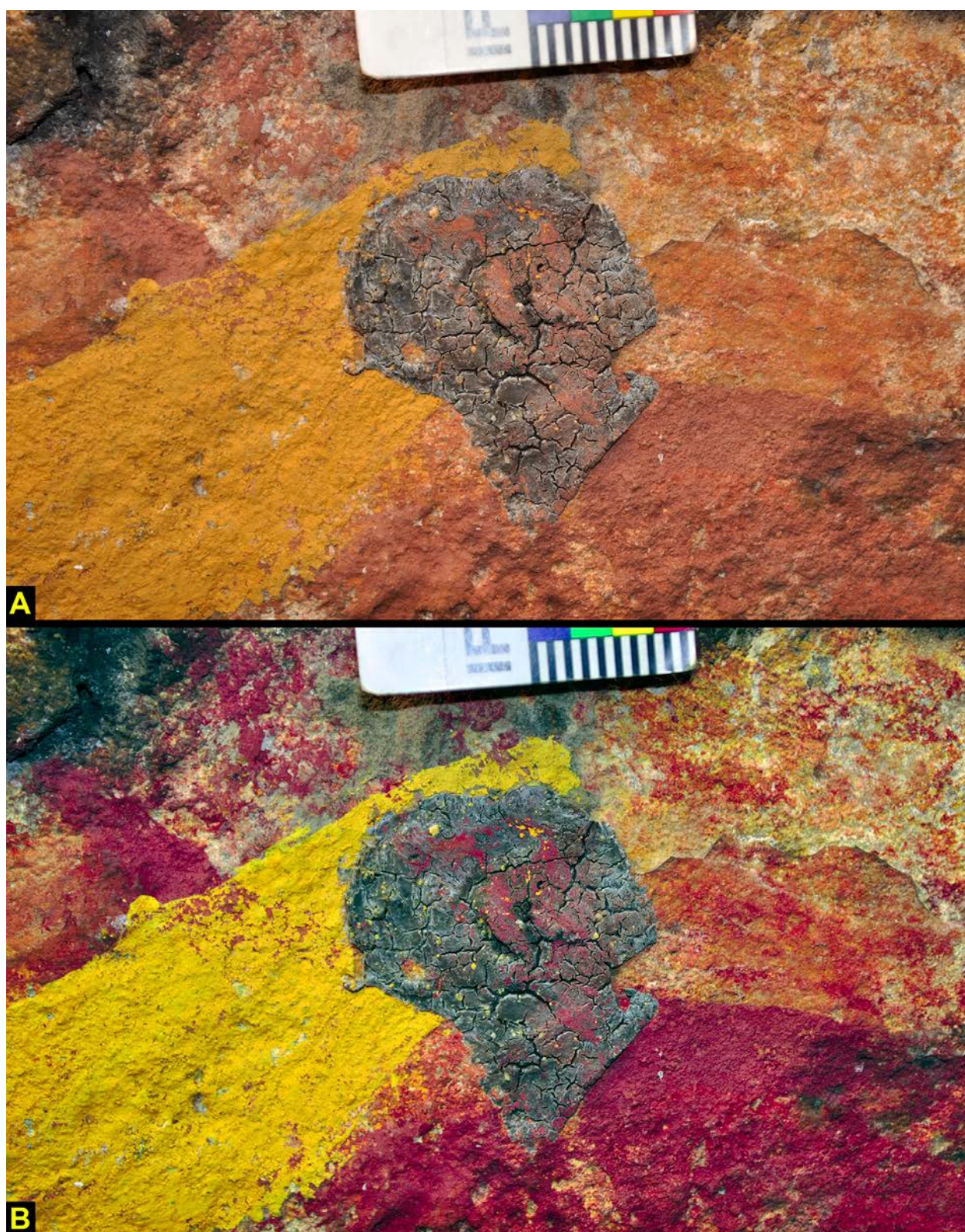


Figure 8.45: Detail of beeswax pellet Motif 27 showing superimposed pigment
A: Flash photograph B: DStretch_lds15

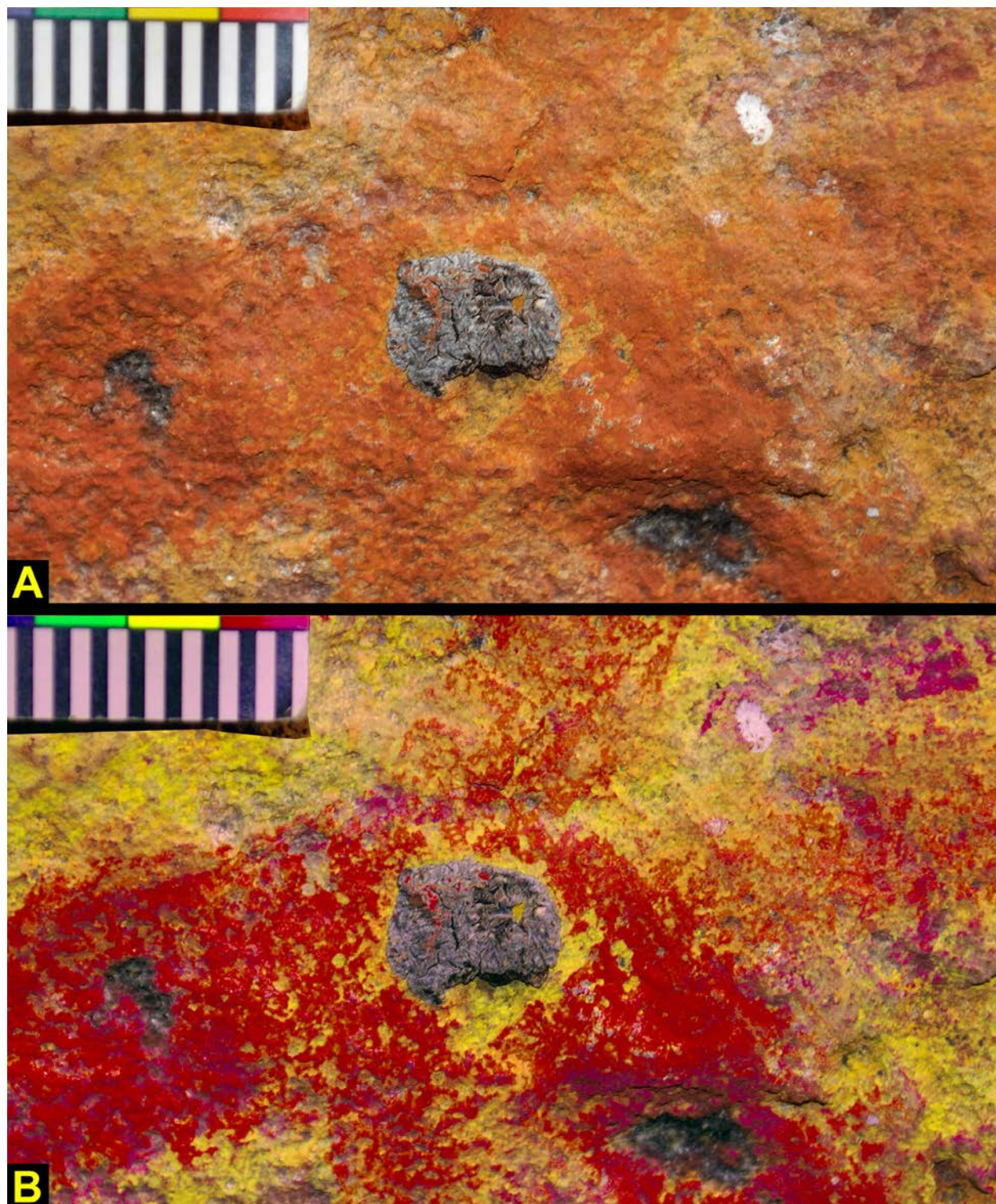


Figure 8.46: Detail of beeswax pellet Motif 28 showing superimposed pigment
A: Flash photograph B: DStretch image: compilation of _lds15 and _crgb10)



Figure 8.47: Detail of fine-line infill >400 years old (Motif F-58)
A: mud-wasp nest

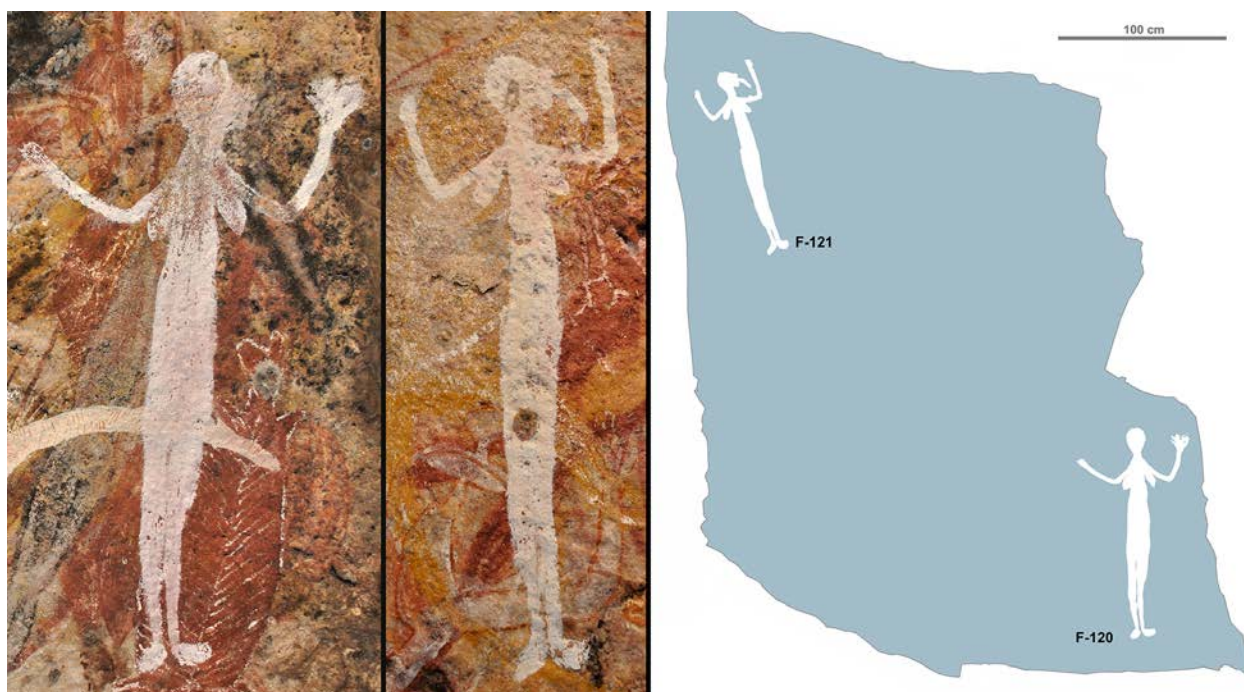


Figure 8.48: Motifs F-120 and F-121 showing similar poses and opposing placement on the panel

Panel F2

Twenty-seven of the 32 motifs on Panel F2 are involved in superimpositions (Table 8.40; Figure 8.49). Based on their pattern of superimposition, these 32 motifs were aggregated into 12 layers, and the layers then into six phases (Table 8.41; Figure 8.50):

- **Phase F2/I:** the earliest layer consists of a single large, yellow fragment;
- **Phase F2/II:** two layers containing 12 red fragments and a single red solid fish;
- **Phase F2/III:** two layers of five red paintings including two solid snakes and a turtle with striped infill;
- **Phase F2/IV:** this phase contains four art items divided into three layers: a phase of an orange

fragment (Layer 5), two yellow fragments (Layer 6), and a charcoal drawing (Layer 7). The stratigraphic relationship between the yellow and orange fragments (Motifs F-144 and F-147) is unclear;

- **Phase F2/V:** a layer of white drawings and an overlying two layers of white paintings. The drawings tend to be simple areas of 'scribble', while the only identified painting is of a legless therianthrope (Motif F-154). Although this painted figure is one of the brightest on the panel, it is not the most recent, as it is overlain by a duller off-white geometric motif, Motif F-153 (Figure 8.51); and
- **Phase F2/VI:** the upper layer consists of a single polychrome macropod with fine-line infill.

Table 8.40: Panel F2 motif superimpositions

Motif No.	Underlying Motifs (F-)	Motif No.	Underlying Motifs (F-)
129	229	148	130,144,156
130	229	149	129,146,147
132	229	150	132,133,142,146,147
134	229	151	132,145,146,229
139	133,134	152	140,144,146,229
140	129,130,229	153	132,133,142,145,146,147,150
142	132,138	154	132,133,139,145,146,151
144	129,130,140,156,229	155	138
145	132,146	156	129,149,229
146	132,133,139,142,229	157	129,132,133,135,136,137,139,
147	129,142,146	"	142,146,147,150,153

Table 8.41: Summary of the Panel F2 art phases

F2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VI	1	1	white+red+black	solid+outline+infill	macropod
V	3	8	white	outline+infill	simple design
IV	3	12	white	solid, linear	simple design
III	2	5	red	solid	reptile, fish
II	2	13	red	solid+linear	anthro
I	1	1	yellow	fragment	fragment

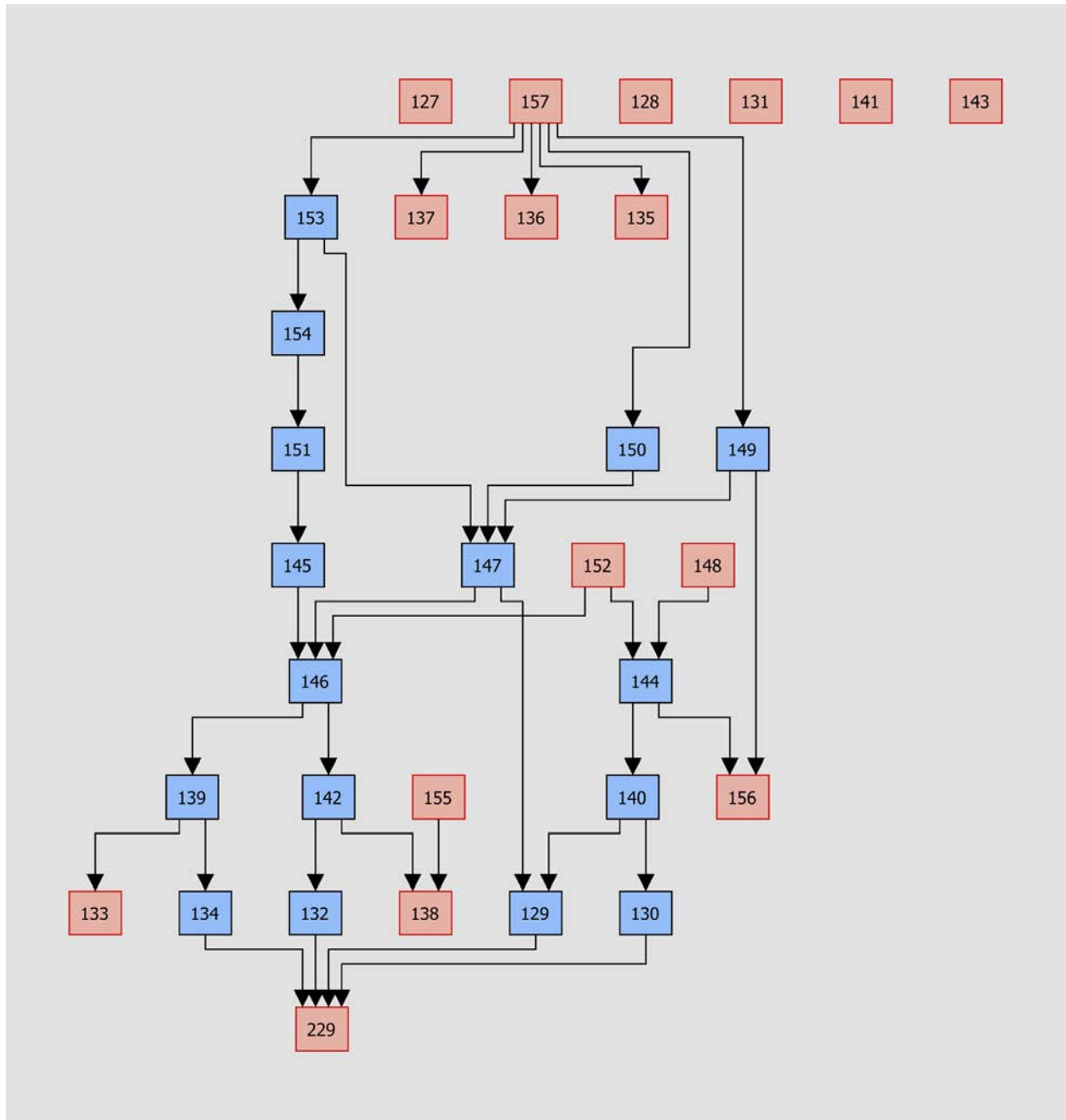


Figure 8.49: Harris Matrix of the Panel F2 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

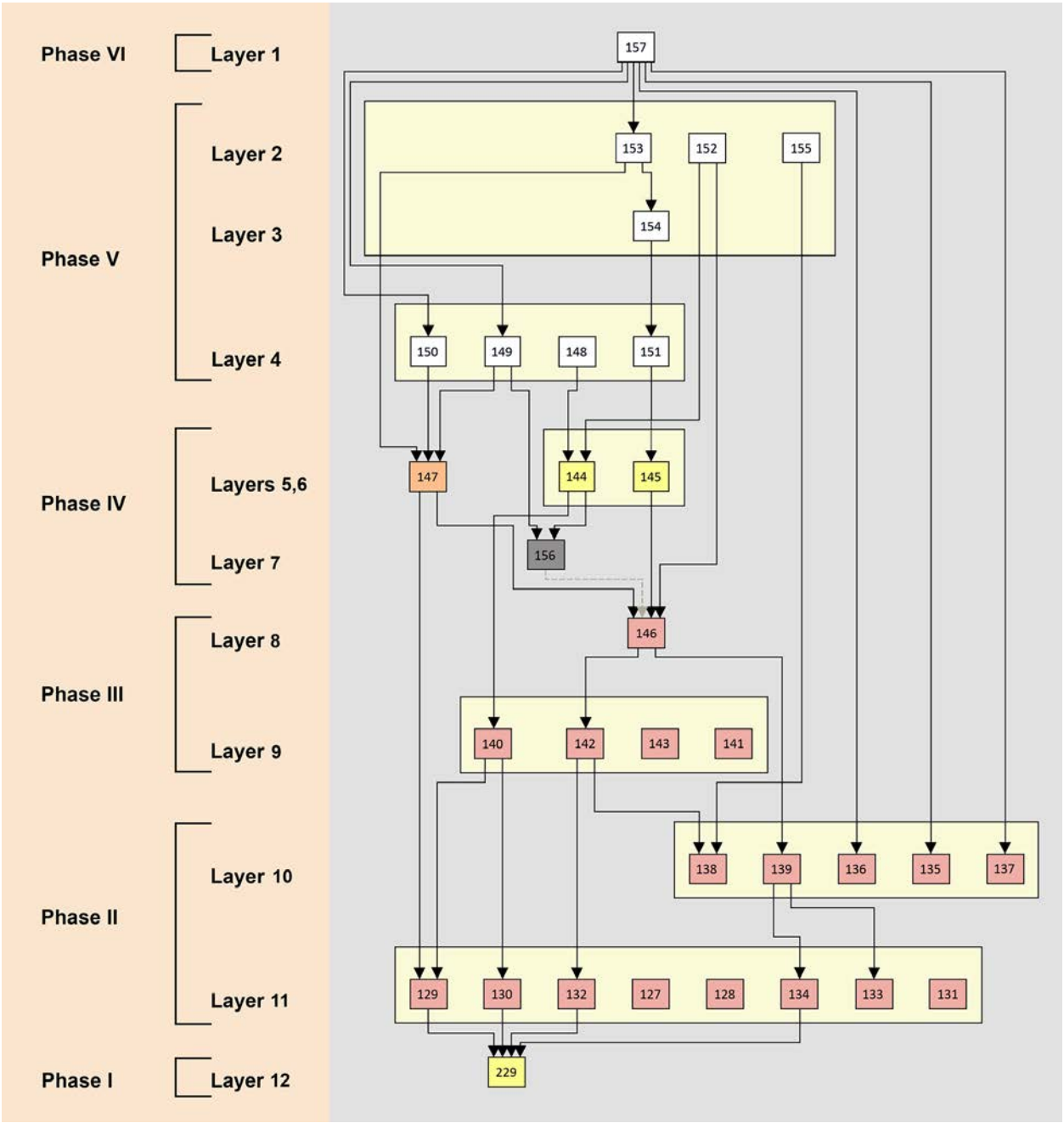


Figure 8.50: Interpretation of the Panel F2 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

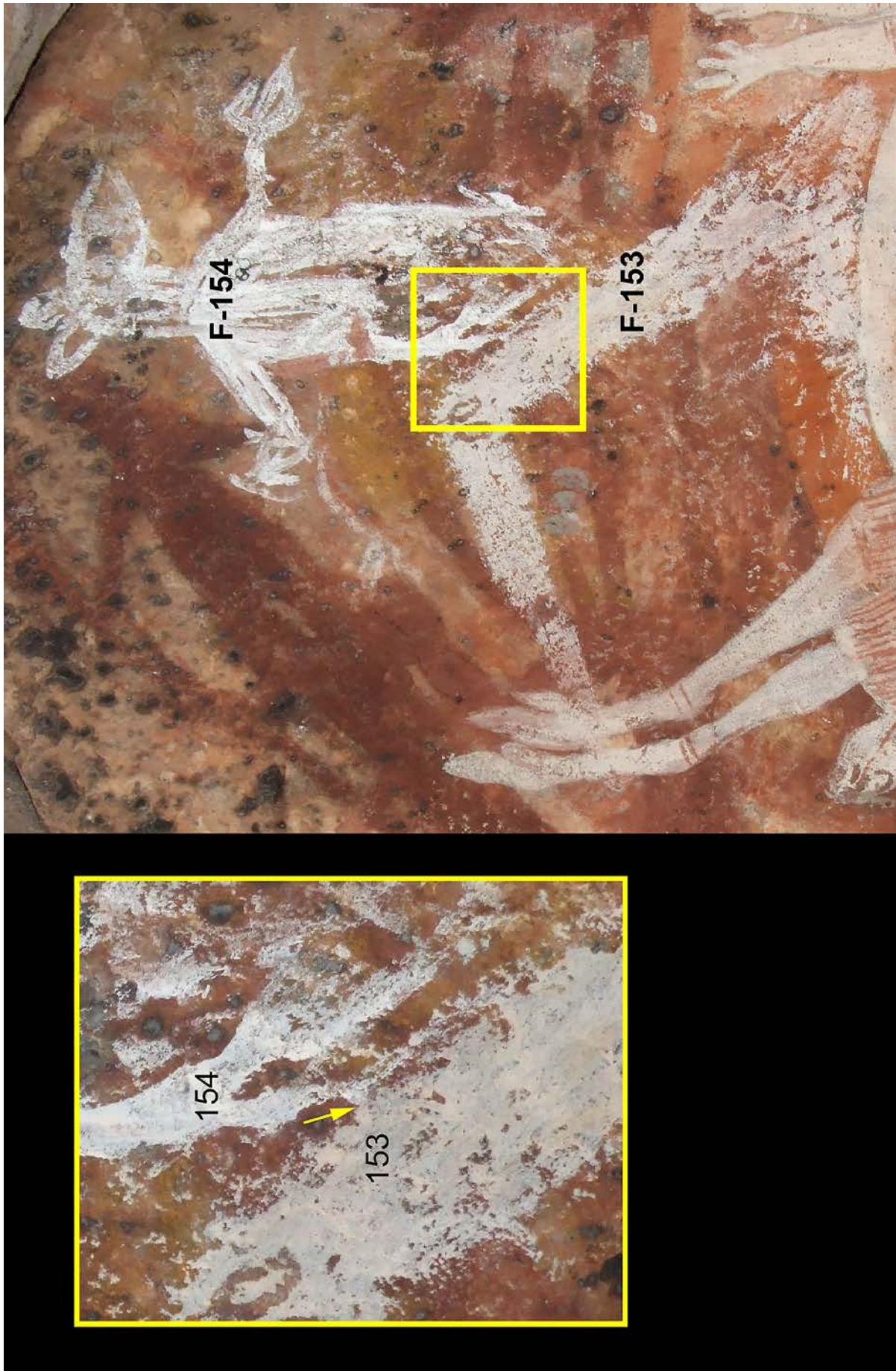


Figure 8.51: Detail of the slight overlap of Motif F-153 over the brighter Motif F-154
(Photographs: Leigh Douglas)

Panel F3

Seven of the 11 motifs on Panel F3 are involved in superimpositions (Table 8.42; Figure 8.52). These 11 motifs were aggregated into five layers, and the layers then into four phases (Table 8.43; Figure 8.53):

- **Phase F3/I:** a red fragment (Motif F-158);
- **Phase F3/II:** a yellow fragment; possibly a squatting anthropomorph (Motif F-159);
- **Phase F3/III:** four red paintings, although the sequence of superimposition of Motifs F-160 and F-161 is ambiguous; and
- **Phase F3/IV:** five white paintings, one of which (Motif F-164) appears to pre-date the other four, as it is notably less well preserved.

The sequence shows white as the most recent colour, with both red and yellow in the earlier phases (Table 8.36).

Table 8.42: Panel F3 motif superimpositions

Motif No.	Underlying Motifs (F-)
F-161	159
F-162	158
F-164	159, 161
F-165	159, 161
F-166	159, 161

Table 8.43: Summary of the Panel F3 art phases

F3 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
IV	2	5	white	outline	simple design
III	1	4	red	outline+infill	fish
II	1	1	yellow	fragment	fragment
I	1	1	red	fragment	fragment

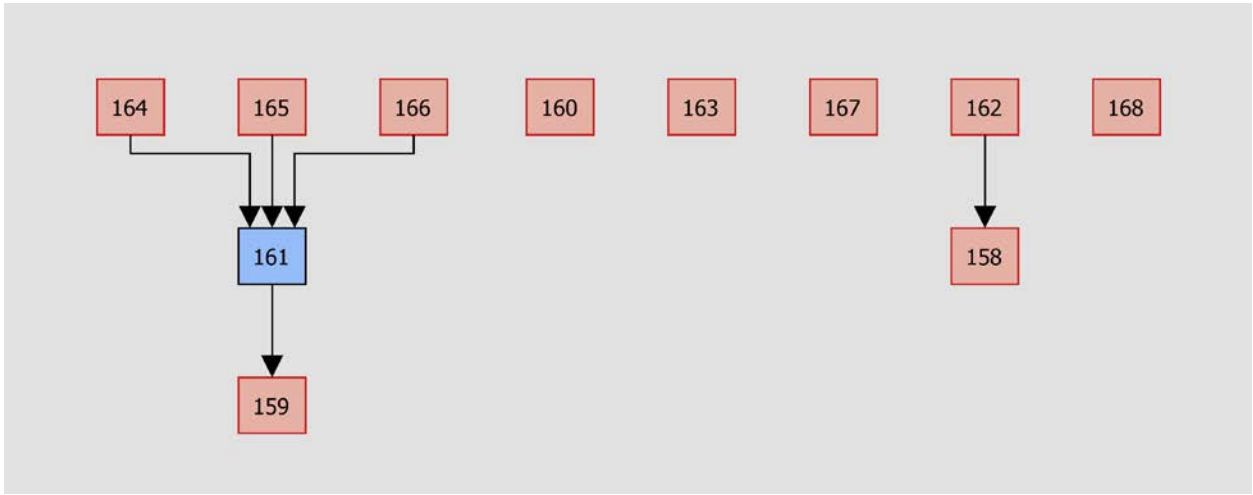


Figure 8.52: Harris Matrix of the Panel F3 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

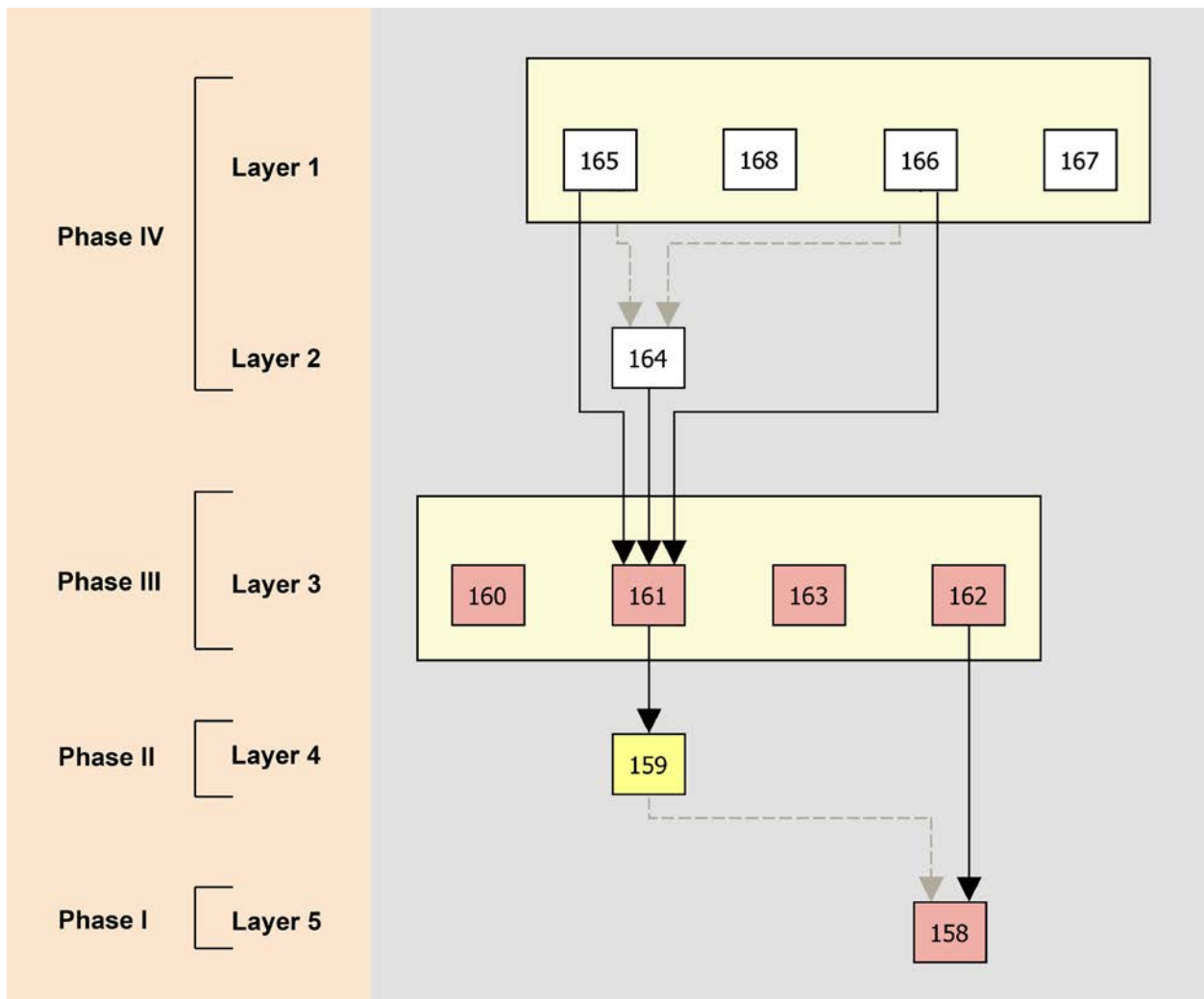


Figure 8.53: Interpretation of the Panel F3 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

Panel F4

All but six of the 54 motifs on Panel F4 are involved in superimpositions (Table 8.44; Figure 8.54). Based on their pattern of superimposition, these 54 motifs were aggregated into seven layers, and the layers then into three phases (Table 8.45; Figure 8.55):

- **Phase F4/I:** a single layer of six yellow motifs, possibly involving a row of stick figures. All of the motifs are in very poor condition;
- **Phase F4/II:** two layers of red paintings; the lower layer (Layer 6) consists of fragments, while the upper layer (Layer 5) is dominated by a composition of 19 round yam motifs; and
- **Phase F4/III:** four layers of primarily white paintings. The lowest layer of this phase has a white anthropomorph with red outline and infill, while one of the upper-most motifs (a white fish; Motif F-221) has been embellished with pink (see Figure 7.233). This phase also contains a simple design motif drawn in white.

Table 8.44: Panel F4 motif superimpositions

Motif No.	Underlying Motifs (F-)	Motif No.	Underlying Motifs (F-)
F-177	169,170	F-204	179
F-179	172,174	F-205	174,179
F-180	174	F-208	174
F-183	171	F-209	174
F-186	174,179	F-212	174,179,180,189,190,191,
F-188	174,179	"	193,195,196,197,198, 199,
F-189	174	"	200,201,202,206,207,208,
F-190	174,179	"	209,210,211
F-191	174,179	F-213	179
F-192	174,179	F-214	174,179,203
F-193	174,179	F-215	174,204,205
F-194	174,179	F-216	174,179,195,212
F-195	174,179	F-217	174,205,206,209,212
F-196	179	F-218	174,179,196,197
F-197	174,179	F-220	169,175,177,
F-198	174,180	F-221	169,170,171,172,174,177,
F-199	174	"	179,181,183,185,186, 187,
F-200	174,179	"	189,190,191,192,194,212,
F-201	174,179	"	213,220
F-202	174,179	F-222	174,205,206,209,210
F-203	174,179		

Table 8.45: Summary of the Panel F4 art phases

F4 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	4	11	white	outline+infill	turtle, anthro
II	2	37	red	solid	yams
I	1	6	yellow	fragment	fragment

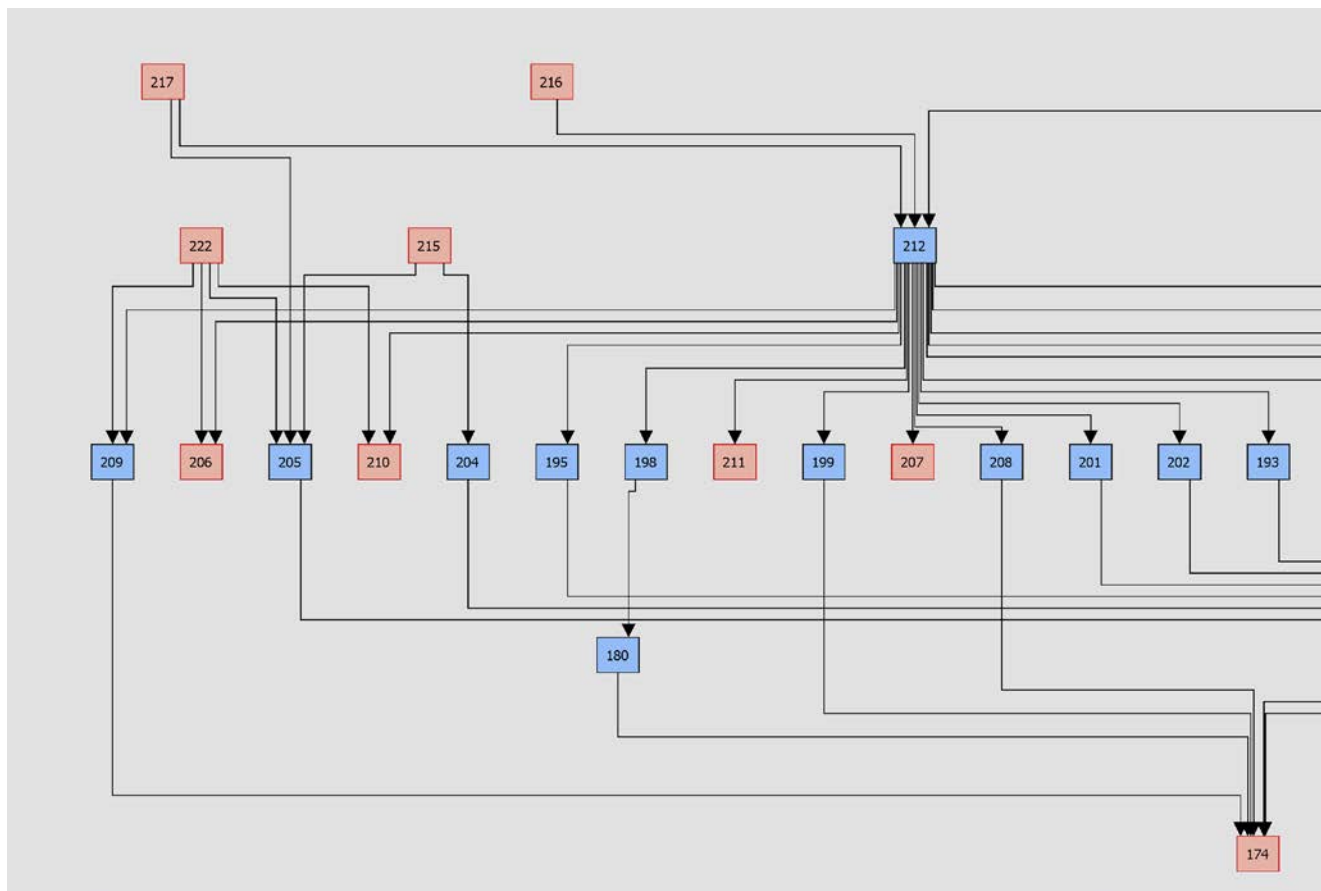


Figure 8.54: Harris Matrix

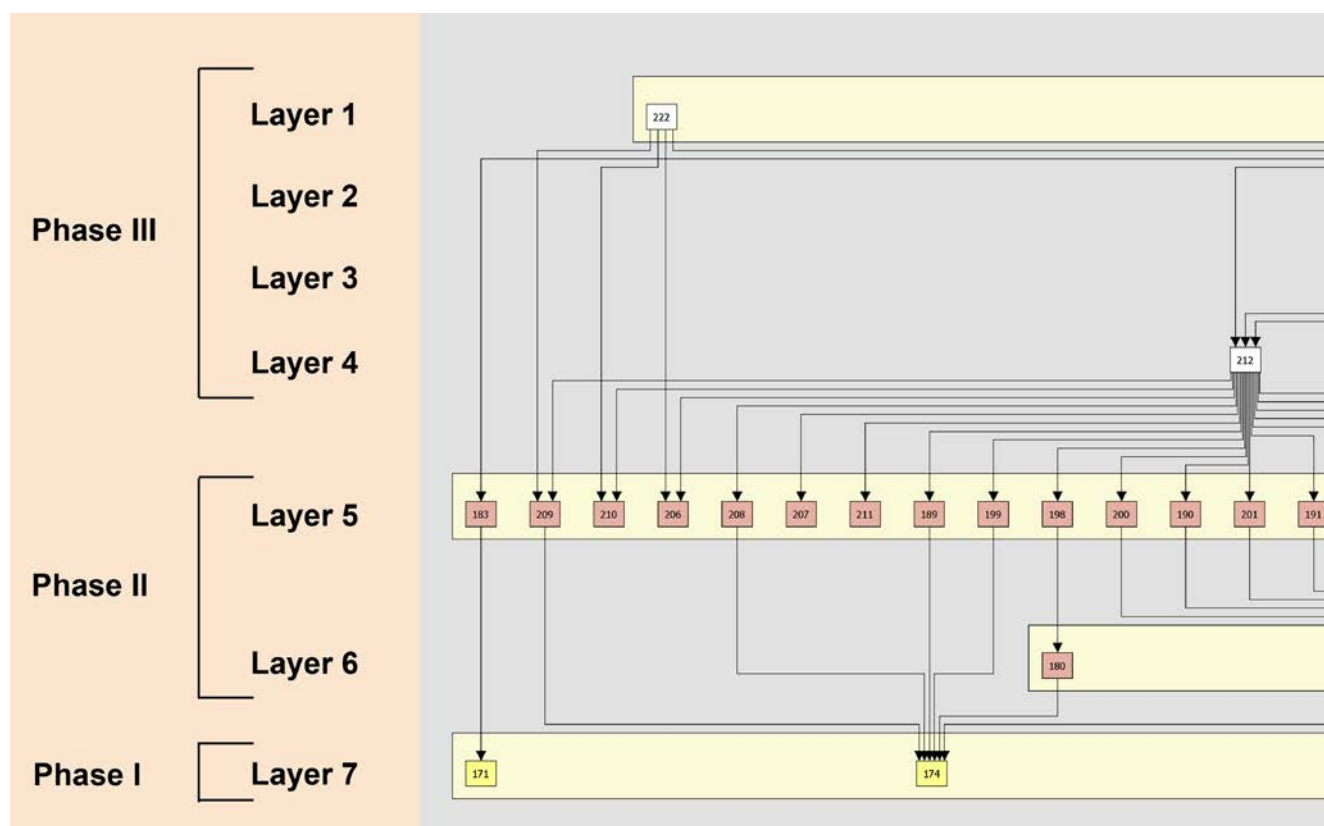
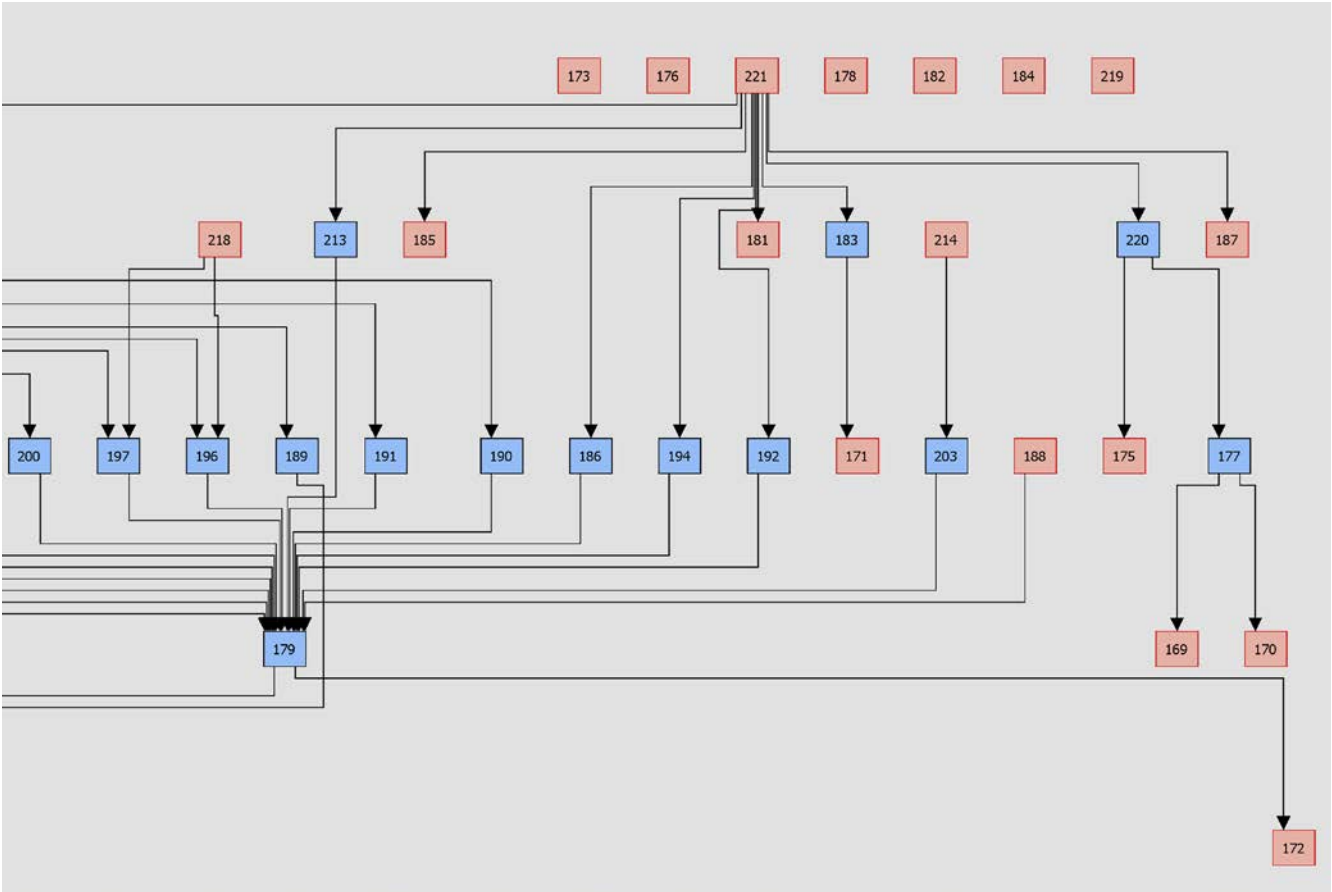
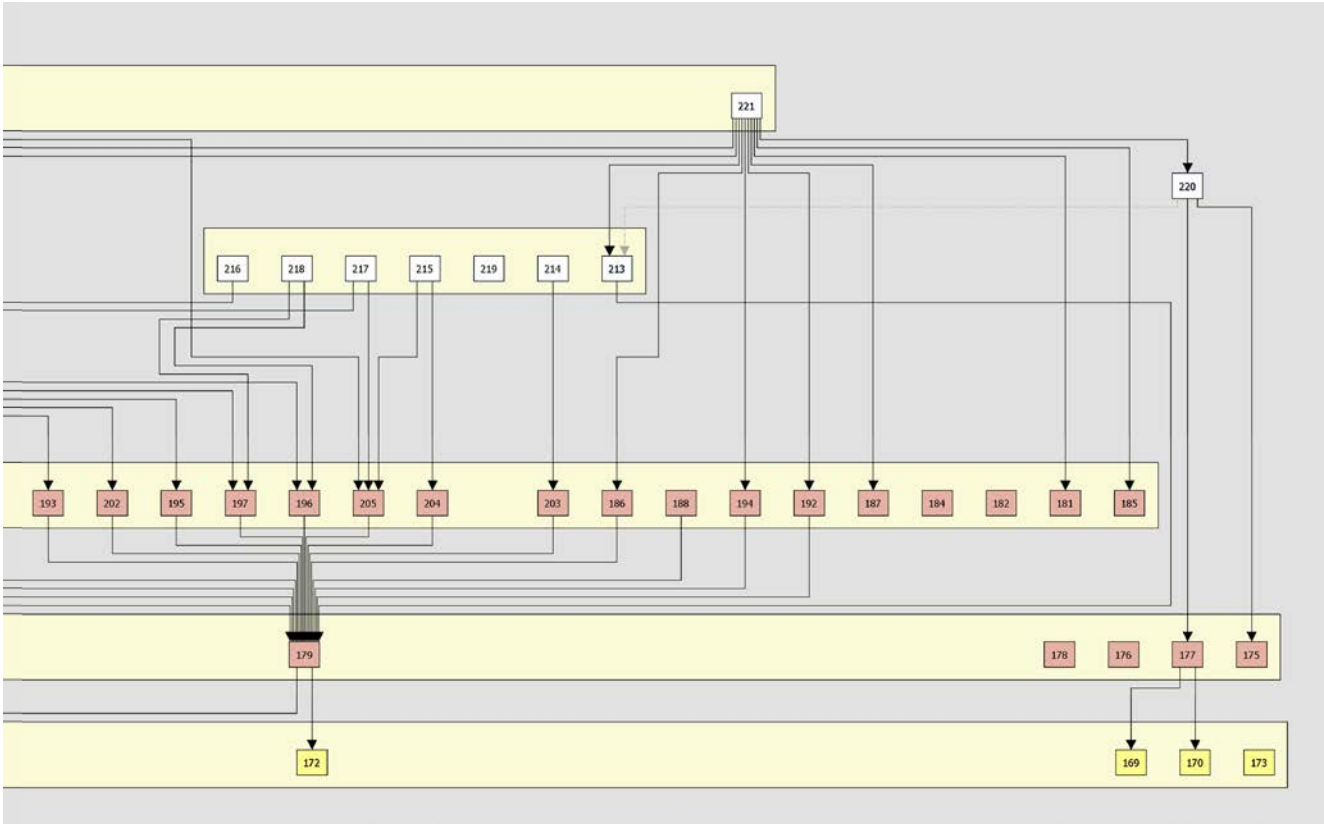


Figure 8.55: Interpretation of the Panel F4 Harris



of the Panel F4 motifs

Image available online at tinyurl.com/9781789690705-onlinecontent



Matrix with motif number and base colour indicated

Image available online at tinyurl.com/9781789690705-onlinecontent

Panel F5

Three of the six motifs on Panel F5 are involved in superimpositions (Table 8.46; Figure 8.56). These six motifs were aggregated into three layers, and the layers then into two phases (Table 8.47; Figure 8.57):

- **Phase F5/I:** two layers consisting of a total of five red motifs. The lower layer contains four motifs, including a composition involving a large anthropomorph and two circular dots. The over-layer contains a single red amorphous area; and

- **Phase F5/II:** a single layer consisting of one white motif (Motif F-228: an 'Unknown' Motif Type).

Table 8.46: Panel F5 motif superimpositions

Motif No.	Underlying Motifs (F-)
F-227	223
F-228	223, 227

Table 8.47: Summary of the Panel F5 art phases

F5 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	1	1	white	outline+infill	unknown
I	2	5	red	solid	anthro

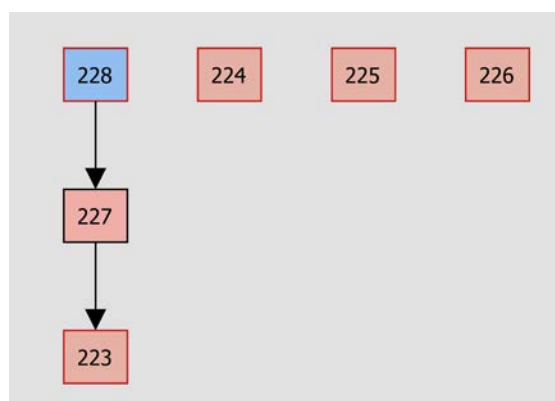


Figure 8.56: Harris Matrix of the Panel F5 superimpositions.
Image available online at tinyurl.com/9781789690705-onlinecontent

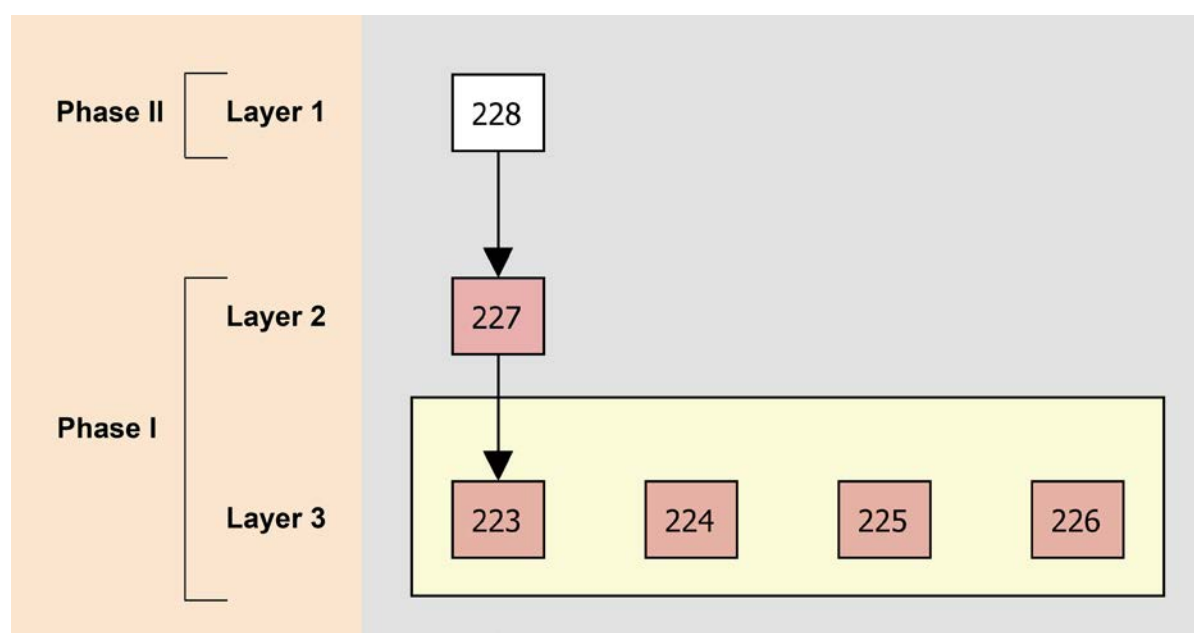


Figure 8.57: Interpretation of the Panel F5 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

Group G motif sequences

Panel G

Fifteen of the 17 motifs on Panel G are involved in superimpositions (Table 8.48; Figure 8.58). These 17 motifs were aggregated into eight layers, and the layers then into two phases (Table 8.49; Figure 8.59):

- **Phase G/I:** the earliest phase consists of four layers and 12 motifs, mostly fragments. The stratigraphic relationships between the Layer 4 and Layer 5, and between Layer 7 and Layer 8 is ambiguous. Layer 8, however, is more weathered than Layer 7 and is therefore probably older. Motif G-2, one of the two oldest motifs on the panel, is an outlined and infilled turtle. The orange colour of Motif G-11 may have been the result of a yellow re-painting of the earlier red bird motif (Motif G-8) but, due to poor preservation, this can no longer be clarified; and
- **Phase G/II:** this is most recent phase. It consists of a lower layer of red+white motifs (two Crocodiles motifs: Motifs G-12 and G-14, and an Unknown type: Motif G-13); an intermediary layer of a single red motif (Unknown type; Motif

G-17); and an upper layer of a single motif: a large anthropomorph also in red+white (Motif G-16). It is possible that the white elaboration on the four red paintings may have been added at a later date. The white additions were not, however, done at the same time as both the red and white on Motif G-16 superimpose the white on Motifs G-12 to G-14 (Figure 8.60).

The layers show a change from fine-line paintings in the earliest phase to bolder motifs in the intermediate Layer 3, and then to an exceptionally large and boldly painted motif in Layer 1.

Table 8.48: Panel G motif superimpositions

Motif No.	Underlying Motifs (G-)
G-1	15
G-11	8
G-12	1,3,4,15
G-13	4,5
G-14	10
G-15	3
G-16	4,5,6,8,9,10,11,12,13,14,17

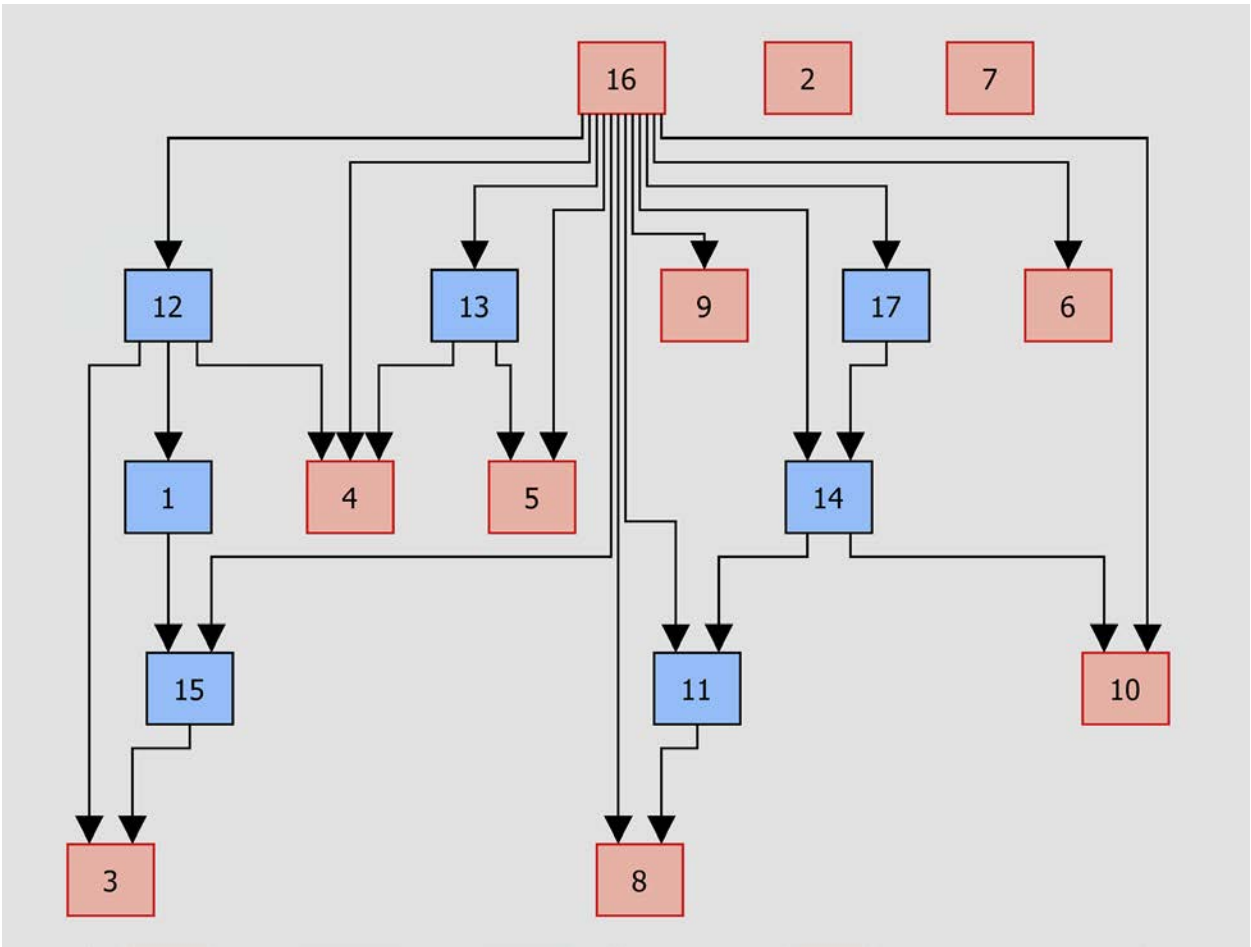


Figure 8.58: Harris Matrix of the Panel G superimpositions. Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.49: Summary of the Panel G art phases

G Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	3	5	red+white	outline+infill	anthro, reptile
I	4	11	red, yellow	outline+infill	fragment

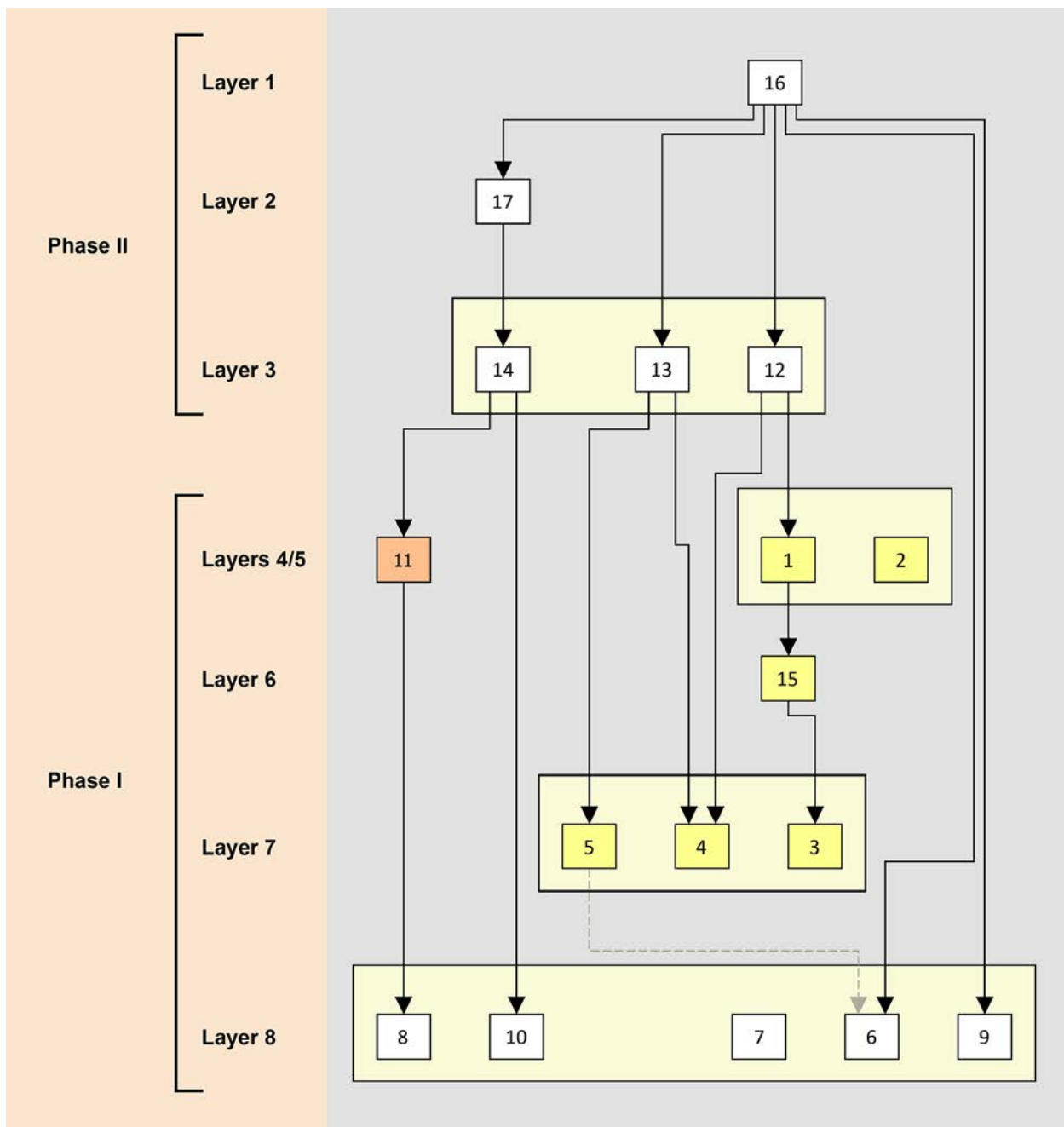


Figure 8.59: Interpretation of the Panel G Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

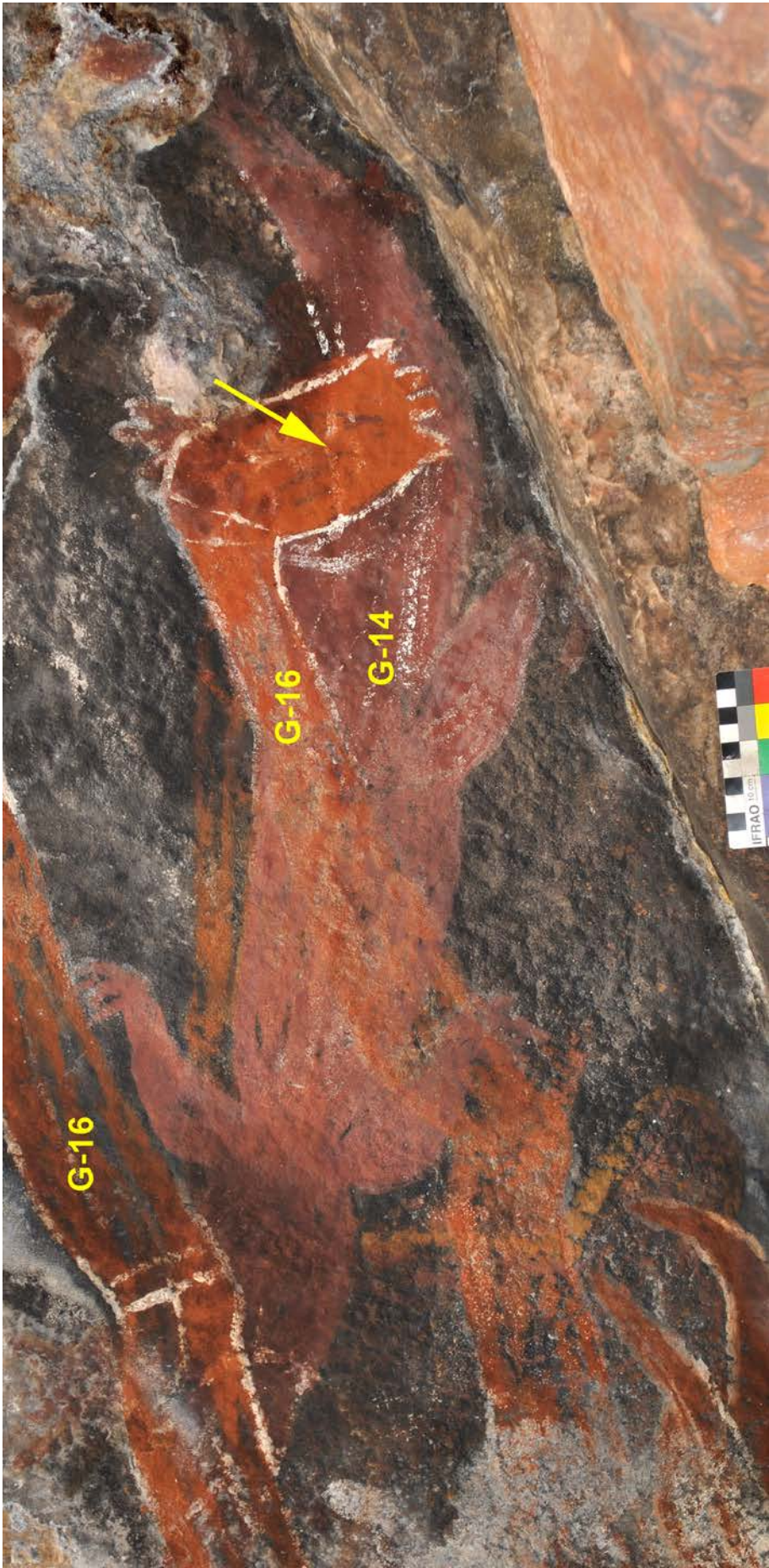


Figure 8.60: Detail of the painting of Motif G-16 over the earlier white embellishment of Motif G-14.

Group H motif sequences

Panel H

One hundred and thirty of the 132 motifs on Panel H are involved in superimpositions (Table 8.50; Figure 8.61). Based on their pattern of superimposition, these 132 motifs were aggregated into 21 layers, and then the layers into seven phases (Table 8.51; Figure 8.62):

- **Phase H/I:** the earliest phase consists of 20 very poorly preserved red paintings, including two silhouette animals: a lizard and a macropod or quadruped (Motifs H-1 and H-7);
- **Phase H/II:** four layers of monochrome paintings and stencils: 28 yellow, seven red and two white. The order of superimposition between Layer 17 (mostly yellow fragments) and Layer 18 (mostly red fragments) is ambiguous. As Motif H-64 (red striped infill macropod in Layer 16) overlies motifs in both Layers 17 and 18, but it is stylistically similar to the red striped infill anthropomorph (Motif H-53 in Layer 18) that it overlies, it is likely that Layer 18 precedes Layer 17. The underlying layer of this phase, Layer 20, consists of a white hand stencil and a white painted simple design (Motifs H-5 and H-22). Motif H-45 (Layer 17) appears to depict a large-beaked waterbird, suggestive of a jabiru (Figure 8.63);
- **Phase H/III:** three layers of monochrome paintings and stencils: eight white and one red. The white motifs consist of hand stencils and fragments. The red painting (Motif H-64) is a striped infill anthropomorph that was partially repainted in white during the subsequent layer (Motif H-65; Figure 8.64);
- **Phase H/IV:** two layers of 10 red solid motifs that include three macropods, a snake and a possible turtle. The two most recent motifs from this phase (macropod Motif H-77 and snake Motif H-76) were also outlined and pattern-infilled with white;

- **Phase H/V:** two layers consisting of an underlying white layer of 15 motifs and an overlying layer of two orange fragments. The white motifs include two hand stencils, a macropod and two unusual compositions involving outlined circles;
- **Phase H/VI:** eight layers of 35 white paintings, 10 white+red motifs (including Jawoyn figures), two pink smears, one red linear figure, and a single small anthropomorph in beeswax. The relative sequence of Layer 6 (Motif H-122, a beeswax anthropomorph) and Layer 7 (two pink smeared areas) cannot be determined as they do not appear in superimposition and no comparison of their preservation states is possible given the different media used (beeswax and paint). Radiocarbon dating of Motif H-122 (Figure 8.64) gave a median age probability of cal AD 1770 (Table 8.39 above; and see Gunn et al. 2012b). Within the context of this panel, Layers 6 and 7 are, however, seen as roughly contemporary given their interpreted relationship with the underlying Layer 8. The white paintings include solid form anthropomorphs (some with red outline and pattern-infill), a striped emu, two fish, a turtle with red pattern-infill, and two large macropods with red outline and pattern-infill and black highlights. Overall white monochrome paintings are more frequent in the lower layers of this phase, but both monochrome and bichrome motifs occur throughout the phase. The larger and better preserved macropod (Motif H-115) has had minor X-ray features (heart and lungs) added at some later date (Figure 7.262); and
- **Phase H/VII:** the most recent phase consists of a single upper layer represented by two large polychrome fish in the Northern X-ray form. Given the age of the beeswax figure (Motif H-122), these overlying paintings must all be less than 220 years old.

Table 8.50: Panel H motif superimpositions

Motif No.	Underlying Motifs (H-)	Motif No.	Underlying Motifs (H-)
H-21	5	H-84	32,46
H-22	8	H-85	41
H-23	1	H-86	15,39,75
H-24	2	H-87	17,40,63
H-25	9	H-88	18
H-27	8	H-89	50
H-30	8	H-90	18,40,51
H-31	8,22	H-91	18,40,42,48,49,50,51,62
H-33	10	H-92	32,46
H-34	11	H-93	1,23,68,72
H-35	36,58	H-94	43,72
H-36	12	H-95	6,44,65,72,79
H-37	12	H-96	69

H-38	12	H-97	78
H-39	15	H-98	7,27,28,45,52,64,65,70,78
H-40	15,16,17,18	H-99	32,46,58,74,83,84,92
H-42	14,20	H-100	32,46,58,83,84
H-43	4	H-101	11,34,41,56,57,
H-45	2,28,29	H-102	41,85
H-46	32	H-103	42,47,60,61,77
H-47	14,42	H-104	12,15,38,39,49,75,77,86
H-48	19	H-105	1,68,93
H-49	18	H-106	74,132
H-50	18,19	H-107	72
H-51	40,18	H-108	72,93,94
H-52	29	H-109	9,25,54,59,72,73,79,95
H-53	27	H-110	11,34,41,55,56,101,130
H-54	9,25	H-111	33,35,58,100
H-55	34	H112	41,85,103
H-56	34	H-113	12,17,18,19,38,40,42,47,48,
H-57	11	"	49,50,51,58, 61,62,63,77,87,
H-58	12,33,36,37	"	88,89,91,104
H-59	25	H-114	1,2,68,72,93,94,105,107,108
H-60	41	H-115	1,2,3,4,6,24,43,64,65,68,69,
H-61	42	"	72,93,94,95,96,105,108,
H-62	19,20,42,48,49,50,51	H-117	5,21,53,98
H-63	17,18,40,50	H-118	8,26,71,82
H-64	21,27,45,53	H-119	10,22,31,32,46,66,74,83,92,
H-65	21,27,45,53,64	"	106,131
H-66	32,46	H-120	40,41,47,67,77,85,86,101,
H-67	15,40,63	"	102,103,104,110,112,113
H-68	23	H-121	13,41,112,120
H-69	5,6,21,28,64,65	H-122	42
H-70	53	H-123	12,14,15,39,41,42,47,58,60,
H-71	8,27,29,45	"	75,77,85,86,103,104,113,120,
H-72	25,59	"	122
H-73	9,25,54	H-124	119
H-74	10,58	H-125	10,33,35,58,74,99
H-75	15,39,67	H-126	34,55,130,131,132
H-76	9,25,43,44,54,59	H-127	42,62,91,113,122,123,
H-77	14,15,16,17,40, 42,	H-128	8,9,10,25,26,30,31,32,45,54,
"	47,61,63,67	"	78,79,80,97,109,118,119,124
H-78	53,64,65,69,70	H-129	33,41,55,58,103,106,110,111,
H-79	44,76	"	112,120,121,123,125,131,35
H-80	27,29	H-130	55
H-81	8,27,29,71	H-131	34,55,130
H-82	8,22,30,71	H-132	55,130,131
H-83	8,22,31,46		

Table 8.51: Summary of the Panel H art phases

H Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
VII	1	2	polychrome	X-ray	fish
VI	8	37	white, white+red	solid, solid+outline+infill	anthro, macropod
V	2	17	white	outline+infill, stencil	simple design, hand
IV	2	10	red+white, red	solid+outline+infill, solid	macropod, reptile
III	3	9	white, red	stencil	hand
II	4	37	yellow, red	fragment	fragment
I	1	20	red	solid	fragment

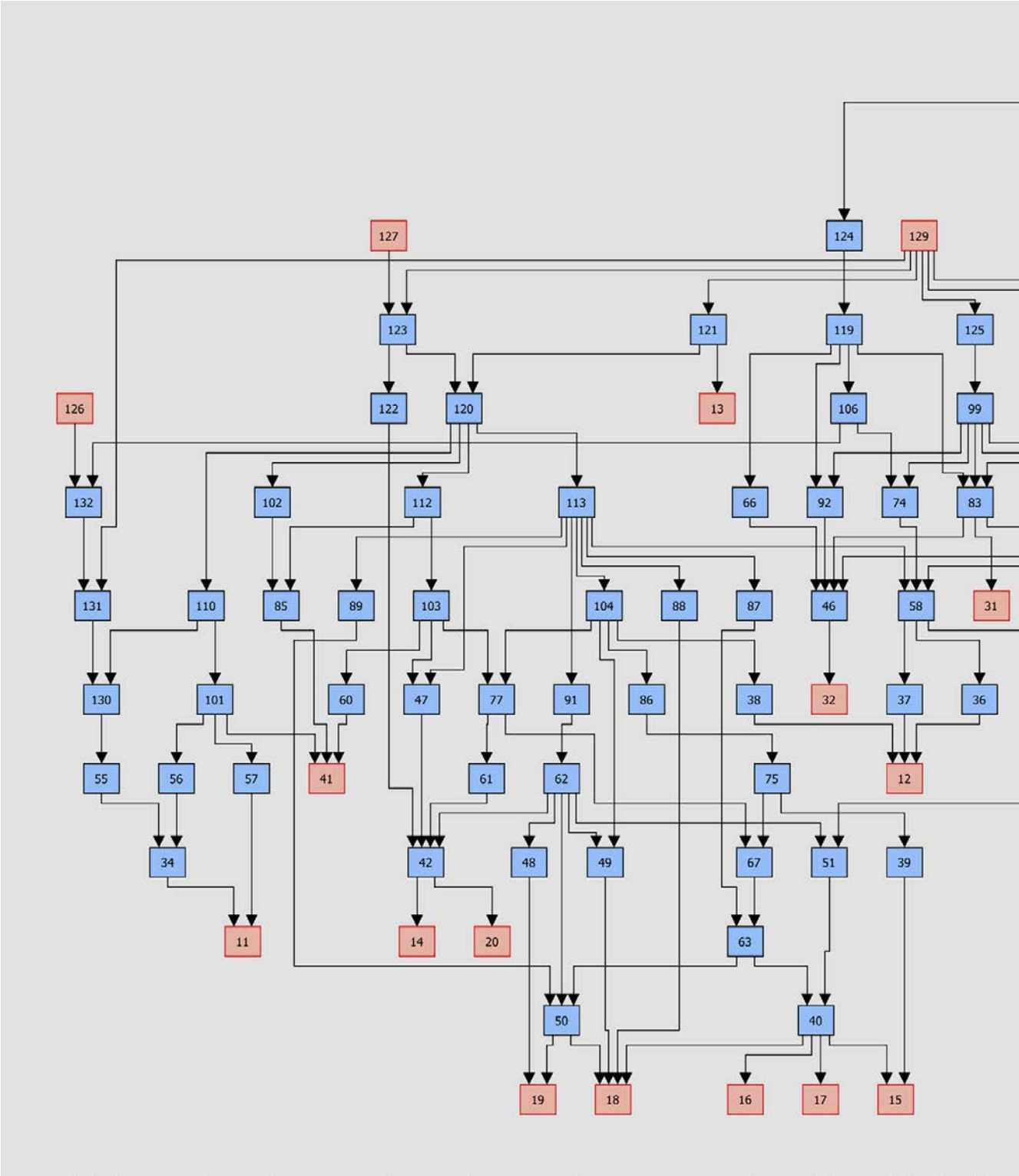
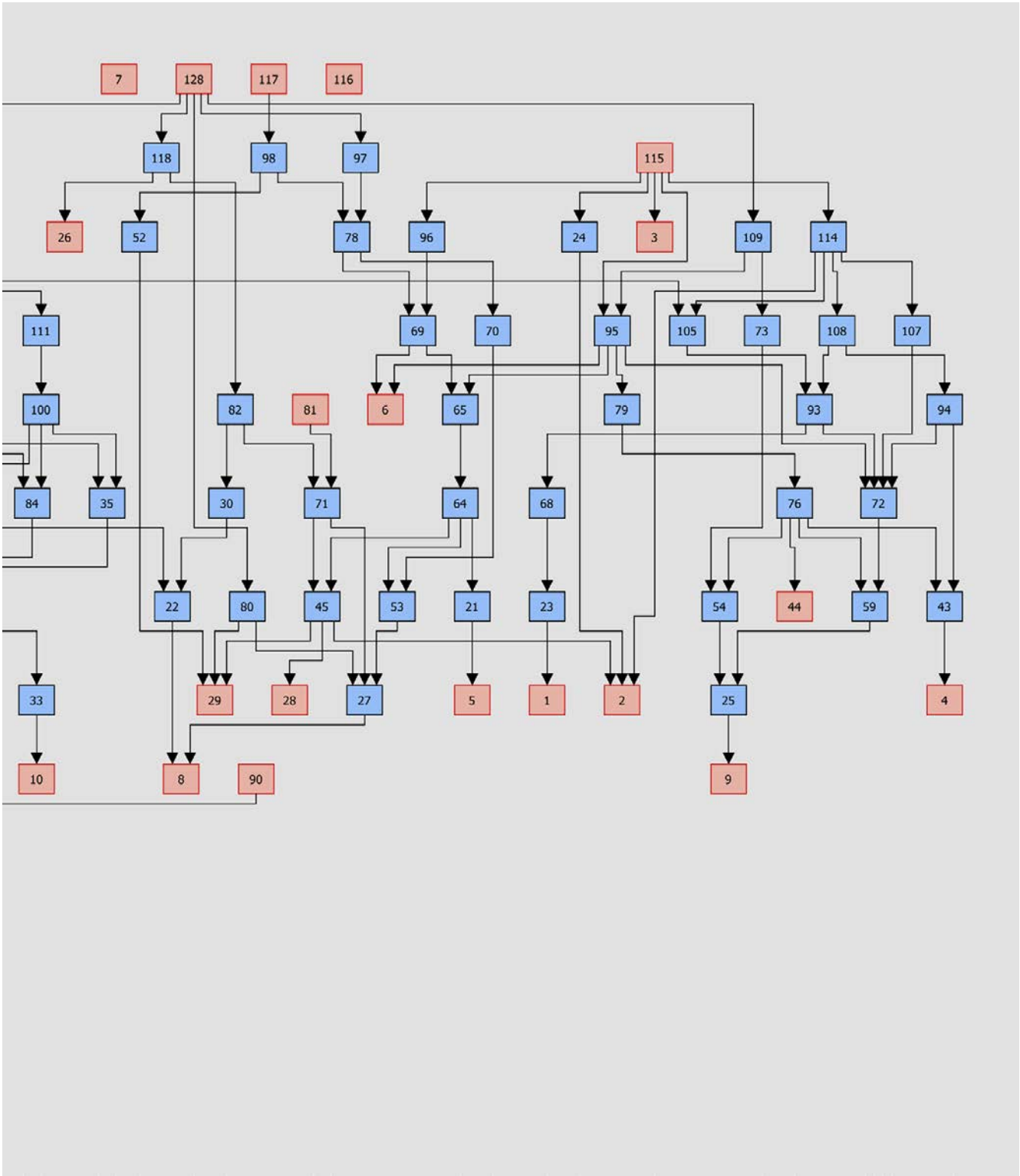


Figure 8.61: Harris Matrix of



the Panel H superimpositions

Image available online at tinyurl.com/9781789690705-onlinecontent

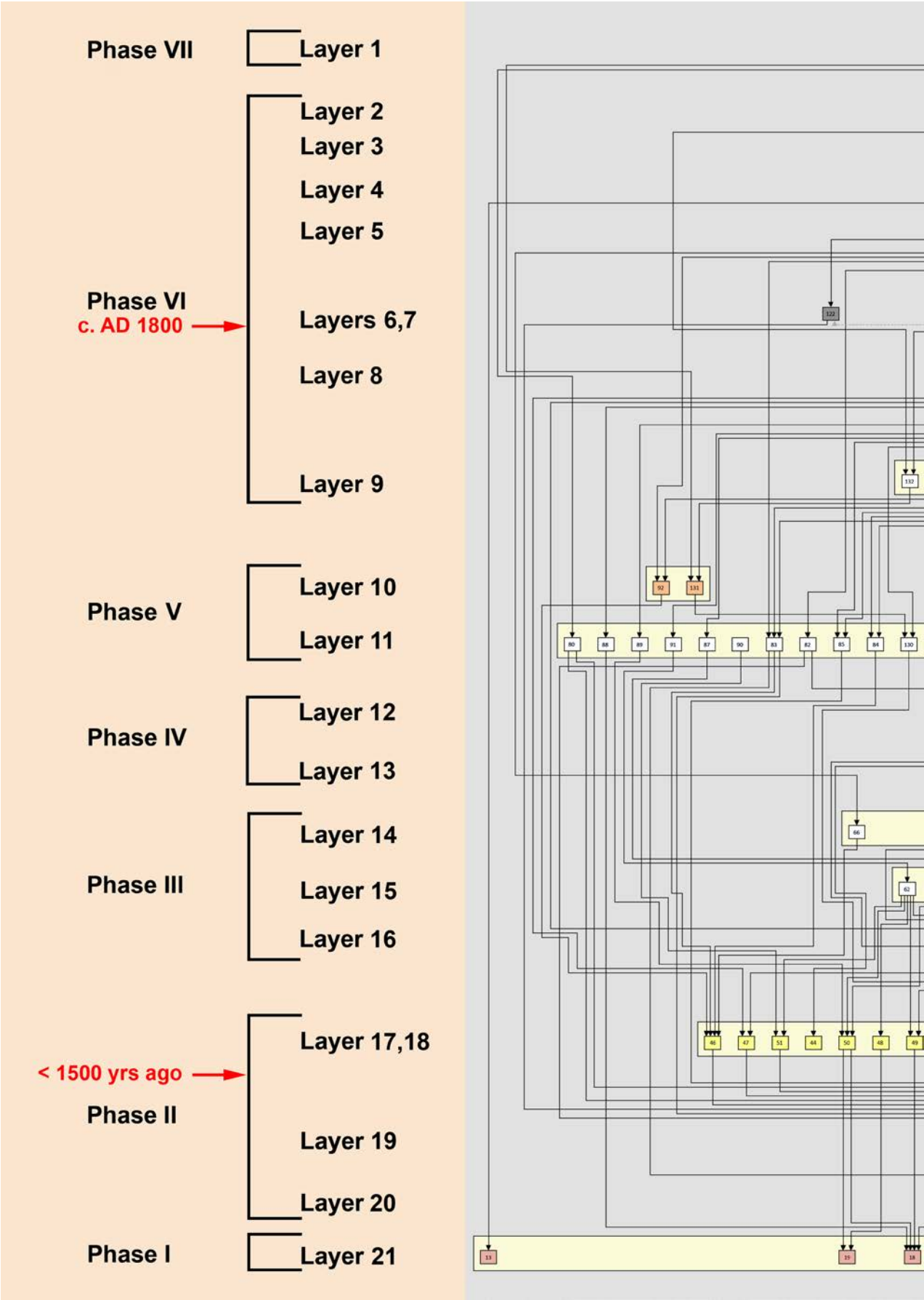
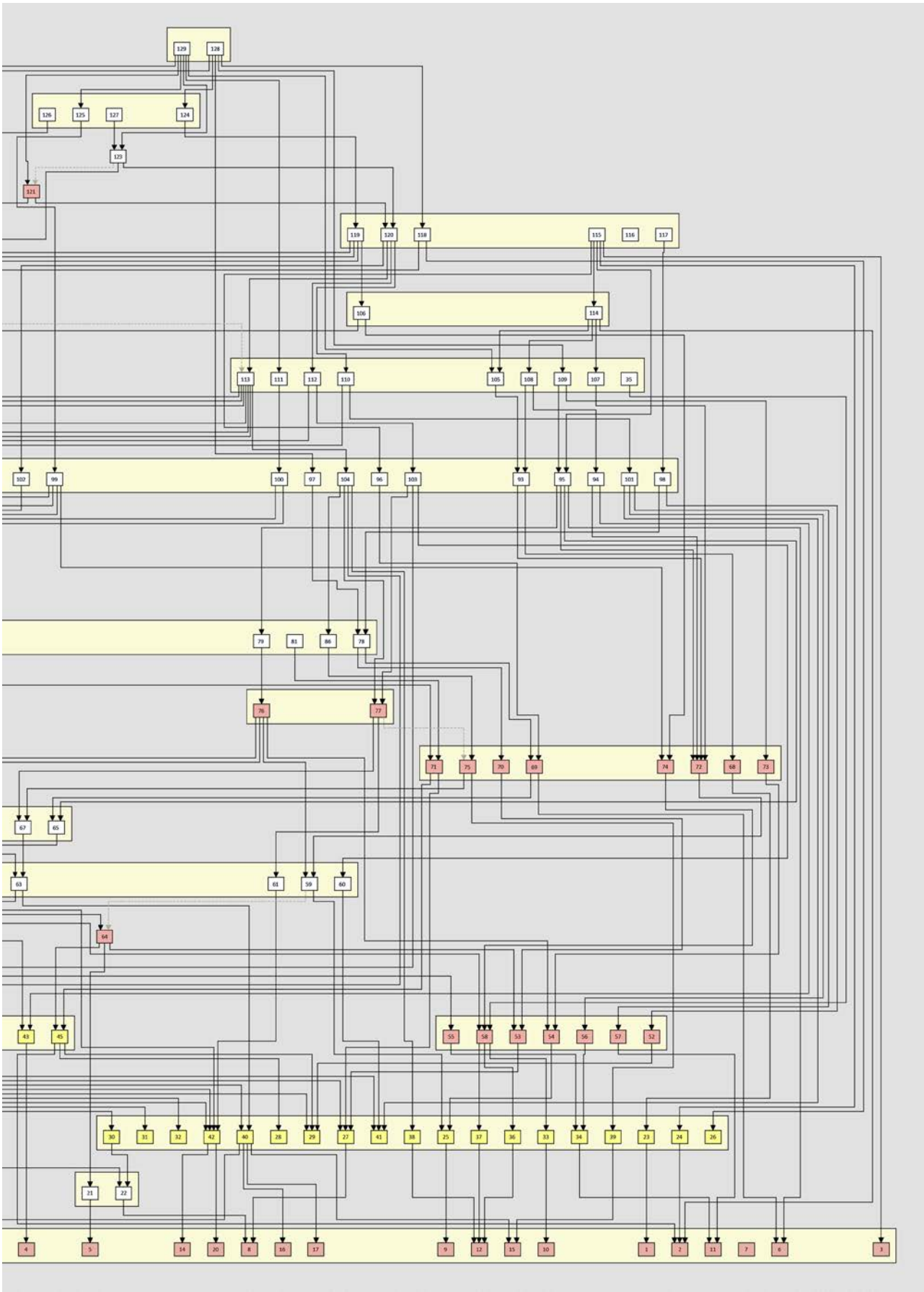


Figure 8.62: Interpretation of the Panel H Harris



Matrix with motif number and base colour indicated

Image available online at tinyurl.com/9781789690705-onlinecontent

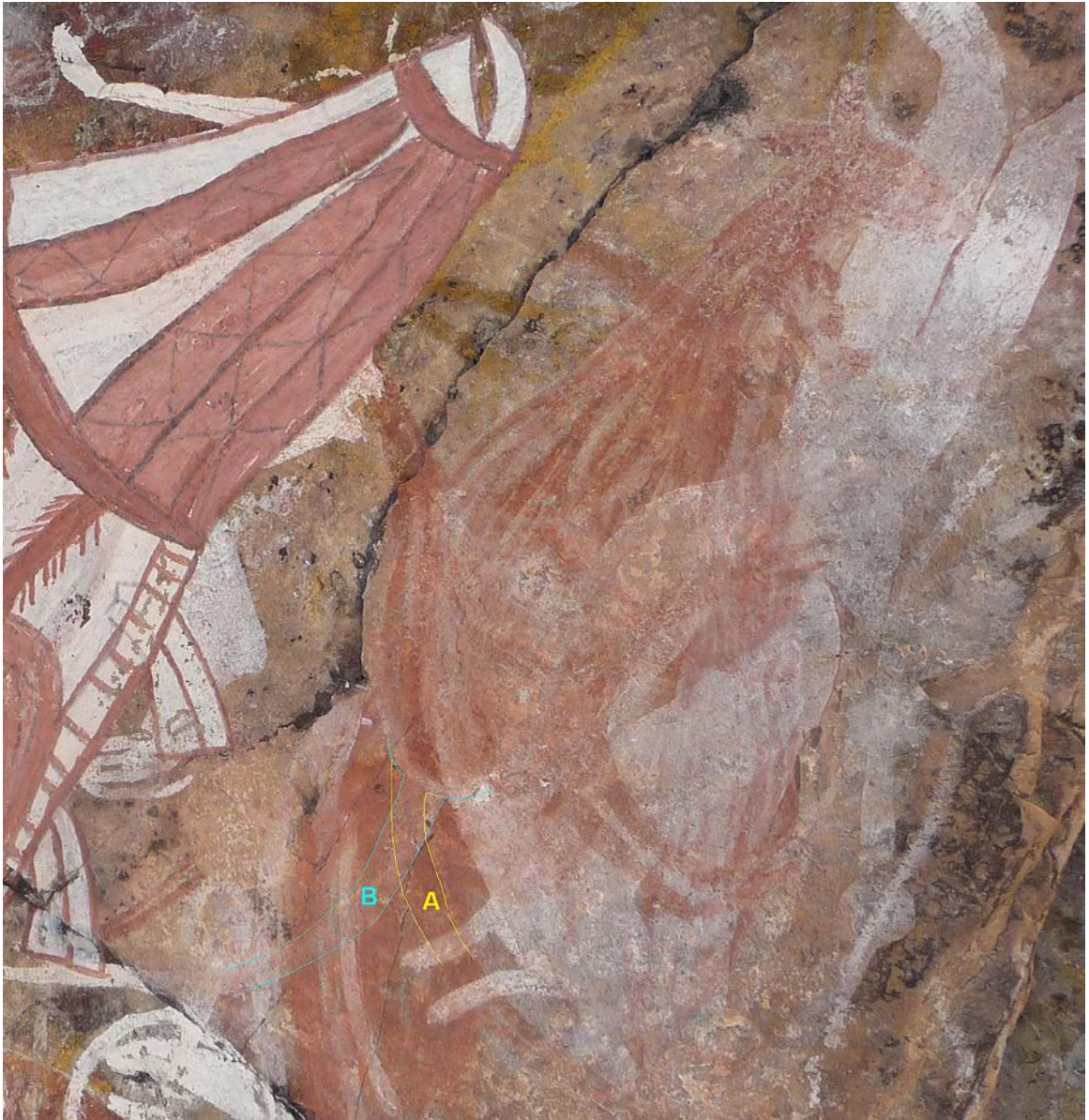


Figure 8.63: Yellow long-beaked water bird (Motif H-45)
A: Flash photograph B: DStretch_lwe10



Figure 8.64: Red macropod (Motif H-64:A) with later repainting in white (Motif H-65:B), showing re-alignment of the tail



Figure 8.65: Beeswax anthropomorph (Motif H-122) radiocarbon dated to around 200 years ago

Group J motif sequences

Panel J1

All but 16 of the 235 motifs on Panel J1 are involved in superimpositions (Tables 8.52 to 8.55; Figure 8.66). This panel was the most difficult of the panels to analyse due to its large size (c.15 × 3 m). Furthermore, it has several areas of concentrated artwork, and many of the layers within each area cannot be directly correlated with layers in other areas. There are, however, enough correlated layers to build an initial framework from which to apply stylistic and Morellian attributes to identify how individual layers across areas of Panel J1 correlate across space. As a result, on the basis of their patterns of superimpositions, the 235 motifs on the panel were aggregated into 49 layers, and the layers then into six phases (Table 8.56; Figure 8.67):

- **Phase J1/I:** an undifferentiated phase consisting of ten layers of mostly fragments of red (n=32), yellow (n=10) or white (n=3) pigments. The five earliest layers, Layers 45 to 49, form a sub-group on the basis of colour and preservational similarities. Likewise, Layers 41 to 43, form a sub-group of yellow motifs. The earliest red motifs include large solid fragments, large fine-line complex designs, and small straight-line anthropomorphs. The white paintings consist of two disparate fragments and a small depiction of a round yam-like plant (Motif J-262). The yellow paintings, also predominantly fragments, include a single bichrome painting of a macropod (yellow silhouette with red outline and infill; Motif J-27; Figure 8.68). Although only partially preserved, the bichrome macropod has very solid forearms and muscular shoulders;
- **Phase J1/II:** three layers of 21 red paintings. The order of superimposition of Layers 37 and 38 is ambiguous, but both contain motifs of what are interpreted as thylacines, although both motifs differ considerably in size and form (Figure 8.69). As the thylacine became extinct on the mainland more 3000 years ago, these motifs are likely to be of greater than 3000 years old (see Chapter 9 below). While most of the motifs from this phase are incomplete fragments they also include: a large red striped design across the inner western half of the panel (in excess of 4 m long and 0.5 m wide); a tightly-knit group of three macropods with solid and striped infill (Motifs J-73 to J-75); and an unusual fragmented design with zoomorphic characteristics (Motif J-76);
- **Phase J1/III:** nine layers of 36 motifs including four layers of red paintings interspersed with

four layers of yellow and a layer of white. The more recent red layers show an increasing use of white embellishment. This may be a product of preservation as even on the more recent of these motifs, the white remains poorly preserved (Figure 8.70). The yellow paintings within this phase both display outlined motifs with distinctive striped infill. This phase also contains the initial painting of a large snake in yellow (Layer 35; Motif J-50) and its subsequent repainting in red (Layer 28 (Motif J-52)). In the subsequent phase (Phase IV) the snake was repainted again, this time in white (Motif J-58; Figure 8.71).

Other motifs of note include a distinctive pair of tall yellow anthropomorphs embellished with red outline, and red and white infill (Motifs J-102 and J-103). Both anthropomorphs hold large curved, boomerang-shaped objects. At their scale relative to the figures that hold them, these boomerang-like objects are too large to be simple throwing boomerangs, and may therefore represent a type of hand-held fighting boomerang (cf. Jones 1996: 36). As Lewis mentions, while the boomerang is common in the earlier art periods of Arnhem Land, it is 'virtually absent' in the later periods (1988: 45). The larger anthropomorph also holds a broad spearthrower (Figure 8.72). Lewis proposed that broad spearthrowers were painted during the time period between 6000 and 1000-2000 years ago (1988: 105) which, if correct, would indicate this motif must be greater than 1000 years old (although note that his chronological model was not based on direct dates for any of the art and it remains a chronological model to be tested).

This phase also has two representations of similar profile figures in red from two different layers (Motif J-173, Layer 34; and Motif J-179, Layer 31). It is likely, given the close proximity of these two figures on the panel, that the latter, younger and better preserved, figure is a copy of the former given;

- **Phase J1/IV:** 13 layers with 38 motifs and involving white, red or yellow monochrome motifs, with a single motif in orange with white infill (Motif J-77). In addition, there are two beeswax pellets (Layer 18; Motifs J-53 and J-54). The pellets were both dated to around 450 years ago (Table 8.39). The layer, in which the pellets occur, is central to this phase. Further, as the dated pellets each form the focal centre of the over-painted red radial designs (Motifs J-55 and J-56; Figure 8.73) it is clear the association is deliberate.

The phase also contains the initial painting of the large crocodile in red (Motif J-123), a macropod (Motif J-201) in red, and an unidentified quadruped (Motif J-46) in an orange-red. The former two occur in Layer 17 and the latter in Layer 22. Although none of the paintings from these two layers occur in superimposition with each other, given their large sizes and similarities in their outline and infill forms and placement (each within its own sector of the panel), it seems likely that all three motifs were first painted at a similar time and thus represent a thematically and chronologically related trio. The quadruped (Motif J-46) was later partially re-painted in yellow (Motif J-60, Layer 19). While its body and tail are similar in shape to that of a thylacine, the ears are large and pointed and contrast with those of a thylacine, which are shorter and more rounded.

On the basis of similar states of preservation, it is likely that all painted motifs within this phase were all produced within a very short period of time although, as the range of motifs is very diverse (small complex anthropomorphic designs; simple geometric design; a single white figure with headdress; and three very large animal motifs), most likely on separate occasions. The earliest of the red paintings in this phase are outlined motifs with distinctive striped infill;

- **Phase J1/V:** ten layers with 70 motifs in white, yellow and white-based bichromes. There are no red paintings within this phase. White monochrome motifs occur throughout the phase while Layer 9 contains a layer of solid white figures outlined and infilled with fine red linear decoration. These paintings include motifs of anthropomorphs, fish, macropods, quadrupeds and a Jawoyn Lady motif. One of the quadrupeds (Motif J-210) is similar to the unknown quadruped depicted in Layer 23 mentioned above. Layer 7, which post-dates Layer 9, also contains a small number of similar white+red motifs, but is otherwise dominated by white monochrome paintings suggesting that Layer 9 represented the peak of these more carefully decorated (finer quality) paintings (Figure 8.74).

Within this otherwise basically white phase there is a layer of yellow monochrome motifs (Layer 11) that includes a narrow anthropomorph with profile headdress (Motif J-136) that is similar in form to that of the smaller white anthropomorph (Motif J-78) of the previous phase.

Early in this phase the large red outlined macropod (Motif J-201, originally painted in the

previous phase) was infilled with a solid white wash (Motif J-203) and then again, later in this phase (Phase J1/V), outlined in a strong white (Motif J-227, Layer 6). The large quadruped motif (Motif J-46 from Layer 22, Phase J1/IV) was repainted again during this phase: this time in white at Layer 7 (Motif J-62). The large red crocodile motif (Motif J-123, Phase IV) was also repainted during Layer 7 (Motif J-148; in white, yellow and orange) as was the large red macropod during Layer 6 (Motif J-227; white, orange and red). As with the initial painting of these three motifs in Phase J1/IV, these repainting events in this phase also appear to be broadly contemporaneous. The relationship between Layer 6 (with the large macropod; Motif J-227) and Layer 7 (with the large crocodile; Motif J-148) in Phase IV is unclear. The white pigment in both motifs is unevenly preserved and, while it would seem likely on thematic grounds that they were both repainted in white at the same or similar times, there is no clear evidence for this. They do, however, occur in layers within this one period; and

- **Phase J1/VI:** this, the uppermost phase, consists of four layers with 11 motifs. The motifs are mostly solid, monochrome paintings in either white (fish and bandicoot), orange (profile anthropomorphs), or yellow (a complex outlined anthropomorph with dotted infill, and a short linear bar). The disjunction between this phase and the previous one is distinguished by a notably better preservation of the white pigments; cf. Motif J-150 here and J-90 from the previous layer and phase. The most recent motif appears to be a white silhouette of a barramundi (Motif J-228), at the east end of the panel. Given its excellent condition and large size (1.2 m long), it is possible that this is the base coating intended for a polychrome X-ray motif that was never completed (cf. Motif E-79; Figures 7.133 and 7.140 above).

Samples from the two beeswax pellets on Panel J1 (Motif J-53 and Motif J-54; Figure 7.316) were collected for radiocarbon dating by Bruno David (Monash University), both returning calibrated ages within the full two sigma range of cal AD 1473-1643 (Table 8.39). The two samples have median probability ages of cal AD 1561 and cal AD 1562 respectively (from Calib7.1 using IntCal13; Reimer et al. 2013), suggesting that these two pellets were applied onto the rock surface at the roughly same time. These ages are similar to obtained from beeswax pellets Motifs F-27 and F-28 described above (Table 8.39; median ages c. cal AD1480), suggesting that all six pellets (Motifs F-27 to F-30 and J-27 and J-28) were applied as part of the same event (artistic or otherwise).

Table 8.52: Panel J1a and J1b motif superimpositions

J1a		J1b	
Motif No.	Underlying Motifs (J-)	Motif No.	Underlying Motifs (J-)
J-2	1	J-36	1,2,7,31,32,33
J-4	2	J-37	1,7,32,33
J-5	3	J-26	10,38
J-7	3,5	J-27	38,40
J-9	7	J-30	27
J-12	6	J-32	8,39
J-13	6	J-46	44,45
J-14	6	J-50	32
J-15	2,4	J-51	30,32,39
J-16	3,5,7	J-52	32,50
J-17	7,9	J-54	32
J-18	7	J-55	32,46,50,51,52,53
J-19	7	J-56	32,50,52,54
J-20	7	J-57	32,50,52
J-21	7,8	J-58	32,55,56,57
J-23	10	J-59	46,51
J-24	6,12,13,28,29	J-60	40,46
J-25	2,4,5,13,15,16,17	J-61	49
J-26	9,10,23	J-62	40,44,46,60
J-28	6,12	J-63	47,48,60
J-29	6,12,13	J-65	60,62,63
J-30	3,7,16,19,21,25	J-80	45,58
J-31	1,2,4,5,7,15,16,25	J-88	43
J-32	1,2,8	J-90	43
J-33	1,7,31,32		

Table 8.53: Panel J1c motif superimpositions

Motif No.	Underlying Motifs (J-)	Motif No.	Underlying Motifs (J-)
J-32	67,68	J-77	259
J-43	64,66	J-78	75,77,259,262
J-47	72,73,74	J-79	66,70
J-48	72,73,74,75,259	J-80	32,43,52,57,58,64,66,79,
J-49	72,74,259	J-81	47,72,74
J-50	32,71	J-82	72,74,75,259,261,262
J-52	32,50,57,68,70,71	J-83	72,74,75,78,259
J-58	32,50,52,57,68,70,71	J-84	76,88
J-61	49,72,74,259	J-85	76,89
J-62	43,66,72,74	J-86	76,89
J-63	47,48,73	J-87	83,260
J-65	47,60,62,63,66,72,73,74	J-88	43,66,76,80,260,262
J-71	32,68,70	J-89	43,66,76,80,102
J-72	259	J-90	43,66,72,74,76,80,82,87,
J-73	72		88,89,102,260,262
J-74	72,259,260,261,262	J-148	102
J-75	72,259,261,262		

Table 8.54: Panel J1d motif superimpositions

Motif No.	Underlying Motifs (J-)	Motif No.	Underlying Motifs (J-)
J-58	102,103,104,105,113,120,	J-132	120
"	123,129,136,256,257,258	J-134	97,102
J-80	58	J-135	102,103
J-92	97	J-136	95,100,105,113,119,120
J-95	101	"	256,257,258
J-102	96,97,256	J-137	120,130,257
J-103	92,97,102	J-138	76,102,134,
J-104	256,258	J-139	97,102,134,135,
J-105	256	J-140	102,103,134,135,
J-106	92,256	J-141	99
J-107	92,93,104	J-142	99
J-108	102,103,106,256	J-143	99
J-110	102	J-144	58,95,136,257
J-112	92,106,107	J-145	58,129
J-113	94,105,107,258	J-146	120,129
J-114	104	J-147	120,137,257
J-115	107	J-148	58,92,93,95,97,100,101,
J-116	107	"	106,107,108,109,110,114,
J-117	93,107	"	115,116,117,118,119,120,
J-118	92,93,94,107,113	"	122,123,124,125,126,127,
J-119	114,257	"	129,135,136,141,146
J-120	95,101,257	"	256,257,258
J-122	107,115	J-149	99,115,122,141,142
J-123	105,114,119,120,256,257,	J-150	122,149
"	258	J-152	116,128
J-124	100	J-153	120,130,137,147
J-125	97,102,103,108	J-154	120,137,
J-126	93,107	J-155	120,132,137,
J-127	92,93,104,107,117,118	J-156	58,91,102,256,110,148
J-128	100,116,124	J-157	120,121,130,131,132,137,
J-129	101,120	"	147,148,154
J-130	120	J-258	256
J-131	120		

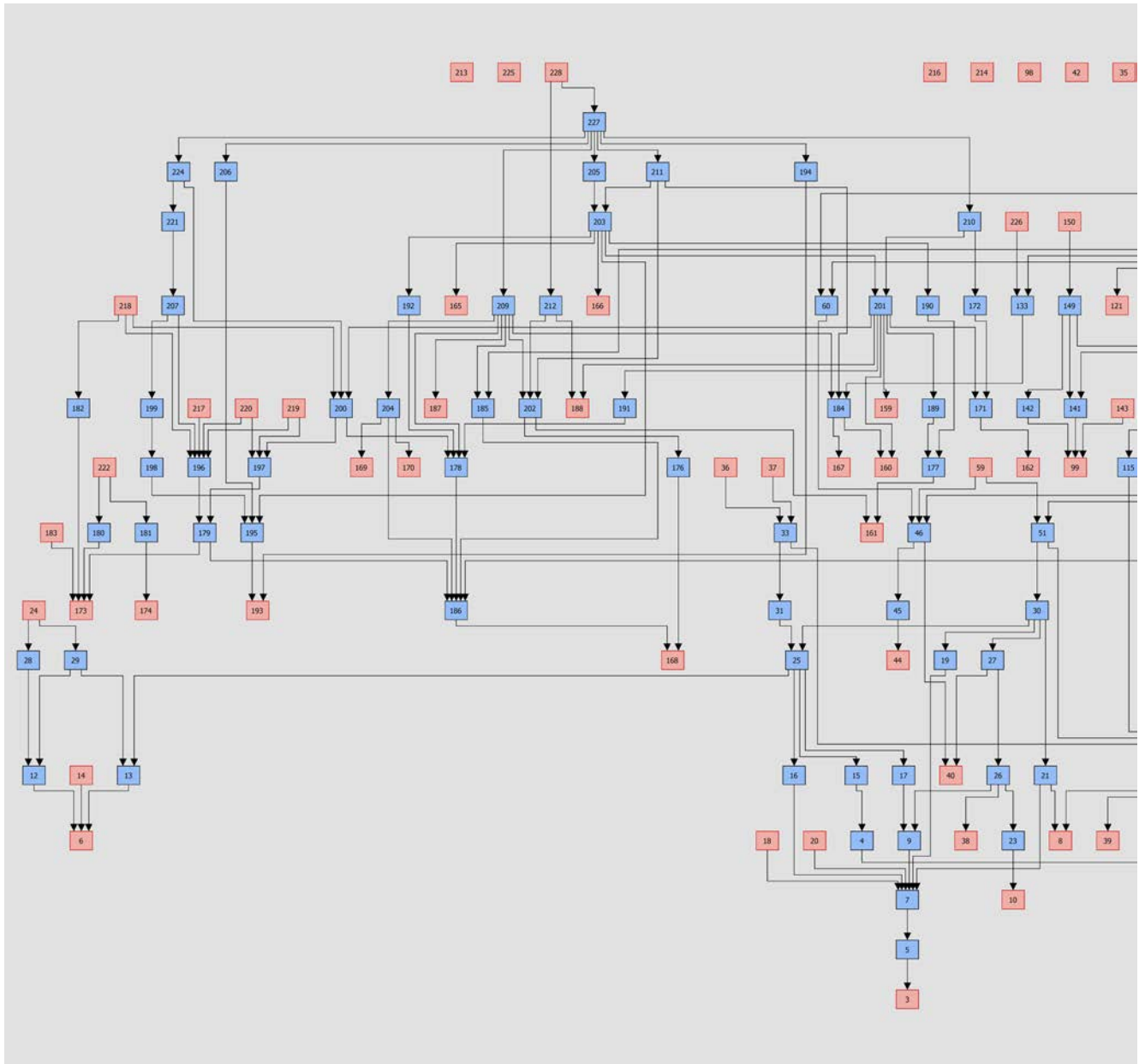
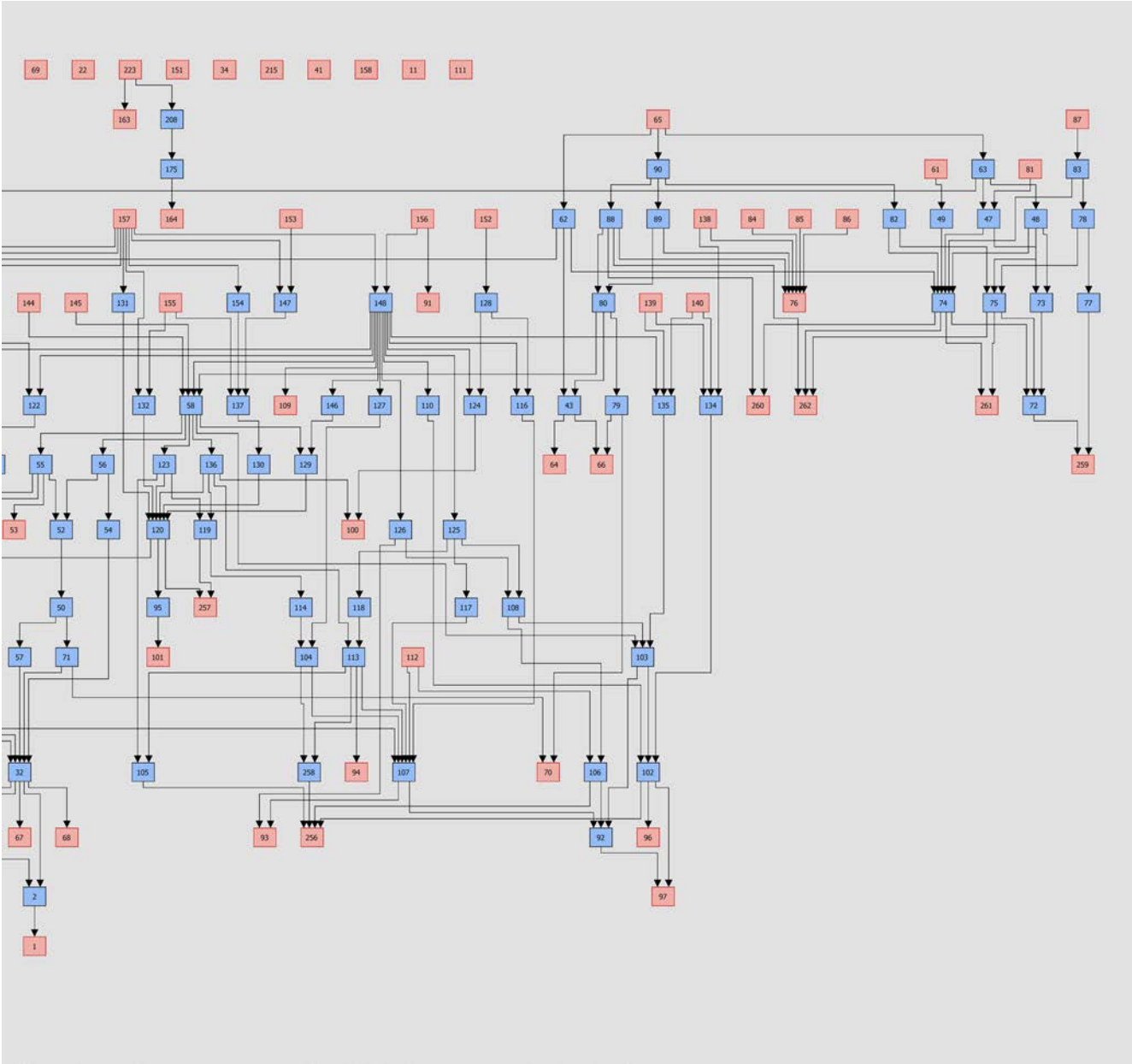


Figure 8.66: Harris Matrix of



the Panel J1 superimpositions

Image available online at tinyurl.com/9781789690705-onlinecontent

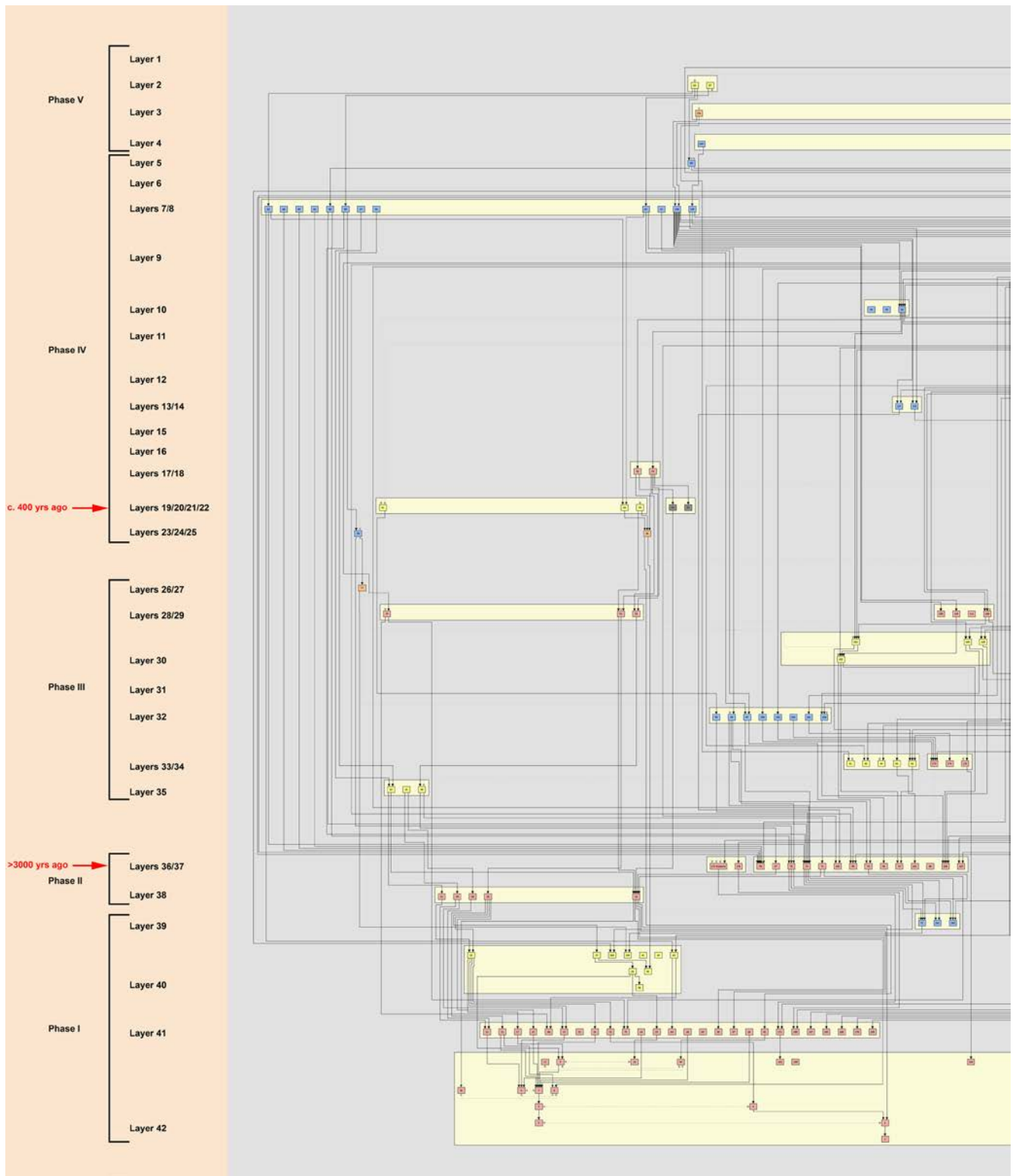
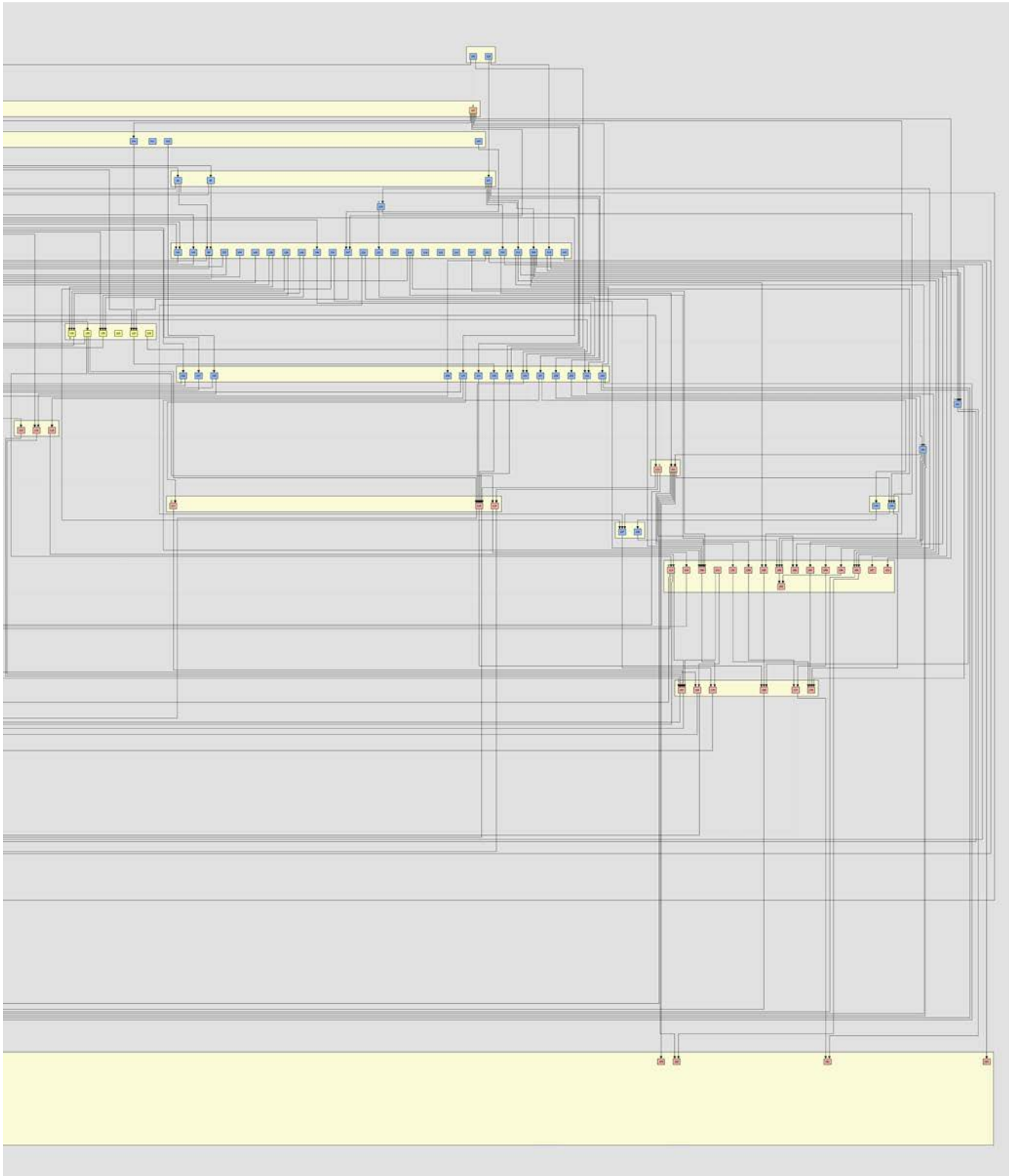


Figure 8.67: Interpretation of the Panel J1 Harris



Matrix with motif number and base colour indicated

Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.55: Panel J1e motif superimpositions

Motif No.	Underlying Motifs (J-)	Motif No.	Underlying Motifs (J-)
J-157	121,133,184,185,	J-133	184
J-171	162	J-204	168,169,170
J-175	164	J-205	177,201,203
J-176	168	J-206	193,195
J-177	161	J-207	179,195,196,199
J-178	172	J-208	164,175
J-179	172,173	J-209	168,169,178,184,185,187,
J-180	173	"	202,204
J-181	174	J-210	159,162,171,177,186,201
J-182	173	J-211	161,176,184,188,201,202,
J-183	173	"	203
J-184	160,167	J-212	161,168,176,188,202
J-185	168	J-217	173,196
J-186	162,171	J-218	172,173,179,182,196,197,
J-189	177	"	200
J-190	177	J-219	179,196,197,
J-191	178	J-220	173,179,196,197
J-192	178	J-221	179,195,198,199,207
J-194	193	J-222	174,180,181
J-195	193	J-223	163,164,175,208
J-196	173,179	J-224	172,179,195,197,198,199,
J-197	173,179	"	200,221
J-198	195	J-226	133
J-199	195,198	J-227	159,160,161,165,166,176,
J-200	172,178,197	"	177,178,179,184,188,189,
J-201	159,160,161,162,171,172,	"	193,194,195,200,201,203,
"	177,178,179,188,189,191,	"	205,206,209,210,211,224
"	200	J-228	169,170,176,187,189,193,
J-202	161,168,176	"	194,201,202,203,204,206,
J-203	159,160,161,165,166,171,	"	209,211,212,227
"	172,177,178,179,188,189,		
"	190,191,192,195,197,200,		
"	201		

Table 8.56: Summary of the Panel J1 art phases

J1 Phase	No. of layers	No. of motifs	Major Colours*	Major motif forms	Major motif classes
VI	4	11	white	solid	fish, anthropomorph
V	10	70	white, white+red	solid, outline+infill	anthropomorph, macropod
IV	13	38	white, red, red+white	solid, outline+infill	macropod, quadruped, fish
III	9	36	yellow, red	outline+infill, solid,	anthropomorph, macropod
II	3	21	red	outline+infill	macropod, thylacine
I	10	59	red	fragments	fragments

* All phases contain a mixture of red, yellow and white motifs



Figure 8.68: Remnant muscular macropod in yellow with red outline (Phase I; Motif J-27)



Figure 8.69: The two thylacine motifs from Phase II



Figure 8.70: Phase III red crocodile with poorly preserved white embellishment (arrowed; Motif J-184)

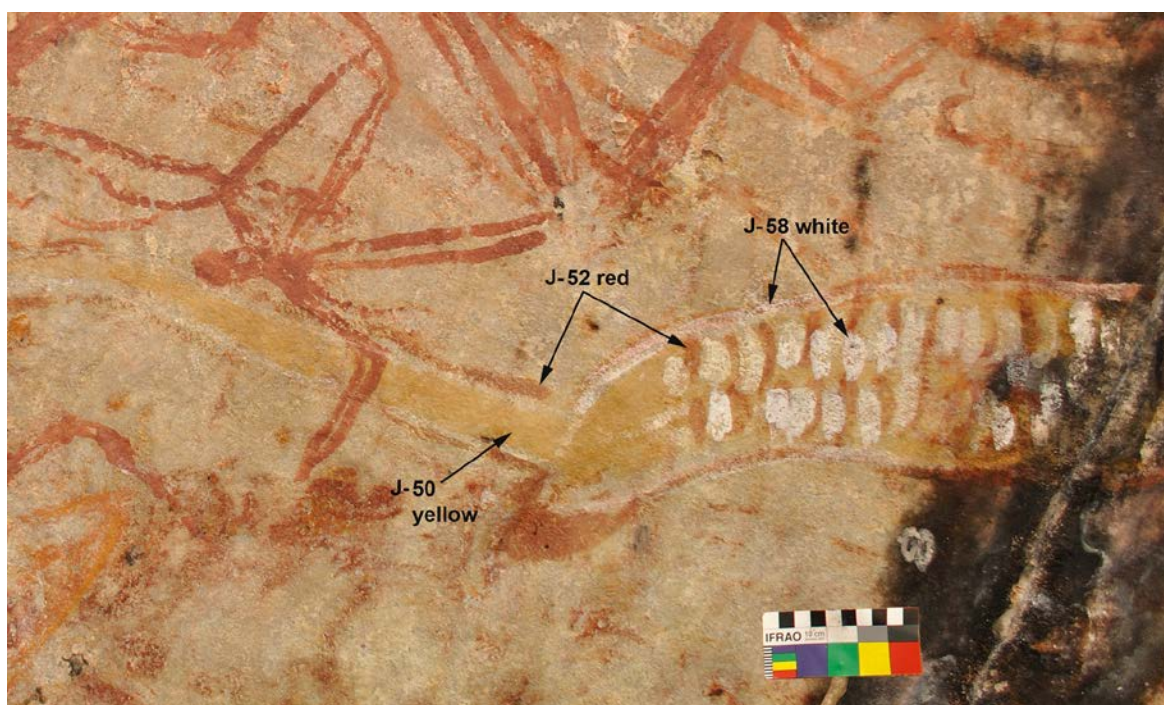


Figure 8.71: Detail of the original yellow large snake motif showing repainting, first in red and then in white

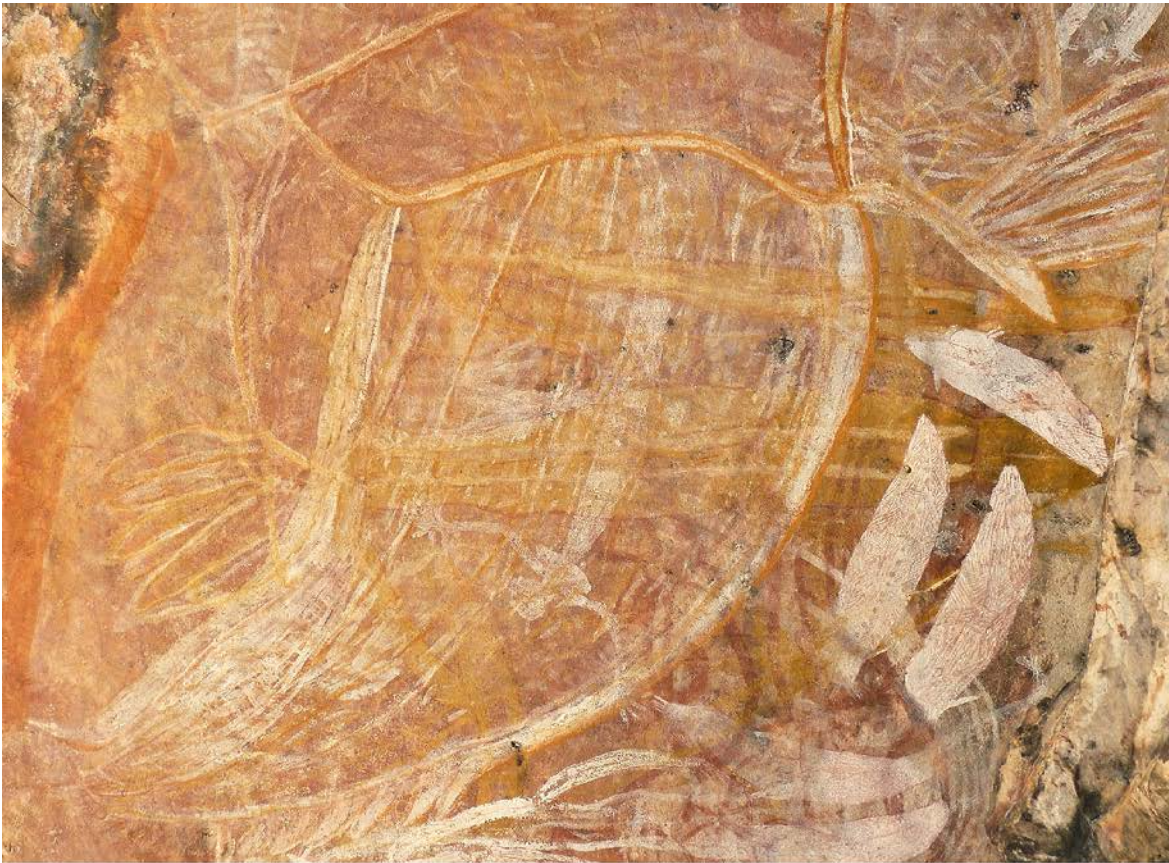


Figure 8.72: Phase III anthropomorphs with large curved objects and broad spearthrower (Motifs J-102 and J-103)



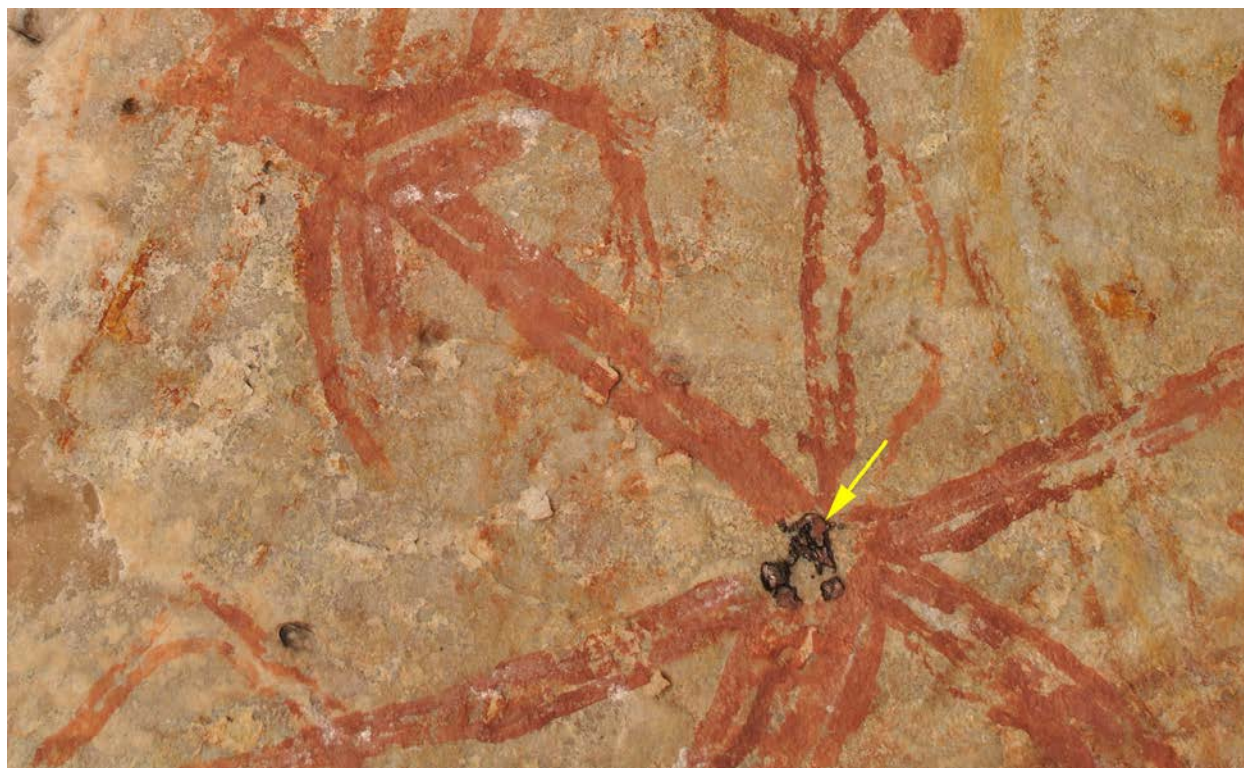


Figure 8.73: Superimposition of red painted anthropomorphic design (Motif J-55) over black beeswax pellet (Motif J-53)



Figure 8.74: Fine-line infill fish from Layer 9, Phase IV
(Motifs J-138 to J-140)

Panel J2

Eight of the nine motifs on Panel J2 are involved in superimpositions (Table 8.56; Figure 8.75). These were aggregated into four layers, and the layers into three phases (Table 8.58; Figure 8.76):

- **Phase J2/I:** the earliest phase consists of a very poorly preserved red complex design involving a series of 'U' shapes, and two other red fragments;
- **Phase J2/II:** the chronostratigraphic relationship between the two layers of this

phase cannot be determined. Layer 2 consists of two red snakes, while Layer 3 contains three yellow fragments; and

- **Phase J2/III:** this most recent phase of this panel and consists of a single short line in white.

The white motif of Phases III is considerably better preserved than those of Phase II, suggesting that a sizable time difference separates the two phases (Figure 8.77).

Table 8.57: Panel J2 motif superimpositions

Motif No.	Underlying Motifs (J-)
J-235	229
J-236	229,230,231
J-237	233

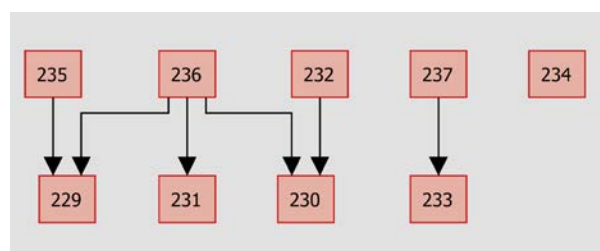


Figure 8.75: Harris Matrix of the Panel J2 superimpositions. Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.58: Summary of the Panel J2 art phases

J2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	1	white	linear	geometric
II	2	5	red, yellow	linear	reptile
I	1	3	red	fragment	fragment

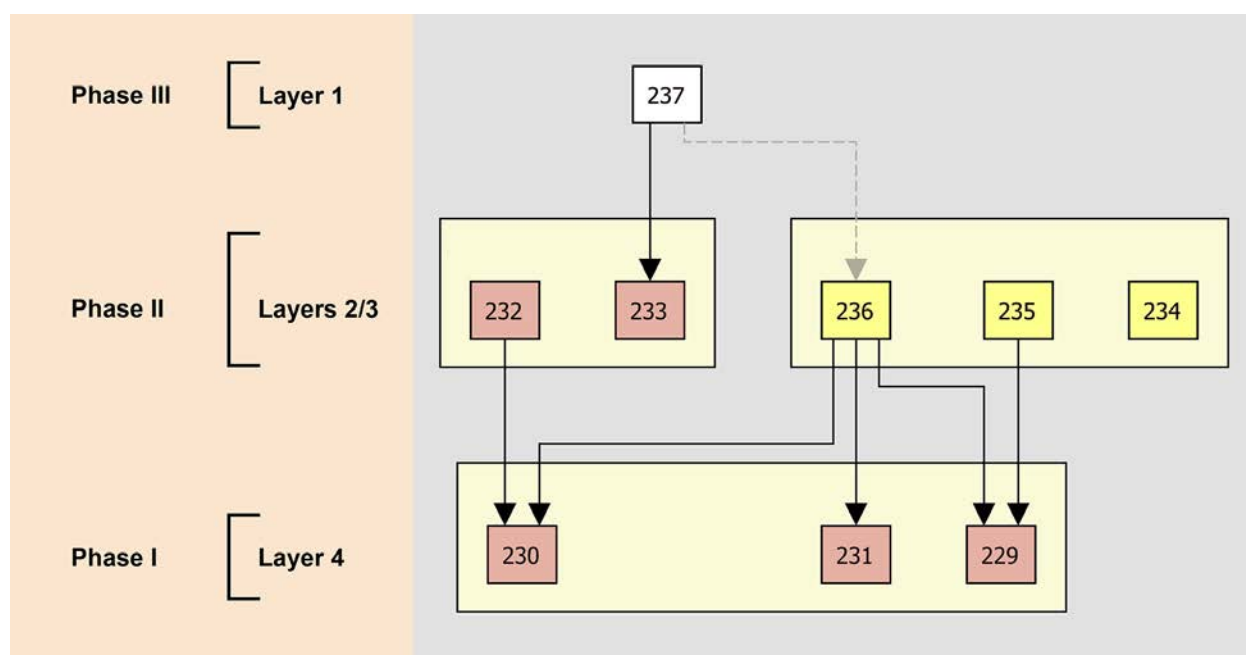


Figure 8.76: Interpretation of the Panel J2 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

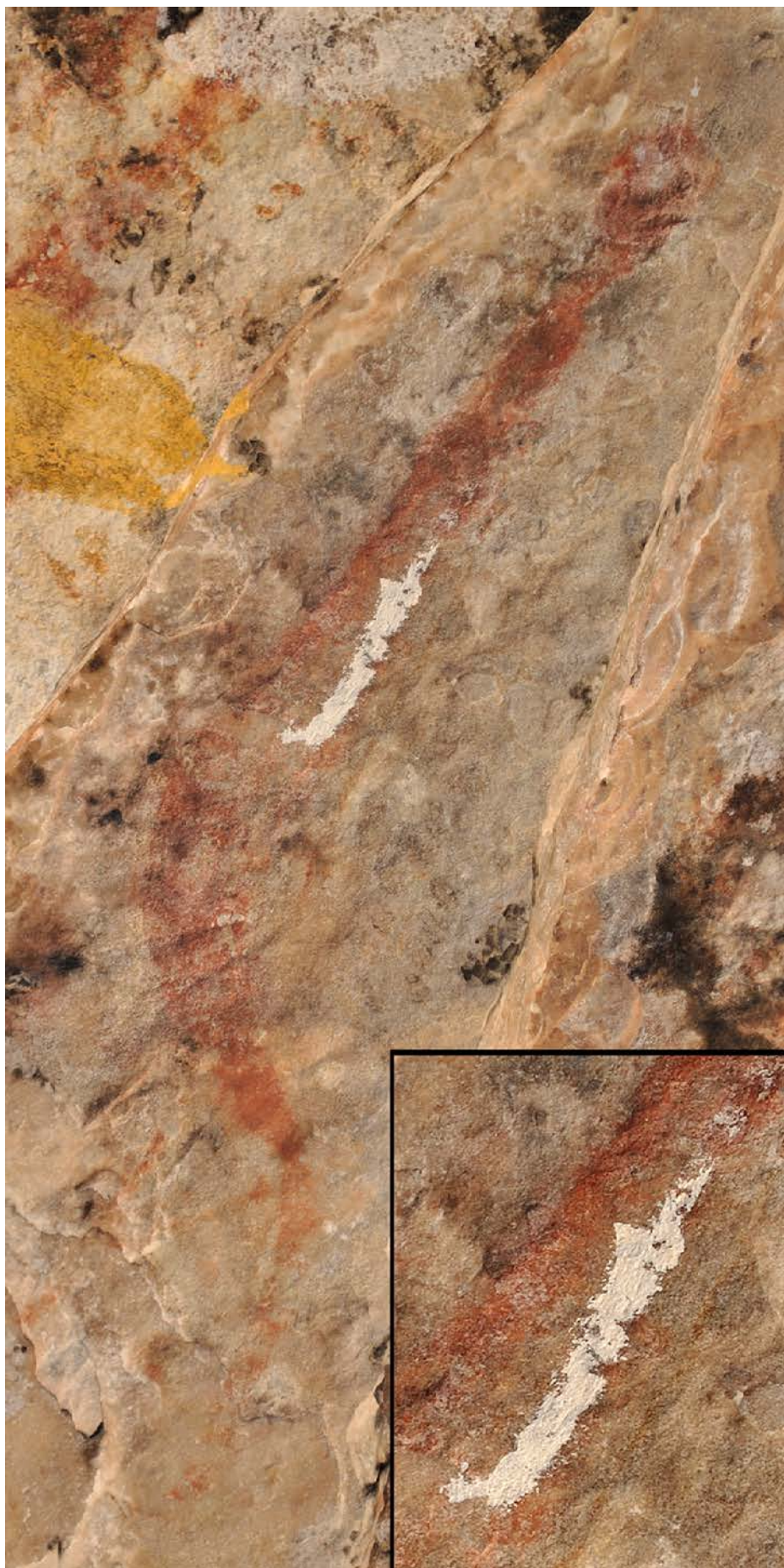


Figure 8.77: White Motif J-237 overlying red Motif J-233

Panel J3

All of the 14 motifs on Panel J3 are involved in superimpositions (Table 8.59; Figure 8.78A). These were aggregated into nine layers, and the layers into five phases (Table 8.60; Figure 8.78B):

- **Phase J3/I:** the earliest phase consists of a very poorly preserved red fragment;
- **Phase J3/II:** a yellow fragment and a quadruped (quoll?) in yellow with red outline;
- **Phase J3/III:** a red anthropomorph overlain by the red feet of the large macropod on Panel J1 (Motif J-194);
- **Phase J3/IV:** two white male anthropomorphs (penises depicted), the more recent of which is outlined and embellished with red. The latter anthropomorph (Motif J-246) also has a short spear and long spearthrower at his side; and
- **Phase J3/V:** two white fish overlain by the white embellishment of the feet of Motif J-194, which is in turn overlain by a fresh-looking white snake (Motif J-249; Figure 7.336).

Table 8.59: Panel J3 motif superimpositions

Motif No.	Underlying Motifs (J-)	Motif No.	Underlying Motifs (J-)
J-240	238	J-247	238,194,244
J-241	239	J-248	239,242,246
J-242	239,241	J-249	238,240,246,247
J-243	239,241,242	J-227	238,240,241,242,194,
J-244	238,240,194	"	244,245,246,247
J-245	238,240,241,194	J-194	238,240,241,242
J-246	239,240,241,242,243,		
"	194		

Table 8.60: Summary of the Panel J3 art phases

J3 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
V	3	4	white	solid, outline+infill	reptile, fish
IV	2	4	white, white+red	solid, solid+outline+infill	anthro
III	2	2	red	solid	anthro
II	1	2	yellow+red	solid+outline	quadruped
I	1	2	red	fragment	fragment

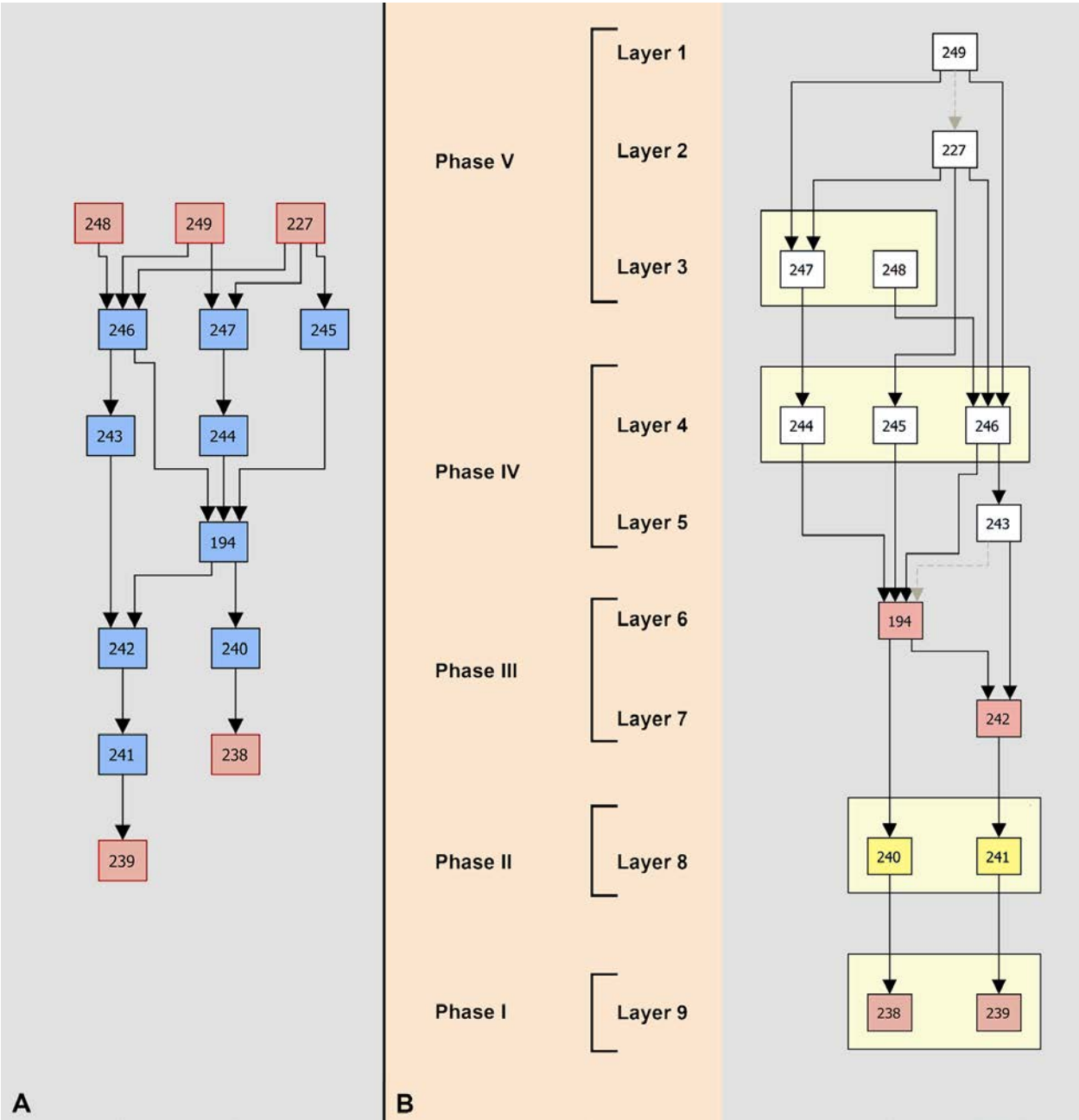


Figure 8.78: Harris Matrix of the Panel J3 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Panel J4

Two of the three motifs on Panel J4 are involved in superimpositions (Table 8.61; Figure 8.79A). These were aggregated into two layers, and the layers into two phases (Table 8.62; Figure 8.79B):

- **Phase J4/I:** the earliest phase of this panel that consists of two very poorly preserved red fragments; and
- **Phase J4/II:** a quadruped (dingo or dog) in white (Figure 7.341).

None of the motifs on Panel J4 are well-preserved.

As the dingo arrived in Australia at sometime between 3500 and 5000 years ago (Savolainen et al. 2004), Motif J-252 must be less than 5000 years old, and it is probably somewhat later.

Table 8.61: Panel J4 motif superimpositions

Motif No.	Underlying Motifs (J-)
252	251

Table 8.62: Summary of the Panel J4 art phases

J4 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	1	1	white	solid+linear	quadruped
I	1	2	red	linear	fragment

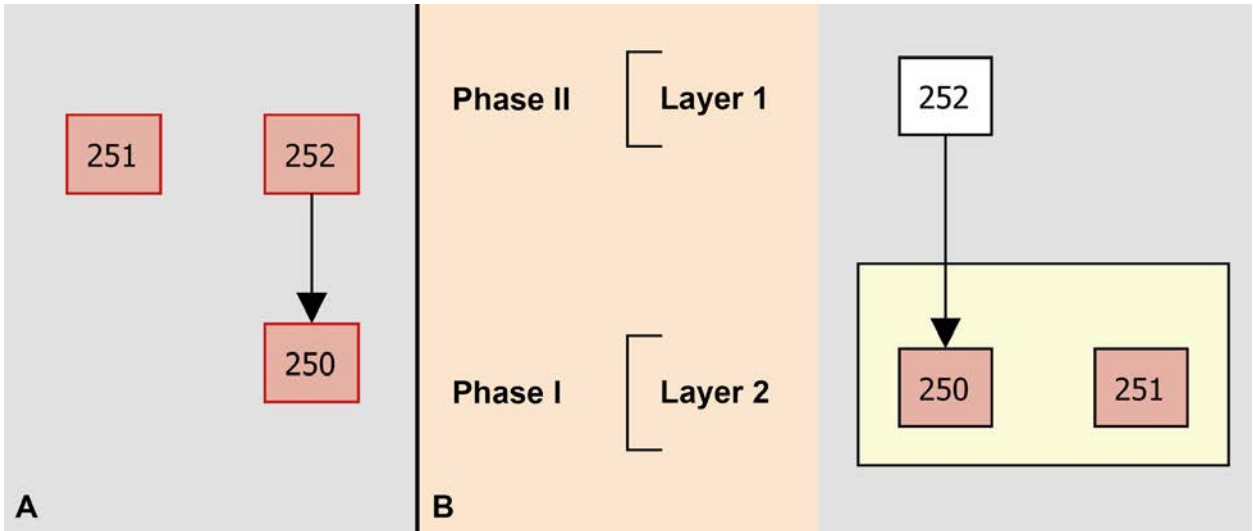


Figure 8.79: Harris Matrix of the Panel J4 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Panel J5

Two of the three motifs on Panel J5 are involved in superimpositions (Table 8.63; Figure 8.80A). These were aggregated into two layers, and the layers into two phases (Table 8.64; Figure 8.80B):

- **Phase J5/I:** the earliest phase of the panel consists of a very poorly preserved red fragment, which is the remnant of a motif that was carefully painted with a fine brush; and
- **Phase J5/II:** this later phase consists of a composition of two large macropods aligned

back-to-back: one painted in white with red outline and embellishment, and the other in yellow with white embellishment. As this is a visual composition, the differences in colour of the two motifs imply a deliberate choice on the part of the artist.

Table 8.63: Panel J5 motif superimpositions

Motif No.	Underlying Motifs (J-)
255	253

Table 8.64: Summary of the Panel J5 art phases

J5 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	1	2	white+red, yellow+white	solid+outline+infill	macropod
I	1	1	red	outline+infill	fragment

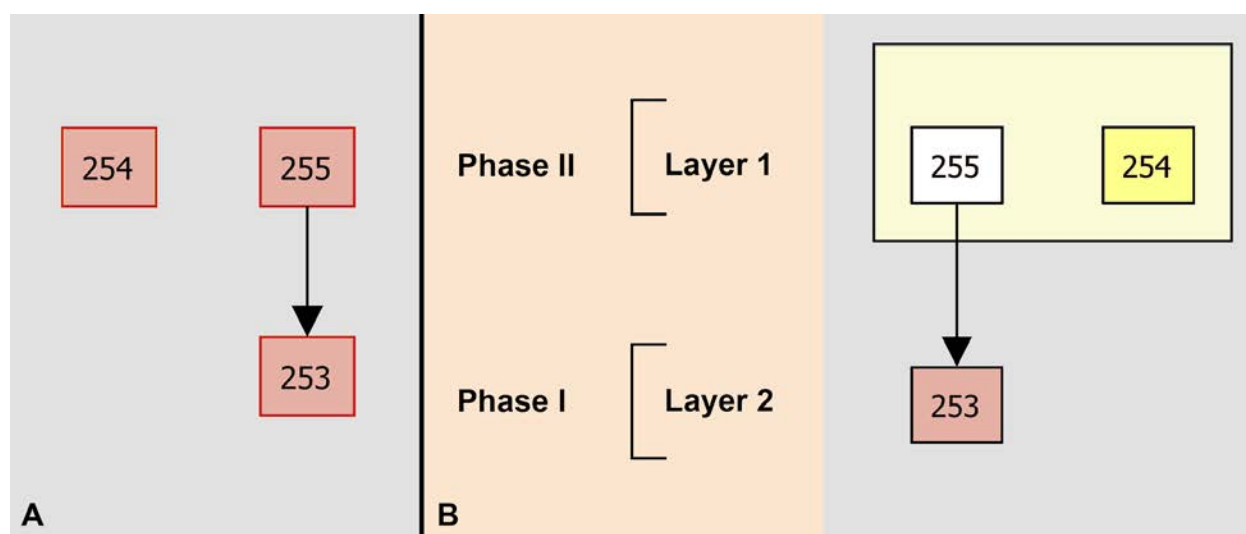


Figure 8.80: Harris Matrix of the Panel J5 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Group K motif sequences

Panel K1

Ten of the 13 motifs on Panel K1 are involved in superimpositions (Table 8.65; Figure 81A). These 13 motifs were aggregated into six layers, and the layers then into three phases (Table 8.66; Figure 81B):

- **Phase K1/I:** the earliest phase consists of a very poorly preserved, solid macropod in yellow;
- **Phase K1/II:** this phase contains five red paintings, but only one (Motif K-6; a

therianthrope), could be identified to type; and

- **Phase K1/III:** this phase, the most recent on the panel, contains three layers of seven paintings. A layer of pink-white paintings includes a catfish with red X-ray embellishment, a repainting of the therianthrope in pink outlined with yellow (Motif K-10), and a pink linear element. The relative sequence of this pink layer and a red layer (a quadruped and a foot track) cannot be determined. The most recent layer consists of two white monochrome anthropomorphs (Figure 8.82).

Table 8.65: Panel K1 motif superimpositions

Motif No.	Underlying Motifs (K-)	Motif No.	Underlying Motifs (K-)
K-3	1	K-10	6,4,1
K-4	1	K-11	4
K-5	1	K-12	1,4,10,11
K-6	1,2,4		

Table 8.66: Summary of the Panel K1 art phases

K1 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	3	7	white	linear, solid+outline+linear	anthro, fish
II	2	5	red	solid+linear	therianthrope
I	1	1	yellow	solid	macropod

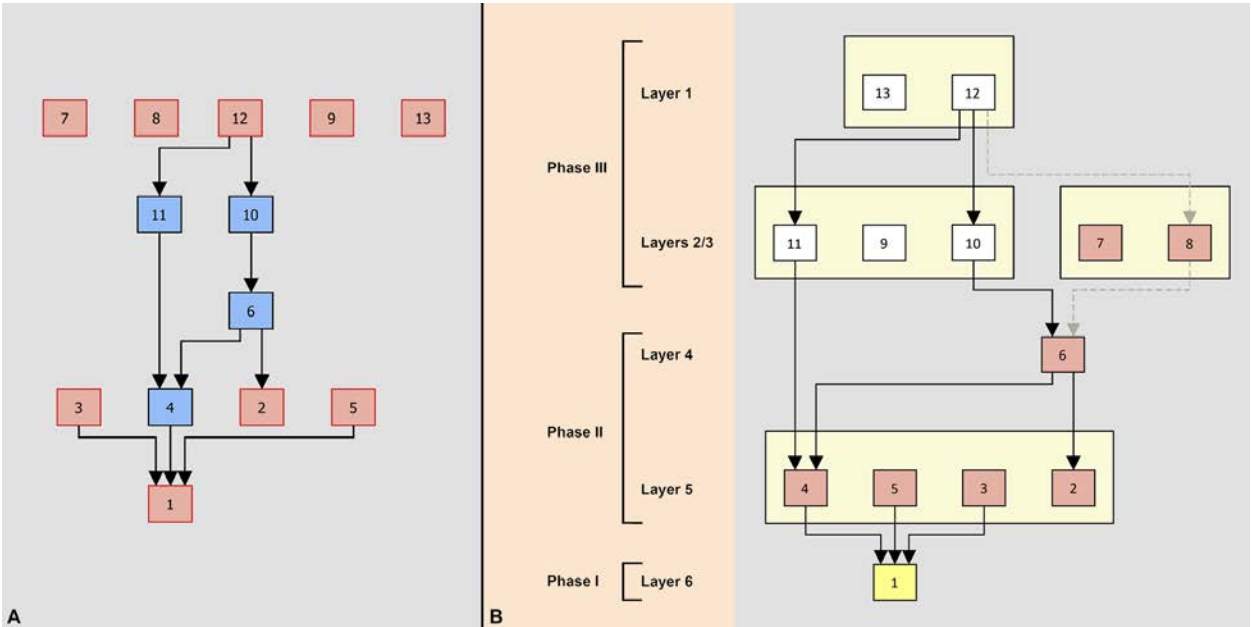


Figure 8.81: Harris Matrix of the Panel K1 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

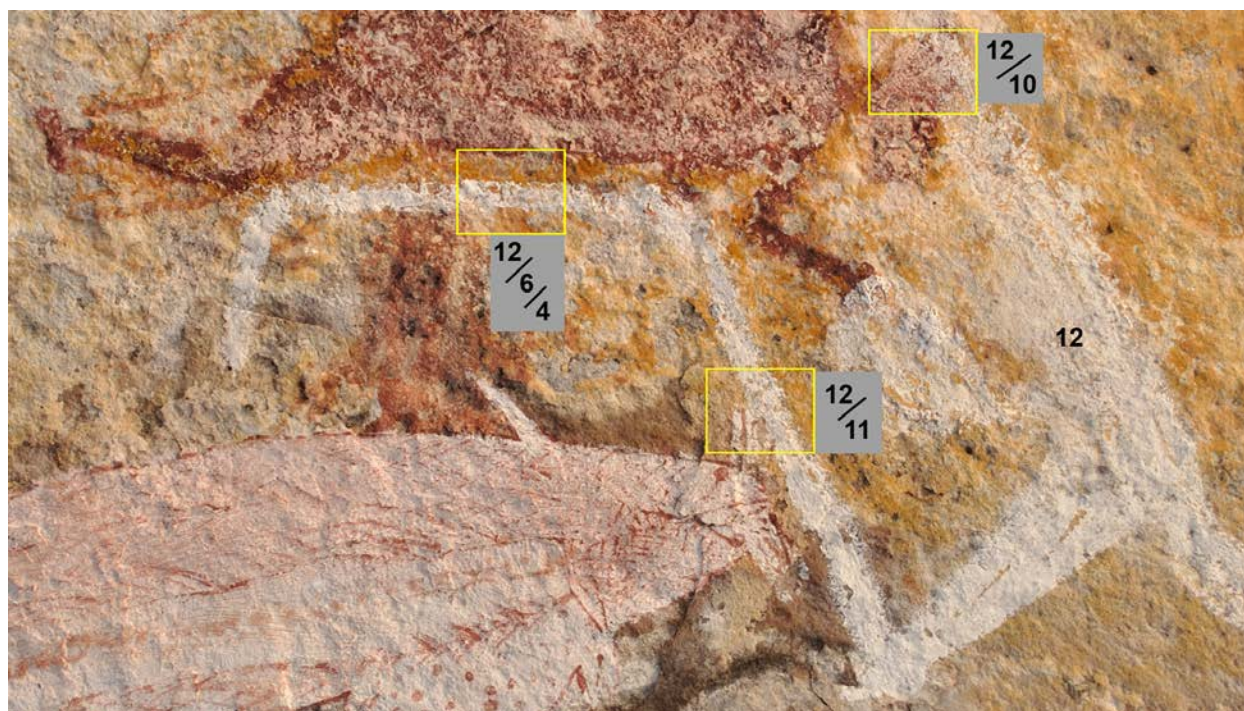


Figure 8.82: Detail of Motif K-12 superimpositioning

Panel K2

Seventy-four of the 91 motifs on Panel K2 are involved in superimpositions (Table 8.67; Figure 8.83). Based on their pattern of superimposition, these 91 motifs were aggregated into 12 layers, and the layers then into four phases (Table 8.68; Figure 8.84):

- **Phase K2/I:** the earliest phase consists of two layers and 17 motifs, mostly of which are very poorly preserved red fragments. The exception is a faint but distinctive anthropomorph encircled by a string with regular discs (yams?) (Motif K-29);
- **Phase K2/II:** a single layer of eight yellow motifs consisting of a single stick figure (Motif K-16), a macropod with young in pouch (Motif K-14), and six fragments;
- **Phase K2/III:** another single layer, here of red paintings including two striped infill macropods and an echidna (Motifs K-44, K-52 and K-42 respectively), a dillybag with contents (motif K-43) and other fragments. Motifs K14 and K-16 of Phase II were retouched in red during this phase (Phase III Motifs K-34 and K-165); and
- **Phase K2/IV:** a phase of eight layers of principally white monochrome paintings interleaved with red, yellow and pink paintings, white silhouettes with red outline and infill patterning, and white hand stencils. Anthropomorphs and fish are the dominant motif types. Two of the motifs (K-74 and K-90) have been retouched during subsequent layers of this phase (Figures 7.370 and 7.371).

Table 8.67: Panel K2 motif superimpositions

Motif No.	Underlying Motifs (K-)	Motif No.	Underlying Motifs (K-)
K-14	35	K-76	22,50,17,57,71,32
K-15	35	K-77	54
K-16	25,26	K-79	30,69
K-17	31	K-80	45
K-29	19,23	K-81	25,26,38
K-34	14	K-82	19,28
K-38	26	K-83	19,29
K-39	29	K-84	23,29,41
K-41	20,29	K-85	23,29
K-47	20	K-86	31,52,32,17,166,55,56,
K-48	22	"	58,75,76
K-50	22	K-87	31,166,77
K-51	23,29	K-88	25,16
K-52	23,24,31	K-89	37,16,165,
K-53	32	K-90	30,69,79,
K-55	23,24,31,52	K-91	20,29,41,72,84,85,
K-56	31,166	K-92	23,29,51
K-57	17,32	K-93	23,52,85
K-58	32	K-94	31,17,166,53,56,57,86
K-59	33	K-95	60
K-69	30	K-161	159
K-70	44	K-162	44,70,74
K-71	17,32,57	K-163	95
K-72	20,23,29,47,48,49,17,71	K-164	90
K-73	33	K-165	16
K-74	43,44,46,70	K-166	31
K-75	22,17,72		

Table 8.68: Summary of the Panel K2 art phases

K2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
IV	8	47	white, red	solid, solid+linear, solid+outline+infill	anthro, fish, macropod
III	1	19	red	linear, outline+infill	macropod
II	1	8	yellow	linear, outline+infill	anthro, macropod
I	2	17	red	solid+linear	anthro

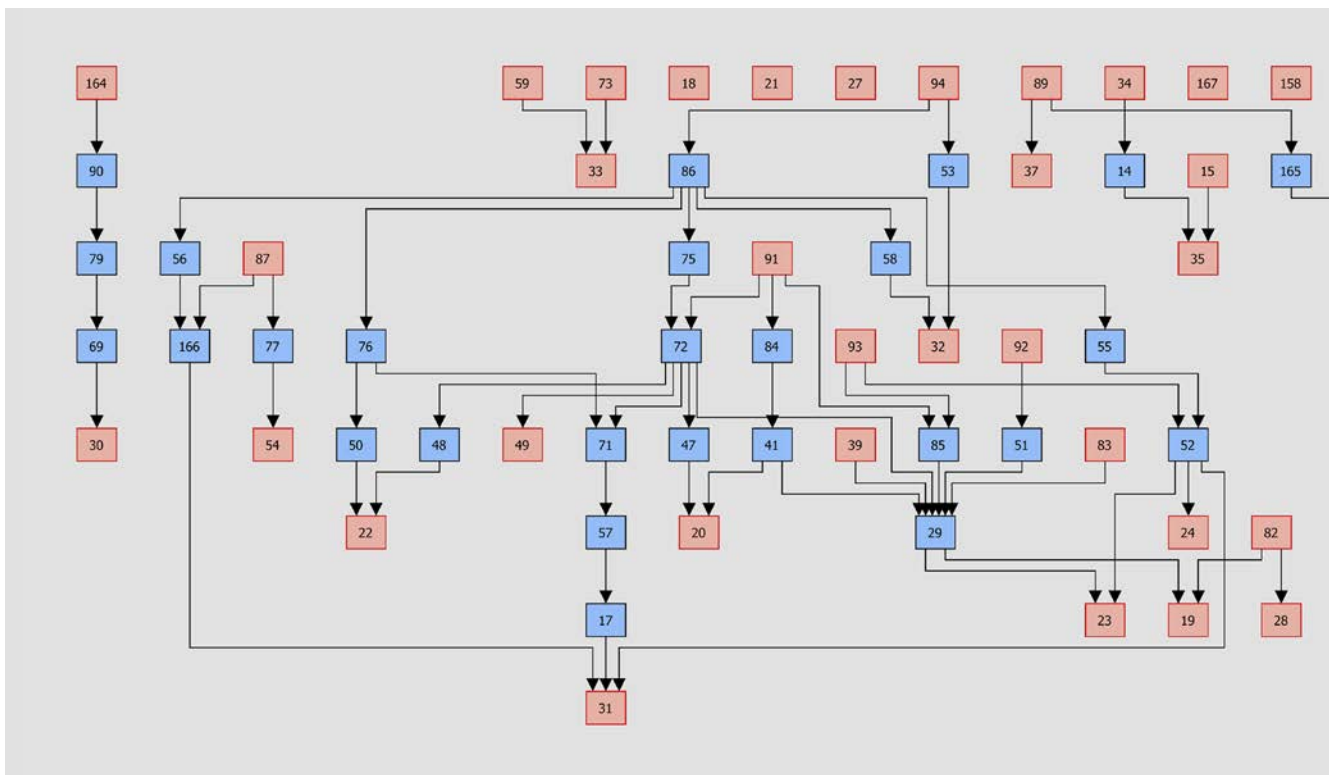
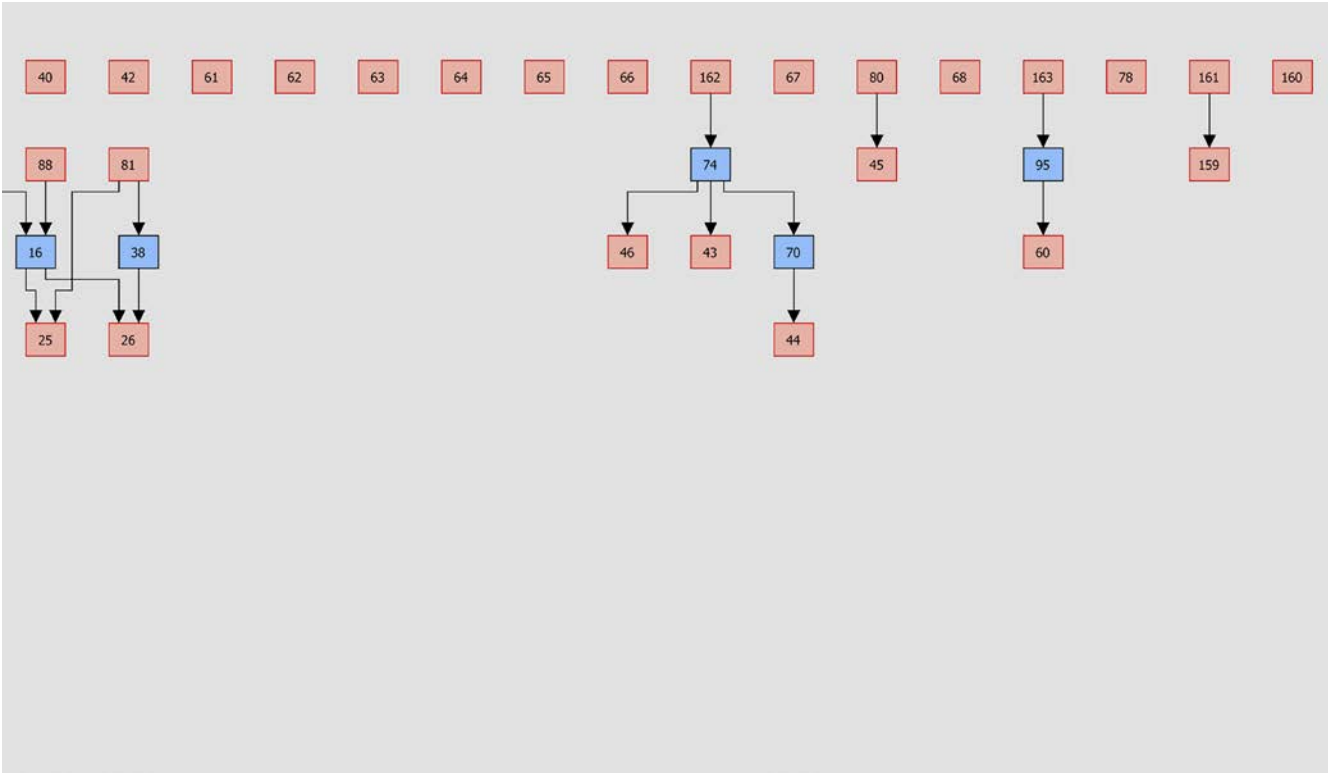


Figure 8.83: Harris Matrix of



the Panel K2 superimpositions

Image available online at tinyurl.com/9781789690705-onlinecontent

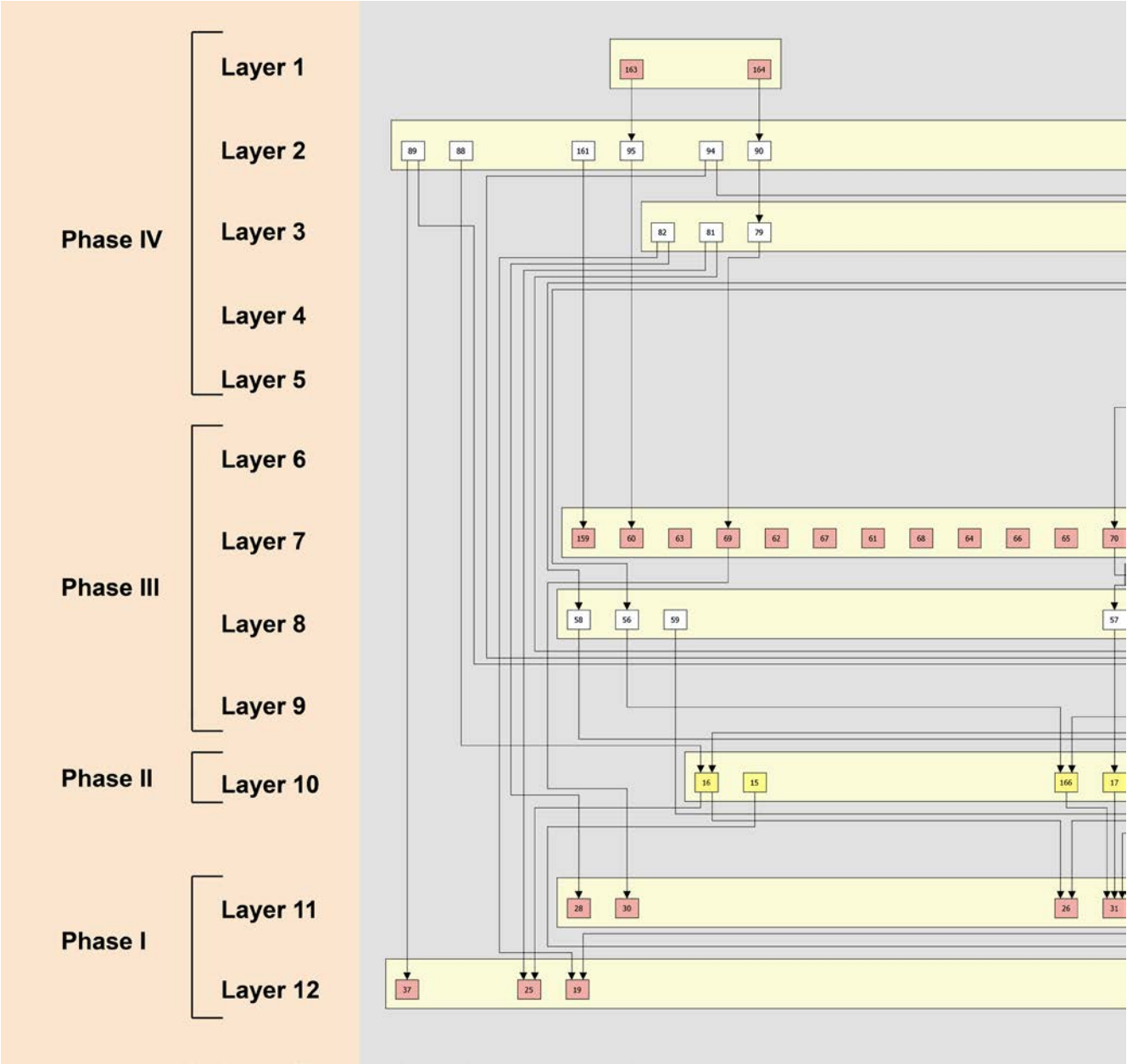
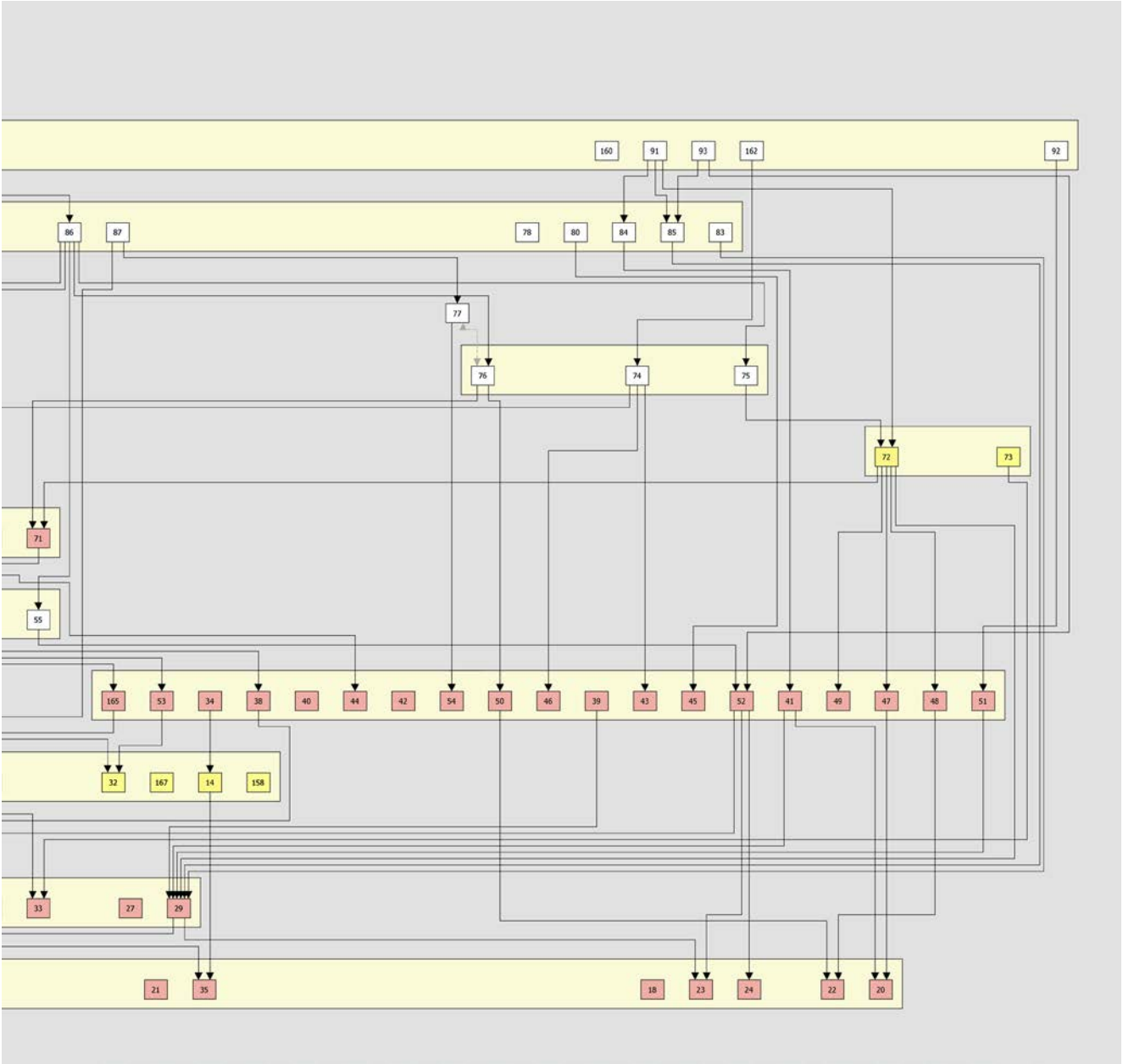


Figure 8.84: Interpretation of the Panel K2 Harris



Matrix with motif number and base colour indicated

Image available online at tinyurl.com/9781789690705-onlinecontent

Panel K3

Thirty-three of the 38 motifs on Panel K3 are involved in superimpositions (Table 8.69; Figure 8.85). Based on their pattern of superimposition, these 38 motifs were aggregated into 12 layers, and the layers then into four phases (Table 8.70; Figure 8.86):

- **Phase K3/I:** the earliest phase consists of two layers involving seven red paintings. The motifs include small therianthropes and fragments;
- **Phase K3/II:** two layers of nine yellow paintings. These motifs include two striped anthropomorphs with headdresses (Motifs K-104 and K-106), two striped long-necked turtles (Motifs K-108 and K-109), and a large

representation of Namarrkan (Motif K-110) (Figure 7.386);

- **Phase K3/III:** three layers involving four red paintings, including a pair of possums (Motifs K-172 and K-173), and a yellow hand stencil (K-107); and
- **Phase K3/IV:** the final phase consists of four layers of small white monochrome paintings including anthropomorphs (Motifs K-116, K-123 and K-125), a copulating couple (Motif K-129), turtles (Motifs K-114, K-115 and K-128), birds (Motifs K-120 to K-122) and fish (Motifs K-117 to K-119), and a single cream painted macropod (Motif K-113) that appears contemporaneous with a white bird (Motif K-126).

Table 8.69: Panel K3 motif superimpositions

Motif No.	Underlying Motifs (K-)	Motif No.	Underlying Motifs (K-)
K-99	96	K-117	106
K-100	96	K-118	106
K-103	101,102	K-120	106,112
K-104	100,101	K-121	169
K-105	102	K-122	169
K-106	168,169	K-123	169
K-107	172	K-126	170,116,107,111
K-111	107,172,173	K-127	102,103,170,111,126
K-112	106	K-128	102,103,170,113,126,127,173
K-113	101,102,103,104,105,170	K-129	108,109
K-114	96,98	K-172	102,103,104,105
K-115	96,100	K-173	103

Table 8.70: Summary of the Panel K3 art phases

K3 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
IV	5	17	white	solid+linear	anthro, various fauna
III	3	5	red	solid	animal
II	2	9	yellow	outline+infill	anthro, turtle
I	5	7	red	solid+linear	anthro

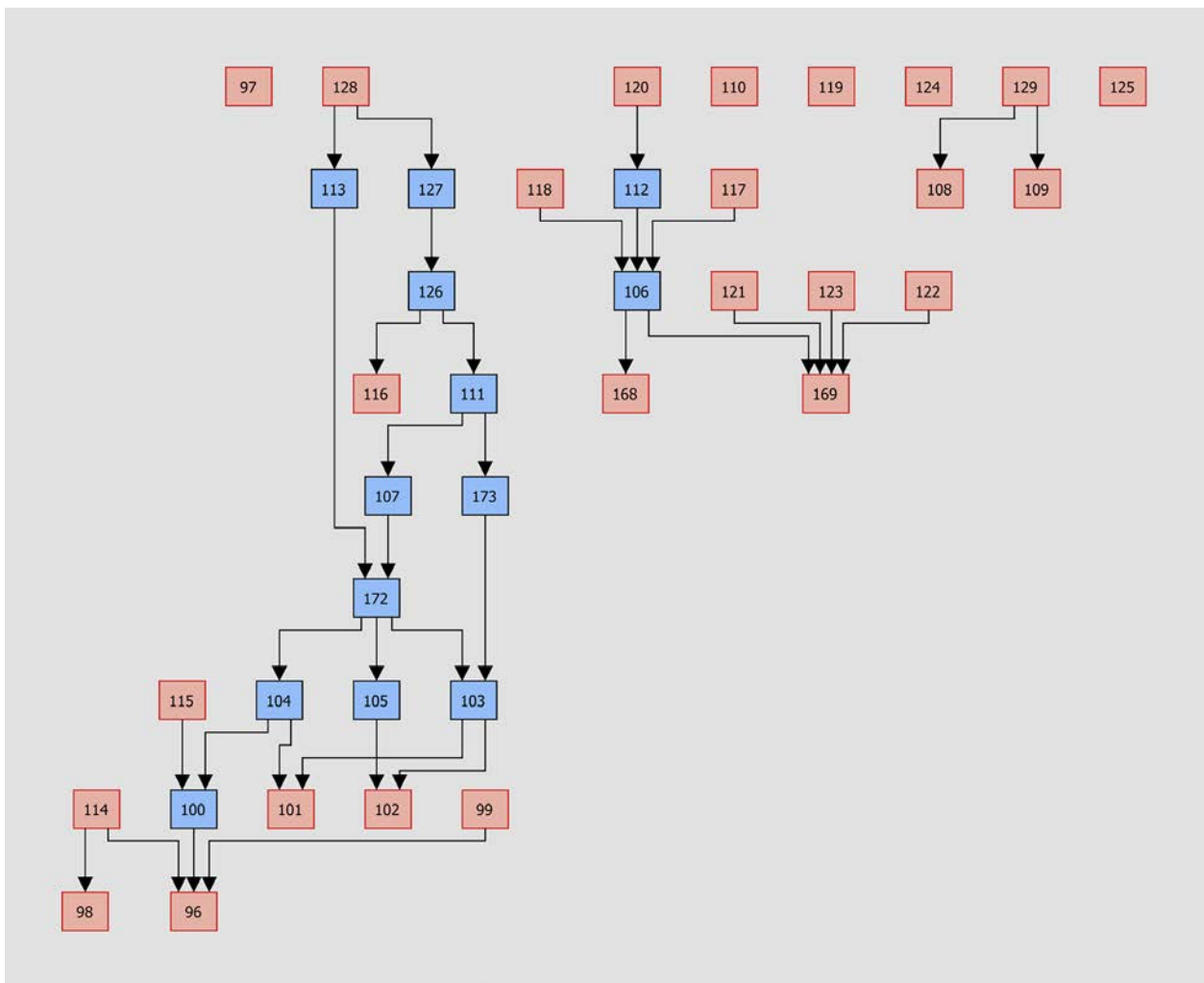


Figure 8.85: Harris Matrix of the Panel K3 motif superimpositions.
 Image available online at tinyurl.com/9781789690705-onlinecontent

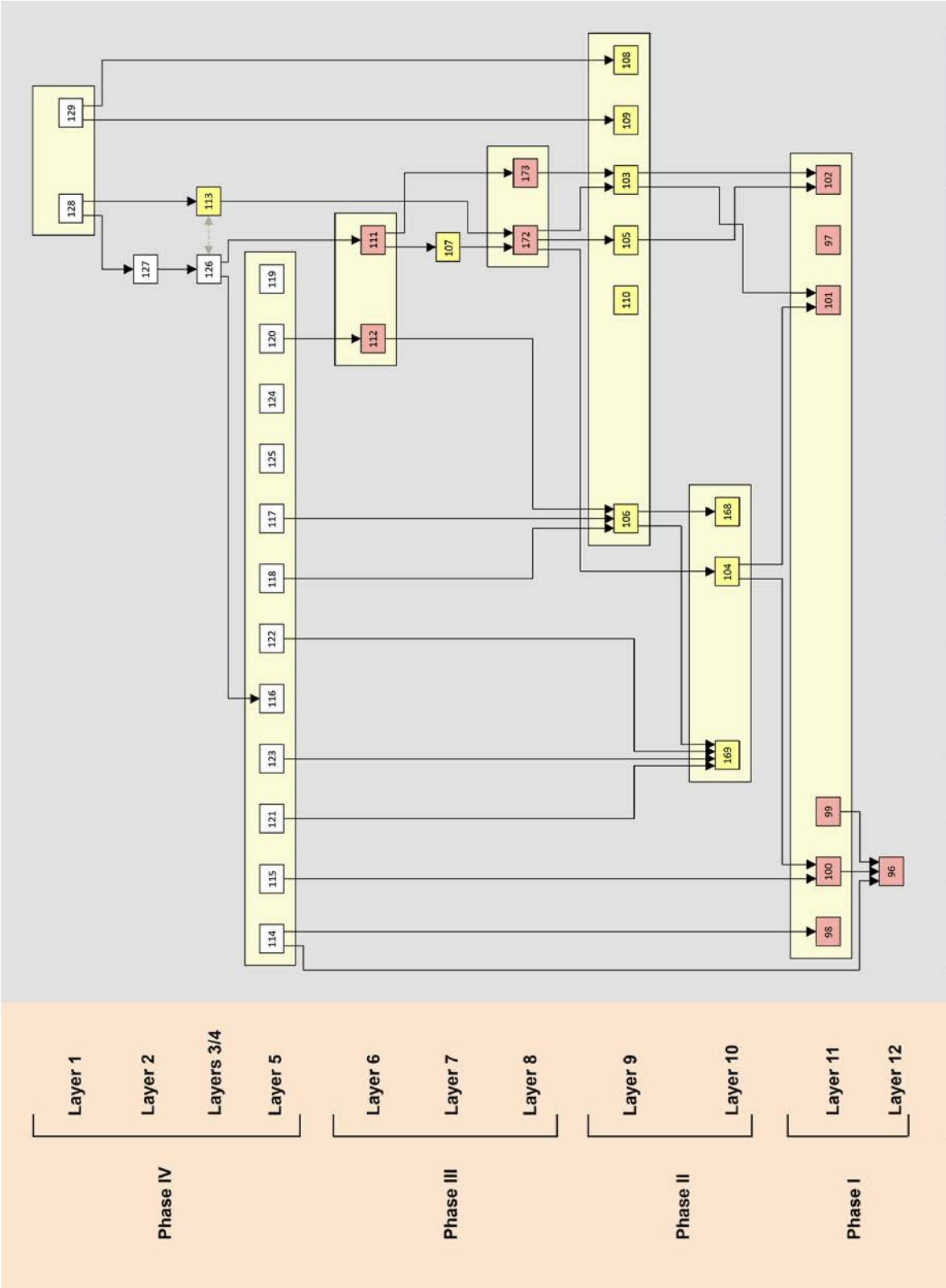


Figure 8.86: Interpretation of the Panel K3 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

Panel K4

Three of the eight motifs on Panel K4 are involved in superimpositions (Table 8.71; Figure 8.87). These eight motifs were aggregated into four layers, and the layers into four phases (Table 8.72; Figure 8.88):

- **Phase K4/I:** the earliest phase consists of two layers: a suite of red paintings, including an echidna (Motif K31-131) and a macropod (Motif K-133), and a yellow hand stencil (Motif K-130). The stratigraphic relationship between the two suites is ambiguous;
- **Phase K4/II:** a single yellow painting of a geometric design (Motif K-136); and

- **Phase K4/III:** the final phase consists of a single beeswax anthropomorph (Motif K-137). A sample from this beeswax figure gave a radiocarbon date of around 200 years ago (Table 8.39), indicating that all of the other motifs on this panel are older than that age.

Table 8.71: Panel K4 motif superimpositions

Motif No.	Underlying Motifs (K-)
K-136	130
K-137	130,136

Table 8.72: Summary of the Panel K4 art phases

K4 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	1	black	linear	anthro
II	1	1	yellow	linear	object
I	2	6	red, yellow	outline+infill, stencil	echidna, hand

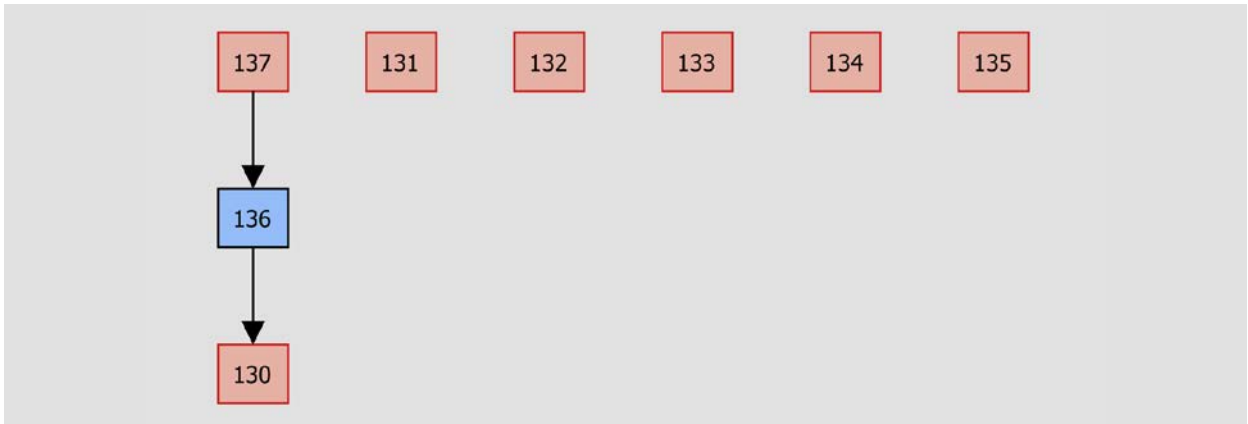


Figure 8.87: Harris Matrix of the Panel K4 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

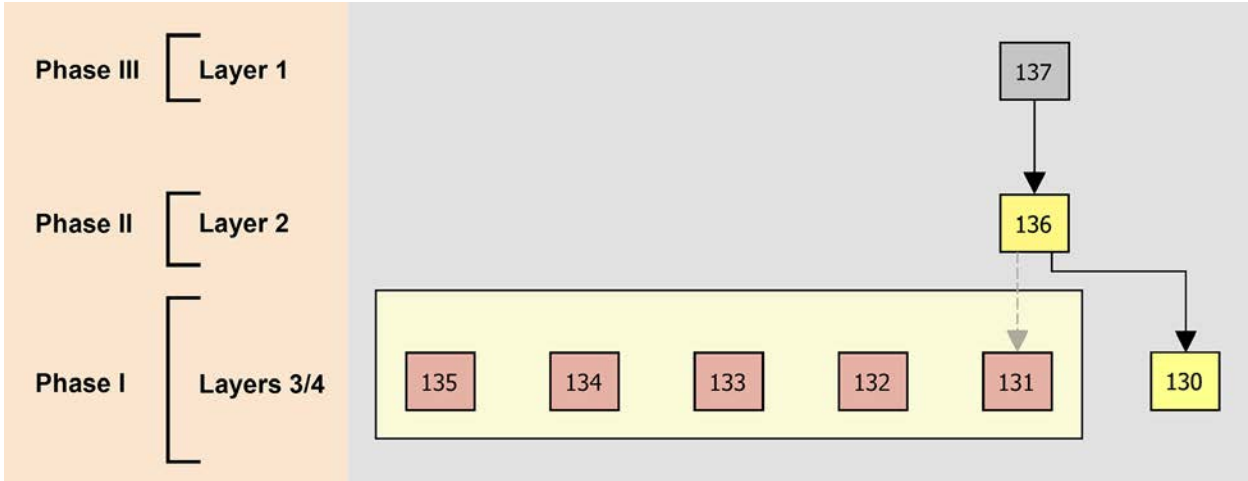


Figure 8.88: Interpretation of the Panel K4 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

Panel K5

Fourteen of the 17 motifs on Panel K5 are involved in superimpositions (Table 8.73; Figure 8.89). These 17 motifs were aggregated into four layers, and the layers then into two phases (Table 8.74; Figure 8.90):

- **Phase K5/I:** the earlier phase consists of a single layer dominated by red fragments but also having a squat, outlined female anthropomorph (K-140);
- **Phase K5/II:** the intermediary phase five white paintings (Motifs K-142 to K-144, K-146 and K-147); a white drawing of a simple design (Motif K-145); and a white hand stencil (Motif K-148); and
- **Phase K5/III:** this most recent phase consists of three white paintings of dillybags (Motifs K-150 and K-151) and a catfish (Motif K-152); a white hand stencil (Motif K-170); a bichrome turtle

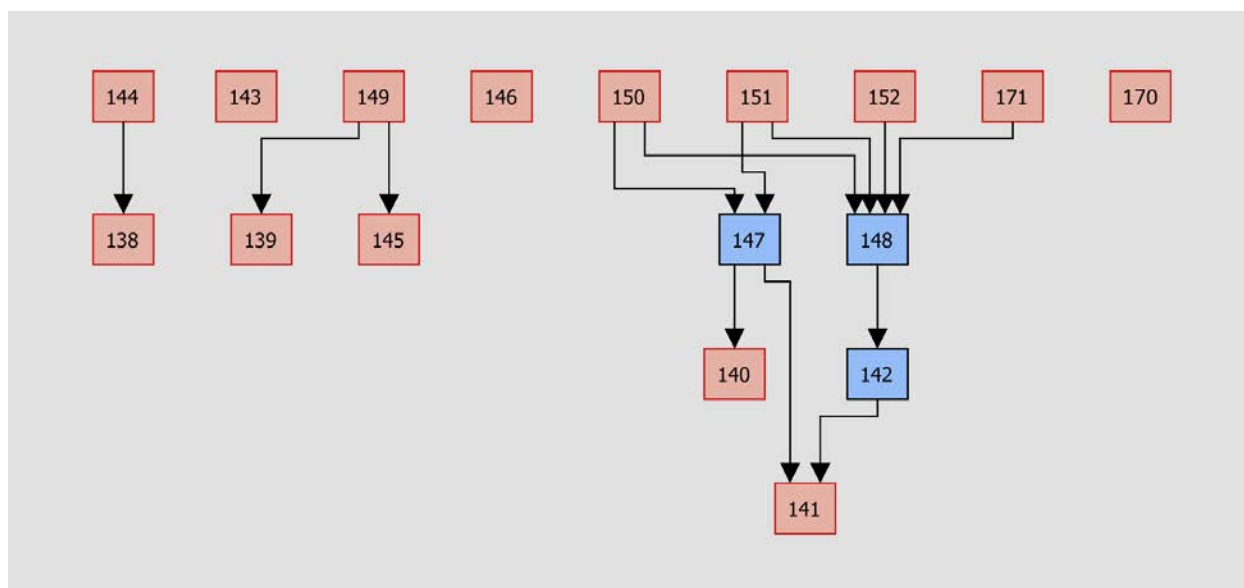
with patterned infill (Motif F-149; Figure 7.409); and a polychrome female anthropomorph embellished with extensive fine-line decorative infill (Motif F-171; Figure 7.407).

Table 8.73: Panel K5 motif superimpositions

Motif No.	Underlying Motifs (K-)
K-142	141
K-144	138
K-147	140,141
K-148	142
K-149	139,145
K-150	140,141,142,147,148
K-151	141,147,148
K-152	141,142,148
K-171	142,148

Table 8.74: Summary of the Panel K5 art phases

K5 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	6	white, white+red	solid+infill, outline+infill	anthropomorph, turtle, dillybags
II	2	7	white	solid	turtle, macropod
I	1	4	red	outline+infill	anthropomorph

Figure 8.89: Harris Matrix of the Panel K5 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

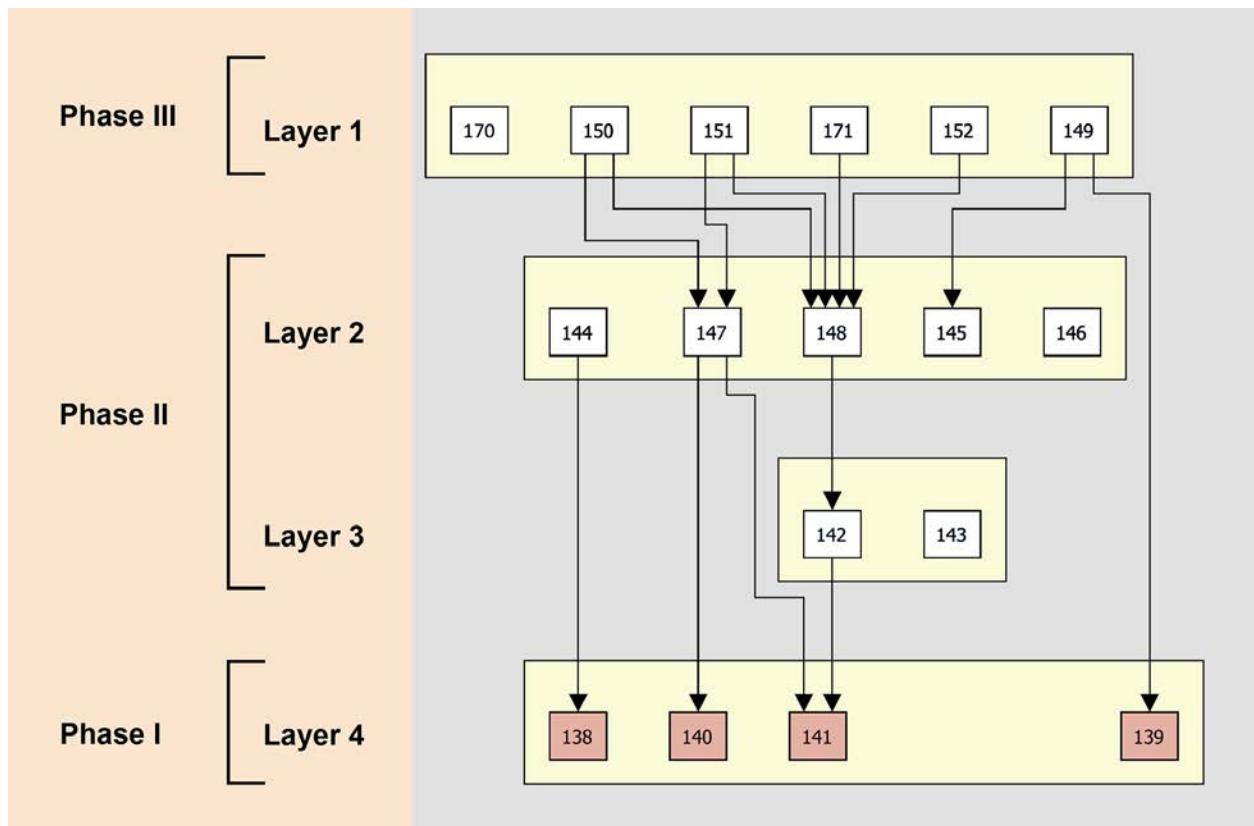


Figure 8.90: Interpretation of the Panel K5 Harris Matrix with motif number and base colour indicated.

Image available online at tinyurl.com/9781789690705-onlinecontent

Panel K6

Four of the five motifs on Panel K6 are involved in superimpositions (Table 8.75; Figure 8.91A). These five motifs were aggregated into four layers, and the layers then into three phases (Table 8.76; Figure 8.91B):

- **Phase K6/I:** the earliest phase consists of a single red fragment painted with very fine line-work (Motif F-153);
- **Phase K6/II:** this phase consists of a single red anthropomorph with striped infill (Motif F-154). This is the best preserved motif on this panel (Figure 7.414);

- **Phase K6/III:** this phase consists of a poorly preserved polychrome female anthropomorph with a white silhouette outlined in yellow and decorated with red (Motif F-155). Although overlying Motif F-154, it is less well preserved; and
- **Phase K6/IV:** two solid white motifs: a macropod (Motif K-157) and a small catfish (Motif K-156).

Table 8.75: Panel K6 motif superimpositions

Motif No.	Underlying Motifs (K-)
154	153
155	153,154
157	153,154,155

Table 8.76: Summary of the Panel K6 art phases

K6 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	2	3	white, polychrome	outline+infill, solid+outline+infill	macropod, anthro
II	1	1	red	outline+infill	anthro
I	1	1	red	fragment	fragment

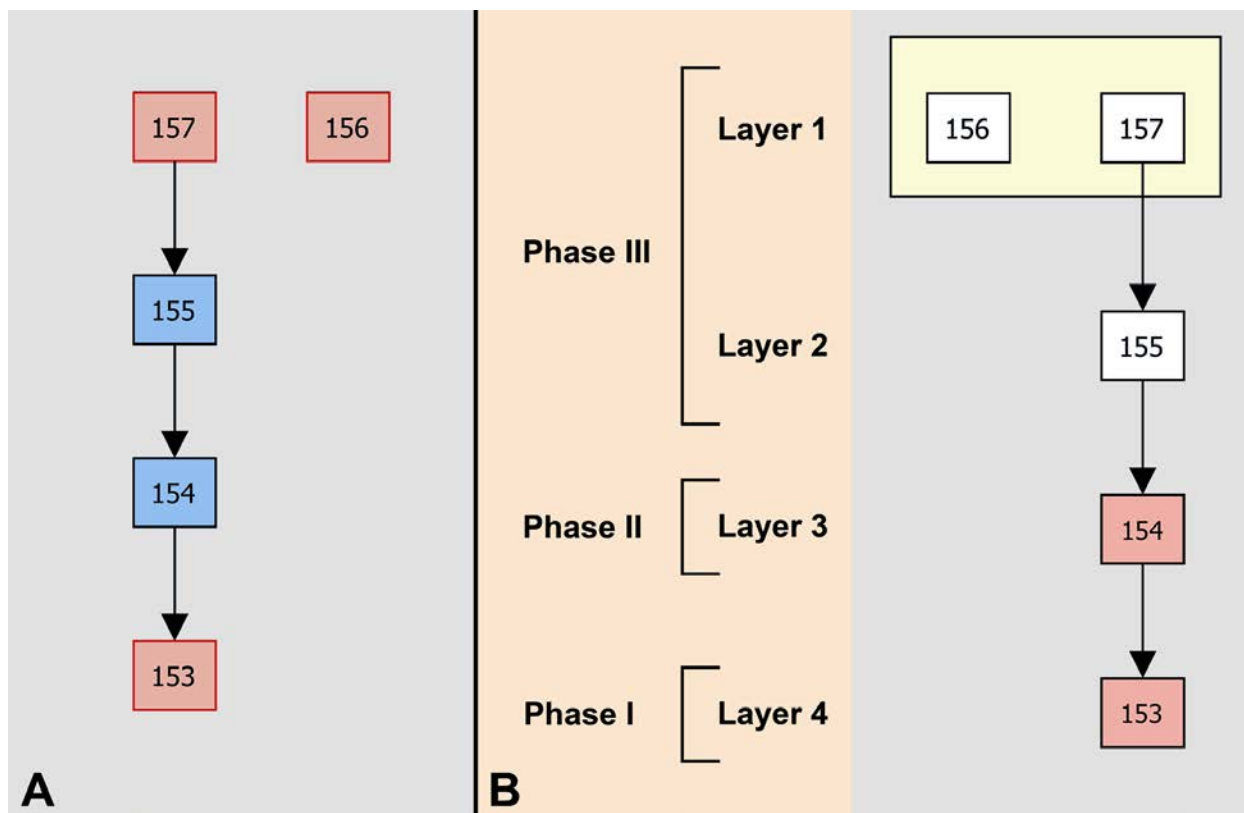


Figure 8.91: Harris Matrix of the Panel K6 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Group L motif sequences

Panel L

All but three of the 58 motifs on Panel L are involved in superimpositions (Table 8.77; Figure 8.92). Based on their pattern of superimposition, these 58 motifs were aggregated into 13 layers, and the layers into six phases (Table 8.78; Figure 8.93):

- **Phase L/I:** the earliest phase consists of two layers six painting fragments. The relative sequence of these two layers cannot be determined;
- **Phase L/II:** this phase consists of three layers of red, solid form paintings. These include a faint motif of Namarrkan (Motif L-8), an adjacent red silhouette figure with white embellishments (Motif L-9) and a large anthropomorph with insect-like antennae (Motif L-16). One of the antennae of Motif L-16 is superimposed by a macropod (Motif L-15) (Figure 7.428). Motif L-16 has been outlined and decorated in white (Motif L-58) but, given the major differences in preservation between the red and white pigments of the two motifs, the time depth between the two painting events appears to have been considerable;
- **Phase L/III:** the Phase consists of a single layer containing a tight visual composition of two red anthropomorphs outlined and infilled with white (male and female; Motifs L-39 and 40). The white pigment used to decorate these figures is similar in texture and quality to that used to decorate Motif L-16 in the previous phase and, hence, that repainting of Motif L-16 (recorded as Motif L-58) is seen as being contemporaneous with the embellishment of Motifs L-39 and 40 during this phase;
- **Phase L/IV:** a layer of 13 white paintings. The layer, Layer 7, consists primarily of white solid anthropomorphs, including a squatting female adjacent to a long spearthrower and two short unifacial, serial barbed spears (Motifs L-25 to L-29);
- **Phase L/V:** a single layer of nine yellow paintings, including a linear male anthropomorph with outlined head and rayed headdress (Motif L-30); and
- **Phase L/VI:** this most recent phase consists of five layers of similarly preserved motifs. These consist of a lower large but poorly preserved male anthropomorph in white with red outline and infill (Motif L-41); three intermediary layers of primarily white paintings, with six having red outline and infill and another having outline

and infill in yellow; and an upper layer with a sinuous male-and-female pair in yellow with white outline and decorative infill (Motif 57). All layers of this phase are dominated by elongated anthropomorphs with clear stylistic associations between the layers. The better preservation of the white+yellow interlaced couple (Motif L-57)

in Layer 2 compared to that of the more recent yellow+white figures of Layer 1 (Motifs L-55 and L-56) is seen as a reflection of its location on in a more protected area of the panel on which Motif L-57 is painted, the smoother surface of the panel at this place, and the greater care with which the motif was painted.

Table 8.77: Panel L motif superimpositions

Motif No.	Underlying Motifs (L-)	Motif No.	Underlying Motifs (L-)
L-8	1,2,3,4,18,20,41	L-41	18,31,33,39,40
L-13	7	L-42	7,13,30,40,41
L-15	5,16	L-43	30,31,39,41
L-16	5,10,6	L-44	3,8,19,36
L-17	14	L-45	8,36
L-19	8,41	L-46	9,22
L-20	1	L-47	22,46
L-23	9,10	L-48	24
L-24	3	L-49	5,11,15,25
L-25	12,16,58	L-50	12,15,16,25,58
L-26	16,58	L-51	16,25,26,27,28,29,37,58
L-30	13,39,40	L-52	30,39,40,42
L-31	39	L-53	8,17,19,35,36,44
L-32	18	L-54	24,48
L-35	8,19	L-55	4,8,20,24,44,45,54
L-36	1,8,19	L-56	4,8,9,10,23
L-37	10,16,26,58	L-57	12,15,16,25,26,49,50,
L-39	7	"	51,58
L-40	7,13	L-58	10,16

Table 8.78: Summary of the Panel L art phases

L Phase	No. of layers	No. of Motifs	Major colours	Major motif forms	Major motif classes
VI	5	17	white	solid+linear+ outline+infill	anthro
V	1	9	yellow	solid+linear	anthro
IV	1	13	white	solid	anthro
III	2	3	red	solid	anthro
II	3	7	red	solid	anthro
I	2	9	red	fragment	fragment

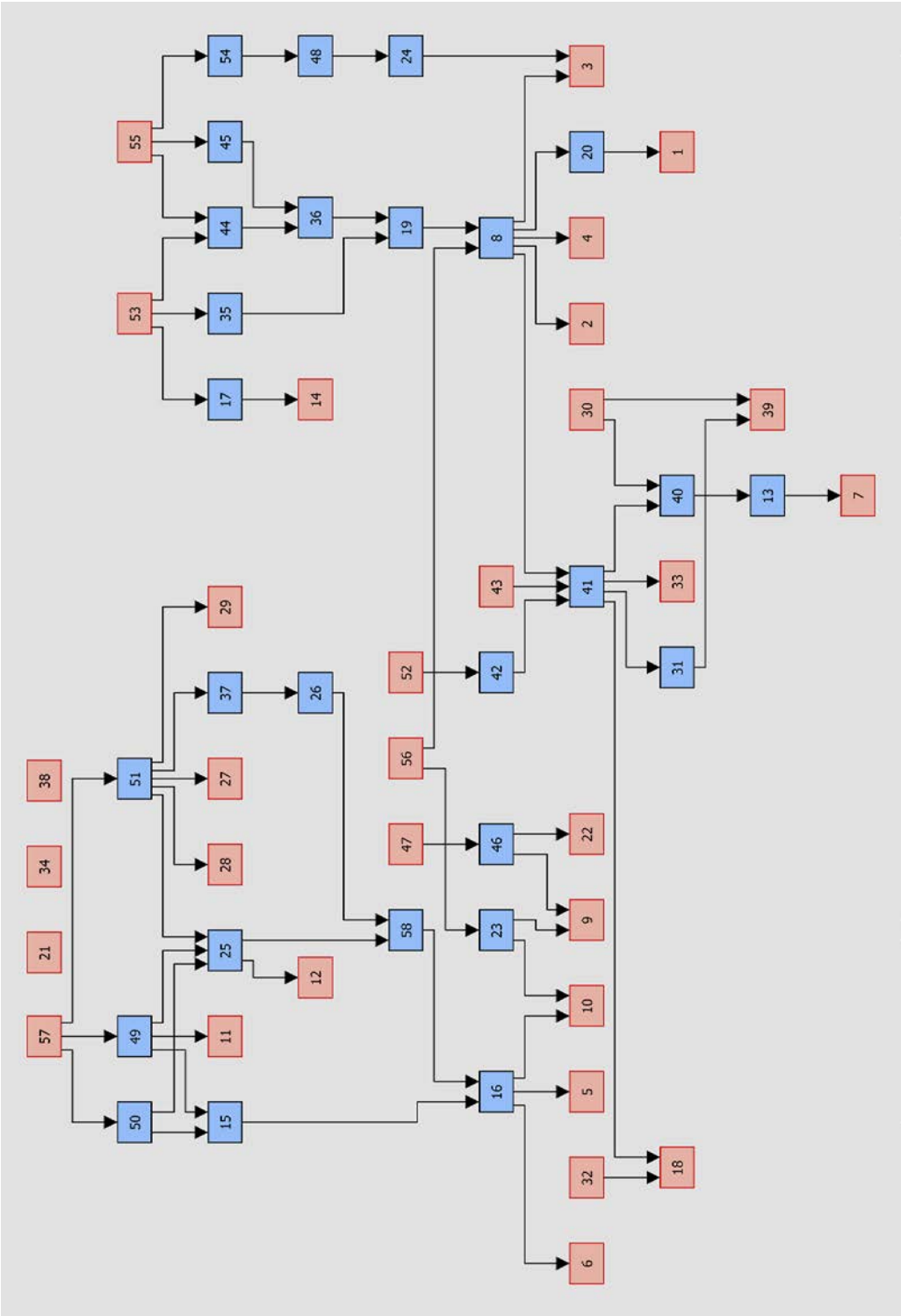


Figure 8.92: Harris Matrix of the Panel L motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

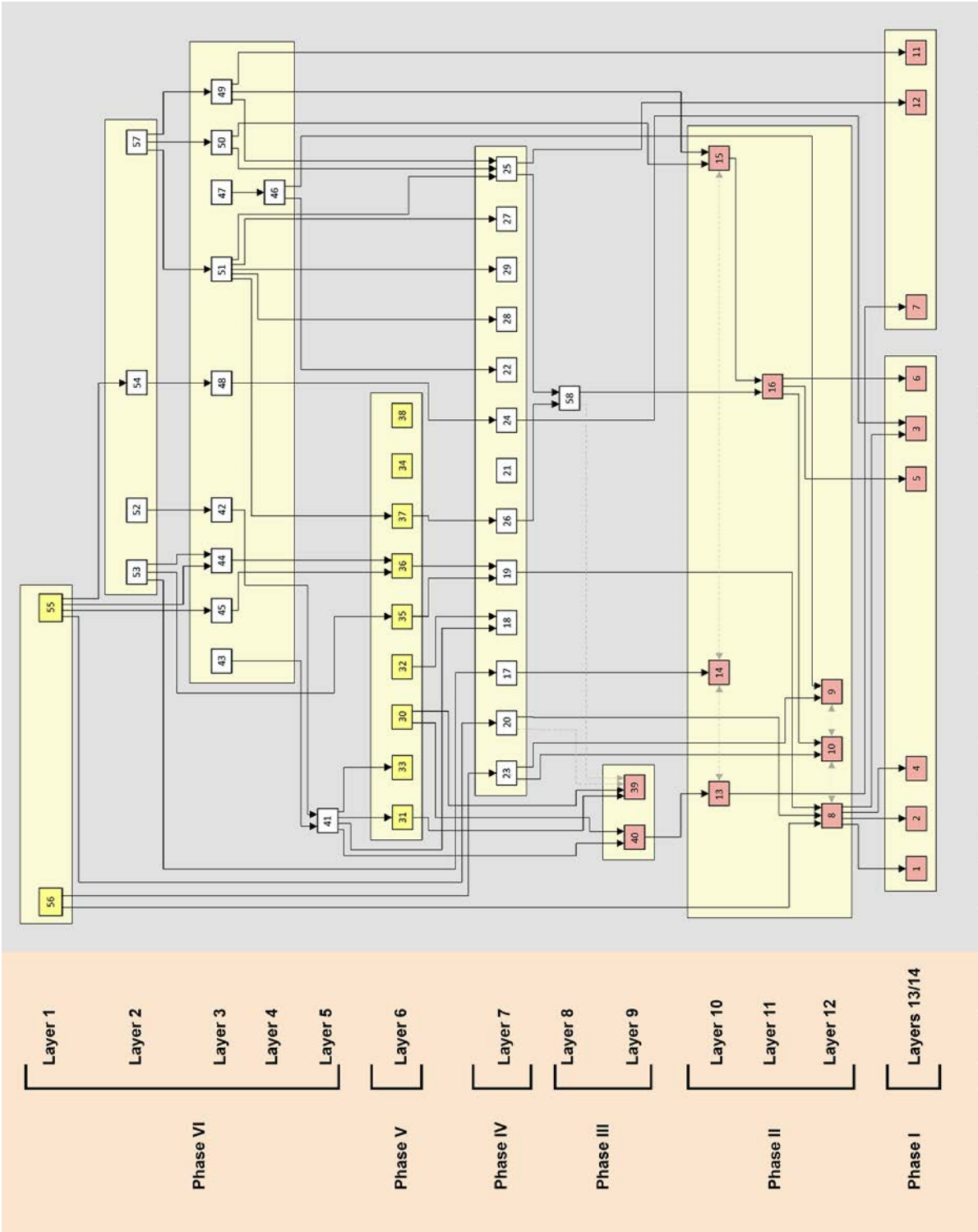


Figure 8.93: Interpretation of the Panel L Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

Group M motif sequences

Panel M1

Three of the four motifs on Panel M1 are involved in superimpositions (Table 8.79; Figure 8.94A). These four motifs were aggregated into three layers, and the layers then into three phases (Table 8.80; Figure 8.94B):

- **Phase M1/I:** the earliest phase consists of two red motifs including a macropod with striped infill. Due to their similar states of preservation, the two motifs (Motifs M-1 and M-2) appear to be roughly contemporaneous although, even though they overlap, their superimposition sequence is ambiguous;

- **Phase M1/II:** the middle phase consists of a single yellow hand stencil (Motif M-3); and
- **Phase M1/III:** the most recent phase is represented by a single short white stroke (Motif M-4). It is differentiated from the yellow hand stencil of the previous phase on the basis of its better preservation and fresher look of its pigment.

Table 8.79: Panel M1 motif superimpositions

Motif No.	Underlying Motifs (M-)
M-3	1
M-4	1

Table 8.80: Summary of the Panel M1 art phases

M1 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	1	white	linear	line
II	1	1	yellow	stencil	hand
I	1	2	red	outline+infill	macropod

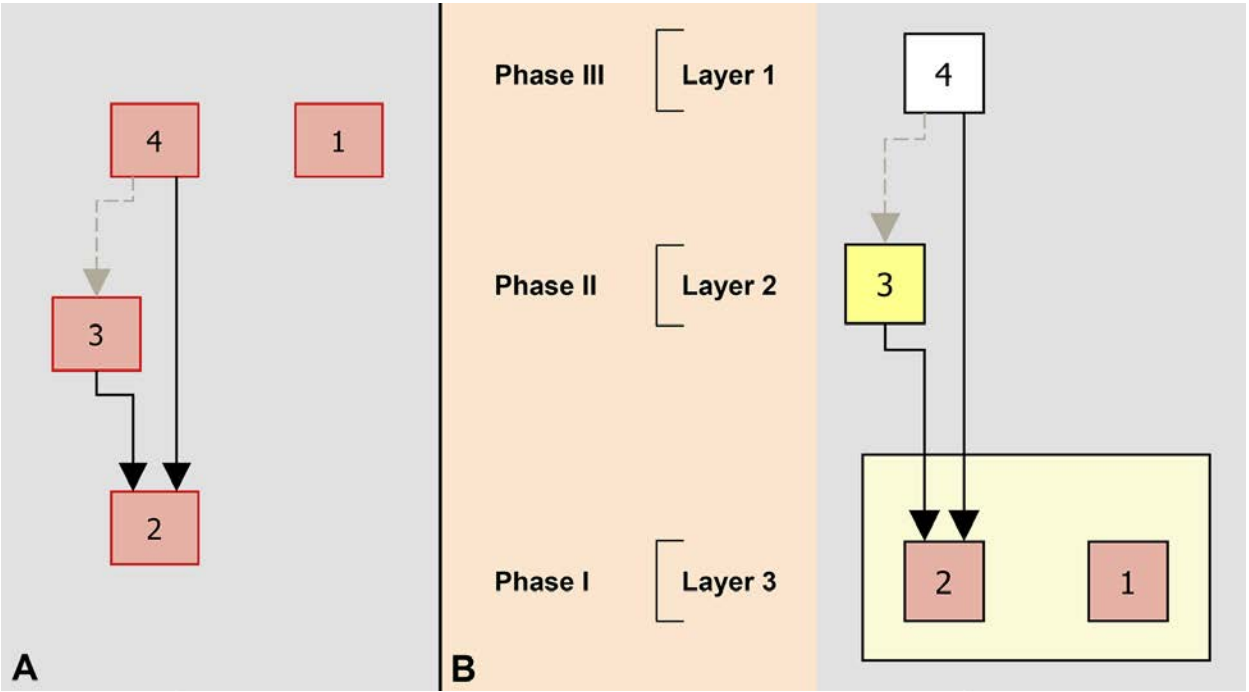


Figure 8.94: Harris Matrix of the Panel M1 superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent

Panel M2

All eight motifs on Panel M2 are involved in superimpositions (Table 8.81; Figure 8.95. These eight motifs were aggregated into five layers, and the layers into three phases (Table 8.82; Figure 8.96):

- **Phase M2/I:** the earliest phase consists of three red paintings: two red fragments (Motifs M-5 and M-6) and a large fine linear waterlily motif (Motif M-8; Figure 7.448);
- **Phase M2/II:** the middle phase consists of two red paintings using solid forms: one a fragment (Motif M-7), the other a compact zoomorph (Motif M-9; a Bolung motif); and
- **Phase M2/III:** the upper layer consists of three yellow motifs including a large male anthropomorph with hatched infill (Motif M-10;

Figure 7.445) and a small flying fox with striped infill (Motif M-12).

Motif M-9, a zoomorph, is a small representation of the well-known Dreaming Being Bolung (see Chapter 10), presented with its tail wrapped up under its body (Figure 7.447).

Table 8.81: Panel M2 motif superimpositions

Motif No.	Underlying Motifs (M-)
M-7	8
M-8	6
M-9	5,6,7,8
M-10	7,8
M-11	8
M-12	8

Table 8.82: Summary of the Panel M2 art phases

M2 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	3	yellow	outline+infill	anthro
II	2	2	red	solid	Bolung
I	2	3	red	outline+infill	flora

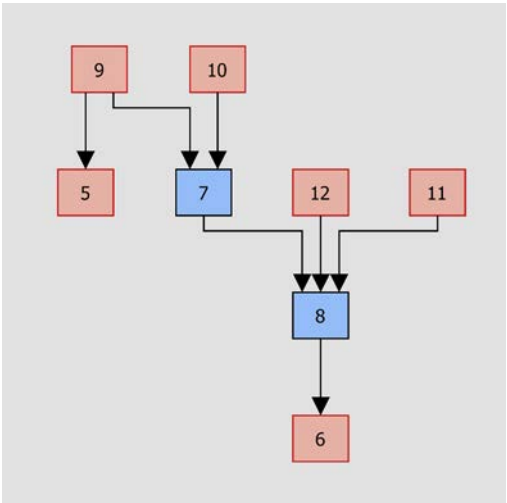


Figure 8.95: Harris Matrix of the Panel M2 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

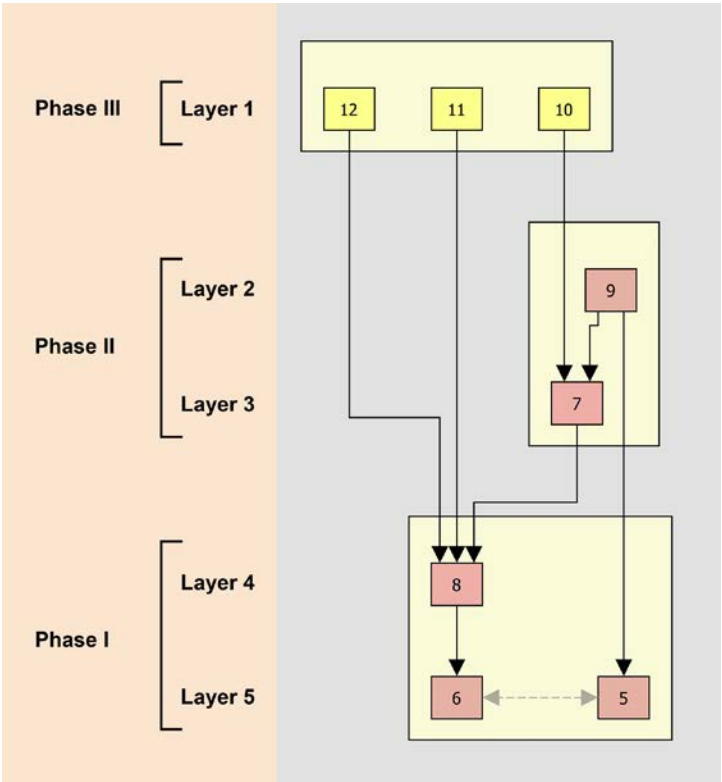


Figure 8.96: Interpretation of the Panel M2 Harris Matrix with motif number and base colour indicated. Image available online at tinyurl.com/9781789690705-onlinecontent

Panel M3

Seven of the nine motifs on Panel M3 are involved in superimpositions (Table 8.83; Figure 8.97). These nine motifs were aggregated into four layers, and the layers then into three phases (Table 8.84; Figure 8.98):

- **Phase M3/I:** the earliest phase consists of three red paintings composed of two red fragments and a composite barbed spear (Motif M-13; Figure 7.455);
- **Phase M3/II:** this middle phase consists of three white anthropomorphs with red outline and infill in two layers (Layer 2 Motifs M-17 and M-18, overlying Motif M-16 of Layer 3); and

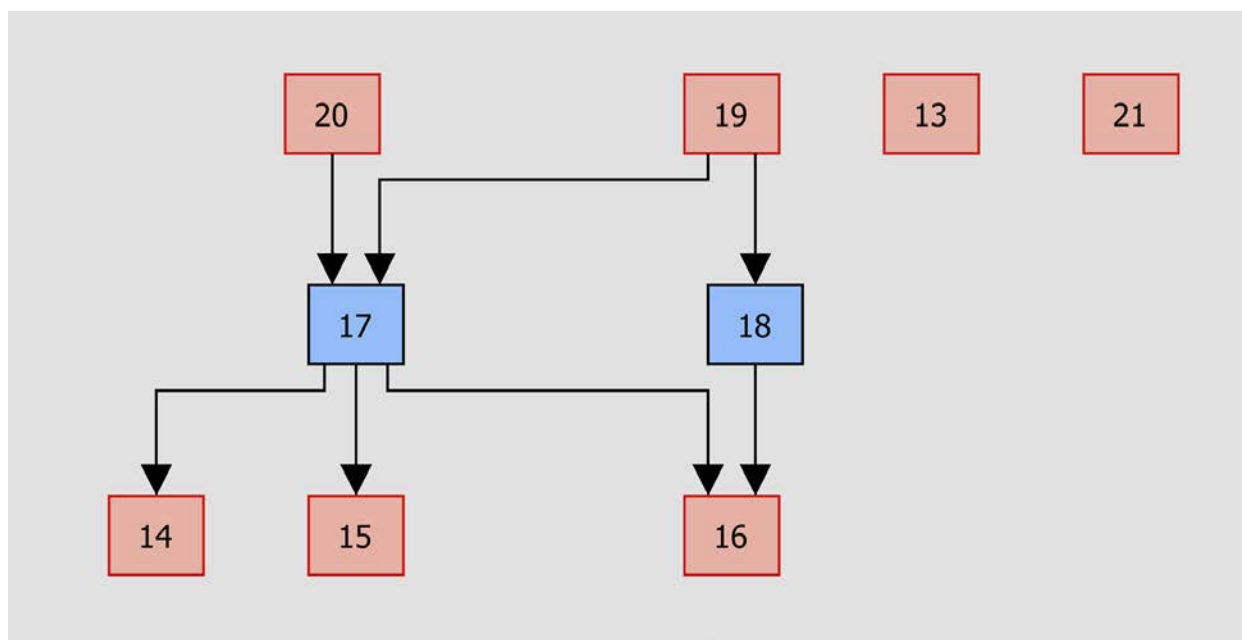
- **Phase M3/III:** this upper phase consists of three yellow paintings: a solid fish (Motif M-19), a line (Motif M-20) and a fine-line enclosed design (Motif M-21).

Table 8.83: Panel M3 motif superimpositions

Motif No.	Underlying Motifs (M-)
M-17	14,15,16
M-18	16
M-19	17,18
M-20	17

Table 8.84: Summary of the Panel M3 art phases

M3 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	2	yellow	solid	fish
II	2	3	white+red	solid+outline+infill	anthro
I	1	3	red	linear	spear

Figure 8.97: Harris Matrix of the Panel M3 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

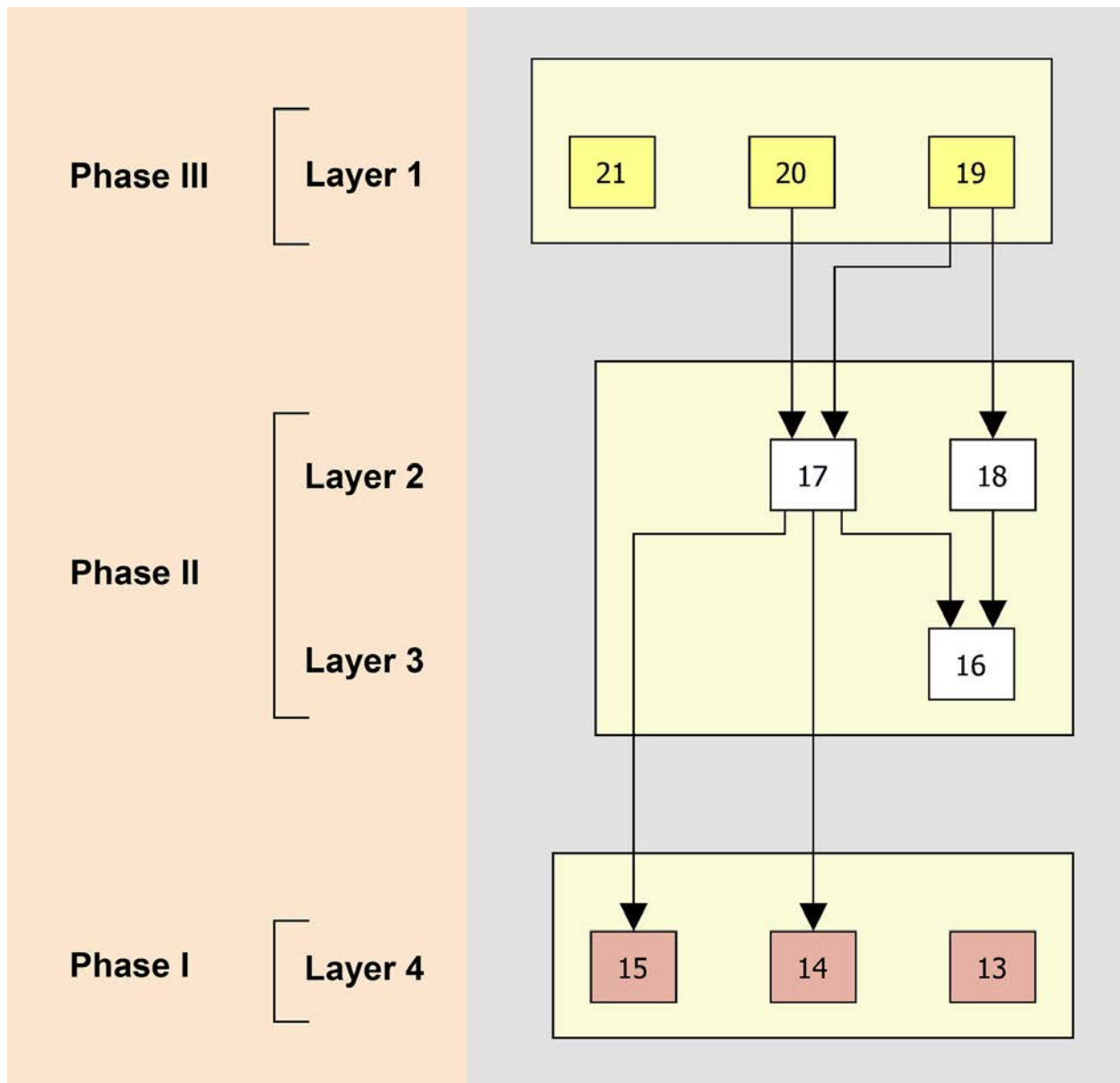


Figure 8.98: Interpretation of the Panel M3 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

Panel M4

Thirteen of the 16 motifs on Panel M4 are involved in superimpositions (Table 8.85; Figure 8.99). Based on their pattern of superimposition, these 16 motifs were aggregated into four layers, and the layers then into three phases (Table 8.86; Figure 8.100):

- **Phase M4/I:** the earliest phase consists of three red paintings and four hand stencils, including at least one 3MF type (Motif M-23);
- **Phase M4/II:** the middle phase consists of two yellow paintings: an anthropomorph (Motif M-29) and a macropod (Motif M-30); and
- **Phase M4/III:** three white+red paintings (Motifs M-34 to M-36), two white paintings (motifs M-33 and M-37), and two white drawings (Motifs M-31 and M-32). The three of the most recent motifs (Motifs M-34 to M-36) have been embellished with red outline and infill. These three motifs and the monochrome Motif M-37 form a composition of the disarticulated sections of a skeletal anthropomorph: head, torso and pelvis; arms and shoulder blades; legs with macropod feet; and ejaculating male genitalia (Motifs M-34

to M-37. The underlying layer of this phase consists of a painted profile figure and two linear drawings. Their relationship to the overlying layer is derived from the extrapolation of the line of the drawings beneath Motifs M-35 and M-36 (Figure 8.101).

The significance of the 3MF hand stencil for the chronology of the art at Nawarla Gabarnmang is discussed in Chapter 9 below.

Table 8.85: Panel M4 motif superimpositions

Motif No.	Underlying Motifs (M-)
M-29	24,26
M-31	29
M-32	29
M-33	29
M-34	23,24
M-35	22,23,24,29
M-36	24,29
M-37	25,29

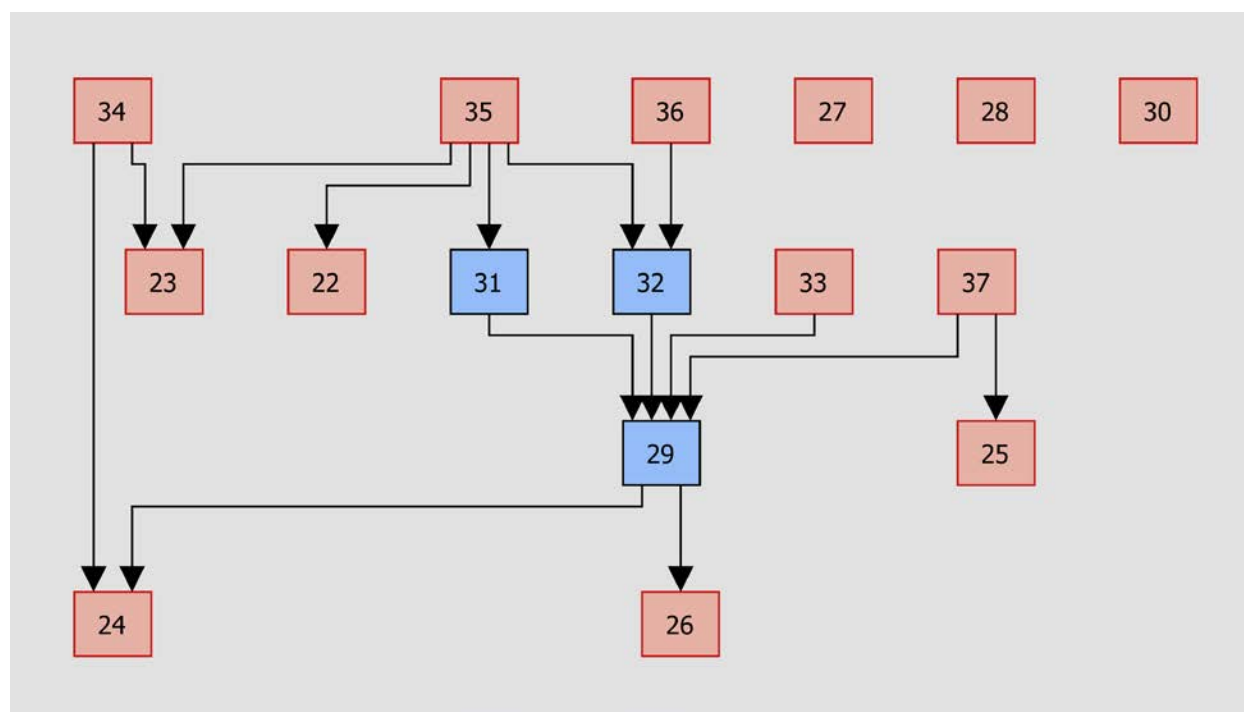


Figure 8.99: Harris Matrix of the Panel M4 motifs. Image available online at tinyurl.com/9781789690705-onlinecontent

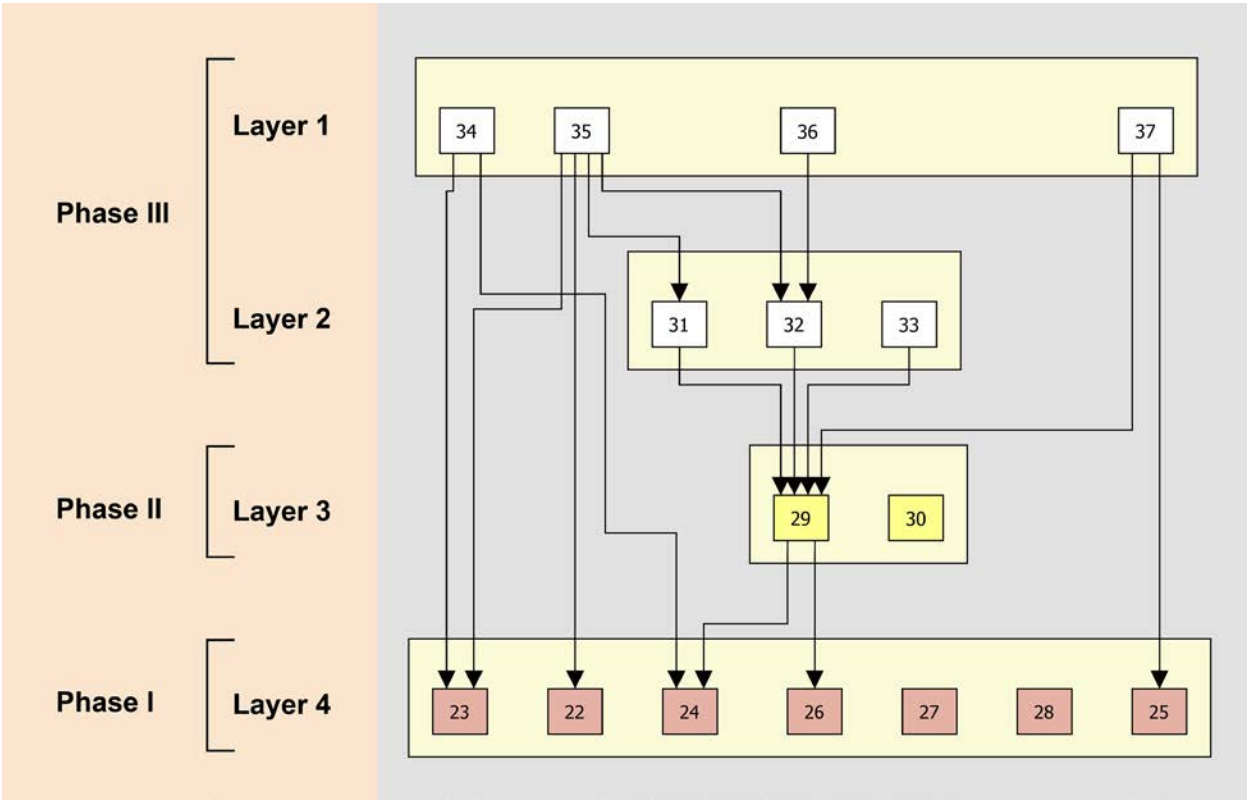


Figure 8.100: Interpretation of the Panel M4 Harris Matrix with motif number and base colour indicated.
Image available online at tinyurl.com/9781789690705-onlinecontent

Table 8.86: Summary of the Panel M4 art phases

M4 Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
III	1	7	white+red	solid+outline+infill	anthro
II	1	2	yellow	solid	anthro, macropod
I	1	7	red	stencil	hand

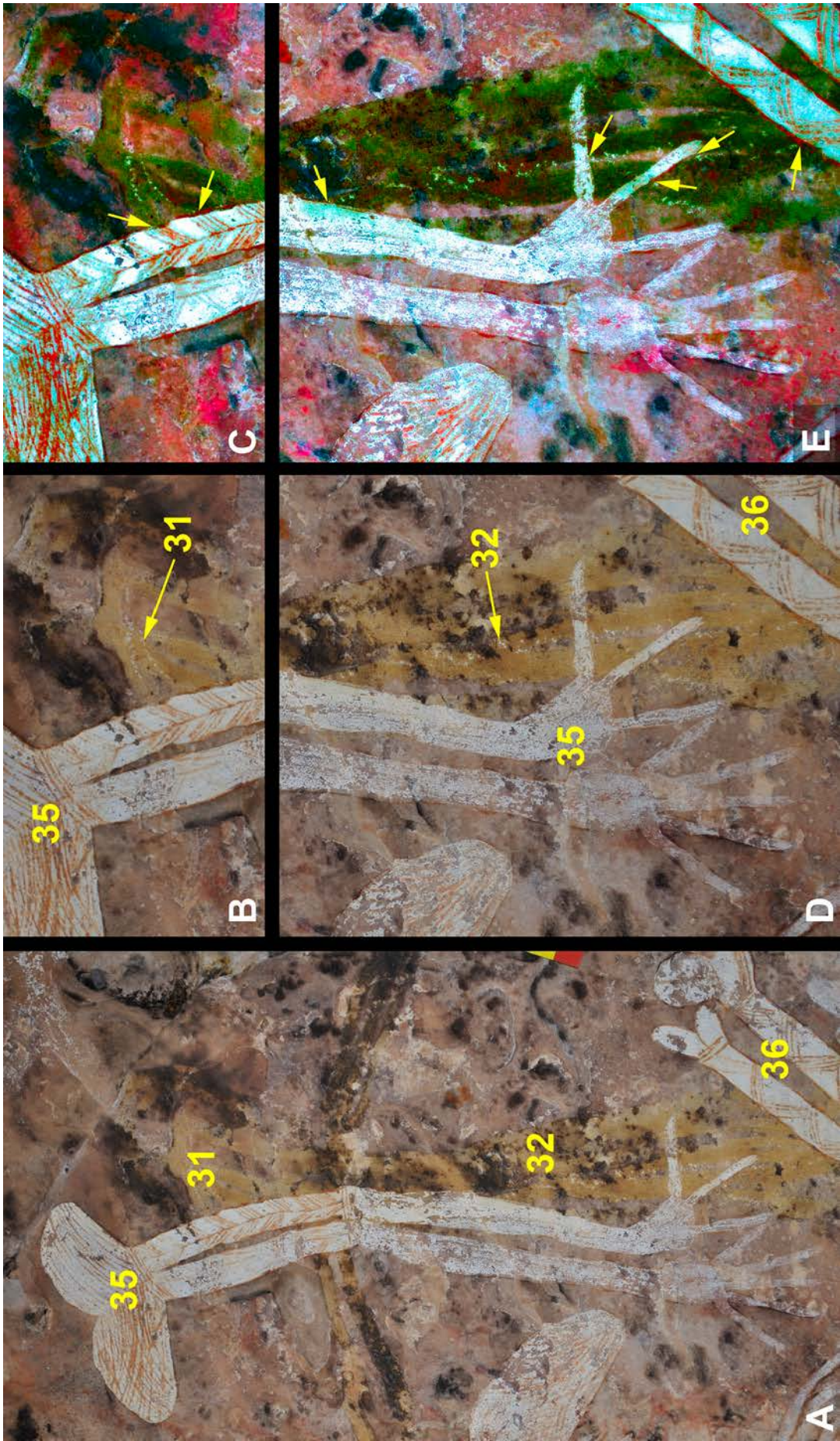


Figure 8.101: Detail of the superimposition of Motifs M-35 and M-36 over Motifs M-31 and M-32
A: Context of motifs B and D: Flash photographs C and E: DStretch_lwe15

Group N motif sequences

Panel N

All seven motifs on Panel N are involved in superimpositions (Table 8.87; Figure 8.102A). These seven motifs were aggregated into four layers, and the layers then into two phases (Table 8.88; Figure 8.102B):

- **Phase N/I:** the earlier phase consists of four red paintings in three layers. These include three birds and a fish with striped infill (Motifs N-1 to N-5) and a fragment (Motif N-1); and
- **Phase N/II:** this later phase contains two white paintings (Motifs N-6 and N-7) that, although

apparently of similar ages to each other, are in very different shades of white, suggesting that they may not be contemporaneous (Figure 8.103).

Table 8.87: Panel N motif superimpositions

Motif No.	Underlying Motifs (N-)
N-4	2
N-5	4,2
N-6	3
N-7	5,3

Table 8.88: Summary of the Panel N art phases

N Phase	No. of layers	No. of motifs	Major colours	Major motif forms	Major motif classes
II	1	2	white	outline+infill	fish
I	3	5	red	outline+infill	bird

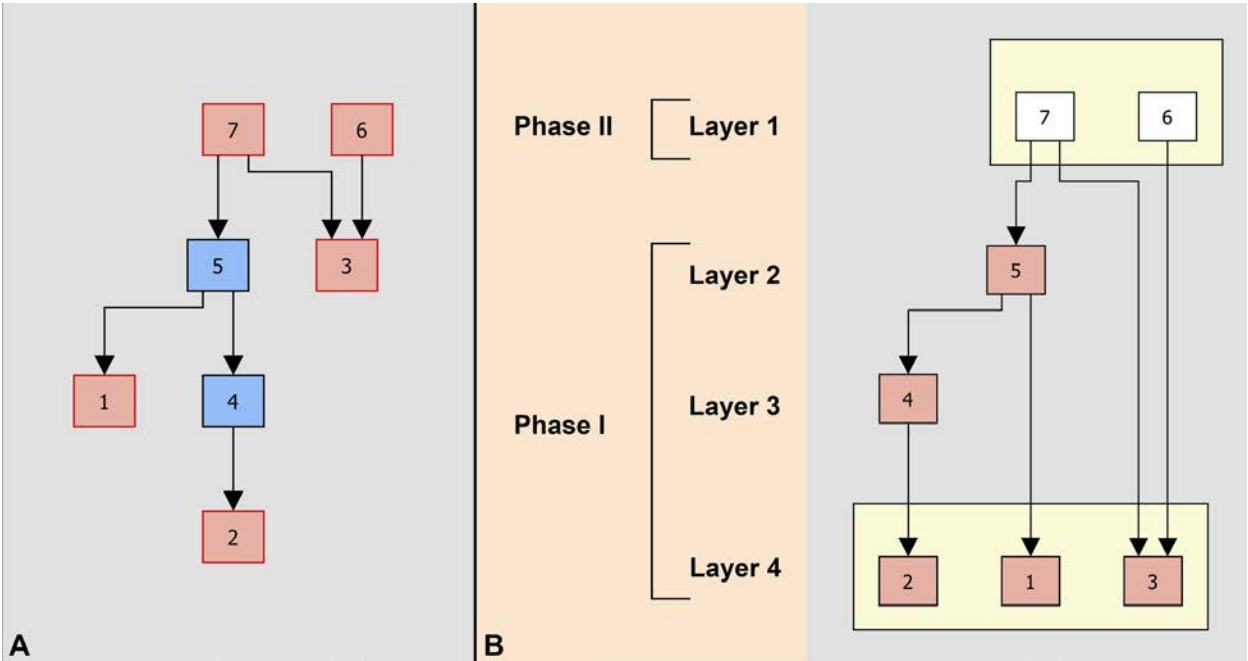


Figure 8.102: Harris Matrix of the Panel N superimpositions (A) and interpretation with motif number and base colour indicated (B). Image available online at tinyurl.com/9781789690705-onlinecontent



Figure 8.103: Differences in white pigment hues in Motifs N-6 and N-7

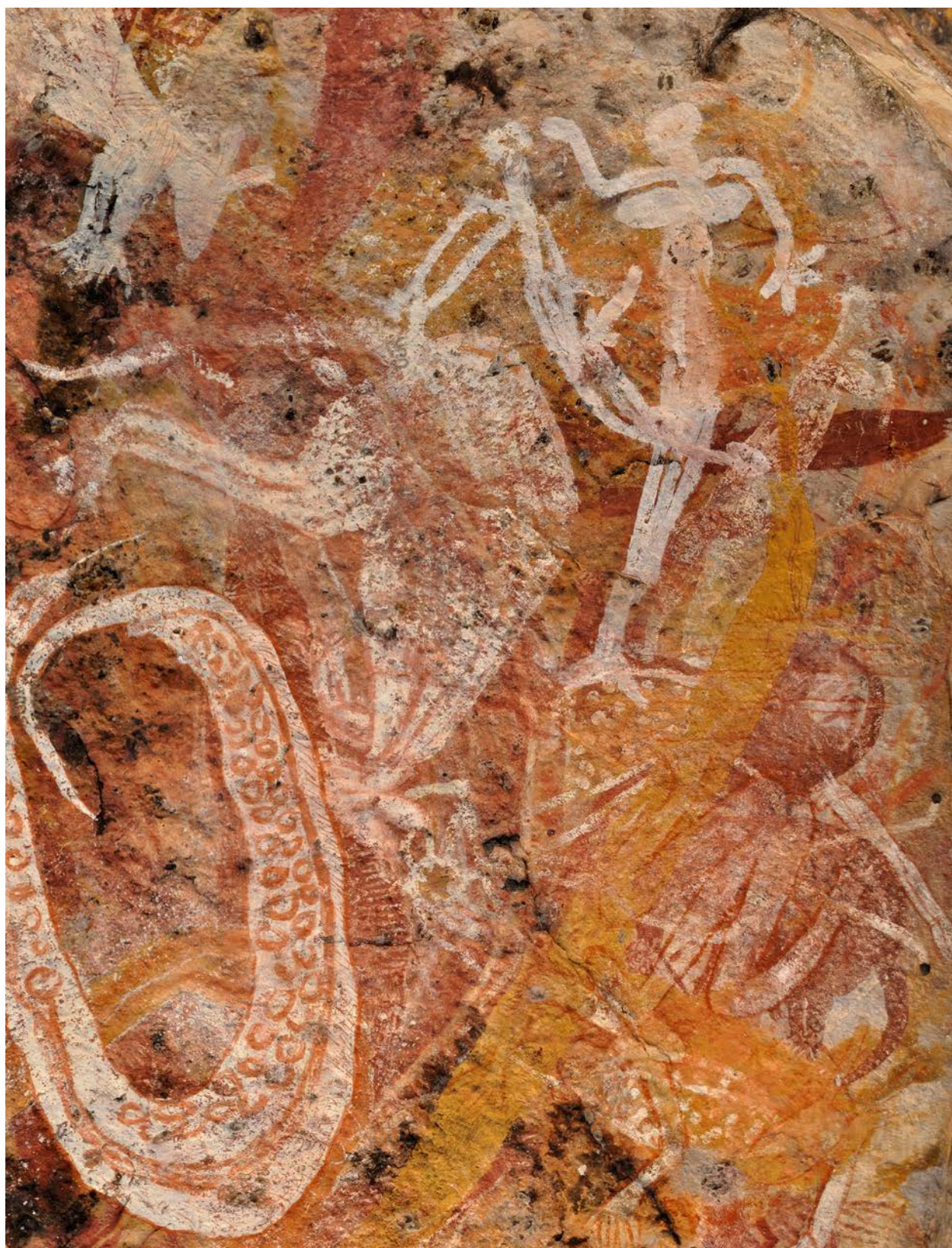
Summary

The Harris Matrices presented here summarise the vertical stratigraphy and sequential development of each of the 42 ceiling art panels at Nawarla Gabarnmang. Absolute ages derived from motifs on Panels D, F1, H and J1 provide indicators of the timeframe involved for those panels. This temporal framework, however, cannot be simply applied across the site as a whole. It is first necessary to determine whether one or more layer can be cross-correlated across panels.

A cursory review of the Harris Matrices suggests the presence of tantalizingly repeated patterns across the art panels. Overall, however, the patterns of superimpositions for colour or motif type on the various panels are not consistent. There are, however,

some broader consistencies, such as an increase in the use of white pigment over time and a corresponding decrease in the use of red; yellow pigment, the only other frequently represented colour, appears irregularly throughout the site's history; and fish tend to be represented more frequently in the upper layers.

To develop an art history for Nawarla Gabarnmang now requires these various panel sequences (their respective Art Phases) to be systematically equated, so that a site-wide chronological pattern can be determined. Each phase forms a horizontal piece of a temporal jigsaw. Disentangling and re-arranging these horizontal and vertical components towards a meaningful construction of the site's artistic history is the object of the following chapter.



Complex superimposition sequences



9. ART IN TIME AND SPACE

Every work [of art] is of its time and place ... and every work is an expression ... of the impulse to communicate through the making of visual things.
Martin Kemp (2014: 213)



The previous chapter has presented a sequence for the individual ceiling art panels at Nawarla Gabarnmang. Each panel sequence is discrete: Phase III of one panel cannot be simply equated with Phase III on another panel. For example, one panel, X, may present a sequence of white paintings (Phase I on Panel X), followed by paintings in yellow (Phase II) and then red (Phase III). An adjacent panel, Z, may have a sequence of white paintings (Phase I on Panel Z), followed by paintings in red (Phase II), followed by another also in red (Phase III). In order to construct an overarching art sequence for the site as a whole, the various layers and phases of each panel need to be assembled into a unified framework. That site-wide framework can then be used to establish an art history for the Nawarla Gabarnmang ceiling. This chapter assesses the contemporaneity of phases across panels and allocate them to particular chronological sets.

Motif and Layer associations

In order to equate the individual art layers across the Nawarla Gabarnmang ceiling panels to each other, attribute similarities between individual motifs in the different panels need to be identified. The most reliable key to linking the work of two or more panels is a single motif that extends from one panel to another. The extended motif gives a physical anchor across multiple panels enabling overlying and underlying layers evident in the Harris Matrices to relate to each other. This type of cross-panel matching is only evident for one motif at Nawarla Gabarnmang: a large macropod on Panel J1 whose feet extend onto Panel J3 (Figure 7.311). The original motif in red was later repainted at least once in white. Both the original and repainted motifs (Motif J-227 in red, and J-194 in white) overlap Panels J1 and J3. Consequently:

- For Motif J-194 (the red macropod), Phase J1/III (Layer 27) corresponds to Phase J3/III (Layer 6); and
- For Motif J-227 (the white macropod), Phase J1/IV (Layer 6) corresponds to Phase J3/V (Layer 2).

Another macropod motif on Panel E3 (Motif E-89), similarly extends its feet onto an adjacent panel (Panel E2). The feet of this macropod, however, are not involved in any superimpositioning on Panel E2 and so the motif cannot be used to relate the two panel sequences.

Another way of chronologically relating motifs across panels is by equating specific attributes through the Morellian Method and, to a lesser degree, by common stylistic or technical attributes, as long as these do not contradict the Law of Stratigraphic Succession; that is, as long as those associations are consistent with their relative positions in their respective Harris Matrices.

Using these methods (Morellian features, datable motifs, motif styles and motif preservation) the next step is to investigate the various chronological associations of motifs between the art panels at Nawarla Gabarnmang.

Motif correlations by Morellian features

In Chapter 5, the Morellian Method was outlined as a way of ascribing motifs to a particular artist. Following this method, motifs with compellingly similar attributes on the same or different panels can testify to the work of the same artist. Such a relationship links a particular layer of one panel with that of another into a common timeline across the one panel or across separate panels. Similarly, motifs identified as being by the one artist on any given panel will be attributed to the same layer.

At Nawarla Gabarnmang, five sets of motifs can each be identified as the work of individual artists:

1. White motifs painted with unusually straight stroke outline or infill (Figure 9.1).
 - Motif F-154 (Panel F2);
 - Motif F-214 (Panel F4);

The motifs, attributed to an artist I term the 'Linear Painter A', are both small white paintings. These paintings exhibit an unusual and distinctive manner of painting that uses short and straight linear brushstrokes, some of which are applied in a cross-hatch pattern. These are the only paintings within the shelter that have this particular manner of infill. The motifs include a therianthrope (macropod-headed anthropomorph) on Panel F2 (Figure 9.1A) and a rectangular design on Panel F4 (Figure 9.1B).

2. White motifs painted with an angular and curved movement (Figure 9.2)
 - Motif F-288 (Panel F5); and
 - Motif K-83 (Panel K2)



Figure 9.1: Paintings on different panels attributed to the 'Linear Painter A'
A: Panel F2, Motif F-154: therianthrope B: Panel F4, Motif F-214: simple design



Figure 9.2: Paintings on different panels attributed to the 'Linear Painter B'
A: Panel F5, Motif F-288: therianthrope B: Panel K2, Motif K-83: simple design

These are two different motif types I attribute to my 'Linear Painter B' artist. Both are similar to those of Linear Painter A in that they contain short, straight brush strokes, however, the Linear Painter B paintings also have prominent curved lines (displayed in either limbs or outline), and lack the characteristic cross-hatching of Linear Painter A. The motifs are a crescent oblong design with stroke infill on Panel F5 (Figure 9.2A), and another therianthrope with a linear stroke infill, although with curved, rather than straight, arms (Figure 9.2B).

3. White female anthropomorphs with black outline/infill (Figure 9.3)
 - Motif A-66 (Panel A3); and
 - Motif A-99 (Panel A6)

The two anthropomorphs (Motifs A-66 and A-99) attributed to my 'Joyful Painter', are both in profile facing to the right, with oval-shaped heads, mouths slightly open, arched backs and upraised arms. These two paintings are of almost identical height (90 cm and 91 cm respectively). Unlike other female anthropomorphs at Nawarla Gabarnmang, each is painted as a white silhouette outlined and pattern-infilled in black, rather than the more usual red. This black pigment has now largely deteriorated. Motif A-66 is better preserved than Motif A-99 due to water-damage to the latter. The two motifs are not, however, identical: there are differences in the shapes of the back and breasts; Motif A-66 has a pubic covering but Motif A-99 does not, and Motif A-99 also has red linear infill while Motif A-66 does not. Another difference is that while Motif A-66 occurs as a spatially isolated motif, Motif A-99 occurs on the same panel as a group of fauna (crocodile, bream and turtle), all of which are also painted as white silhouettes with black outlines (Figures 7.46 and 7.47). I interpret the differences between the two anthropomorphs (Motifs A-66 and A-99) as incidental variations in the two paintings rather than major differences indicative of different artists. Also, as the fauna on Panel A6 are in similar states of preservation to Motif A-99 (Figure 7.43), it is most likely that the anthropomorph and the fauna were painted as components of a single composition, and all painted by the same artist.

4. White outlined dillybags infilled with dots (yams?) (Figure 9.4)
 - Motif H-99 (Panel H);
 - Motif K-150 (Panel K5); and
 - Motif K-151 (Panel K5)

The two adjacent dillybag (string bag) motifs on Panel K5 (Motifs K-150 and K-151) are here identified as the work of a single artist I call the 'Dillybag Painter'. The two motifs are very closely associated spatially (composition), having comparable states of preservation and, more importantly, the stroke-like manner of

application: note the analogous broken outline and sweep of the stroke for each dot. These two dillybag motifs are not identical. They show minor differences in the shape of the bag and the attached strings. The dillybag on Panel H (Motif H-99) is similar to the two dillybags on Panel K5, varying no more from them than they do from each other. Given these resemblances, I conclude that the three dillybags were all painted by the same artist and are, therefore, of similar age (within an archaeological time-frame).

5. White linear vulva motifs (Figure 9.5)
 - Motif F-165 (Panel F3);
 - Motif F-166 (Panel F3); and
 - two unnumbered motifs on Pillar 28

Two stylized vulva motifs occur on Panel F3 and two on the eastern side of Pillar 28, the side facing towards Panel F3 (Figure 5.8). This artist has been designated the 'Pillar Painter'. The four motifs are similar in shape, form, colour, texture and preservation, and all occur in the uppermost layers of their respective panels (Figure 9.5B). All were painted as simple linear constructions using five straight brushstrokes. These four motifs are the only vulva motifs depicted in the shelter.

Chronological correlations by dated beeswax

The six beeswax pellets from the ceiling art panels that were radiocarbon dated (Table 8.3) fall into two age groups: two pellets are around 500 years old, and four pellets around 240 years old (Table 8.39; see below). Within each group, the individual calibrated ages overlap with each other at one standard deviation; their state of preservation is similar to each other, and their position within their respective Harris Matrices is comparable. This suggests that the motifs within each group were produced in broadly contemporaneous artistic events:

- Beeswax pellets around 500 years old: Motifs F-27 and F-28 (Panel F1), and Motifs J-53 and J-54 (Panel J1); and
- Beeswax pellets around 240 years old: Motif H-122 (Panel H) and Motif K-137 (Panel K4). Motif H-122 is in a poor state of preservation due to flaking of the beeswax, most likely due its more exposed position by the northern verandah.

Another four beeswax pellets on Panel F1 (Motifs F-105 to F-108) are in a similar state of preservation to Motif K-137 and both sets are on similarly protected panels.

It is therefore likely that Panel F1 pellets are of approximately the same age as Motif K-137 and Motif H-122.

The two beeswax pellets on Panel F1 and the two on Panel J1 form the centres for subsequent radial designs

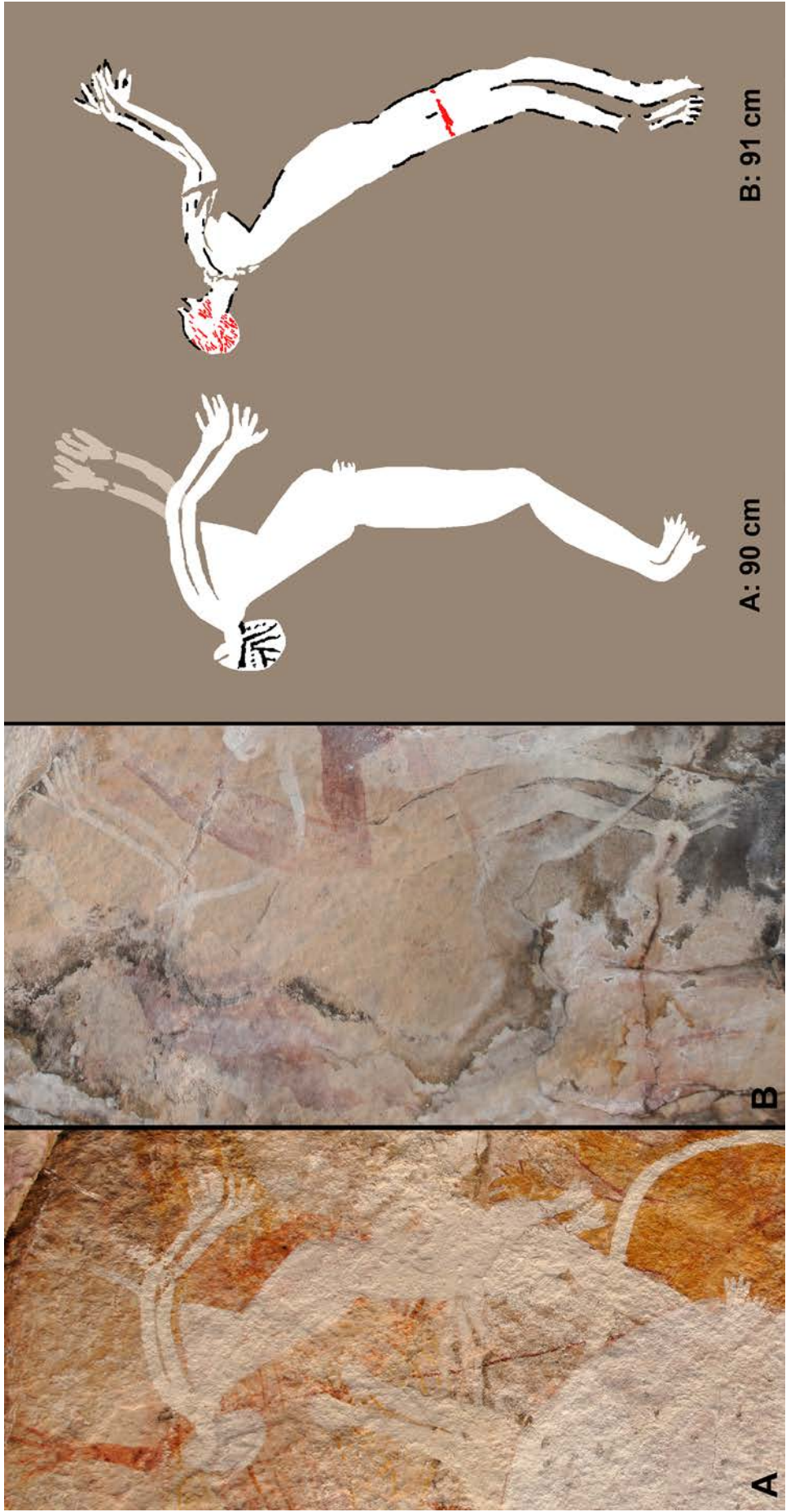


Figure 9.3: Profile female anthropomorphs attributed to the 'Joyful Painter' (photographs and photo-tracings)
A: Motif A-66 (Panel A3) B: Motif A-99 (Panel A6)



Figure 9.4: Dillybag motifs attributed to the 'Dillybag Painter'

A: Motif H-99 (Panel H) B: Motifs K-150 and K-151 (Panel K5)

with schematized unsexed anthropomorphic forms, and both designs are of comparable shape, size and colour. The Panel J1 example has schematized female forms as well as unsexed forms (Figure 7.316). The

comparable ages of the pellets on the adjacent Panels F1 and J1 indicate contemporaneity. As both sets of pellets are superimposed by red radial designs, the association of the smaller pellets (Motifs F-28 to F-30,

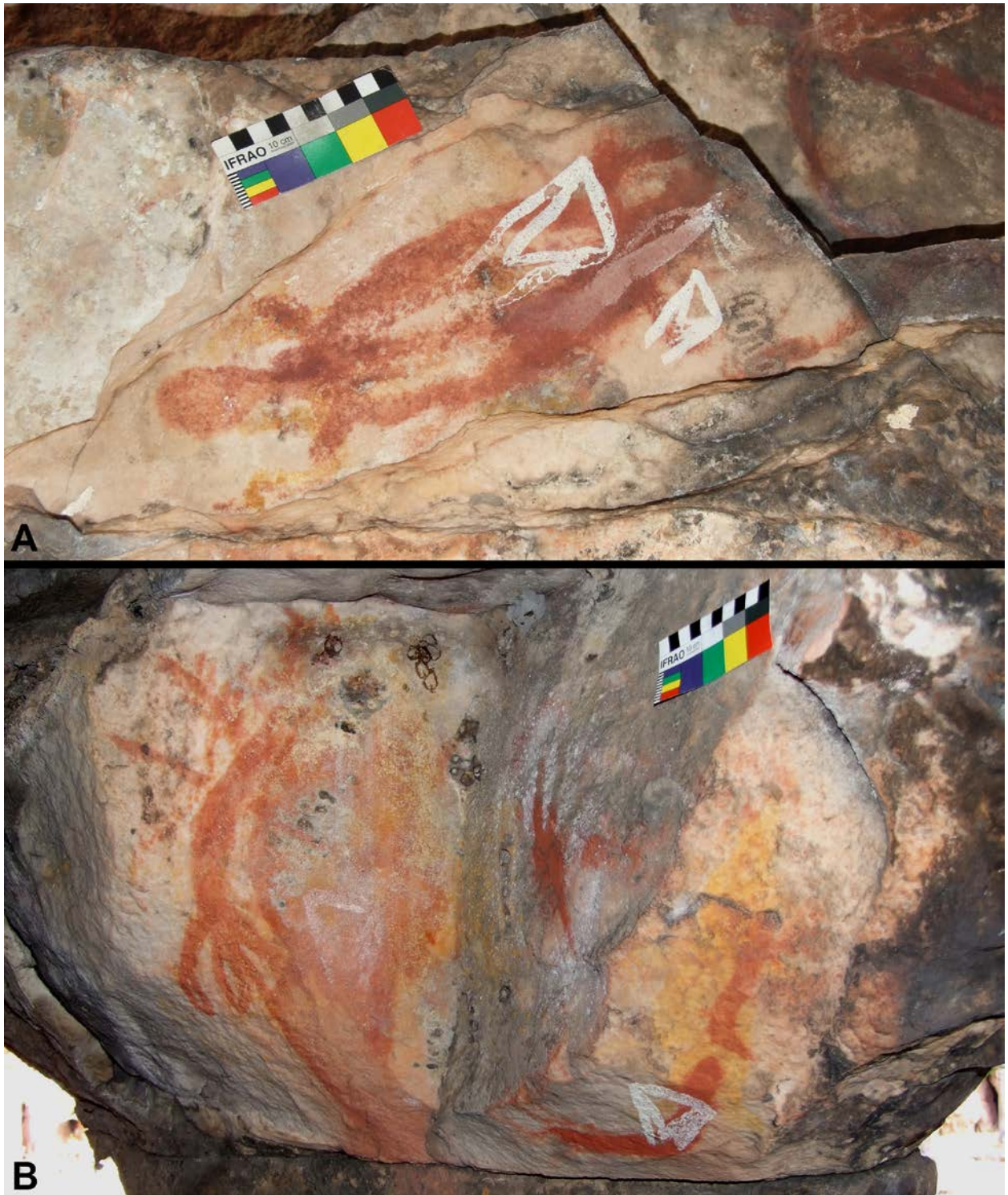


Figure 9.5: Female vulva motifs attributed to the 'Pillar Painter'
 A: Motifs F-165 and F-166 (Panel F3) B: Pillar 28 (unnumbered motifs, east face)

J-27 and J-28) and the red over-painting (Motifs F-98, F-99, J-55 and J-56) appears to have been deliberate. The Harris Matrix, however, indicates that the beeswax elements and the superimposed paintings on Panel F1 are not contemporaneous, as they are separated by 13 painting events (layers of pigment; Figure 8.43), even

though the red paintings of Layer J11 directly overlie the beeswax pellets of Layer J25. In contrast, the radial designs on Panel J, Motifs J-55 and J-56 (Layer J17), directly superimpose the beeswax of Motifs J-53 and J-54 (Layer J18) (Figure 8.65), although the interval of time between the two layers is unknown, and it is likely,

given similarities in design and placement, that Motifs J-55 and J-56 are contemporaneous with the Panel F1 radial designs (Motifs F-98 and F-99). It appears, therefore, that a particular artist chose pre-existing beeswax pellets on which to centre the radial designs.

Motif correlations by style

At a more general level, panel layers can also be equated through the presence of similar attributes and schemata that can be attributed to a particular chronological group and can be considered to be of a common style via the principles of continuity (Chippindale and Taçon 1998: 102). A few examples will suffice to demonstrate the method:

1. Red 3MF hand stencils (Figures 7.12 and 7.764)
 - Motif A-9 (Panel A2); and
 - Motif M-23 (Panel M4)

Both examples of this distinctive motif occur only in the earliest layer of their respective panels, and both are very weathered. Chaloupka and others have regarded 3MF hand stencils as characteristic of a particular and discrete chronological style (Chaloupka 1993: 110; see Chapter 4).

2. Small monochrome fish in a particular hue of red (Figure 9.6)
 - Motifs C-42 to C-48;
 - Motifs E-1 to E-7; and
 - Motifs F-8 to F-49
3. Large polychrome fish with the Northern X-ray form (Figure 9.7)
 - Motifs D-59, D-60, D- 62, D-64 to D-66 (Panel D);
 - Motifs E-77 and E-78 (Panel E1); and
 - Motifs H-128 and H-129 (Panel H)

All examples of fish depicted with this distinctive Northern X-ray form are very well-preserved polychrome paintings that occur only in the most recent phase of their respective panels.

4. Yellow macropod with distinctive red outline and patterned infill (Figure 9.8)
 - Motif A-44 (Panel A3);
 - Motif F-3 (tail fragment) (Panel F1); and
 - Motif J-27 (Panel J1)

These three macropods are depicted in the same manner as each other and seem to be contemporaneous. The manner of portrayal of the front paws on Motifs

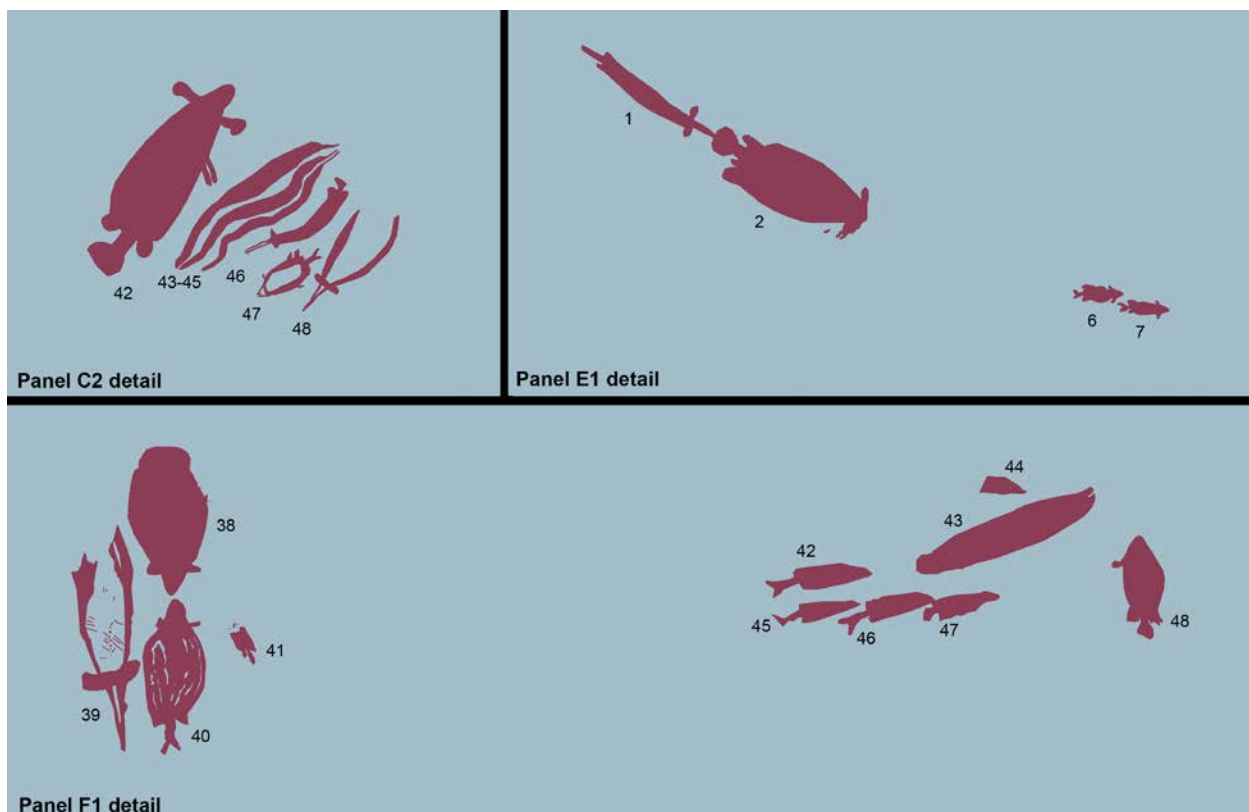


Figure 9.6: Contemporary arrays of small red fish
Panel details are not at the same scale

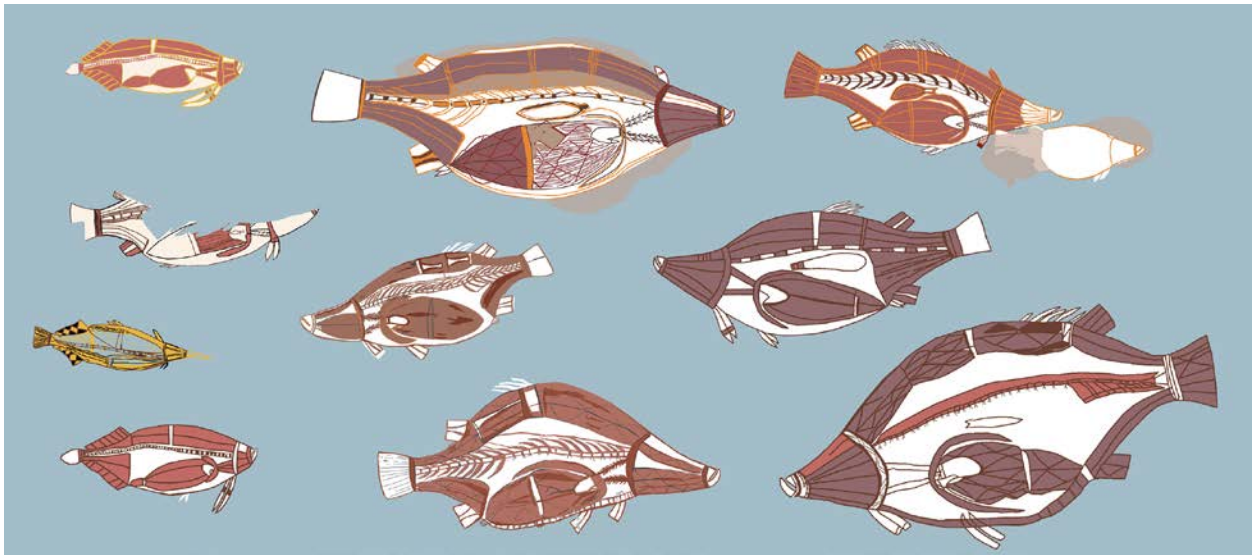


Figure 9.7: Polychrome fish with the Northern X-ray form
Sizes relative to each other

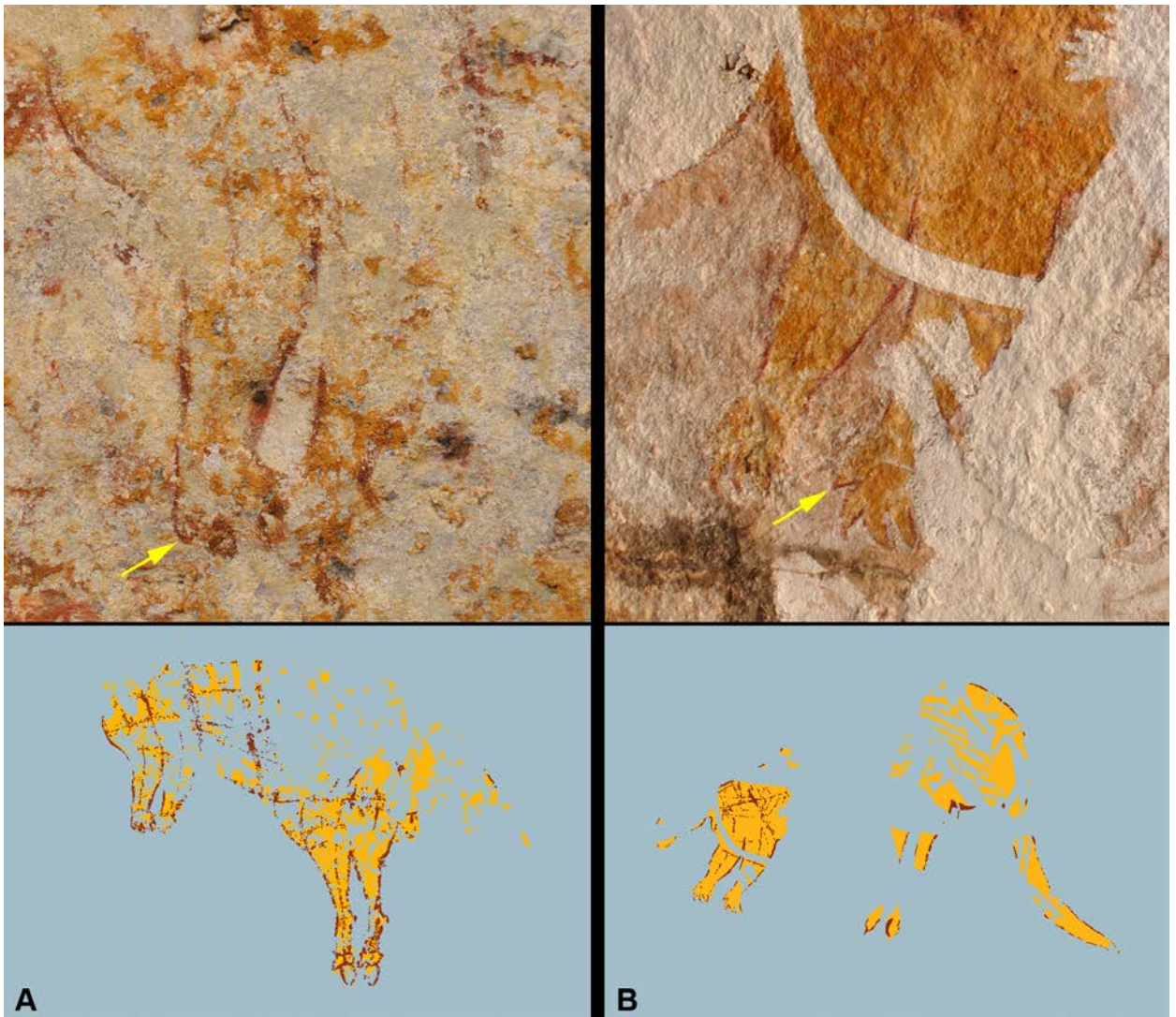


Figure 9.8: Yellow+red macropods in the same style yet note different manner in which the paws are depicted
A: Motif J-27 B: Motif A-44

F-3 and J-27 is, however, very different; one is rounded, the other pointed, and the outline of Motif J-27 is more fluid than that of Motif A-44. These differences in the manner of depiction are suggestive of different artists, regardless of whether the macropods are the same species or different mythical characters. I attribute the better preservation of the pigment of Motif A-44 to the overall better preservation of Panel A3 compared to that of Panels F1 and J1.

In contrast to these motif groups interpreted as broadly contemporaneous, others occur over a prolonged period of time. For example, paintings of macropods and turtles, with similar striped infill that is aligned parallel to the axis of the body, occur in monochrome red, yellow, white or cream (Figure 9.9). Each of these colours is sequentially distinct, with the white and cream motifs considerably more recent and better preserved than the red or yellow examples.

Given the differences in preservation of the different colours, this striped infill pattern was repeated over the past 500 years (including Art Assemblages AA-3 and AA-7), indicating that this manner of patterned infill is not restricted to any particular narrow time period.

Motif correlations by multiple attributes

It is also possible to correlate motifs across panels using multiple attributes. For example the use of:

1. White pigment in motifs of similar hue and condition within close spatial proximity:
 - Motif J-237 (Panel J2) white line; and
 - Motif J-249 (Panel J3) white snake (Figure 9.10).

Both motifs are painted with a thick white pigment, are uppermost on their respective panels, and are on adjacent panels within the shelter.

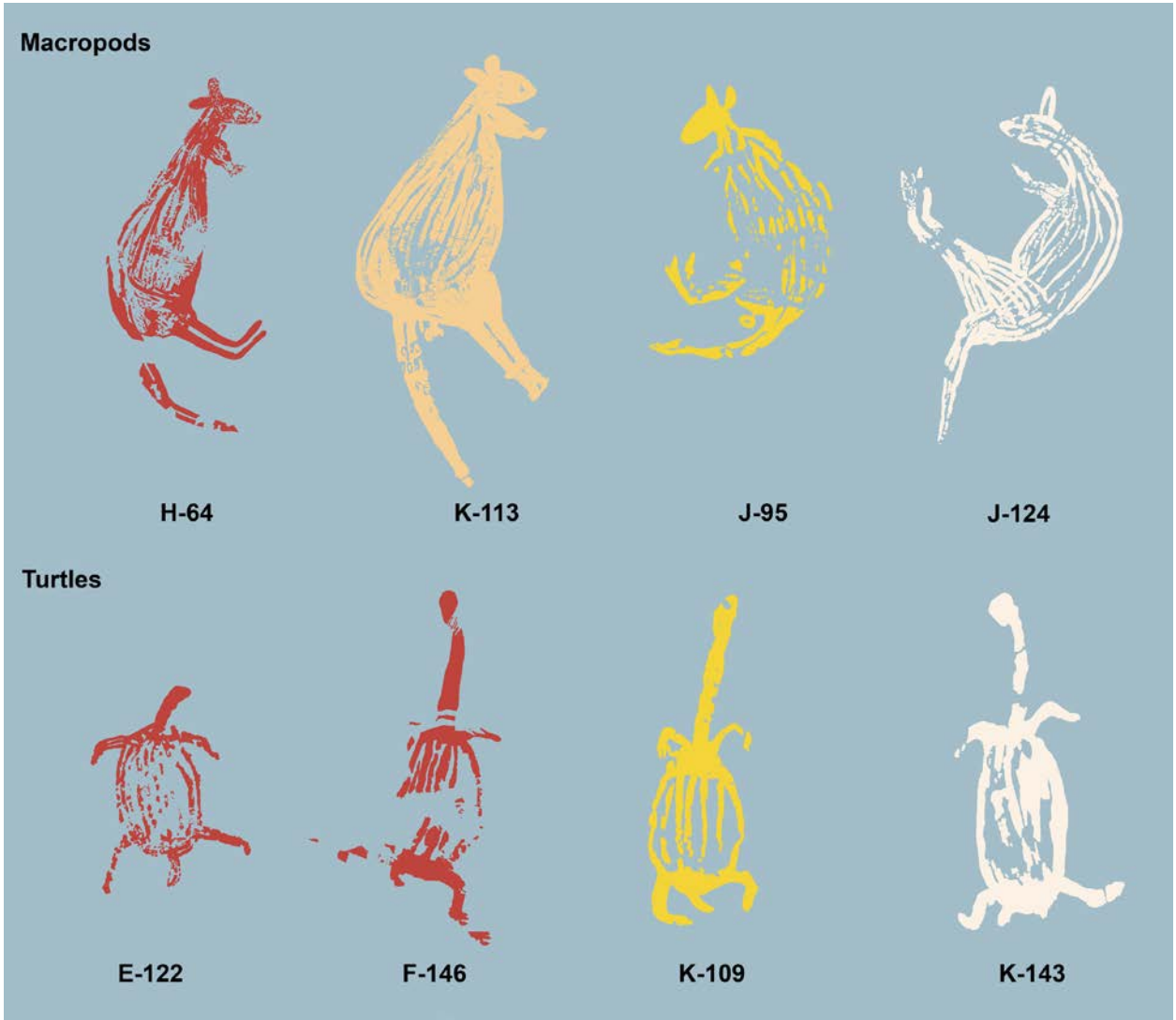


Figure 9.9: Macropod and Turtle motifs with striped infill patterns
Not to scale

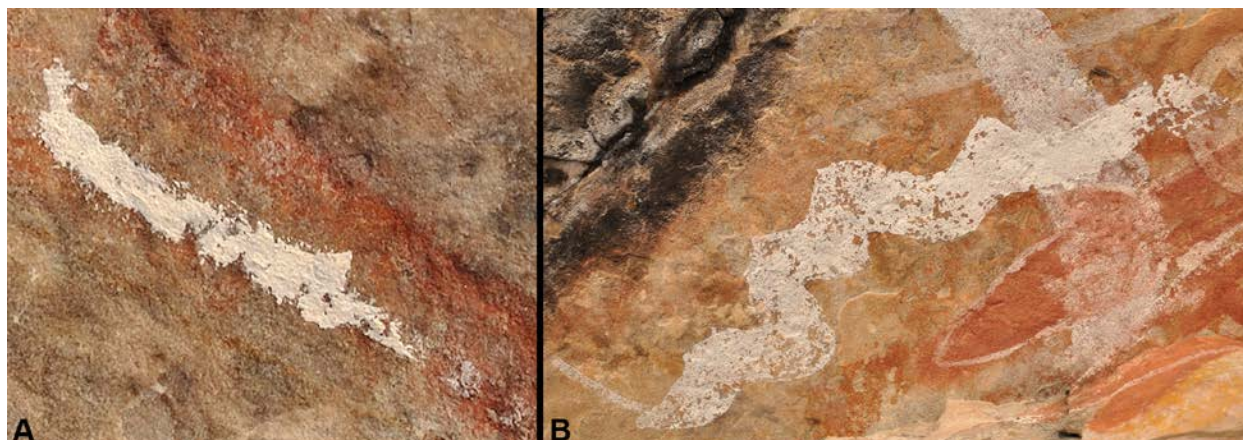


Figure 9.10: Contemporaneous white pigment motifs
A: Panel J2, Motif J-237 B: Panel J3, Motif J-249

2. Red pigment hand stencils, all in similarly poor condition and all occurring as the earliest motifs on their respective panels:
 - Motif A-1 (Panel A1); Motifs A-3, A-6, A-7, A-9, A-11, A-12, A-14, A-17, A-112 (Panel A2);
 - Motif A-78 (Panel A4);
 - Motif E-21 (Panel E1); and
 - Motifs M-22 to M-25 (Panel M4)

A red hand stencil also occurs on Panel B1 (Motif B-22), however, it is better preserved than all the other red hand stencils in the shelter and its position on the panel's Harris Matrix makes its production temporally incompatible with the red hand stencils listed above; it cannot, therefore, be considered to be contemporaneous with them. This motif (Motif B-22), is seen as the product of a more recent art event. Consequently, the red hand stencils on Panels A1, A2, E1 and M4 are designated as 'Red hand stencils A', and the later Panel B1 hand stencil as 'Red hand stencils B'.

The same criteria for grouping the red hand stencils into two groups (preservation and the position of the motifs within their respective Harris Matrices) are used to sub-divide the yellow and white hand stencils throughout the shelter. The yellow hand stencils fall into two groups: an earlier 'Yellow hand stencils A', and later 'Yellow hand stencils B' (Table 9.1). The white hand stencils fall into three groups: an earlier 'White hand stencils A', a middle group 'White hand stencils B', and a later group 'White hand stencils C' (Table 9.2).

In addition to identified motifs, correlation of like motifs using multiple attributes also allows for the correlation of groups of 'fragments' if they display distinct attributes in common:

Table 9.1: Yellow hand stencil chronological groups

	Yellow hand stencils A (earliest)	Yellow hand stencils B (latest)
Motifs	A-21, K-107, and K-130	M-3
Panels	A2, K3, and K4	M1

3. Motif fragments in a distinct red hue, in similar preservation states, and on panels in close proximity to each other:
 - Motif J-12 (Panel J1); and
 - Motifs J-238 and J-239 (Panel J3)
4. Fragments in a similar yellow colour, in similar preservation states, and on panels in close proximity to each other:
 - Motifs J-24, J-33 and J-50 (Panel J1); and
 - Motif J-240 (Panel J3)
5. Painted radial designs in a similar red and of similar sizes to each other, with the design centred on, and painted over, beeswax pellets:
 - Motif E-93 (Panel E2);
 - Motifs F-91, F-98 and F-99 (Panel F1); and
 - Motifs J-55 and J-56 (Panel J1).

Motif threads and sequences

Using the various methods of motif association discussed above, groups of motifs can be identified as being contemporaneous units. Such groups, that weave associations across the various art panels, are here termed 'Threads'. For Nawarla Gabarnmang, initially 46 threads were identified. These initial

Table 9.2: White hand stencil chronological groups

	White hand stencils A (earliest)	White hand stencils B (mid)	White hand stencils C (latest)
Motifs	C-1	H-59 to H-61, K-55 and K-58	A-54, A-82, A-96, D-27, D-28, E-109, H-84, H-85, J-122, K-78-80, 84-85, K-170, L-48
Panels	C1	H, K2	A3, A4, A6, D, E2, H, J1, K2, K5, L

threads are termed Primary Threads and coded as Aa to Bt in Table 9.3. The threads are here mostly based on distinctive motif types with common colours and/or conditions. The identified Primary Threads consisted of from one to 25 motifs. Four single motifs were selected as Primary Threads for their potential for adding to the chronological of the Primary Thread sequence (such as the unique horse motif which must be less than 170 years old; Thread 'Ar' in Table 9.3). The threads were arranged chronologically in relation to each other according to the positions of the motifs within each thread and their respective Harris Matrix positions (Table 9.3). In Table 9.3, the most recent threads are positioned at the top of the table (Thread Aa) and the oldest at the bottom (Thread Bt). At this stage of the analysis, no age ranges are applied to the threads although their relative sequence is indicated.

In tabulating the 46 primary threads by layers for each art panel (Table 9.4), some threads within the same art panel were found to occur in different and widely separated layers (e.g. Panel J1, Thread 26 occurs in Layers 7, 9, 12 and 23 on Panel J1), while other threads occur in different relative sequences on different panels (e.g. Panels D and E1, Threads 25 and 26).

The presence of a thread on more than one layer within an art panel indicates that that thread was not restricted to a single artistic event (i.e. the thread was not the product of a single artist at a single sitting). This suggests that the thread was:

- either repeated at different and widely spaced times;
- produced within a narrow chronological group but intermixed with other threads that were being produced at the same time; or
- a thread within Jawoyn rock art that was produced continuously throughout the region over the full history of the thread's various occurrences. For example, a motif at Nawarla Gabarnmang might occur in two layers separated by, say, three other layers. During

the time between the painting of the lower and upper motifs at Nawarla Gabarnmang, while the three intermediary layers were added, the same motif may have continued to be depicted, but in other shelters in the region. Hence, the two representations of the motif at Nawarla Gabarnmang represent two singular occurrences of a widely produced motif. Furthermore, it is important to remember that any depiction of a motif here will not necessarily be the first or last time that it occurs within Jawoyn Lands.

Within a shelter with this quantity of art, and with the art being the product of people moving from site to site across the landscape, any one or more of these scenarios is possible. It is also likely that different scenarios are applicable to different threads within Nawarla Gabarnmang. Aggregating layers of similar broad chronologies for each panel here documents the sequential development of the site's art history (Table 9.5). The change in colour use over time from red and yellow to white, apparent in Tables 9.3 and 9.5, however, clearly does not reflect the reality at Nawarla Gabarnmang, where a small number of red motifs occur in the most recent layers (e.g. Motif F-119), as do a few white motifs in the earliest layers (e.g. Motif J-72). The colour sequence presented (Table 9.5) is therefore interpreted as a product of the restricted range of the Primary Threads used at this stage of the analysis of the ceiling art.

Cross-correlating these 46 Primary Threads across the site only encompasses a small proportion of the motifs on the various panels at Nawarla Gabarnmang, leaving many panel layers unrepresented. Hence, a further 67 threads were added to this framework of Primary Threads. These additional threads were defined using the same criteria as the Primary Threads, and allocated to the sequence according to their position in the Harris Matrix: of their respective panels being either above or below the position of the Primary Threads presented in Table 9.3 (see Tables 9.6 and 9.7). These Threads are coded numerically from 1 to 113 in Table 9.6 to differentiate them from the Primary Thread codes of Table 9.3. These 67 additional threads include an

Table 9.3: Primary motif threads, their attributes and examples used for the initial layer sequence across different panels across the site
Thread Aa is the most recent and Thread Bt is the earliest.

Thread code	Primary Threads	Associated attributes	Motif examples from each panel
Aa	white smear	motif type	E1-80
Ab	unfinished fish	motif type	E1-79, J1-228
Ac	poly northern X-ray	colour/form/motif type	D-62, E1-77, H-128
Ad	solid white (silhouette) fish	colour/form/motif type	A5-88, H-124, J1-(150, 155)
Ae	white line-snake	colour/form/motif type/preservation	J2-237, J3-249, M1-4
Af	white linear outlined fish, turtle	colour/form/motif type	B1-45, B2-66, C1-5, E1-65, F4-221, J3-248, N-7
Ag	w+r X-ray fauna	colour/form/motif type	B1-43, B2-63, C2-82, H-115
Ah	w+r/w+y sorcery/skeletal/myth figures	colour/ motif type/preservation	A6-101, B1-40, B1-41, H-120, J1-90, M4-34, K5-171, L-57, M3-17
Ai	same motif (white outlined macropod: J-227)	same motif across panels	J-227
Aj	white elongated solid bodied figures	colour/form/motif type	B1-39, B2-65, C2-79, J1-88
Ak	w+r curled snake	colour/form/motif type/preservation	F1-122, J1-63
Al	w+r+b sketch infill macropod	colour/form/motif type	B1-34, F2-157
Am	unusual cream colour	colour	B2-60, K3-113
An	white stripe infill fauna	colour/form/motif type	A1-2, E3-118, F2-154, F4-214, F5-228, J4-252, K2-87, K3-122, K5-146
Ao	solid white turtle	colour/form/motif type	E1-59; K3-(115, 128), K5-142
Ap	polychrome rayed-headaddress female	colour/motif type	A7-111, E2-110
Aq	w+r Jawoyn ladies and men	colour/motif type	A3-70, B2-61, C2-83, D-57, D-58, E1-57, E2-110, F1-88, F4-212, H-110, J1-217, J3-246, M3-16
Ar	horse	motif type	D-48
As	w+r infill fauna	form/colour	A3-67, B2-64, C2-75, D-44, E1-56, F1-85, J1-85, J1-147, J1-212, J5-255, K1-11, K2-75, L-53
At	beeswax applique B (c.245 yrs old)	technique/preservation/C14	F1-108, H-122, K4-137
Au	w+black+r profile female	colour/form/motif type	A3-66, A6-99
Av	white dillybags	colour/form/motif type	H9-99, K5-150
Aw	other monochrome white motifs	colour	A7-110,B2-59,C3-98,E1-64,E2-108,E5-127,F1-(70,116), F2-(153,154),F3-(164,166), F4-214, F5-228, H-91, J1-(58,262), N-6
Ax	white solid fauna	colour/form/motif type	A5-87, C2-80, C3-98, D-(33,37,42), E1-(55,73), F1-100, J1-200, K2-81
Ay	white monochrome anthropomorph	colour/form/motif type	B2-6, C2-79, C3-100, D-42, E1-44, E4-124, F1-71, F1-(102,104,120,121), H-(93,123), J1-(78,36,80,125), J3-243, K2-91, K3-(116,129), K5-147, L-(24,52), M4-33
Az	white elongated profile anthropomorphs	colour/form/motif type	D-42, J3-243, L-49
Ba	white hand stencils	colour/form/motif type	A4-82, A6-96, C1-1, D-27, E2-109, H-(62,85), J1-122 , K2-84, K5-(148,170), L-48

Bd	r+w solid+outline+infill motifs	colour/form	C1-3, F1-72, G-16,H-77,J1-118,L-58
Bc	other w+r motifs	colour/form/motif type	D-(41,45), F1-64, H-113, H-120, K2-74, K6-155, L-(41, 44,46, 53), M3-17, M4-34
Bd	small red solid naturalistic fauna	size/colour/form/motif type	B1-25, F1-49, K2-42, K3-172
Be	same motif (red macropod: E-89)	same motif across panels	E-89
Bf	beeswax applique A (c.500 yrs old)	technique/preservation/motif type/C14	E2-83, F1-55, J1-53
Bg	red striped-infill macropod	colour/form/motif type	A3-48, B2-53, D-1, E2-97, H-64, J1-120, J1-196
Bh	small red solid fish	size/colour/form/motif type	E1-6, F1-45
Bi	striped infill turtle	form/ motif type	E4-122, F2-146, K3-109
Bj	yellow hand stencil	motif type/colour/form	A2-21, K3-107, K4-130, M1-3
Bk	same motif (red outlined macropod: J-194)	same motif across panels	J1-194, J3-194
Bl	red outline waist-belt macropod	colour/form/ motif type	A5-85, A6-92
Bm	red solid stylised fauna	colour/form/motif type	B1-26, C2-54, H-68, J-106, L-15
Bn	yellow striped infill macropods	colour/form/motif type	B2-46, C2-72, J-95, M4-30
Bo	yellow macropod, y+r quadruped	size/colour/form/motif type	J1-33, J3-240
Bp	large red naturalistic fauna	size/colour/ motif type	B1-12 Emu, F1-12 Snake, J1-172 Thylacine
Bq	large y+r macropod	size/colour/form/motif type	A3-44, F1-3, J1-27
Br	fine-line red paintings	colour/form/ motif type	B1-1, C2-13, E1-12, E1-14, E2-98, J1-1, J1-45, L-5, M2-8
Bs	red 3MF hand stencils	motif type/colour/form	A2-9, M4-23
Bt	red hand stencils	motif type/colour/form	A1-1, A2-3, A3-23, A4-74, E1-21, M4-24

additional subdivision of 24 of the original 46 threads. For example, the initial white hand stencils Thread 'Ba' (Table 9.5) was sub-divided on the basis of associations into four discrete threads: Threads 109, 73, 53 and 28 (Tables 9.6 and 9.7).

In developing Table 9.6 from Table 9.3, it was found that some threads appeared to contradict the Law of Stratigraphic Succession. For example, where a bichrome macropod (M1) overlies a red anthropomorph (A1) on one panel, yet on another panel a second bichrome macropod (M2) with similar attributes to M1 underlies a second red anthropomorph (A2), which has similar attributes to A1. These results can be interpreted in three ways:

- a distinct chronological layer of macropods (M1=M2) separating two layers of anthropomorphs (A1≠A2) (Figure 9.11A);

- a distinct chronological layer of anthropomorphs (A1=A2) separating two layers of macropods (M1≠M2) (Figure 9.11B); or
- a mixed single layer composed of a mix of contemporaneous macropods (M) and anthropomorphs (A); i.e. M1=M2=A1=A2 (Figure 9.11C).

Given the similarity of attributes of the two sets of motifs, a fourth interpretation that none are equitable (with each motif occurring on a separate layer) is considered highly unlikely.

The choice of one interpretation over another will depend on assessing the relative preservation of each motif to others within the thread. If all are similarly preserved then the third interpretation is the most likely: a single layer composed of contemporaneous macropods and anthropomorphs. Where there is

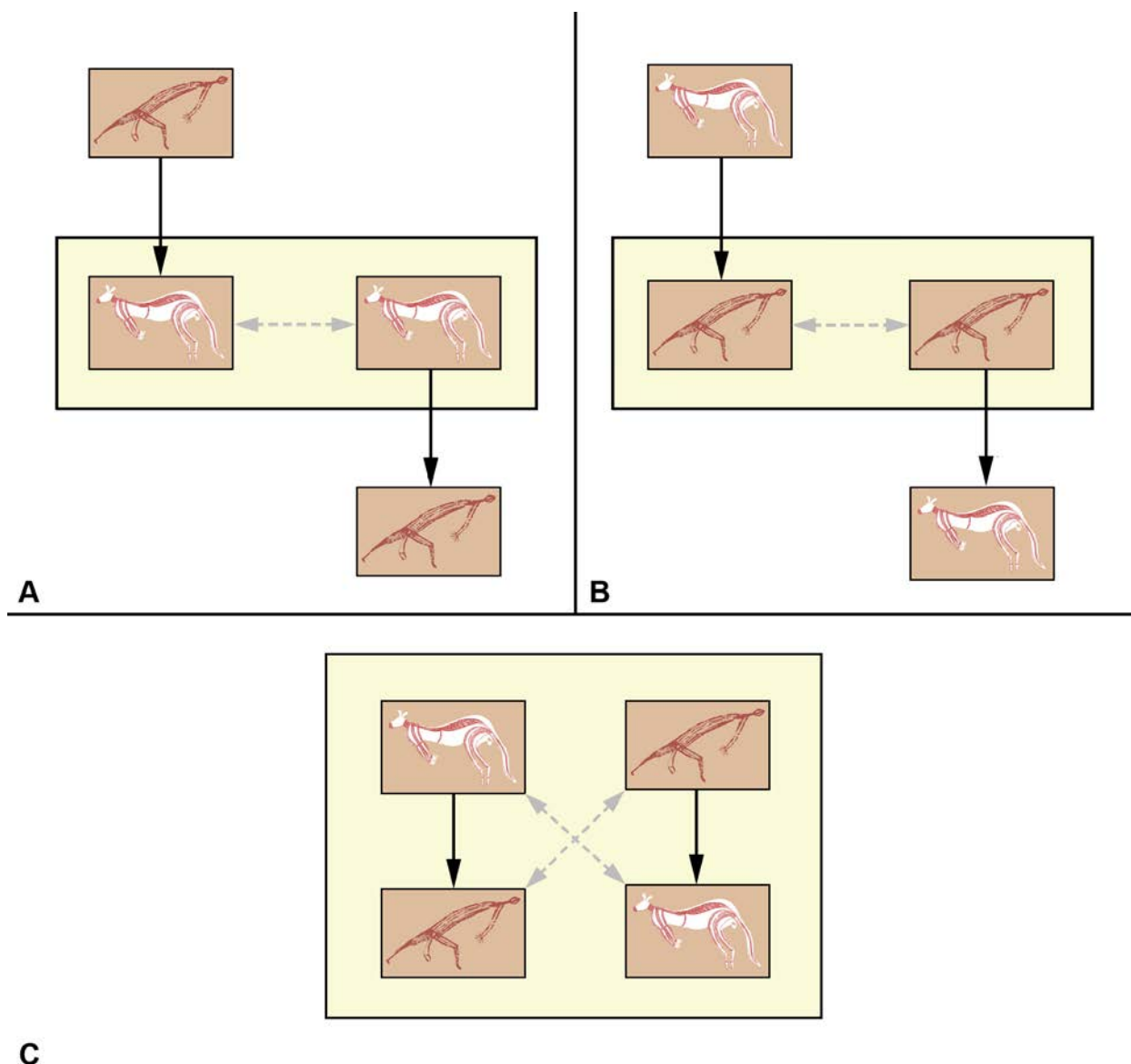


Figure 9.11: Interpreting motif sequence inversions

a distinct difference in preservation of two similar threads, as described above, the thread is sub-divided (e.g. 'White+red infill fauna A' and 'White+red infill fauna B', with the latter being the more recent).

The final sequence consists of 113 threads and, while these threads do not encompass every motif within the shelter, at this stage the repertoire can be separated into seven sequential divisions. The separations are made according to correlation of motif disjunctions between the Art Phases on each panel (indicated on Tables 9.6 and 9.7 by a solid line between Threads 29-30, 37-38, 59-60, 63-64, 90-91 and 102-103). While the Art Phases on some panels are present within more than one division (e.g. Panel F1 Phase VII that is represented in three consecutive divisions), this is due to the present

inadequate subdivision of the F1 phase rather than a deficiency in the method of separation.

Further, Tables 9.6 and 9.7 illustrate only individual occurrences of a thread: a thread that may have prevailed over a broader period of time. The occurrence of the same thread on different panels within the shelter cannot be taken as indicating exact contemporaneity, as it is more likely to represent repetition of the thread within an episode of time. Hence, the occurrence of a thread on two levels in the Tables most likely indicates that the thread occurred over the full time period between, and possibly beyond, the two thread levels. For example, the occurrence of the distinct Jawoyn Lady motif within the most recent sequential division (Threads 1 to 29) can be taken to indicate that this motif was part of the visual repertoire

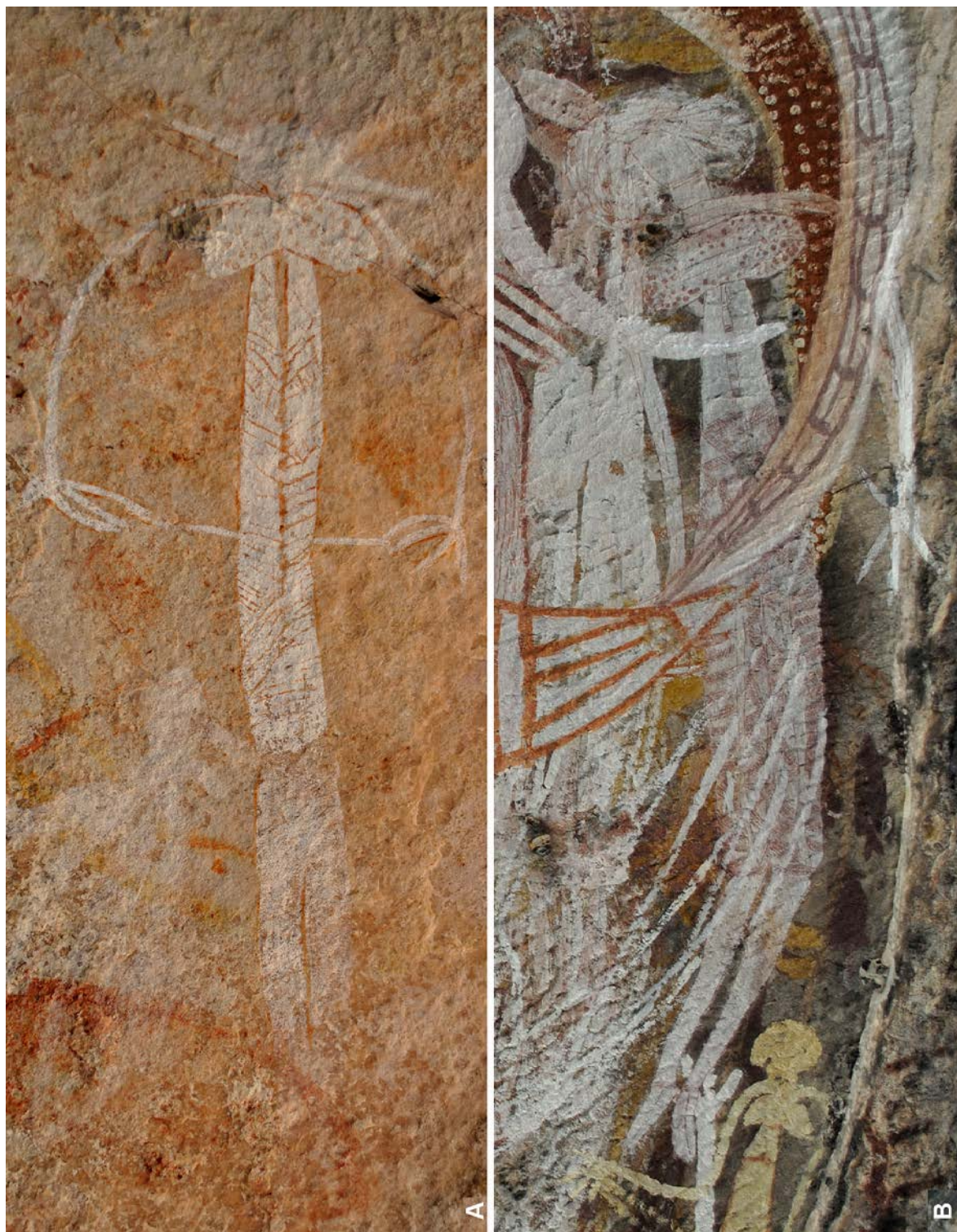


Figure 9.12: Jawoyn Lady motifs from Thread 22 (A) and 45 (B)

Table 9.4: Motif threads by layer for each art panel
Thread Aa is the most recent and Thread Bt is the oldest.

	Panel																				
Thread	A1	A2	A3	A4	A5	A6	A7	B1	B2	C1	C2	C3	D	E1	E2	E3	E4	E5	F1	F2	F3
Aa														1							
Ab														2							
Ac													1	3							
Ad					1																
Ae																					
Af								1	1	1				6							
Ag								1	2		3										
Ah								2.3													
Ai																					
Aj						1		2	1		4										
Ak																			1		
Al								2												1	
Am									3												
An	1															1				3	
Ao														6							
Ap							1								1						
Aq			2						2		2		3.4	7	1				13		
Ar													6								
As			2						1		5		1.8	7					13		

[illegible]

Table 9.4 continued: Motif threads by layer for each art panel
Thread Aa is the most recent and Thread Bt is the oldest.

	Panel																				
Thread	F4	F5	G	H	J1	J2	J3	J4	J5	K1	K2	K3	K4	K5	K6	L	M1	M2	M3	M4	N
Aa																					
Ab					1																
Ac				1																	
Ad				2	1.4																
Ae						1	1										1				
Af	1						1														1
Ag				5																	
Ah				5	5									1		2			2	1	
Ai					6		2														
Aj					6																
Ak					7																
Al																					
Am												4									
An	3	1						1			3	5		2							
Ao												1.5		3							
Ap																					
Aq	4			8	9		4												3		
Ar																					
As					7.9				1	2	5			1		2					
At				6									1								

[illegible]

Table 9.5: Initial motif thread sequences by Art Phases for each Art Panel
 Thread Aa is the most recent and Thread Bt is the earliest.
 (See Table 9.3 for key: primary base colour for each thread indicated)

Thread	A1	A2	A3	A4	A5	A6	A7	B1	B2	C1	C2	C3	D	E1	E2	E3	E4	E5	F1	F2	F3	F4
Aa														VI								
Ab														VI								
Ac													IV	VI								
Ad					II																	
Ae																						
Af								VI	III	IV				IV								III
Ag								VI	III		VI											
Ah								VI														
Ai																						
Aj						IV		VI	III		VI											
Ak																			VI			
Al								VI												VI		
Am									III													
An	II															III				V		III
Ao														IV								
Ap							II								VI							
Aq			VI						III		VI		III	IV	VI				VI			III
Ar													III									
As			VI						III		V		III	IV					VI			
At																			VI			
Au			VI			IV																
Av																						
Aw							II		III					IV	VI			II	V.VI	V	IV	III
Ax					II						V	IV	III	IV					VI			
Ay									III		V	IV	III	IV			II		VI			
Az													III									
Ba			V	III		IV				I			III		VI							
Bb										II									V			
Bc													III						IV			
Bd								IV											IV			
Be															III	II						
Bf															IV				III			
Bg			IV						II				I		III							
Bh											II			I					III			
Bi																	I			III		
Bj		I																				
Bk																						
Bl					I	I																
Bm								IV			II											
Bn									I		IV											
Bo																						

Bp								III										II			
Bq			III															I			
Br								I			I			I	I						
Bs		I																			
Bt	I	I	I	I										I							

Table 9.5 continued: Initial motif thread sequences by Art Phases for each Art Panel

Thread Aa is the most recent and Thread Bt is the earliest.

(See Table 9.3 for key: primary base colour for each thread indicated)

Thread	F5	G	H	J1	J2	J3	J4	J5	K1	K2	K3	K4	K5	K6	L	M1	M2	M3	M4	N
Aa																				
Ab				V																
Ac			VII																	
Ad			VII	V																
Ae					III	V														
Af				IV		V														II
Ag			VI																	
Ah			VI	IV									II		V			II	III	
Ai				IV		V														
Aj				IV																
Ak				IV																
Al																				
Am											IV									
An	II						II			IV	IV		II							
Ao											IV		II							
Ap																				
Aq			VI	IV		IV												II		
Ar																				
As				IV				II	III	IV			II		V					
At			VI									II								
Au																				
Av			VI										II							
Aw	II		V																	II
Ax				IV						IV										
Ay			IV	IV		IV				IV	III. IV		II		V.III				III	
Az						IV									V					
Ba			III.V	IV						IV			II		V					
Bb		II	IV	IV											III					
Bc			IV							IV				III	V			II	III	
Bd										III	III									
Be																				
Bf				IV																
Bg			III	IV																
Bh																				

Bi											III								
Bj											III	I				II			
Bk				III			III												
Bl																			
Bm				III											II				
Bn				III														II	
Bo				III			II												
Bp				II															
Bq				I															
Br				I											I				
Bs																		I	
Bt																		I	

Table 9.6: Motif thread sequences and groups by Art Panel and Art Phase. See Table 9.7 for key to threads.
Primary base colour for each thread indicated

Thread	A1	A2	A3	A4	A5	A6	A7	B1	B2	C1	C2	C3	D	E1	E2	E3	E4	E5	F1	F2	F3	F4
1														VI								
2														VI								
3											VII		IV	VI								
4																						
5																						
6																						
7														V								
8																						
9					II																	
10																		II				
11								VI	III	IV												III
12								VI	III		VI		IV									
13						IV		VI														
14								VI	III		VI								VII			
15																			VII			
16			VI																			
17																						
18								VI												VI		
19	II															III				V	IV	III
20							II															
21													III									
22			VI						III		VI		III		VI							
23													III									
24			VI						III		V											
25																			VII			
26																						
27			VI			IV																
28				III		IV									VI							

29															VI				VII			
30																						
31										IV									VII			
32																			VII			
33																			VII			
34														IV					VII			
35																						
36																						
37																			VII			
38									III													
39														IV								
40							II		III					IV				II	VII			
41														IV								III
42																						
43																						
44													III	IV					VII			
45														IV					VII			III
46					II								IV	III	IV				VII			
47														III	IV							
48														IV								
49									III				IV	III	IV			III	VII			
50														III								
51																			VII			
52														III								
53				V										III								
54														IV								
55																			VI			
56																						
57																			V			
58																			V			
59																			IV			
60																		II	IV	IV		
61																						
62																		II				
63															III	V						II
64															II				I		IV	I
65															II							
66									V													
67						II				III												
68																						
69															IV							
70																						
71										IV	II											
72																						
73																						
74																						

75										III										
76																				
77																				
78																				
79														I			III			
80																				
81																	III			
82									II			I					III	II	III	II
83							IV					I								
84													III				III			
85												I								
86																				
87													III				III			
88			IV					II				I		III		I				
89													III	II						
90																				
91	II																			
92																		II	I	
93																		I		
94								I												
95																				
96														I						
97				I	I															
98							IV													
99																				
100																				
101							IV													
102							IV		II										I	
103							III											II		
104			III															I		
105							II						II					I		
106																				
107			II	II			I	I												
108									II											
109									I											
110							I			I				I						
111																				
112		I																		
113	I	I	I	I																

Table 9.6 continued: Motif thread sequences and groups by Art Panel and Art Phase. See Table 9.7 for key to threads.
Primary base colour for each thread indicated

Thread	F4	F5	G	H	J1	J2	J3	J4	J5	K1	K2	K3	K4	K5	K6	L	M1	M2	M3	M4	N
1																					
2					V																
3				VII																	
4					V											VI					
5																			III		
6					V																
7																					
8												IV									
9				VII	V							IV									
10						III	V			III							III				
11	III						V														II
12				VI																	
13			II	VI	IV											VI			II	III	
14					IV																
15					IV																
16																					
17					IV		V														
18																					
19	III	II			IV			II													
20																					
21										III											
22				VI															II		
23																					
24										III				III		VI					
25																					
26				VI						III											
27																					
28														III		VI					
29																VI				III	II
30																	II				
31																					
32				VI									II								
33																					
34														III	III						

35														III	III					
36				VI										III						
37																				
38											IV									
39											IV		II							
40				VI							IV									
41	III																			
42								II												
43											III					II				
44					IV			II		IV			II							
45	III				IV		IV													
46					IV					IV										
47				VI						IV										
48																				
49				VI	IV		IV			IV	IV		II							
50							IV													
51																				
52					IV															
53				V	IV					IV			II							
54				V																
55			II	IV	IV															
56																V				
57																IV				
58																				
59																				
60			I																	
61				IV														I		
62				IV							III									
63	II	I						I		II										
64	I		I							III										
65					IV															
66																				
67					IV								II							
68											II									
69																				
70											II							III		II
71											II							III		II
72																		III		
73				III						III										
74					IV															
75																				
76																III				
77																II				
78																				I
79																				
80														II						

81																			
82	II									III									
83																			
84					IV														
85																			
86					IV														
87					IV														
88				III	IV												I		
89																			
90					III		III												
91												I							
92	I					II													
93					III														
94					III														
95				II															
96					III														
97																			
98						II													
99					III		II												
100					III		II			I	II								
101																			
102					III												II		
103					II														
104					I														
105				II															
106										I	I		I						
107					II							I			I				
108																			
109				II															
110			I	I	I				I					I	I		I		
111				I	I	I	I												
112																		I	
113																		I	

throughout the period of that sequential division, rather than just within the narrow window indicated by the individual thread (Thread 22). The Jawoyn Lady motif also occurs as Thread 45 in the sequential division represented by Threads 37-58, yet is not present in the intervening sequential division represented by Threads 30-36 (Figure 9.12). It can be expected, however, that the Jawoyn Lady motif was within the Jawoyn repertoire throughout the full time of the three sequential divisions (covering Threads 1-58 at least). Further, as the Jawoyn Lady motif occurs in a number of shelters throughout the region, it is probable that any one thread will be represented at different shelters at different times within the total time of the over which that particular thread was produced (i.e. that the

motif type/s within the thread were in vogue or required). For example, a Jawoyn Lady motif may be produced in one site complex one year, but then several years later at a different complex, owing to a change in the preferred camping place (due to other non-art related factors such as changes in resource availability or social alliances). This is highlighted by the absence of the Jawoyn Lady motif amongst the most recent motifs in the shelter (which all pre-date AD 1935). For instance, artist Najombolmi was still painting 'Jawoyn Lady' variations in rock art at sites 80 km to the northwest in AD 1964 (Chaloupka 1982: 22-25; Haskovec and Sullivan 1989), at least 30 years after the cessation of art production at Nawarla Gabarnmang. In contrast to the limited occurrence of the Jawoyn Lady

Table 9.7: Motif threads, available ages, and proposed Art Assemblages

Thread code	Thread description	Available age	Art Assemblage
1	white smear (> AD 1935)	> 80 years	
2	white unfinished fish		
3	poly Northern X-ray	< 350 cal BP, < 200 cal BP	
4	yellow/ y+w anthropomorphs		
5	yellow solid fish		
6	orange profile female anthropomorphs		
7	w+orange infilled turtle		
8	white solid sexual couple C		
9	white thick pigment (silhouette) fish/turtle		
10	white thick pigment linear		
11	white linear outline+infill fish, turtle B		
12	w+r Jawoyn X-ray fauna		
13	w+r/w+y sorcery/skeletal/myth figures	< 100 years	
14	white elongated solid bodied silhouette figures		AA-7
15	w+r curled snake		
16	w+r emu		
17	white same motif (outlined macropod: J-227)		
18	w+r+b sketch infill macropod		
19	white stroke infill motifs		
20	polychrome rayed-headress female		
21	pink painted fragments		
22	w+r Jawoyn ladies and men (L-spthr) B		
23	horse (< AD 1845)	<105 years	
24	w+r infill fauna B		
25	red long spear thrower		
26	red other 'recent' paintings		
27	w+black+r profile female		
28	white hand stencils D		
29	white other paintings C		
30	yellow hand stencil C		
31	yellow long naturalistic snakes		
32	beeswax applique (c. cal AD 1780)	c.170 cal BP	AA-6
33	red radial designs B		
34	white solid macropods/fish		
35	w+r+y female		
36	white dillybags		
37	yellow small solid fauna		
38	cream unusual colour		
39	white solid turtle	510-390 cal BP	
40	white other paintings B		
41	white linear outline+infill fish, turtle A	510-390 cal BP	
42	y+w infill macropod		
43	w+r infill fauna A	510-390 cal BP	
44	yellow hand stencil C		

45	w+r Jawoyn ladies and men (L-spthr) A	510-390 cal BP	
46	white solid other fauna B		AA-5
47	w+r other		
48	orange paintings C		
49	white other anthropomorphs B		
50	white elongated profile anthropomorphs		
51	white solid sexual couple B		
52	white striped-infill macropods		
53	white hand stencils C		
54	orange paintings B		
55	r+w solid+outline with fine infill		
56	yellow linear anthropomorphs B		
57	white other anthropomorphs A		
58	white other paintings A		
59	r+w small solid naturalistic fauna		
60	orange paintings A		AA-4
61	red multi-barbed composite spear		
62	red solid macropods		
63	red other paintings B		
64	yellow other paintings		
65	yellow solid anthropomorphs (L-spthr)		
66	yellow over-painting		
67	yellow linear objects	> c.175 cal BP	
68	yellow Namarrkan		
69	yellow linear anthropomorphs A		
70	yellow striped-infill anthropomorphs		
71	yellow striped infill fauna B		
72	yellow pattern-infill anthropomorph		
73	white hand stencils B		
74	white solid sexual couple A		
75	white solid fauna A		
76	red striped anthropomorphs B		
77	red Namarrkan		AA-3
78	red striped-infill bird		
79	red striped-infill turtle		
80	red striped anthropomorph A		
81	red anthropomorphs with tapering feet (L-spthr)		
82	red array of small fish		
83	red X-ray fauna		
84	red radial designs A		
85	red hand stencils C		
86	red outline large fauna		
87	beeswax applique (c.cal AD 1530)	c.420 cal BP	
88	red striped-infill macropod		
89	red same motif (red macropod: E-89)		
90	red same motif (outlined macropod: J-194)		

91	yellow hand stencil A		
92	yellow painting fragments B		
93	yellow solid other fauna		
94	yellow striped-infill fauna A		
95	yellow outline (jabiru?)	< 1,500 years (?)	
96	white striped-infill anthropomorphs		AA-2
97	red outline waist-belt macropod		
98	red small solid naturalistic fauna		
99	red profile anthropomorphs		
100	yellow macropod, y+r other fauna		
101	red hand stencils B		
102	red solid stylised fauna		
103	red large naturalistic fauna (> 3000 yrs ago)	> 3,000 years	
104	y+r large macropod		
105	yellow painting fragments A		
106	red small 'fat' anthropomorphs		
107	red outline fauna		AA-1
108	red broad spearthrower		
109	white hand stencils A		
110	red fine-line paintings (motifs and fragments)		
111	other red paintings A		
112	red 3MF hand stencils	< 14,000 years	
113	red hand stencils A		

motif, white hand stencils occur within four consecutive thread groups, and therefore can be seen to have remained a viable form of expression over the full time of these thread groups, at least. To achieve a fuller resolution of a thread's age would therefore require numerous dates from examples distributed across the region. This has recently been done for the Northern Running Figures (cf. Jones et al. 2017).

Art Assemblages

As mentioned above, the art at Nawarla Gabarnmang can be separated into seven sequential divisions. These are here termed 'Art Assemblages' (designated as AA-1 to AA-7; Table 9.7). The earlier Art Assemblages, AA-1 through to AA-4, are loosely unified through a common dominance of red monochrome paintings

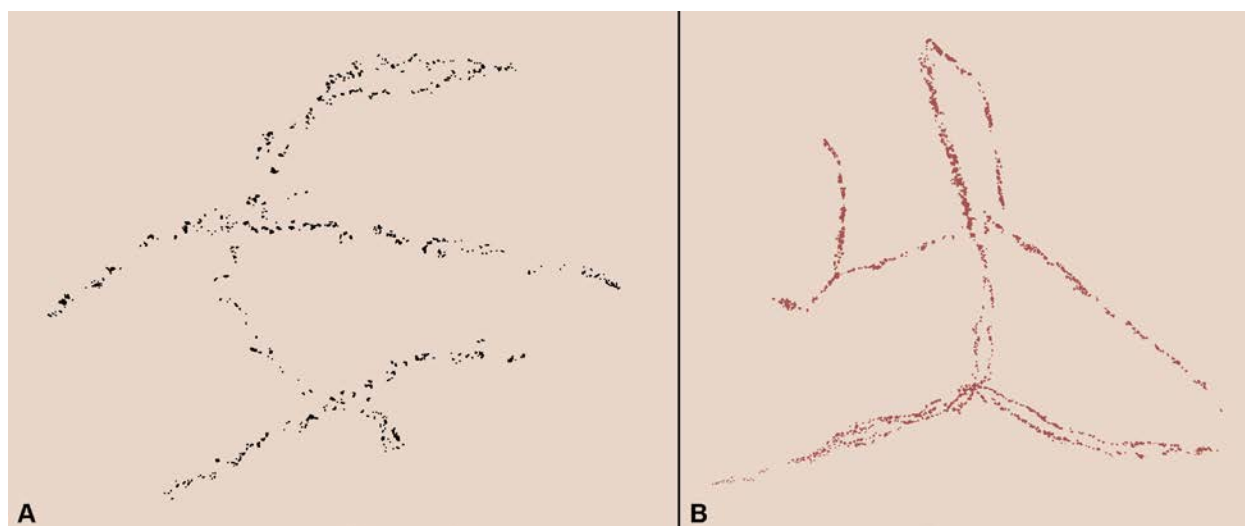


Figure 9.13: Photo-tracings of drawn leaping figures
A: Motif A-8 in black B: Figure from site ARN-040/C1 in red

and stencils. Unlike the later Art Assemblages (AA-5 to AA-7), there are few motifs within AA-1 to AA-4 with common traits that permit a more rigorous grouping. One notable exception is the representation of broad spearthrowers (as defined by Lewis 1988) in AA-2 and long spearthrowers in AA-3, that may assist in dating the change in spearthrower technology proposed by Lewis (1988).

Of the 1391 motifs recorded at Nawarla Gabarnmang, only one motif could not be reliably assigned to any Art Assemblage. The motif, Motif A-8, is a black drawing on Panel A2 that depicts a leaping figure with headdress (Figures 7.12 and 9.13A); it is not involved in superimposition and has no correlative attributes or Morellian parallels elsewhere in the shelter. As discussed in Chapter 7, the motif has similarities with a drawing recorded at Jawoyn site complex ARN-040, some 40 km to the south, which may be 6000+ years old (Figure 9.13B; Gunn and Whear 2007). The fair preservation of Motif A-8 appears to belie such a great age and so, pending further confirmation of its age, it is excluded from this analysis.

Art Assemblage 1

Art Assemblage AA-1 contains 305 motifs and fragments (Table 9.8). This Art Assemblage contains the oldest art on the ceiling of Nawarla Gabarnmang. It is the Art Assemblage least well-preserved and it is also that most covered by later superimpositions. Consequently, it is the least visible, and most likely the least well-represented of all of the Art Assemblages. The visible art from this Art Assemblage consists of paintings (90%) and spray (stencils; 10%), with 82% of both produced in red pigments. Yellow, white, mulberry and yellow+red colours are also represented, although in low numbers (Table 9.9). The majority of the motifs are fragments or traces, with only 116 (38%) being classified to Motif Type (Table 9.10, Figure 9.14) and only 12 that could be measured. The painted motifs range in length from 6 cm to 69 cm (n=6), while middle finger lengths of the hand stencils range from 6.0 cm to 8.5 cm (n=6).

The distinctive 3MF hand stencils occur on two panels (Panels A2 and M4). On both panels they are superimposed by yellow paintings and conventional,

Table 9.8: Art Assemblage 1 motif list (including fragments)

Panel	Motif Nos.	Total	%/panel
A1	A-1	1	-
A2	A-3 to A-7, A-9 to A-22, A-112	20	95
A3	A-23, A-24, A-26 to A-45, A-72 to A-77	28	51
A4	A-78 to A-81, A-113	5	-
A7	A-102 to A-108	7	-
B1	B-1 to B-21, B-29, B-68	23	49
C1	C-1 to C-3	3	-
C2	C-6 to C-28, C-102	24	28
C3	C-90	1	-
E2	E-98	1	4
F1	F-1 to F-10, F-12, F-54	12	9
H	H-1 to H-34, H-36 to H-42	41	31
J1	J-1 to J-23, J-25 to J-32, J-38 to J-45, J-57, J-64, J-66 to J-76, J-96 to J-101, J-158 to J-172, J-176, J-229, J-253, J-256, J-257, J-259 to J-262	80	34
J2	J-229 to J-231	3	-
J3	J-238, J-239	2	-
J5	J-253	1	-
K2	K-18 to K-31, K-33, K-35, K-37	17	18
K3	K-96 to K102	7	18
K4	K-131 to K-135	5	-
K5	K-138 to K-141	4	-
K6	K-153	1	-
L	L-1 to L-7, L-11, L-12	9	16
M2	M-5, M-6, M-8	3	-
M4	M-22 to M-28	7	-
Total		305	

Table 9.9: Art Assemblage 1 technique numbers by colour and condition

Colour	Condition	Technique		Total
		painting	spray	
red (r)	fair	10		
	poor	29	2	
	very poor	187	22	250
yellow (y)	poor	1	2	
	very poor	39		42
white (w)	poor	2	1	
	very poor	2	1	6
mulberry	poor	1		
	very poor	1	1	3
y+r	poor	1		
	very poor	3		4
Total		276	29	305

Table 9.10: Art Assemblage 1 Motif Class and Motif Type numbers

Motif Class	Motif Type	No.	Total
anthropomorph	Anthropomorph	15	
	Anthropomorph female	2	17
area	Area	2	2
bird	Emu	3	3
complex design	Design regular	1	1
fish	Fish	1	1
flora	Round yam	1	
	Waterlily	1	3
geometric	Arc	1	
	Bar	1	
	Disc	3	
	Line	5	
	Line pair	1	11
hand	Hand	8	
	Hand 2MF	1	
	Hand 3MF	5	
	Hand left	4	
	Hand right	2	20
infill	Infill for motif	1	1
mammal/ monotreme	Animal	13	
	Echidna	1	
	Macropod	7	
	Macropod female	2	
	Macropod legs	1	
	Macropod male	2	
	Macropod+spear	1	
	Thylacine	3	31
object	Object	1	1
reptile	Crocodile	2	
	Goanna	2	
	Snake	3	7
simple design	Design irregular	3	
	Apex	2	
	Grid	1	
	Line set	2	
	Q-shape	1	
	Design regular	4	13
therianthrope	Macropod-headed	1	
	Snake-body	1	2
track	Footprint	1	
	Paw track	1	2
unknown	Unknown	3	3
Total		116	116
fragment/trace	fragment/trace	189	189

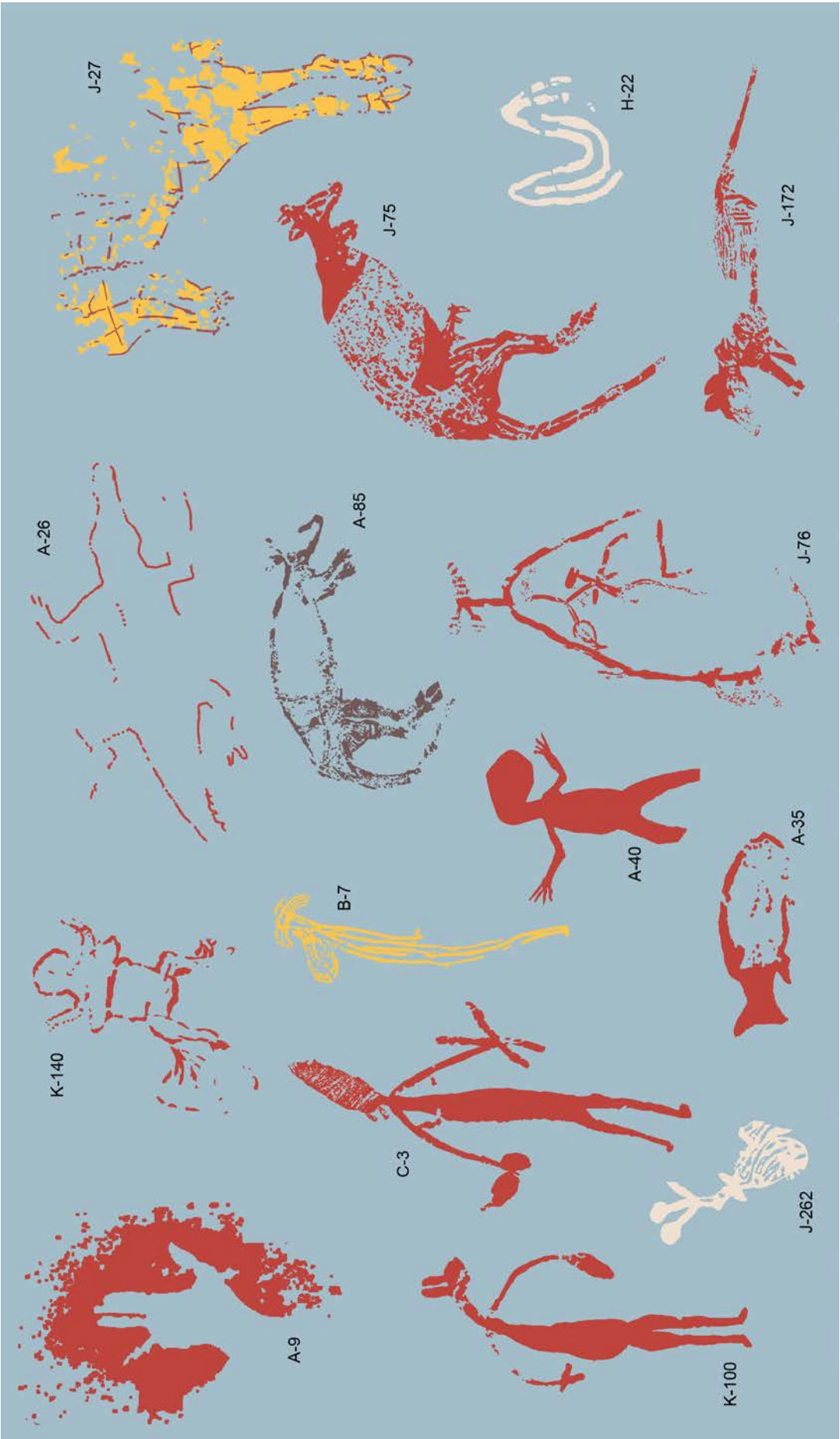


Figure 9.14: Selection of motifs from Art Assemblage 1. Not to scale

open hand stencils. The relationship of the 3MF hand stencils to other motifs in this Art Assemblage is unclear although, from superficial observation, they appear to be present only amongst the earliest art on the ceiling.

There is no single style or characteristic that defines the repertoire of Art Assemblage 1, other than that all the motifs are very weathered and the vast majority are red monochrome motifs that occur in the lower layers of the superimpositions (Figure 9.14).

Art Assemblage 2

Art Assemblage AA-2 contains 152 motifs and fragments (Table 9.11). The art of AA-2 consists of painting (98%) and spray (stencils; 1%). Of these, 35% were produced using red pigments, 27% yellow, 8% white and 11% red+white, with other polychromes accounting for 4% (Table 9.12). Eighty-eight (56%) motifs could be classified to Motif Type (Table 9.13, Figure 9.15), with fragments and traces accounting for the other

Table 9.11: Art Assemblage 2 motif list (including fragments)

Panel	Motif Nos.	Total	%/panel
A3	A-25, A-46 to A-51	7	13
A5	A-84 to A-86	3	-
A6	A-91, A-92	2	-
B1	B-22 to B-26, B-28, B-30 to B32, B-67	10	21
B2	B-46 to B-50	5	24
C2	C-29 to C-40, C-49, C-50, C-52 to C-54	17	20
E3	E-111 to E-113	3	-
F1	F-13 to F-24, F-26, F-56 to F-58, F-126	17	13
F2	F-229	1	3
F3	F-158, F-159	2	-
H	H-43 to H-58	16	12
J1	J-24, J-33, J-47 to J-52, J-77, J-79, J-91 to J-95		-
	J-102 to J-114, J-121, J-173 to J-175, J-177 to J-193, J-258	50	21
J2	J-232 to J-236	5	-
J3	J-240, J-241	2	-
K1	K-1	1	-
K2	K-14 to K-17, K-32, K-158, K-166, K-167	8	9
K4	K-130	1	-
M2	M-7, M-9	2	-
Total		152	

Table 9.12: Art Assemblage 2 technique by colour and condition

Colour	Condition	Technique		Total
		painting	spray	
red (r)	good	1		
	fair	11		
	poor	18		
	very poor	54	1	85
yellow (y)	poor	15		
	very poor	22	1	38
white (w)	fair	2		
	poor	4		
	very poor	6		12
r+w	good	1		
	fair	1		
	poor	6		
	very poor	3		11
y+r	very poor	2		2
y+r+w	fair	1		
	poor	1		2
y+w+r	very poor	1		1
orange+w	fair	1		1
Total		150	2	152

Table 9.13: Art Assemblage 2 Motif Class and Motif Type numbers

Motif Class	Motif Type	No.	Total
anthropomorph	Anthropomorph	22	
	Anthropomorph female	2	
	Anthropomorph male	1	25
bird	Emu	1	
	Jabiru	1	2
complex design	Design regular	1	1
fish	Fish	3	
	Bream	1	
	Catfish eel-tailed	3	7
geometric	Arc	1	
	Line	4	
	Line pair	1	
	Y-shape	1	7
hand	Hand right	2	2
mammal/ monotreme	Animal	3	
	Echidna	3	
	Macropod	10	
	Macropod female	1	
	Macropod male	2	
	Possum	2	
	Quadruped	1	22
object	Object	2	
	Shield	1	3
reptile	Crocodile	2	
	Goanna	1	
	Snake	5	
	Turtle short-necked	3	11
simple design	Design irregular	2	
	Design regular	3	5
unknown	Unknown	1	1
zoomorph	Bolung	1	1
Total		87	87
fragment/trace	fragment/trace	65	152

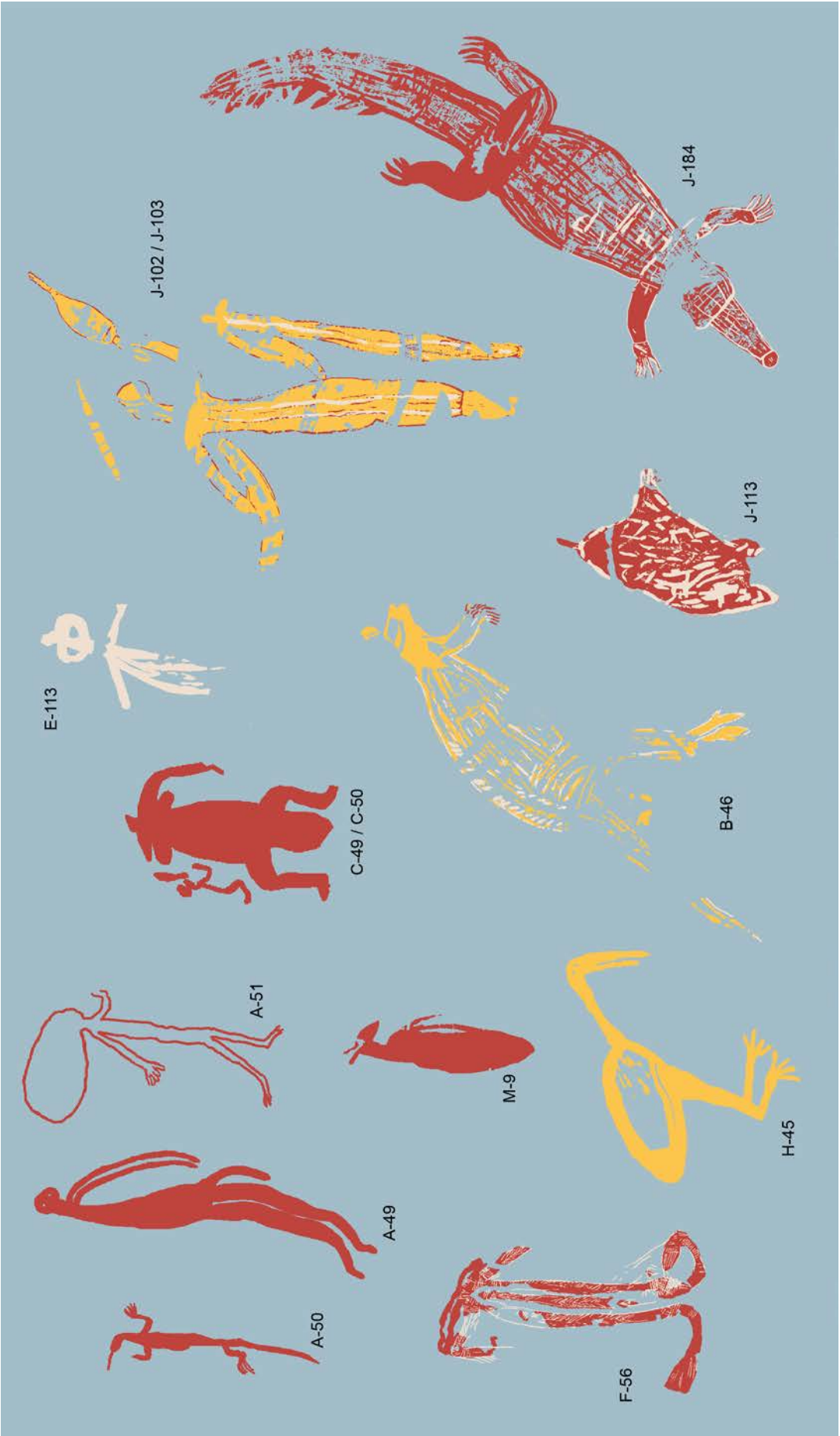


Figure 9.15: Selection of motifs from Art Assemblage 2. Not to scale

44%. The most common Motif Classes are mammal/monotreme and object, with the most numerous Motif Types being possum and spear. The motifs range in length from 35 cm to 540 cm (n=20). The two hand stencils here were too poorly preserved to permit appropriate measurement.

Art Assemblage 3

Art Assemblage AA-3 contains 348 motifs and fragments (Table 9.14). The art of AA-3 consists of painting (96%), spray (stencils; 2%), and appliqué (2%), with 63% produced from red pigments, 22% from yellow, 8% from white, with polychromes accounting for 4% (Table 9.15). Of the motifs, 224 (65%) could be classified to Motif Type (Table 9.16, Figure 9.16), and 35% are fragments and traces. The most common Motif Classes are anthropomorph and fish, and the most numerous Motif

Types are unsexed Anthropomorph and unidentified Fish. The motifs range in length from 1 cm to 226 cm, with a median length of 55 cm (n=58).

As with the previous Art Assemblages, the art here is also very varied and dominated by monochrome red paintings. Four notable features of AA-3 are:

- the presence of the earliest X-ray motifs in the shelter (red monochrome paintings of a snake and a fish);
- the arrangement of small fish into graphic compositions;
- the earliest Namarrkan motifs: one in red and the other in yellow; and
- the depiction of a spearthrower (Motif F-36) of the sort that Lewis (1988) termed a long-spearthrower. According to Lewis's model,

Table 9.14: Art Assemblage 3 motif list (including fragments)

Panel	Motif Nos.	Total	%/panel
A6	A-89, A-90	2	-
B1	B-27	1	2
B2	B-51 to B-53	3	14
C1	C-4	1	-
C2	C-41 to C-48, C-51, C-55 to C-66,	21	25
C3	C-91 to C-96	6	-
D	D-1 to D-22	22	33
E1	E-1 to E-35, E-81, E-82	37	45
E2	E-83 to E-107	22	61
E3	E-114, E-115	2	-
E4	E-119 to E-122	4	-
E5	E-125, E-126	2	-
F1	F-27 to F-48, F-51 to F-53, F-55, F-84	27	21
F2	F-127 to F-146, F-156	21	66
F3	F-160 to F-163	4	-
F4	F-169 to F-211	43	80
F5	F-223 to F-227	6	-
G	G-1 to G-10, G15	11	-
H	H-59 to H-67	9	7
J1	J-46, J-53 to J-56, J-59 to J-61, J-78, J-115 to J-120, J-123,		
	J-194 to J-201	23	10
J3	J-242	1	-
J4	J-250, J-251	2	-
K1	K-2 to K-6	5	-
K2	K-34, K-36, K-38 to K-73, K-159, K-165	40	43
K3	K-103 to K-106, K-108 to K-110, K-168, K-169	9	24
K4	K-136	1	-
K6	K-154	1	-
L	L-8 to L-10, L-13 to L16, L-39, L-40, L-58	10	17
M1	M-1, M-2	2	-
M2	M-10 to M-12,	3	-
M4	M-29, M-30	2	-
N	N-1 to N-5	5	-
Total		348	

Table 9.15: Art Assemblage 3 technique by colour and condition

Colour	Condition	Technique			Total
		applique	painting	spray	
red (r)	good		13		
	fair		54		
	poor		62	1	
	very poor		90		220
yellow (y)	good		2		
	fair		6		
	poor		15		
	very poor		54		77
white (w)	good		1		
	fair		2	4	
	poor		5	2	
	very poor		13		27
r+w	good		3		
	fair		4		
	poor		4		
	very poor		1		12
black	fair	5	1		
	poor	2			8
orange	fair		2		2
r+y	fair		1		1
w+r	poor		1		1
Total		7	334	7	348

Table 9.16: Art Assemblage 3 Motif Class and Motif Type numbers

Motif Class	Motif Type	No.	Total
anthropomorph	Anthropomorph	27	
	Anthropomorph female	5	
	Anthropomorph male	10	42
bird	Bird	6	
	Emu	2	8
complex design	Radial design	3	3
fish	Archer	1	
	Bream	9	
	Catfish eel-tailed	2	
	Fish	24	
	Longtom	2	
	Saratoga	1	39
flora	Waterlily	1	

Table 9.16 continued

	Yam	18	19
geometric	Arc	1	
	Bar	4	
	Dot	9	
	Line	5	
	Line pair	1	
	Triangle	1	
	T-shape	1	
	V-shape	1	23
hand	Hand	3	
	Hand left	3	
	Hand right	1	7
infill	motif infill	2	2
mammal/monotreme	Animal	1	
	Echidna	2	
	Flying fox	1	
	Macropod	17	
	Macropod female	1	
	Macropod legs	1	
	Macropod male	4	
	Possum	1	
	Quadruped	2	30
object	Dillybag	1	
	Object	1	
	Ritual	1	
	Shield	2	
	Spear	3	
	Spear set	1	
	Spearthrower	1	10
reptile	Crocodile	1	
	Snake	10	
	Turtle long-necked	6	
	Turtle short-necked	2	19
simple design	Apex	3	
	Design irregular	3	
	Radial design	1	
	Design irregular	4	
	Zigzag	1	12
therianthrope	Roo-headed	1	1
unknown	Unknown	10	10
zoomorph	Bolung	1	1
Total		226	226
fragment/trace	fragment/trace	122	348

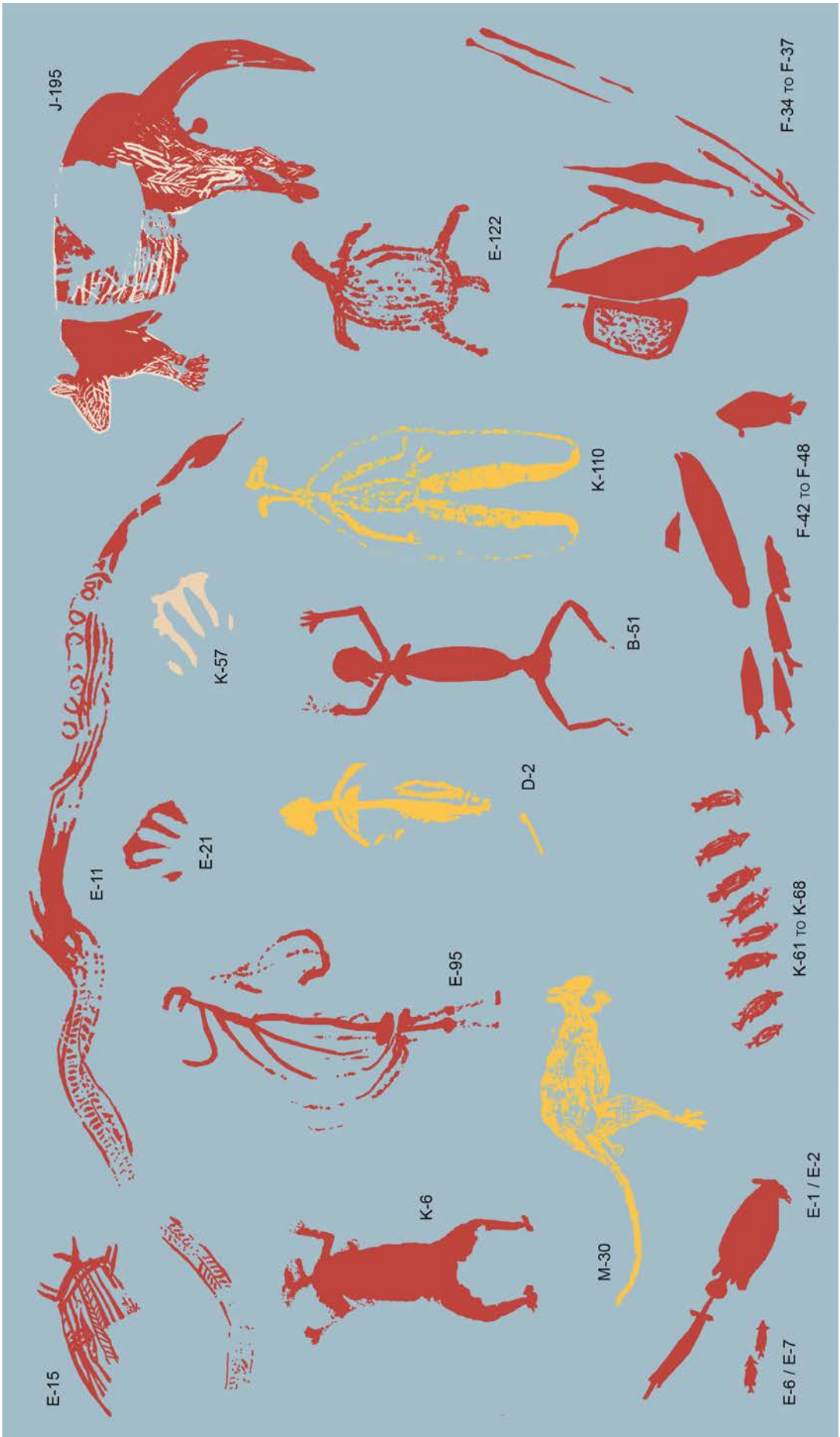


Figure 9.16: Selection of motifs from Art Assemblage 3. Not to scale

this would be from a period dating sometime between 2000 and the present (and, he suggests, probably <1000 years), although he did not obtain any absolute ages in his work.

Art Assemblage 4

Art Assemblage AA-4 contains 49 motifs, including fragments (Table 9.17). All of the art of AA-4 consists of painting, with 60% produced from red pigments, 10% from orange and 6% from yellow. Only a single white motif was recorded along with four bichrome motifs (Table 9.18). Of the motifs, 39 (78%) could be classified to Motif Type (Table 9.19, Figure 9.17), with fragments accounting for the other 22%. The most common Motif Classes are mammal/monotreme and object, with the most numerous Motif Types being

Possum and Spear. The motifs range in length from 26 cm to 200 cm (n=10).

The motif types within AA-4 are very varied. While the paintings are dominated by monochrome red pigments there is a notably greater use of orange pigment (20%). Four features of AA-4 suggest a close relationship with the previous AA-3:

- a similar dominance of red monochrome paintings;
- the depiction of profile women, each with a dillybag strung from their heads (AA-4 Motif E-102 with AA-3 Motif F-34);
- the depiction of single-sided multi-barbed spearheads (AA-4 Motifs M-13, E-75 and E-83 with AA-3 Motifs F-36 and F-37) and long

Table 9.17: Art Assemblage 4 motif list (including fragments)

Panel	Motif Nos.	Total	%/panel
A6	A-93 to A-95	3	-
C2	C-67 to C-73	7	8
E2	E-102, E-103	2	7
E4	E-123	1	-
F1	F-11, F-25, F-49, F-50, F-59 to F-63, F-75 to F-83, F-92	19	15
F2	F-147	1	3
G	G-11	1	-
H	H-68 to H-75	8	6
K3	K-111, K-112, K-172, K-173	4	11
M3	M-13 to M-15	3	-
Total		49	

Table 9.18: Art Assemblage 4 technique by colour and condition

Colour	Condition	Technique	Total
		painting	
red (r)	good	1	30
	fair	9	
	poor	16	
	very poor	4	
orange	fair	2	9
	poor	3	
	very poor	4	
yellow (y)	poor	2	6
	very poor	4	
r+w	poor	1	2
	very poor	1	
white (w)	very poor	1	1
y+w	fair	1	1
Total		49	49

Table 9.19: Art Assemblage 4 Motif Class and Motif Type numbers

Motif Class	Motif Type	No.	Total
anthropomorph	Anthropomorph	2	5
	Anthropomorph female	3	
bird	Bird	4	6
	Emu	2	
fish	Catfish eel-tailed	2	2
geometric	Disc	1	2
	Line	1	
infill	Infill #E-122	1	1
mammal/monotreme	Animal	2	11
	Echidna	1	
	Macropod	3	
	Possum	4	
object	Dillybag	1	9
	Object	3	
	Spear	4	
	Spearthrower	1	
reptile	Snake	1	2
	Turtle short-necked	1	
unknown	Unknown	1	1
Total		38	38
fragment	fragment	11	11



Figure 9.17: Selection of motifs from Art Assemblage 4. Not to scale

spearthrowers (AA-4 Motifs E-77 and AA-3 Motif F-35); and

- an association of anthropomorphs with groups of artefacts (AA-4 Motifs E75 to E-83 with AA-3 Motifs F-34 to F-37).

Art Assemblage 5

Art Assemblage AA-5 contains 302 motifs and fragments (Table 9.20). The art of AA-5 consists of painting (93%), spray (white stencils; 5%) and drawing (2%). White is the most commonly used pigment (66%), followed by white+red (14%) and yellow (8%). Only two motifs in red were recorded along with 16 other polychrome motifs (Table 9.23).

Of the motifs in this Art Assemblage, 268 (89%) could be classified to Motif Type (Table 9.21, Figure 9.28), with fragments accounting for the other 11%. The most common Motif Classes are anthropomorphs and mammal/monotreme, with the most numerous Motif Types being 'Anthropomorph' and 'Macropod' (Table 9.22). The painted motifs range in length from 7 cm to 540 cm, with a median length of 64 cm. The hand stencil middle finger lengths range from 6.0 cm to 8.5 cm (n=5). A major difference in the art of AA-5 from the previous Art Assemblages is a greatly increased use of white pigment and a corresponding decrease in the use of red. This change saw the introduction of the distinctive Jawoyn style of white silhouette motifs decorated with fine red outline and infill, including the

Table 9.20: Art Assemblage 5 motif list (including fragments)

Panel	Motif Nos.	Total	%/panel
A3	A-52 to A-65	14	25
A4	A-82, A-83	2	-
A5	A-87, A-88	2	-
A7	A-109, A-110	2	-
B2	B-54 to B-60	7	33
C3	C-97 to C-101	5	-
D	D-23 to D-47	25	38
E1	E-36 to E-47, E-51 to E-74	36	44
E4	E-124	1	-
E5	E-127	1	-
F1	F-64 to F-74, F-85 to F-90, F-93 to F-97, F-100 to F-104,		-
	F-109 to F-111, F-124	31	25
F4	F-212 to F-219	8	15
G	G-12 to G-14, G-17	4	-
H	H-76 to H-92, H-130, H-131	19	14
J1	J-34 to J-37, J-58, J-62, J-63, J-80 to J-86, 122, J-124 to J-149,		-
	J-202 to J-226	66	28
J3	J-243 to J-246	4	-
J5	J-254, J-255	2	-
K2	K-74 to K-95, K-160 to K-164	27	29
K3	K-107, K-113 to K-125	14	37
K5	K-142 to K-148	7	-
K6	K-155 to K-157	3	-
L	L-17 to L-38	22	38
Total		302	

Table 9.21: Art Assemblage 5 technique by colour and condition

Colour	Condition	Technique			Total
		drawing	painting	spray	
white (w)	excellent		5		
	very good		3		
	good		45	6	
	fair		44		
	poor	1	52	3	
	very poor		39	1	199
yellow (y)	good		4		
	fair	1	9		
	poor		6		
	very poor		4		24
w+r	good		5		
	fair		20		
	poor		12		
	very poor		5		42
r+w	good		2		
	fair		2		
	poor		2		
	very poor		2		8
c+r	good		1		
	fair		5		
	poor		1		7
cream (c)	good		2		
	fair		3		
	very poor		1		6
orange (o)	poor		2		
	very poor		1		3
pink (k)	very good		2		2
red (r)	fair		1		
	poor		1		2
w+y	good		2		2
y+w	good		1		
	fair		1		2
c+w	fair		1		1
o+w	poor		1		1
w+o	poor		1		1
w+y+o	fair		1		1
w+y+r	very poor		1		1
Total		2	290	10	302

Table 9.22: Art Assemblage 5 Motif Class and Motif Type numbers

Motif Class	Motif Type	No.	Total
anthropomorph	Anthropomorph	37	
	Anthropomorph female	13	
	Anthropomorph male	16	
	Copulating couple	4	
	Genitals male	1	
	Jawoyn Lady	4	75
bird	Bird	3	
	Bush-hen	1	
	Emu	3	
	Jabiru	2	9
fish	Catfish eel-tailed	12	
	Fish	10	
	Longtom	1	
	Saratoga	1	24
geometric	Arc	1	
	Bar	6	
	Bar pair	1	
	Dot pair	1	
	Line	1	
	Oval	2	
	Oval concentric	3	
	V-shape	1	
	Y-shape	1	17
hand	Hand left	12	
	Hand right	2	14
infill	motif infill	1	1
mammal/monotreme	Animal	2	
	Bandicoot	2	
	Echidna	1	
	Flying fox	3	
	Macropod	24	
	Macropod female	1	
	Macropod male	6	
	Possum	4	
	Quadruped	1	44
object	Dillybag	1	
	Feather	1	
	Object	2	
	Spear	3	
	Spearthrower	5	12
reptile	Crocodile	5	
	Goanna	2	
	Snake	6	
	Turtle	2	
	Turtle long-necked	5	
	Turtle short-necked	5	25
simple design	Apex	4	
	Design irregular	11	
	Design irregular	8	23
therianthrope	Bird-footed	1	
	Macropod-headed	1	2
track	Footprint	1	
	Macropod track	1	2
unknown	Unknown	20	20
Total		268	268
fragment	fragment	34	34

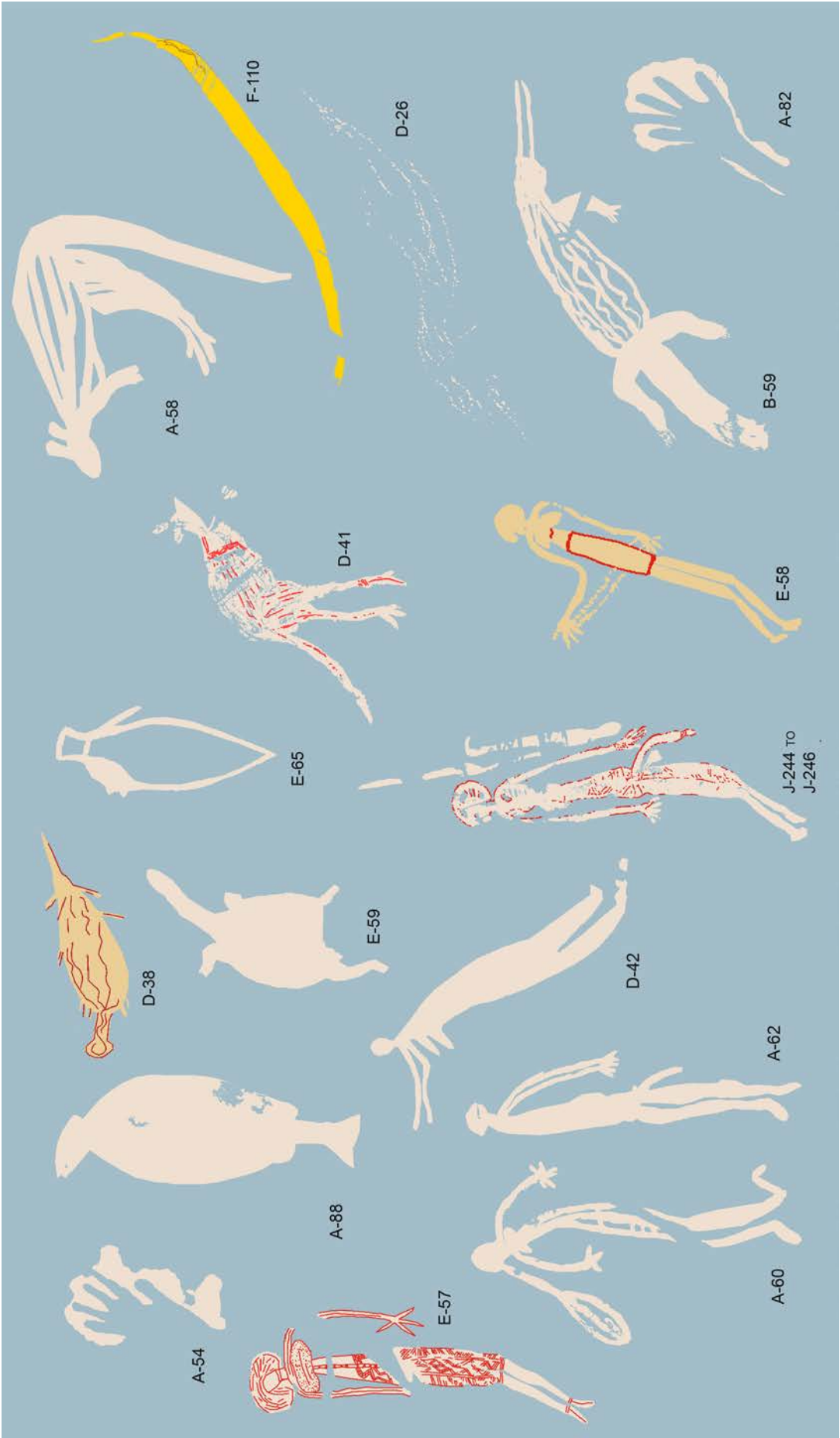


Figure 9.18: Selection of motifs from Art Assemblage 5. Not to scale

distinctive 'Jawoyn Lady' motif (Gunn 1992a; and see Figure 9.28, E-57). Only two red motifs were recorded, both small and visually inconsequential. The change in pigment use is dramatic and appears to have occurred very rapidly around 400 years ago. Another notable change is the use of a greater variety of bichrome colour combinations (Table 9.21).

Art Assemblage 6

Art Assemblage AA-6 is represented by 37 motifs and fragments (Table 9.23). The art of AA-6 consists of painting (81%), appliqué (16%), and spray (one yellow hand stencil), with 54% produced from white pigments, 16% from black, 14% from white+red, with

Table 9.23: Art Assemblage 6 motif list (including fragments)

Panel	Motif Nos.	Total	%/panel
C2	C-89	1	1
F1	F-91, F-98, F-99, F-105 to F-108	7	6
H	H-35, H-93 to H-105, H-107 to H-113, H-122, H-132	23	17
K4	K-137	1	-
K5	K-150 to K-152, K-171	4	-
M1	M-3	1	-
Total		37	

Table 9.24: Art Assemblage 6 technique by colour and condition

Colour	Condition	Technique			Total
		applique	painting	spray	
white (w)	good		2		
	fair		3		
	poor		9		
	very poor		5		19
w+r	good		3		
	fair		1		
	poor		1		
	very poor		1		6
black	very good	1			
	good	5			6
red (r)	fair		3		3
yellow (y)	fair		1		
	poor			1	2
w+y+r	good		1		1
Total		6	30	1	37

Table 9.25: Art Assemblage 6 Motif Class and Motif Type numbers

Motif Class	Motif Type	No.	Total
anthropomorph	Anthropomorph	6	
	Anthropomorph female	5	
	Anthropomorph male	2	13
bird	Emu	1	1
fish	Catfish eel-tailed	1	1
geometric	Dot	2	
	Line	2	4
hand	Hand left	1	1
mammal/monotreme	Macropod	1	
	Macropod male	1	2
object	Digging stick	1	
	Dillybag	3	4
reptile	Snake	1	
	Turtle long-necked	1	2
simple design	Design radial	3	3
Total		31	31
fragment	fragment	6	6

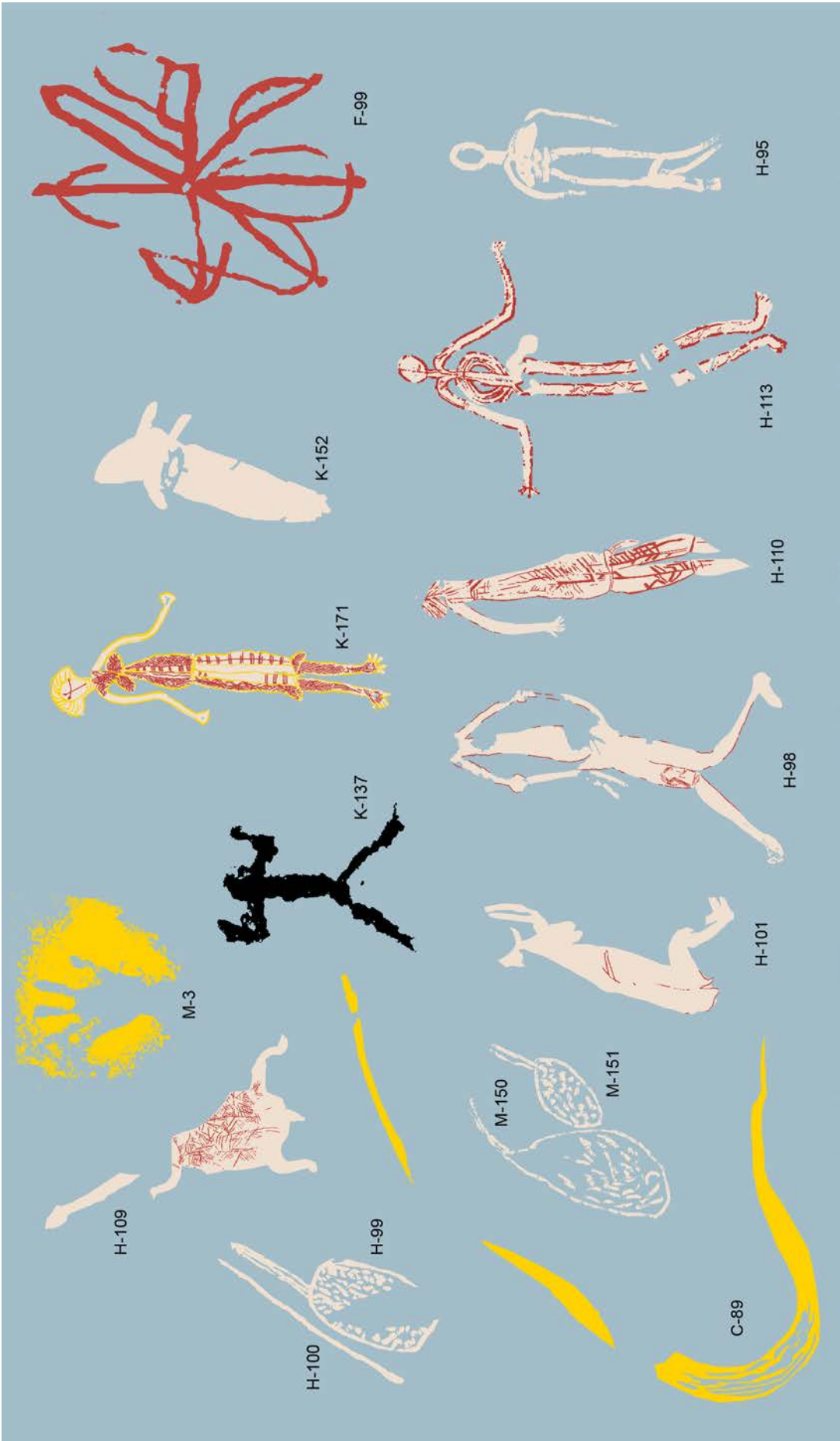


Figure 9.19: Selection of motifs from Art Assemblage 6. Not to scale

another three in red (8%) and two in yellow (Table 9.24). Thirty-one (84%) motifs could be classified to Motif Type (Table 9.25, Figure 9.19), with 16% as fragments. The most common Motif Classes are anthropomorphs, and the most numerous Motif Types are unsexed 'Anthropomorph' and 'Anthropomorph female'. The painted motifs range in length from 13 cm to 186 cm, with a median length of 81 cm (n=16). The single hand stencil has a middle finger measurement of 7.5 cm.

Art Assemblage AA-6 continues the dominance of white pigment from the previous AA-5 assemblage, with a high proportion of monochrome white paintings, and motifs of anthropomorphs.

Art Assemblage 7

Art Assemblage AA-7 contains 197 motifs and fragments (Table 9.26). The art of AA-7 consists of painting (93%), spray (stencils; 4%), and drawing (3%), with 46% produced from white pigments and 24% from white+red (Table 9.27). The spray motifs include two sprayed areas in white and five white hand stencils. Other monochrome motifs account for 13% (with 4% red). The other 33 polychrome motifs occur in 17 different colour combinations, of which white+red+black is the most numerous. Of the motifs, 184 (93%) could be classified to Motif Type (Table 9.28, Figure 9.20), with fragments and traces accounting for the other 7%. The most common Motif Classes are anthropomorph (31%), fish

Table 9.26: Art Assemblage 7 motif list (including fragments)

Panel	Motif Nos.	Total	%/panel
A1	A-02	1	
A3	A-66 to A-71	6	11
A6	A-96 to A-101	6	
A7	A-111	1	
B1	B-33 to B-45	13	28
B2	B-61 to B-66	6	29
C1	C-05	1	
C2	C-74 to C-88	15	18
D	D-48 to D-66	19	29
E1	E-48 to E-50, E-75 to E-80	9	11
E2	E-108 to E-110	3	11
E3	E-116 to E-118	3	
F1	F-112 to F-123, F-125	13	10
F2	F-148 to F-155, F-157	9	28
F3	F-164 to F-168	5	
F4	F-220 to F-222	3	6
F5	F-228	1	
G	G-16	1	
H	H-106, H-114 to H-121, H-123 to H-129	16	12
J1	J-65, J-87 to J-90, J-150 to J-157, J-227, J-228	15	6
J2	J-237	1	
J3	J-247 to J-249	3	
J4	J-252	1	
K1	K-7 to K-13	7	
K3	K-126 to K-129	4	11
K5	K-149, K-172	2	
L	L-41 to L-57	17	29
M1	M-4	1	
M3	M-16 to M-21	6	
M4	M-31 to M-37	7	
N	N-6, N-7	2	
Total		197	

Table 9.27: Art Assemblage 7 technique by colour and condition

Colour	Condition	Technique			Total
		drawing	painting	spray	
white (w)	excellent		6		
	very good		8	1	
	good	1	26		
	fair	2	21	1	
	poor	3	8	5	
	very poor		9		91
w+r	excellent		2		
	very good		2		
	good		15		
	fair		13		
	poor		11		
	very poor		5		48
pink (k)	very good		1		
	good		1		
	fair		3		
	poor		3		
	very poor		1		9
w+r+black	excellent		2		
	good		4		
	fair		1		
	very poor		1		8
red (r)	good		5		
	fair		1		
	poor		1		7
yellow (y)	good		1		
	fair		2		
	poor		1		
	very poor		1		5
w+black	good		1		
	poor		3		4
w+r+purple	excellent		3		3
cream (c)	excellent		1		
	good		1		2
orange (o)	good		2		2
w+o	good		2		2
w+r+o+purple	excellent		2		2
w+y	good		1		
	fair		1		2
y+w	good		2		2
c+k	excellent		1		1
grey+w+r	poor		1		1
o+w	fair		1		1
purple+r+w+y	excellent		1		1
r+w	fair		1		1
w+black+r	poor		1		1
w+o+c+r	fair		1		1
w+purple	excellent		1		1
w+r+y	good		1		1
y+r+black	good		1		1
Total		6	184	7	197

Table 9.28: Art Assemblage 7 Motif Class and Motif Type numbers

Motif Class	Motif Type	No.	Total
anthropomorph	Anthropomorph	10	
	Anthropomorph female	21	
	Anthropomorph male	10	
	Arms	1	
	Copulating couple	2	
	Genitals female	2	
	Genitals male	1	
	Jawoyn Lady	6	
	Legs roo-footed	1	
	Torso	1	55
area	Area	1	
	Scribble	2	
	Smear	3	6
bird	Bird	2	
	Emu	2	4
fish	Barramundi	9	
	Bream	3	
	Catfish eel-tailed	6	
	Catfish fork-tailed	1	
	Fish	8	
	Longtom	1	
	Saratoga	6	34
geometric	Bar	3	
	Line	4	
	Y-shape	2	9
hand	Hand	1	
	Hand left	3	
	Hand right	1	5
infill	motif infill	2	2
mammal/monotreme	Animal	2	
	Bandicoot	1	
	Dingo	1	
	Horse	1	
	Macropod	5	
	Macropod legs	2	
	Macropod male	11	
	Possum	3	26
object	Spear	3	
	Spearthrower	1	4
reptile	Crocodile	2	
	Snake	3	
	Turtle long-necked	1	
	Turtle short-necked	6	12
simple design	Apex	2	
	Design irregular	4	
	Design radial	1	
	Design irregular	1	
	Zigzag	2	10
therianthrope	Macropod-footed	3	
	Macropod-headed	1	4
track	Footprint	1	1
unknown	Unknown	12	12
Total		184	184
fragment/trace	fragment/trace	13	13

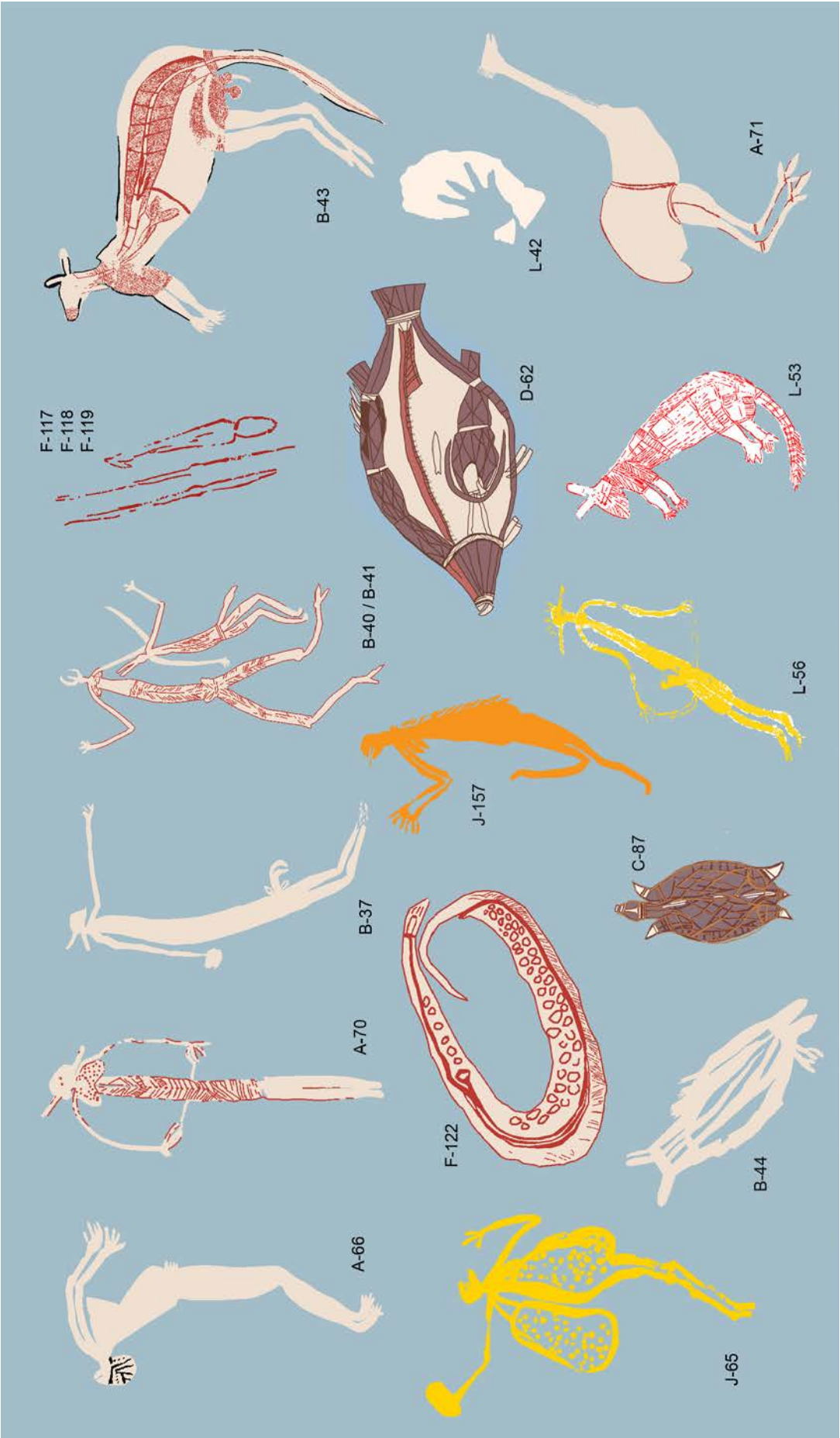


Figure 9.20: Selection of motifs from Art Assemblage 7. Not to scale



Figure 9.21: The most recent motifs in the shelter

(18%) and mammal/monotreme (14%), and the most numerous Motif Types are Anthropomorph female (5%). The motifs range in length from 5 cm to 347 cm, with a median of 81 cm (n=112).

Of all the Art Assemblages, this is the most diverse in the manner of representation (style) and colour combinations, with monochrome white paintings being the most frequent, followed by white+red bichrome.

The uppermost, and hence most recent, art is dominated by large and visually striking polychrome fish motifs, painted in the Northern X-ray form (Motifs C-88, D-59, D-60, D-62 to D-66; E-77, E-78; and H-128, H-129; Figure 9.21). These motifs can be seen as a sub-set of AA-7, although whether they form a chronologically distinct group remains to be determined.

Chronological indicators for the rock art

Having chronologically sequenced the threads, the next step is to allocate a particular chronological time frame for each thread or Art Assemblage. This step can only be achieved when the layers within each thread group can be pegged to specific motifs that have been firmly dated. These dates, age ranges, or age maxima or minima, can be derived from a variety of sources such as radiocarbon dating, geological events, and motifs related to specific events or environmental changes. Additional support for the chronology can then be supplied by probable or tentative dates derived from secondary sources.

At Nawarla Gabarnmang direct dates are available for a small number of motifs (e.g. Gunn et al. 2012) and panels (Delannoy et al. 2017). Rough temporal indicators through the interpretation of chronologically linked motifs have also been developed. Each line of evidence will be discussed and then the various avenues of evidence used to form a framework for the chronology of Nawarla Gabarnmang's art.

Roof fall

Delannoy et al. (2017: 237) have established that:

the earliest evidence of ceiling collapse during the period of human presence occurred sometime between c. 33,998-35,129 cal BP (oldest evidence of roof-fall in cultural layers of [excavation] Squares D) and 11,624-12,024 cal BP (age of the dated wasp-nest [on Panel A3] in southwestern sector).

In addition, excavation of Squares F+I+L+M, adjacent to Pillar 20 and below art Panel L (Figure 9.22), showed that the rock surface on which Panel L occurs formed at some time between 23,909 and 21,495 cal BP (Delannoy

et al. 2017). This is the only panel at the site that has been specifically dated and indicates that all of the art on Panel L must be less than 24,000 years old.

Dated wasp nests

Radiocarbon dates have been recovered from two wasp nests on Panel A3 (Delannoy et al. 2017: 237). The older of the two samples provided an age range of 11,624–12,024 cal BP, with a median age of 11,833 cal BP (Table 8.7). This nest underlies a red linear painting from Phase II (Motif A-27; Figure 8.9) and hence provides a maximum age for the painting.

The more recent sample provided an age range of AD 1519–1950, with a median calibrated age of AD 1638 (Table 8.7). As mentioned in Chapter 8 above, the 1948–1950 (0.3%) bracket of the calibrated age can be disregarded in relation to the dating of the art as we know that it was produced prior to AD 1935. The wasp nest underlies Motif A-57 (and Layer 7, Phase A3/V), indicating that the minimum age range for the motif can be taken as cal AD 1519–1798 or more than 200 years ago (Table 8.7).

Dated beeswax

As mentioned in the chronological correlations section above, six beeswax pellets have been dated by radiocarbon dating (see Table 8.39). These fall into two groups:

- beeswax pellets around 500 years old:
Motifs F-27 and F-28 (Panel F1), Motifs J-53 and J-54 (Panel J1)
Calibrated age range of cal AD 1433–1643.
Median age probabilities cal AD 1470, 1479, 1562 and 1561 respectively.
- beeswax pellets around 240 years old:
Motif H-122 (Panel H) and Motif K-137 (Panel K4) Median age probabilities of cal AD 1770 and cal AD 1778 respectively.
Motifs F-105 to F-108 (Panel F1) are in a similar state of preservation to Motif K-137 and assumed to be of similar age.

As well as dating the beeswax motifs themselves, these ages provide maximum ages for overlying motifs and minimum ages for underlying motifs.

Excavated pigments

The excavation of Square P, below Art Panel E1 (Figure 9.22), recovered a layer of dried paint drops of an off-white colour. It is assumed that these fell when motifs on the ceiling overhead were being painted (David et al. 2017: 297). The paint drops occurred within XU18,

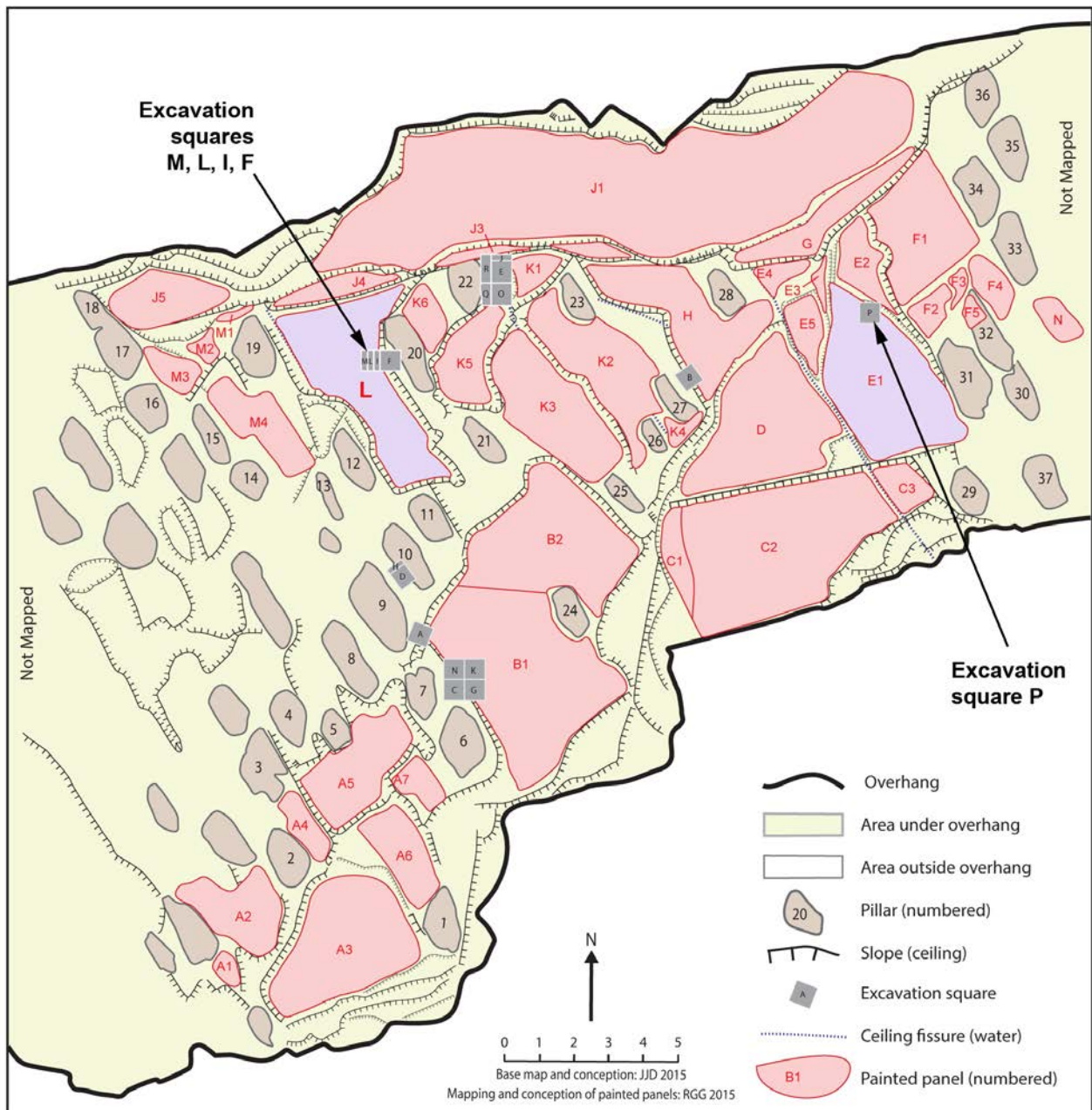


Figure 9.22: Location of excavation squares M, L, I, F and P

with small amounts also in the underlying XU19. Radiocarbon dating of charcoal from XU18 provided a median calibrated age of 510 cal BP (530–480 cal BP at 95.4% probability). Other XU samples within the Radiocarbon Phase 3 of David et al. had mean calibrated ages ranging from 510 to 390 cal BP; hence, the layer of paint drops was interpreted as the result of a major painting event, primarily using white paint, and that occurred within the period 510–390 cal BP (David et al. 2017: 298). The painting of similar coloured motifs on Panel E1 above the excavated pit occurred during Phases E1/IV, E1/V and E1/VI. As each of these phases contain large paintings that would have required the

mixing of considerable quantities of white pigment (Motifs E-56, 75, 76–79), it is not possible at present to determine precisely which phase is represented by the excavated pigment layer. However, the uppermost group of radiocarbon dates (Radiocarbon Phase 4: XU1 to XU13) all have median calibrated ages of 180 cal BP or less (David et al. 2017), and the motifs from Phase E1/VI are all extremely well preserved, suggestive of a very recent production age (say within the last 100 years). It is, therefore, likely that Radiocarbon Phase 4 of David et al. is represented on the panel by Art Phase E1/VI. As the previous Art Phase E1/V is represented by a single motif, it is unlikely to be the source of the

large quantity of white pigment recovered from XU18. This then suggests that Radiocarbon Phase 3 (510–390 cal BP) is most likely to equate with Art Phase E1/IV, which has 37 motifs, large and small, painted primarily with white pigment.

A rock fragment bearing part of a motif in charcoal was excavated from Square E below Panel K1, within deposits dated to c.28,000 years old (David et al. 2013). The rock fragment could not be matched back into the ceiling although the sandstone layer from which it came was identified. Similarly, it could not be related to any of the Art Assemblages on the ceiling.

Horse

As mentioned in Chapter 3 above, horses first penetrated the Arnhem Land plateau on the 24th October 1845 (Leichhardt 1847). While it is possible that the painting was a response to later horse-ridden ventures onto the plateau, such as Lindsay's in AD 1883, the horse motif on Panel D (Motif D-48; Figure 9.23) could not have been painted prior to AD 1845 (Gunn, Whear and Douglas 2012b). The horse motif then gives a maximum age of 170 years for this painting, rather than an absolute date for the painting, and also a maximum age for the 17 motifs in the five layers overlying the horse.

Jabiru

As mentioned in Chapter 8, Motif H-45 (Figure 9.24) appears to depict a large-beaked waterbird, suggestive of a jabiru, *Ephippiorhynchus asiaticus*, which frequents the wetlands to the north and west of the plateau. Such waterbirds did not appear on the landscape until after the evolution of these wetlands around 1500 years ago (cf. Allen and Barton 1989: 105). Consequently, the waterbird motif must postdate this evolution. As the motif occurs in Layer 17 of Phase H/II, all of the motifs in the overlying layers, Layers 1 to 16, would have to have been painted subsequent to this time.

Thylacines and dingoes

Many of the dog-like animals depicted in northern Australian rock art are considered by rock art scholars to represent the thylacine (*Thylacinus cynocephalus*; Figure 9.25), which is now extinct on mainland Australia. Hence, motifs of thylacines act as a chronological marker for the art styles in which the thylacine occurs (Brandl 1972a; Chaloupka 1993; Lewis 1977; Mulvaney 2009; Murray and Chaloupka 1984; Taçon et al. 2011; Welch 2015; Wright 1972).

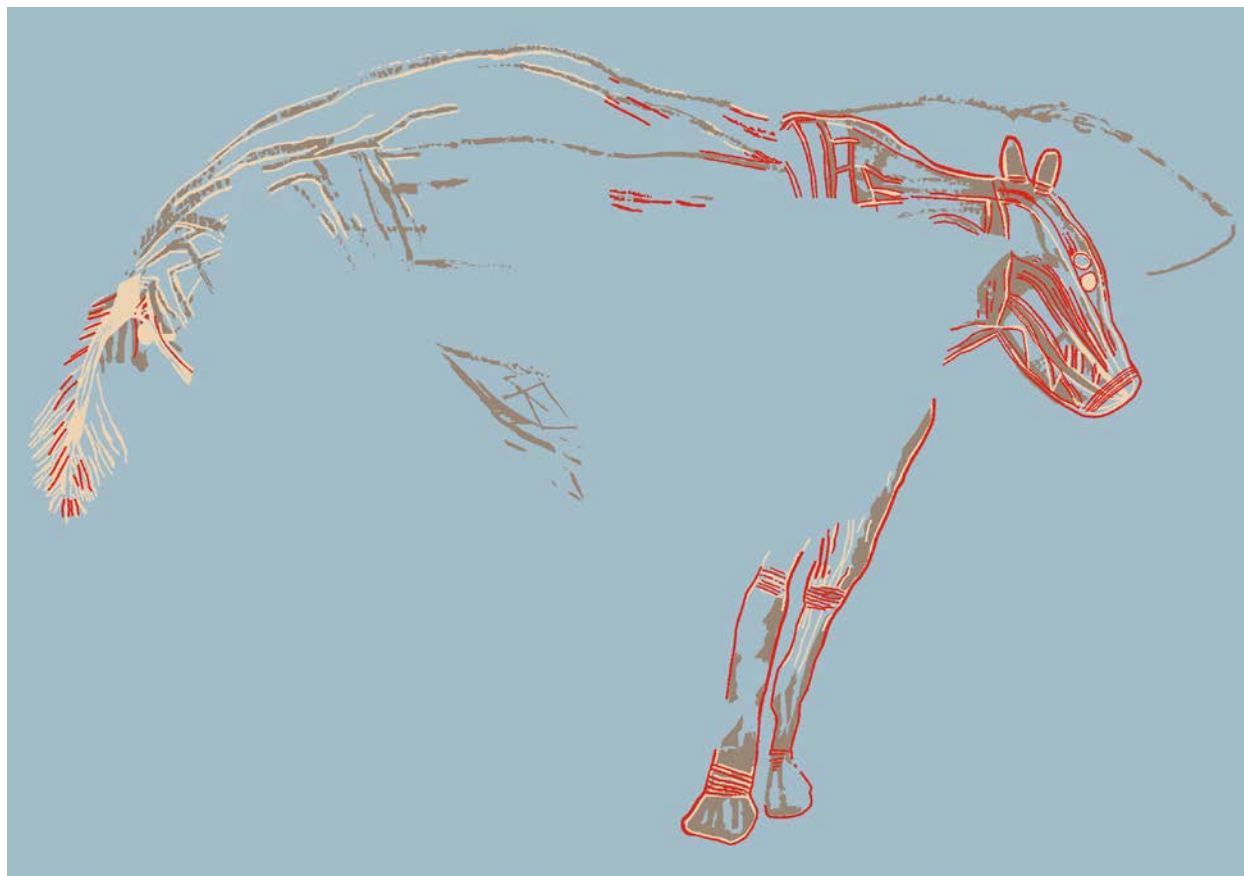


Figure 9.23: 'Horse' motif (D-48)

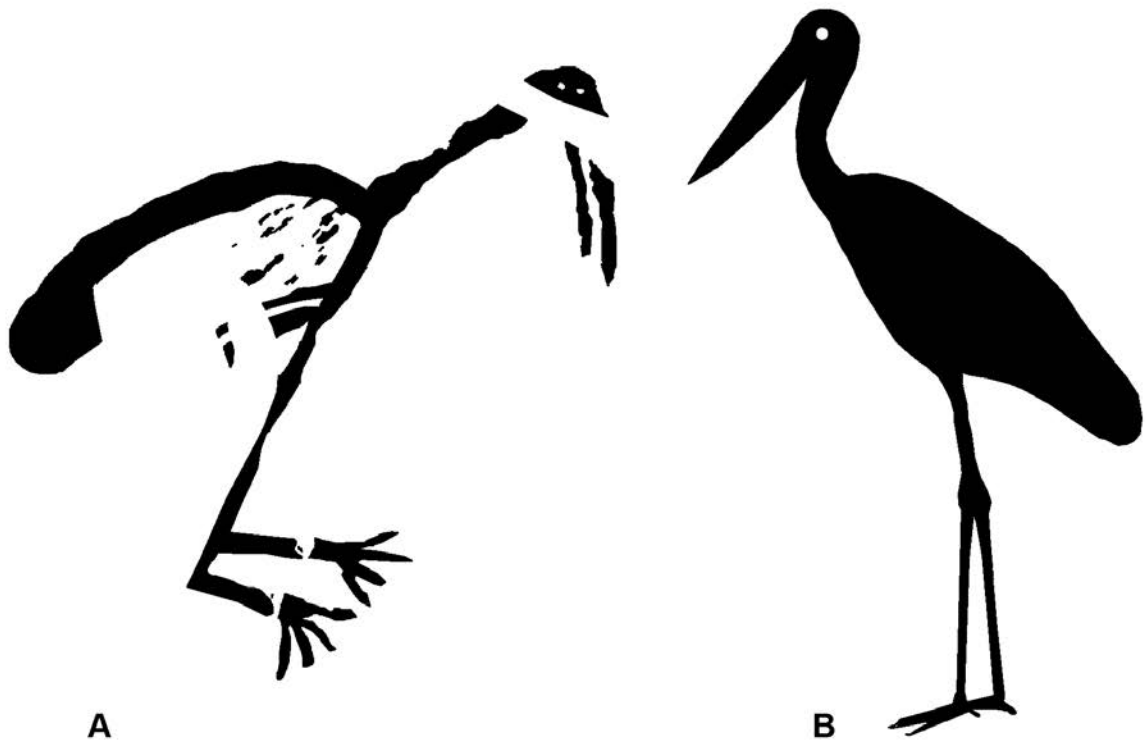


Figure 9.24: 'Jabiru' motif H-45 (A) and Jabiru silhouette traced from photograph (B)

The youngest thylacine remains found on the mainland date to 3090 ± 90 BP (Archer 1974). Bones of the animal were found on the surface and within the upper seven centimetres of the floor deposits of Murray Cave on the Nullarbor Plain, where charcoal (combined?) from this upper layer dated to 3090 ± 90 BP (Archer 1974: 45). The deposit contained bones of more than one thylacine (Mike Archer, pers. comm., 2015), so how the radiocarbon date from the deposits relates to the remains on the surface is unknown. Two other sites in southern Australia also have thylacine remains from around 3500 BP (Lowry and Merrilees 1969; Partridge 1967). It is generally accepted that the thylacine became extinct on mainland Australia soon after 3500 years ago, paralleling the introduction of the dingo to Australia and a marked increase in human activity over the landscape (e.g. Gale 2009; Johnson and Wroe 2003; Letnic et al. 2012; Mattias et al. 2011; Mulvaney and Kamminga 1999: 260; Smith 1982; Taçon et al. 2011). In contrast, thylacines survived on the island of Tasmania until the 20th Century, with the last known wild animal being shot in AD 1930 and the last captive animal dying in AD 1936 (Beresford and Bailey 1981: 28). Flood (1997: 107) claims evidence for its survival in the Kimberley at 700 years ago but, as no supporting source for this information is provided, her claim cannot be accepted at this time. While Lewis (1988: 98) favours an extinction of the thylacine in Arnhem Land more recently than 3000 years ago (on the basis of the rock art), Johnson, while

accepting that the thylacine became extinct on the mainland around 3000 years ago, suggests that it may have become extinct in northern Australia several thousand years earlier, and well before the arrival of the dingo (Johnson 2006: 156).

The principle diagnostic features recognised as distinguishing a thylacine from a dingo/dog are that, while dingo-like in form, the thylacine has:

- vertical stripes down the hind-quarters;
- a proportionally larger head;
- a slimmer and more elongated body;
- a tail extending horizontally as an extension of the back-bone that, being part of the backbone that, unlike a dog, cannot be raised above the line of the back. The tip-tuft may be indicated at the tip of the tail;
- a unique tapering of the hind quarters into the base of the tail;
- a protruding marsupial cloaca;
- forelimbs the same length or longer than the hind legs; and
- rounded rather than pointed ears (cf. Figures 9.25 to 9.27; Beresford and Bailey 1981; Ride 1970: 128-131).

Given variations in style and size of the motif, not all of these features need to be present for a highly probable classification as a thylacine.



Figure 9.25: Male thylacine specimen
Note the elongated body, large head and tapering rear towards tail.
Melbourne Museum specimen No. 5745; male. Tail broken to fit in holding case



Figure 9.26: Detail of the elongated rump and rounded ears of the thylacine
Melbourne Museum specimen No. 28744; female

Thylacines are well represented in the rock art of Arnhem Land. All of the reported examples are in monochrome red and most are poorly preserved. They are considered to date from times when thylacines were living in the landscape. Consequently, paintings of thylacines and composite thylacine-anthropomorph figures in Arnhem Land and elsewhere are taken to be at least 3000 years old and are often used as a chronological marker for other paintings either overlying or underlying them (e.g. Chaloupka 1993).

The dingo, *Canis lupus dingo* (Figure 9.27), is thought to have arrived in Australia at sometime between 5000 and 3500 years ago (Balm and O'Connor 2016; Letnic et al. 2012; Savolainen et al. 2004). It is very similar in appearance to the domestic dog (*Canis lupus familiaris*),

with minor differences requiring metric analysis (Newsome et al. 1980). The primary differences are that dingoes have longer muzzles, larger bullae and main teeth, longer and more slender canine teeth, and flatter crania with larger nuchial crests (Newsome et al. 1980: 165).

Therefore, any representation of a dog-like quadruped in Aboriginal rock art, such as Motif J-252, must be less than 5000 years old, and probably less than c. 3500 years old. There was a close relationship between Aboriginal people and dingoes throughout Australia during ethnographic times, a familiarity that also extended to domestic dogs as they moved into Aboriginal lands in the 19th and 20th Centuries (e.g. Balm and O'Connor 2016; Gould 1969: 82 and plates).



Figure 9.27: Natural 'yellow' and albino dingoes
Note the pointed ears.

The date of the arrival of the first domestic dogs onto the Arnhem Land Plateau is unknown, although it is likely to be prior to the 1838 settlement of the British at Port Essington, 250 km to the north (see Edwards 1979a: 4-34). While dingoes run wild on the plateau

today, domestic dogs are mostly restricted to areas surrounding habitation (pers. obs.).

The Arnhem Plateau has positive evidence of the close association between Aboriginal people and both dingoes

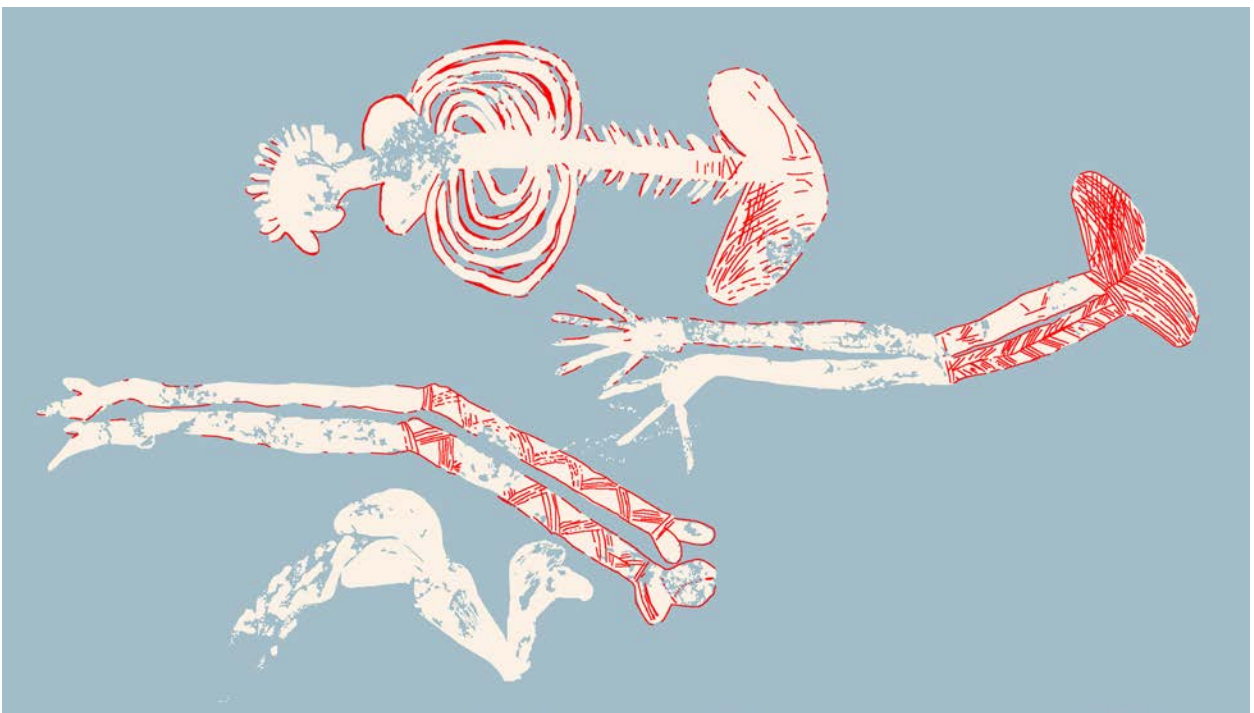


Figure 9.28: Sorcery composition from Panel M4
(Motifs M-34 to M37)

and domestic dogs in recent times, as both species have been given rock-cleft burials, the skeletons of which were dated to 77 ± 35 BP and 88 ± 25 BP respectively, with both having a calibrated median probability of cal AD 1844 (Gunn et al. 2010, 2012a).

Ethnography

Wamud Nadjamerrek (born c.1926) recounted how, as a child with his parents, he had visited the site in the 1930s (see Chapter 6). At that time, the dramatic paintings of the Northern X-ray fish were already present. He continued to camp at the site periodically during the 1940s and 1950s when traversing the plateau, from the lower Mann River in the north-east, south-west to the tin mines at Maranboy. On his return visit in 2010 Nadjamerrek stated that the art was essentially as he had remembered (Ray Whear, pers. comm., 2010). Hence, all of the existing art at Nawarla Gabarnmang can be said to predate AD 1935.

Sorcery

The use of rock art for sorcery purposes is well documented in western Arnhem Land (Chaloupka 1982, 1993; Taçon 1989a, 1993). Chaloupka (1993: 207) has argued that there was a dramatic rise in the use of sorcery art following the European invasion, resulting from the dramatic impact of the introduced diseases of smallpox, measles, leprosy and influenza (Ross River virus). Often the figures are depicted with either swollen joints or with barbed points attacking the joints or other areas of the body. The body of the victim can also be otherwise deformed or mutilated (Figure 9.28). Sam Garnarradj, a bark painter at Kunbarlanjanja (Oenpelli), described how sorcery painting often involved the depiction of swollen knees, feet and elbows in reference to the proposed victim contracting and dying from leprosy (Carroll 1975, quoted in Edwards 1979a: 45). James et al. (2017) presents a good argument for the close association of sorcery imagery and the spread of leprosy in western Arnhem Land. Leprosy was unknown in the Northern Territory prior to AD 1882, and the first reported case of leprosy in an Aboriginal person was in AD 1890 (Dept Health and Families NT 2010: 5). This association offers further support for the sorcery paintings at Nawarla Gabarnmang being a product of the post-contact period (AD 1890 to the present).

3MF hand stencils

3MF hand stencils, such as occur on Panel A2 (Figure 7.13), is widely accepted as being a convention associated with Chaloupka's 'Dynamic Figures' style, and restricted to a particular time period around or slightly before 10,000 years ago (Chaloupka 1993: 110; Chippindale and Taçon 1998: 107). This temporal attribution has not, however,

been determined by direct dating of the art and it remains subject to review (cf. Gunn et al. 2012). Recent studies by Barker et al. (2017) have found that 3MF hand stencils at the 'Genyornis' site (ARN-124/3), 10 km to the south, were produced on a panel that was formed through a rock collapse around 13,800 years ago (13,976–13,739 cal BP). The art on the created panel, which includes 3MF hand stencils, must therefore be younger than this date. Given the site's close proximity to Nawarla Gabarnmang and the presumed restricted time-frame for the 3MF convention (within the Dynamic figure style), it can be assumed that those 3MF hand stencils at Nawarla Gabarnmang are part of a tradition that was in operation less than 14,000 years ago. Whether or not the convention was in use prior to the rock collapse at the 'Genyornis' site is unknown. At this stage, therefore, the 3MF convention is considered to be less than 14,000 years old.

Age and Art Assemblages

On the basis of the disjunctions between motif threads and/or colours (Table 9.6), and the available age indicators (Table 9.7), the Art Assemblages (AA-1 to 7) can be linked or related to the chronological markers discussed above. A description of the chronological markers relevant to each of the Art Assemblages is now presented and discussed.

Art Assemblage 1

The 3MF hand stencil is a consistent component of AA-1 and is considered to be younger than 14,000 years and to have occurred within a limited period of time, possibly around 10,000 years ago, and in conjunction with Dynamic figures (e.g. Chippindale and Taçon 1998: 102, 107). Whilst no classic painted Dynamic figures occur on the ceiling panels of Nawarla Gabarnmang, three are present on an outer pillar of the shelter (Figure 9.29) and at another shelter 100 m to the south (see Chapter 6). Consequently, the maximum age for AA-1 is considered to be less than 14,000 years, therefore making all of the art on the ceiling of Nawarla Gabarnmang younger than this age. The most recent art from AA-1 is linked to motifs of the thylacine, an animal that became extinct around 3000 years ago (see above). This then suggests that AA-1 dates from a time between 14,000 and 3,000 years ago, potentially covering an extensive time period of up to 11,000 years, but which may represent a much more restricted period.

As rock art was being produced at the site at least 28,000 years ago (David et al. 2013), it is most likely that the rock surfaces on which the early motifs were produced have all since been destroyed, particularly given the amount of creative modification of the shelter that has occurred (Delannoy et al. 2017).



Figure 9.29: Dynamic style figures (A-C) on an unnumbered pillar outside Nawarla Gabarrmang
Figures originally painted in yellow and subsequently partially repainted in red

Art Assemblage 2

The only motif from this Art Assemblage that could be assigned a tentative date is Motif H-45, interpreted as a representation of a Jabiru, a large waterbird and wetland forager (Figure 9.24). If it does represent a Jabiru, or another unidentified waterbird, then this motif must be less than 1500 years old (see above). Consequently, the more recent art from AA-2 must also be younger than 1500 BP. While no lower or upper age limit can be given for the Art Assemblage, all of the art post-dates that from AA-1 (at some unknown time prior to 3000 years ago), and pre-dates that from AA-3, around 450 years ago.

The AA-2 Art Assemblage also contains a depiction of what Lewis (1988) termed a broad-spearthrower (Motif J-102) that, according to his model, would be from a period dating at some time between 6000 to 1000 years ago. While my results indicate that the broad spearthrower was being depicted within a period from 1500 to 450 years ago, they do not provide either an upper or lower time frame for these motifs.

Art Assemblage 3

Dates obtained from beeswax samples from Motifs F-27, F-28, J-53 and J-54 (Table 8.39) indicate that the lower layers of AA-3 have a median age of around 420 years (median age range of between 517 cal BP to 307 cal BP).

Other chronological indicators suggest ages of only <1500 years. No lower age limit is available, although an upper limit is given by the age range for the overlying Art Assemblage, AA-5, of 510–390 cal BP. While no ages are available for the intervening AA-4 assemblage, the overlap in ages for AA-3 and AA-5 indicate that, although there is a clear sequence, there is very little age difference between Art Assemblages AA-3, AA-4 and AA-5.

Art Assemblage 4

No dates are available for any of the layers of AA-4. Given that the layer is sandwiched between Art Assemblages AA-3 and AA-5, however, both of which are around 500–300 years old, the art of this Art Assemblages AA-4 must be of similar age.

Art Assemblage 5

Five threads within this Art Assemblage date to the time of a major painting event revealed in excavations of the deposits. This event, using a large amount of white pigment, occurred within the period 510–390 cal BP (David et al. 2017; see discussion above). As the earliest art post-dates that of AA-3, dated to around 420 years ago, it would appear that the major painting event of AA-5 occurred between c.420 and 390 years ago, which is within a few years of the conclusion of Art Assemblages AA-3 and AA-4.

Table 9.29: Art Assemblages represented on the ceiling of Nawarla Gabarnmang

Art Assemblage	Approx. Years BP	Description
AA-7	c.100 - >15	Primarily white or white+red motifs although visually dominated by large polychrome paintings of fish
AA-6	c.400 - >100	Primarily yellow paintings and stencils
AA-5	c.400	Primarily white or white+red motifs
AA-4	c.400	Primarily red paintings although with a small number of red+white paintings
AA-3	c.420	Primarily three sets of paintings; the earliest in red followed by a small number in white and then a third set in yellow
AA-2	>1500 - >450	Primarily paintings of anthropomorphs and macropods in monochrome red or yellow, with a small number in white, red+white and yellow+white. Hand stencils in red or yellow
AA-1	<14,000 - >3,000	Primarily red paintings and stencils. Paintings include large naturalistic fauna in red or yellow+red, macropod-headed figures and depictions of broad spearthrowers in red. The hand stencils include 3MF types

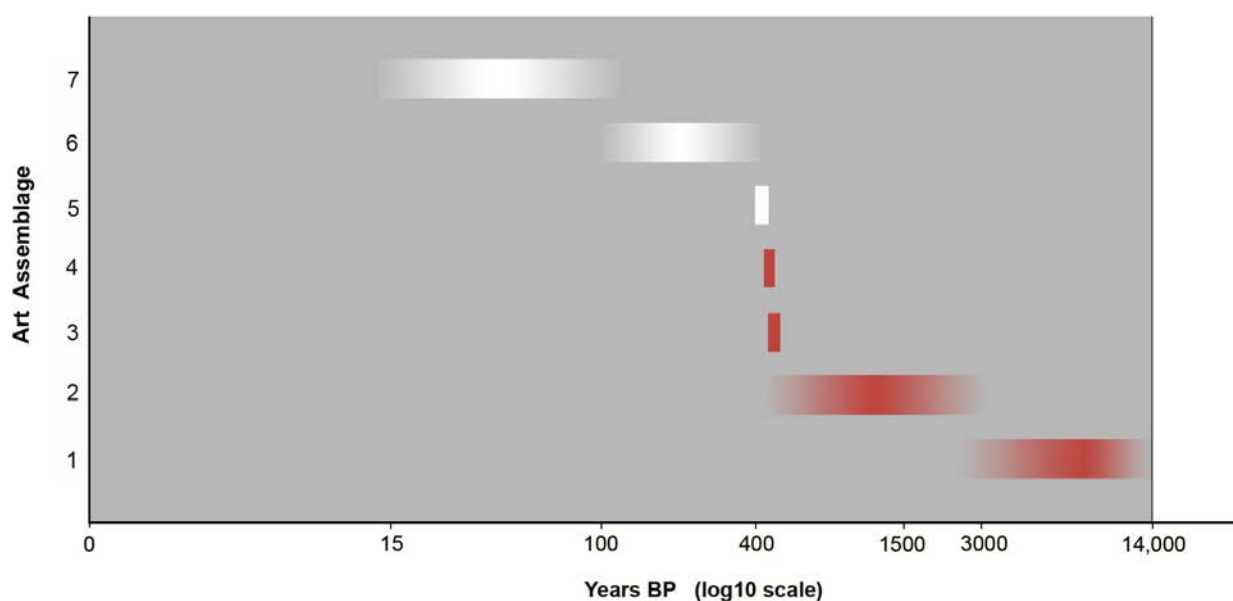


Figure 9.30: Chronology of the Age Assemblages showing primary colour use (white or red)

Art Assemblage 6

A single date, derived from beeswax Motif K-137, of c.170 years ago places this group of threads between the ages of Art Assemblage AA-5 (<420 years) and the painting of the horse motif of AA-7 (Motif D-48, ≤105 years).

Art Assemblage 7

The majority of the motifs within AA-7 were created subsequent to the painting of the horse motif (Motif D-48; Figure 7.119) and, from oral accounts nothing (or at least nothing visually substantial) was added after AD 1935. Hence, the majority of the motifs were produced between AD 1845 and AD 1935: a time period of less than 100 years. Those motifs produced prior to the painting of the horse motif were painted between AD 1780 and ≤AD 1845: a period of 65+ years, depending on the actual age of the horse painting.

The dates available for the seven Art Assemblages (Table 9.29; Figure 9.30) indicate that there is still much refinement required before a full chronology of the art of Nawarla Gabarnmang can be presented. The dating of Art Assemblages AA-1 and AA-2 remains nebulous: between 14,000 and 400 years ago. Three of the Art Assemblages (AA-3 to AA-5) occur between 510 and 390 years ago. Within this archaeologically short time, there is a major change in colour preference from red-based to white-based motifs. This is seen as one of my major findings of this study.

Changes over time

To assist in clarifying the temporal trends in the ceiling art noted above, a quantitative analysis of the variation of the art attributes from each Art Assemblage is presented below. As mentioned above, one complication in assessing the trends presented here is that the attribute tallies used can only derive from

Table 9.30: Condition percentages by Art Assemblage

% Condition	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
excellent					2		10
very good					2	3	7
good		1	7	2	23	30	32
fair	3	11	21	24	29	19	24
poor	13	29	27	46	27	30	19
very poor	84	59	45	28	18	19	8
(n)	305	157	342	50	302	37	197

visible motifs. As a consequence, through complete over-painting or natural destruction, the full tally of motifs from the earlier layers on each panel will be represented by an unknown proportion of the number of motifs actually produced, with the greater degree of error increasing with increased superimposition and age. As Art Assemblages AA-1 and AA-2 are the earliest and the most superimposed by later art, as well as potentially covering a time range of some 13,500 years (14,000 to 500 years ago), they are the most likely of the Art Assemblages to be under-represented.

Condition

Generally, rock art tends to deteriorate with time, and hence an older motif tends to be more weathered relative to a younger one. However, different colours can deteriorate at different rates (see in particular the greater permanence of red pigments compared to the more fugitive nature of white pigments; Clark 1976, 1978) and, also, a variety of deleterious weathering agencies can selectively affect the art on different panels, or even portions of the same panel in different

ways (e.g. Figure 7.72; Rosenfeld 1988). While the results of natural erosion cannot be quantified, the size of the sample here (1391 motifs) and the generally favourable condition of the shelter for the preservation of the ceiling art, suggest that the numbers used in this analysis are representative of the whole and, hence, that the trends they present will be largely valid. Overall, there is a tendency for motifs to be in better condition in the more recent Art Assemblages (Table 9.30). Art Assemblages AA-5 to AA-7 can be separated from the earlier Art Assemblages on the basis of their overall good condition, as they have high percentages of ‘good’ condition motifs and the only examples of motifs in ‘very good’ and ‘excellent’ conditions.

Technique

Of the four art techniques employed to produce the ceiling art, painting is by far the most common in all Art Assemblages (Table 9.31). Spray, in the form of hand stencils, is represented in most Art Assemblages but in low numbers. Appliqué is mostly represented in Art Assemblage AA-6, although low numbers or

Table 9.31: Technique percentages by Art Assemblage

% Technique	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
painting	90	99	96	100	93	81	93
spray	10	1	2		5	3	4
applique			2			16	
drawing					2		3
(n)	305	157	342	50	302	37	197

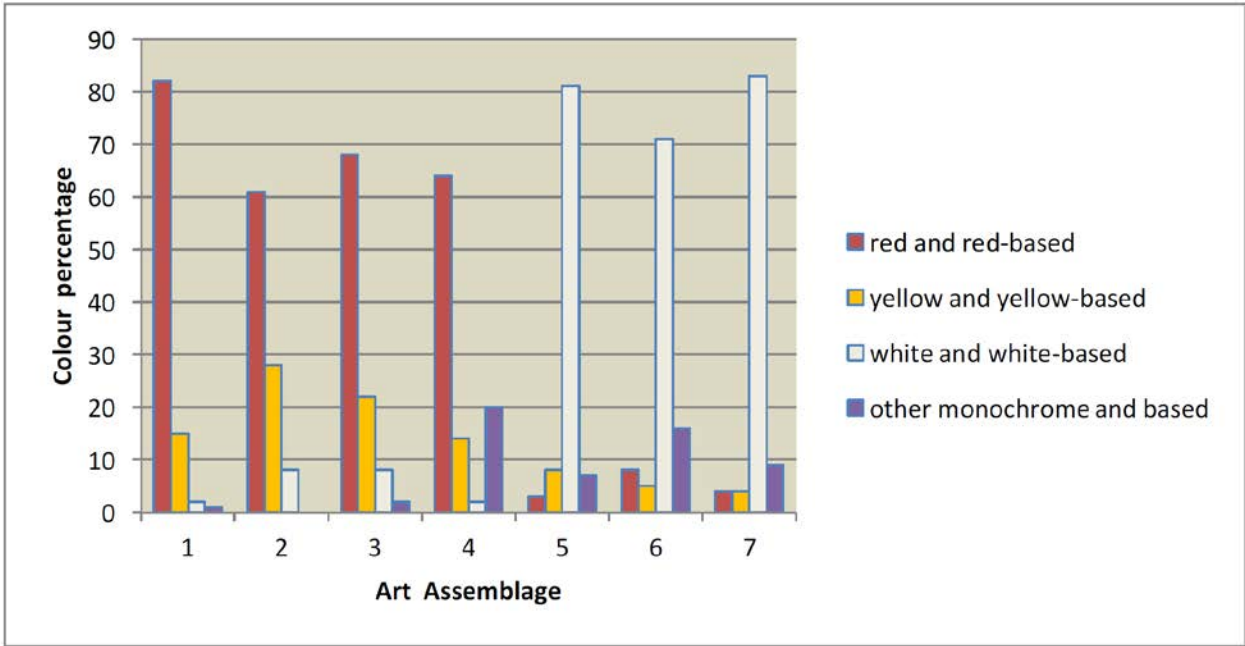


Figure 9.31: Aggregated Colour percentages by Art Assemblages

Table 9.32: Colour numbers by Art Assemblage

Colour	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
mulberry	3						
y+r	4	2					
red	250	85	220	30	2	3	7
white	6	12	27	1	199	19	91
yellow	42	38	77	6	24	2	5
r+w		11	12	2	8		1
y+r+w		2					
o+w		1			1		1
y+w+r		1					
black			8			6	
orange			2	9	3		2
w+r			1		42	6	48
r+y			1				
y+w				1	2		2
c+r					7		
cream					6		2
pink					2		9
w+y					2		2
w+y+r					1	1	
w+o					1		2
c+w					1		
w+y+o					1		
w+r+b							8
w+b							4
w+r+p							3
w+r+o+p							2
c+k							1
g+w+r							1
p+r+w+y							1
w+b+r							1
w+o+c+r							1
w+p							1
w+r+y							1
y+r+b							1
Total	305	152	348	49	302	37	197
No of colours	5	8	8	6	16	7	24

Key to prime colours in combination

b : black c : cream g : grey k : pink
 o : orange p : purple r : red y : yellow
 w : white

total absence in earlier Art Assemblages may simply be a function of taphonomy (cf. Bednarik 2001). Dry pigment drawings are represented in Art Assemblages AA-5 and AA-7. Although it appears that drawing is a feature of the more recent art, as there are only 12 drawn motifs on the ceiling, we cannot conclude that this is the general situation for all of western Arnhem Land rock art. The black charcoal drawing, Motif A-8, remains undated on present information.

Colour

Nine colours are represented at the site, either as monochrome or within polychrome motifs (Table 9.32). Red is the dominant colour in Art Assemblages AA-1 to AA-4, while white dominates Art Assemblages AA-5 to AA-7, which also have an exceptionally high proportion of white+red bichrome motifs, the highest proportion being in AA-7. By combining all motifs with their dominant or 'base' colour (e.g. white =

white monochrome plus white-based polychromes; red = red monochrome plus red-based bichromes) the change in base colour preference from red to white over time is very apparent (Figure 9.31). While the use of yellow pigment peaks during Art Assemblage AA-2, it is present in small numbers throughout all Art Assemblages. In contrast, the use of 'other' colours (black, cream, grey, orange and purple) peaks during AA-4. There is also a general trend for the range of colours to increase with time, with the number of colour combinations being unrelated to the number of motifs within each Art Assemblage. Art Assemblages AA-5 and AA-7 contain the greatest range of colours and colour combinations, 16 and 24 motifs respectively, although almost half of those in AA-7 contain a single motif. This explosion of colour combinations in Art Assemblages AA-5 to AA-7 does not appear to be a result of taphonomic processes, but as depicting a meaningful change in the art along with a higher preference for white pigment over red.

Table 9.33: Motif Form type percentages by Art Assemblage

Form	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
linear+infill		<1					
outline+solid	<1						
solid+dot	1						
linear	22	16	16	16	10	18	12
solid	22	26	24	40	14	30	15
outline+infill	20	18	19	11	19	12	8
stencil	12	2	3		5	3	3
solid+linear	8	8	19	19	19		13
outline	5	3	<1		2		3
solid+outline+infill	3	7	8	2	20	21	23
solid+outline	2	2	<1		1	3	4
outline+linear	1	4				3	1
linear+outline+infill	1		<1	2	<1		1
solid+infill	<1	10	1	5	1	3	4
outline+infill+solid	<1		1				<1
outline+solid+linear	<1	<1		2			
outline+infill+linear	<1	2	6	2	4	3	1
dot			2		<1		
linear+outline			<1		2	3	
X-ray			<1		1		11
spray							1
(n)	179	112	267	43	281	33	190
fragments and traces	126	45	76	6	21	4	7
Total	305	157	343	49	302	136	197
No. of form types	18	13	15	10	14	10	15

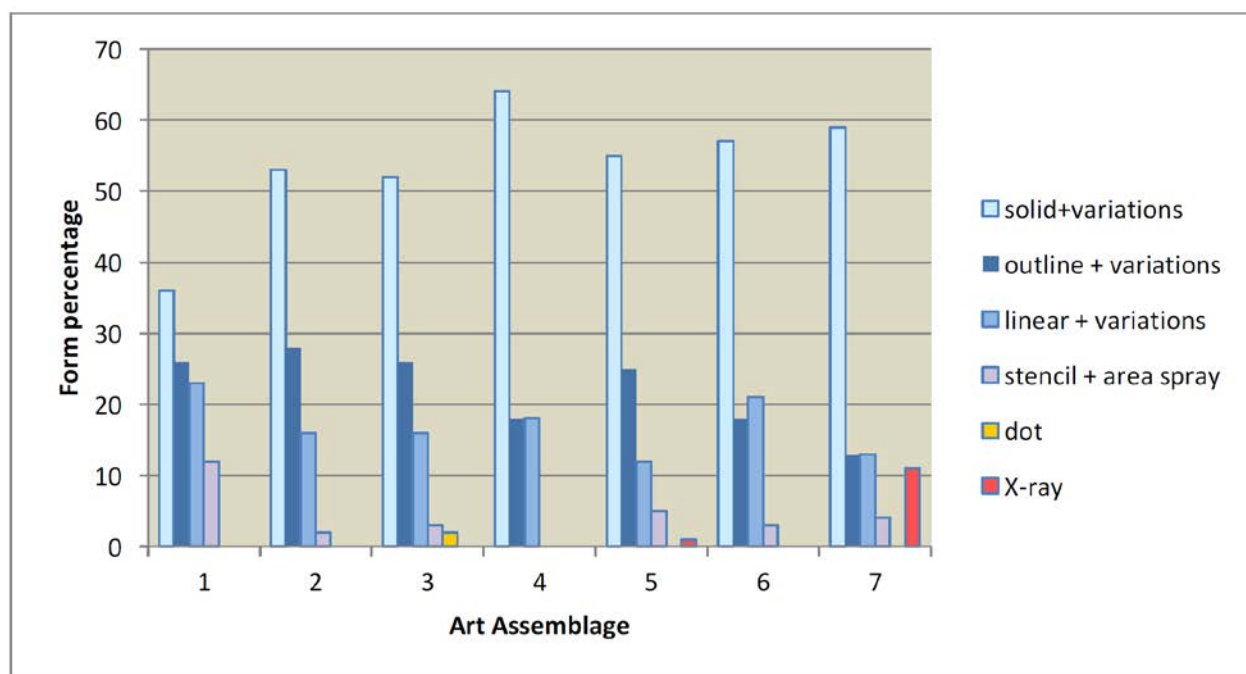


Figure 9.32: Aggregated Form percentages by Art Assemblages

Table 34: Motif Class percentages by Art Assemblage

Motif Class	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
zoomorph		1	<1				
mammal/momo	26	25	13	28	16	6	14
hand	17	2	3		5	3	3
anthropomorph	15	28	19	13	28	42	31
simple design	11	6	5		9	10	5
geometric element	9	8	10	5	6	13	5
reptile	6	12	8	5	9	6	7
unknown	3	1	4	3	7		7
bird	3	2	4	15	3	3	2
flora	2		8				
therianthrope	2		<1		<1		1
track	2				<1		<1
area	2						3
complex design	<1	1	1				
infill	<1		<1	3	<1		1
object	<1	3	4	23	4	13	2
fish	<1	8	17	5	9	3	18
(n)	116	88	226	39	268	31	184
fragments/traces	189	69	122	11	34	6	13
Total	305	157	342	49	302	37	197
No. of Class types	18	12	15	9	13	9	14

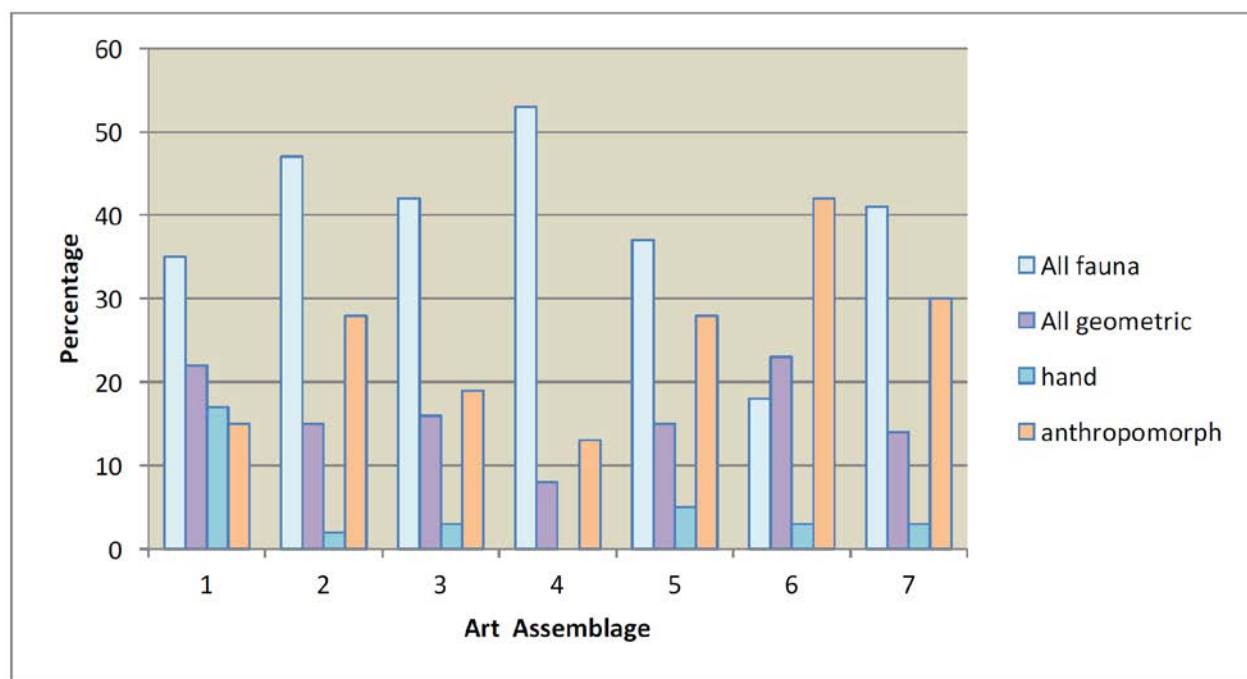


Figure 9.33: Select Motif Class percentages

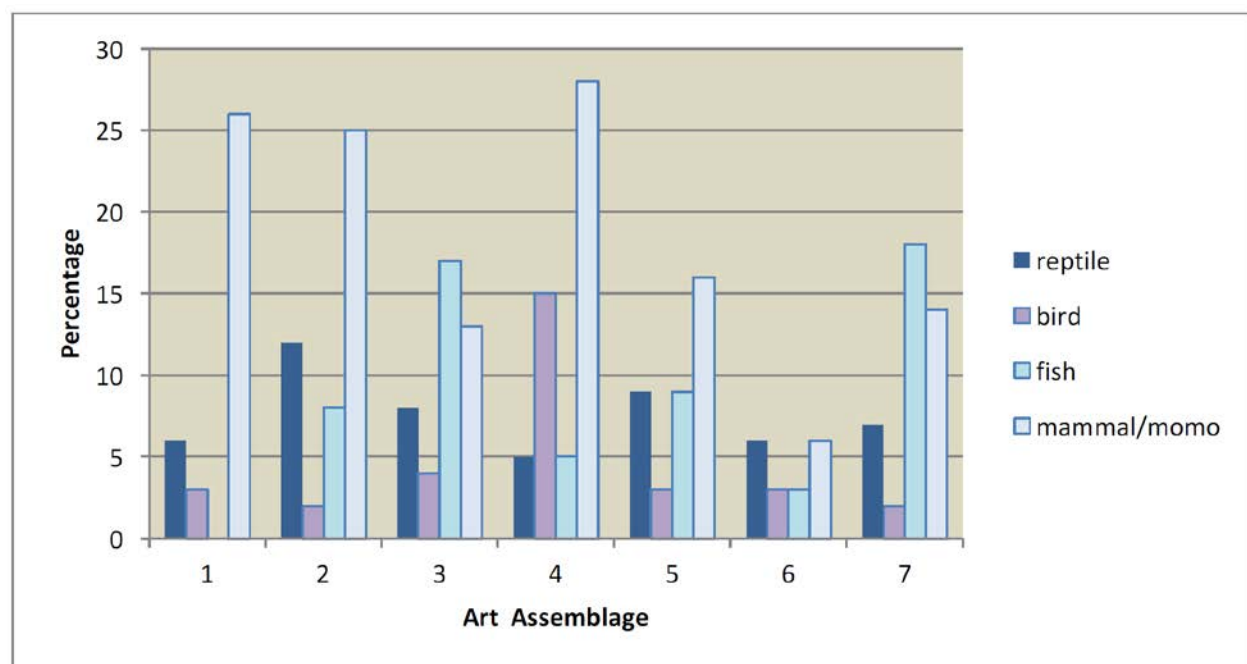


Figure 9.34: Select fauna class percentages

Motif Form

Twenty-one Motif Forms are represented in the ceiling art (Table 9.33). Linear forms and solid forms are a major component in all Art Assemblages, while stencil forms peak during AA-1 and solid+infill in AA-2, but each are a consistent minor component of all other Art Assemblages. Combining all motifs by their dominant Motif Form (e.g. linear and linear+outline, and linear+solid, etc.) demonstrates that solid+variation

Motif Forms are consistently present as the major class throughout all Art Assemblages (Figure 9.32). Outline+variations and linear+variations are, in contrast, consistent minor Motif Forms. Two notable changes occur between Art Assemblages AA-4 and AA-5, with a sharp increase in solid+outline+infill class, and between AA-6 and AA-7 with a prominent increase in the X-ray class (Table 9.33). Unlike the pattern displayed by Colours above, there is no increase in the overall number or range of Motif Forms over time.

Motif Classes

Seventeen Motif Classes are represented from the 1391 motifs at Nawarla Gabarnmang (Table 9.34). All Motif Classes are represented in more than one Art Assemblage, and seven are represented in all seven: mammal/monotreme, anthropomorph, geometric element, reptile, bird, object and fish. The percentage of Motif Classes within each Art Assemblage varies considerably, although overall anthropomorphs and mammal/monotreme are the most common class.

Overall, the Motif Classes are dominated by fauna and anthropomorph motifs (Figure 9.33) yet, while the percentage of fauna remains consistently high, that of anthropomorph tends to increase over time. Of the fauna, ‘mammal/monotreme’ tend to decrease over time, ‘fish’ peak in Art Assemblages AA-3 and AA-7, ‘bird’ peaks in AA-4, while ‘reptile’ tends to be a minor component throughout all Art Assemblages (Figure 9.34). Other Motif Classes are poorly represented and show no pattern of recurrence over time.

Motif Types

A total of 93 individual Motif Types were recorded from 950 motifs (excluding the 440 fragments and traces, and the unassigned simple design drawing, Motif A-8). Of these 93 types, only five occur in all Art Assemblages: Anthropomorph [unsexed], Anthropomorph female, Macropod, Snake and Line (Table 9.35). These Motif Types are also the most numerous overall (n=119, 51, 67, 29, 22 respectively). Another nine Motif Types contain more than 20 motifs, but these are not represented in all Art Assemblages. Overall, 86% of the Motif Types are represented by less than 20 examples, and 26% are represented by a single example. The number of each type varies considerably between the Art Assemblages, even amongst the more numerous types. For example, the most numerous Motif Type, Anthropomorph, is present in all Art Assemblages but ranges in number from 2 to 37 motifs per Art Assemblage, while Fish, the fifth most numerous Motif Type (n=46), is present in only five of the seven Art Assemblages and ranges in number from 1 to 24 motifs per Art Assemblage, being

most numerous in AA-3 (where they are mostly small in size).

‘Anthropomorph female’ mostly have greater numbers per Art Assemblage than ‘Anthropomorph male’ and, although an increase in the numbers of one coincides with a rise in numbers of the other, the proportional relationship is not consistent (Table 9.37). There is, however, no parallel increase in the number of unsexed Anthropomorphs over time. Proportionally, the ratio of male to female and unsexed anthropomorphs varies greatly (Figure 9.35), and after Art Assemblage AA-5 the percentage of female anthropomorphs increases notably.

Unsexed ‘Macropod’ motifs are most common in Art Assemblages AA-2, AA-3 and AA-5. ‘Macropod male’ motifs are most numerous in AA-7 and show a trend to increase in number with time. In contrast, ‘Macropod female’ motifs are poorly represented numerically in all the Art Assemblages.

In addition to the variation of numbers of Motif Types by Art Assemblage, the range of Motif Types changes over time (Table 9.37); with each Art Assemblage contains Motif Types not found in the previous ones and most have unique Motif Types (Table 9.38). For the most part, the unique Motif Types occur in very low numbers, with the only notable exception being the introduction of nine Barramundi motifs into Art Assemblage AA-7, and the introduction of the Jawoyn Lady Motif Type in AA-5. Proportionally, most unique Motif Types occur in Art Assemblages AA-1 (largely due to the lack of 3MF hand stencil in Art Assemblages after AA-1) and AA-7 (with the introduction of the Barramundi Motif Type).

Similarly, there is no pattern in the number of individual reptile depictions over time, although as a group there is a notably higher number during Art Assemblage AA-2 (Table 9.38). Fish types, in contrast, show notable variations, with ‘Catfish (eel-tailed)’ peaking during Art Assemblage AA-5 (Table 9.39) and ‘Barramundi’ and ‘Catfish (fork-tailed)’ only present in AA-7.

Of the smaller mammals/monotreme Motif Types, only possum (n=14) and echidna (n=8) occur in any number, with echidna more common in the earlier Art

Table 9.35: Motif Type numbers by Art Assemblage

Motif Type	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
Design grid	1						
Q-shape	1						
Macropod+spear	1						
Therianthrope snake-body	1						
Track paw	1						

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Hand 2MF	1						
Design line set	2						
Thylacine	3						
Hand 3MF	5						
Anthropomorph ungendered	15	22	27	2	37	6	10
Animal unspciated	13	3	1	2	2		2
Hand	8		3				1
Macropod ungendered	7	10	17	3	24	1	5
Line	5	4	5	1	1	2	4
Design regular	5	3	4		8		1
Hand left	4		3		12	1	3
Snake	3	5	10	1	6	1	3
Design irregular	3	3	3		11		4
Unknown	3	1	10	1	20		12
Emu	3	1	2	2	3	1	2
Disc	3			1			
Anthropomorph female	2	2	5	3	13	5	21
Macropod male	2	2	4		6	1	11
Crocodile	2	2	1		5		2
Hand right	2	2	1		2		1
Macropod female	2	1	1		1		
Goanna	2	1			2		
Design apex	2		3		4		2
Area	2						1
Fish unspciated	1	3	24		10		8
Echidna	1	3	2	1	1		
Object other	1	2	1	3	2		
Arc	1	1	1		1		
Line pair	1	1	1				
Yam round	1		18				
Bar	1		4		6		3
motif infill	1		2	1	1		2
Therianthrope macro-head	1		1		1		1
Macropod legs	1		1				2
Waterlily	1		1				
Footprint	1				1		1
Turtle short-necked		3	2	1	5		6
Catfish eel-tailed		3	2	2	12	1	6
Possum		2	1	4	4		3
Anthropomorph male		1	10		16	2	10
Bream		1	9				3
Dot		1	9			2	
Shield		1	2				
Quadruped		1	2		1		
Bolung		1	1				
Jabiru		1			2		

Y-shape		1			1		2
Bird			6	4	3		2
Turtle long-necked			6		5	1	1
Design radial			4			3	1
Spear			3	4	3		3
Longtom			2		1		1
Spearthrower			1	1	5		1
Dillybag			1	1	1	3	
Flying fox			1		3		
Saratoga			1		1		6
V-shape			1		1		
Design zigzag			1				2
Archerfish			1				
Triangle			1				
T-shape			1				
Spear set			1				
Ritual object			1				
Jawoyn Lady					4		6
Copulating couple					4		2
Oval concentric					3		
Bandicoot					2		1
Oval					2		
Turtle					2		
Genitals male					1		1
Bush-hen					1		
Bar pair					1		
Dot pair					1		
Feather					1		
Therianthrope bird-footed					1		
Track macropod					1		
Digging stick						1	
Barramundi							9
Smear							3
Genitals female							2
Scribble							2
Anthropomorph arms							1
Legs macropod-footed							1
Anthropomorph torso							1
Catfish fork-tailed							1
Dingo							1
Horse							1
Therianthrope macro-foot							3
(n)	116	88	226	38	268	31	184
fragments and traces	189	64	122	11	34	6	13
TOTAL motifs	305	152	348	49	302	37	197
No. of Motif Types (n=93)	41	32	53	19	54	15	52

Table 9.36: Motif Types unique to each Art Assemblage
(AA-2 and AA-4 lack any unique Motif Types)

Art Assemblage									
AA-1	No.	AA-3	No.	AA-5	No.	AA-6	No.	AA-7	No.
Hand 3MF	5	Archerfish	1	Oval concentric	3	Digging stick	1	Barramundi	9
Thylacine	3	Triangle	1	Oval	2			Smear	3
Design line set	2	T-shape	1	Turtle	2			Genitals female	2
Design grid	1	Spear set	1	Bush-hen	1			Scribble	2
Q-shape	1	Ritual object	1	Bar pair	1			Anthropomorph arms	1
Macropod+spear	1			Dot pair	1			Legs macropod-footed	1
Therianthrope snake-body	1			Feather	1			Anthropomorph torso	1
Track paw	1			Therianthrope bird-footed	1			Catfish fork-tailed	1
Hand 2MF	1			Track macropod	1			Dingo	1
								Horse	1
								Therianthrope macro-footed	3
No. of motifs	16		5		13		1		25
% of Art Assemblage	14		2		5		3		14
No. of Motifs Types	9		5		9		1		11
% of Art Assemblage	22		9		17		7		21

Table 9.37: Reptile numbers by Art Assemblage

Motif Type	Art Assemblage							Total
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7	
Snake	3	5	10	1	6	1	3	29
Crocodile	2	2	1		5		2	13
Goanna	2	1			2			5
Turtle short-necked		3	2	1	5		6	17
Turtle long-necked			6		5	1	1	13
Turtle (unspeciated)					2			2
% of Art Assemblage	6	13	8	5	9	6	7	

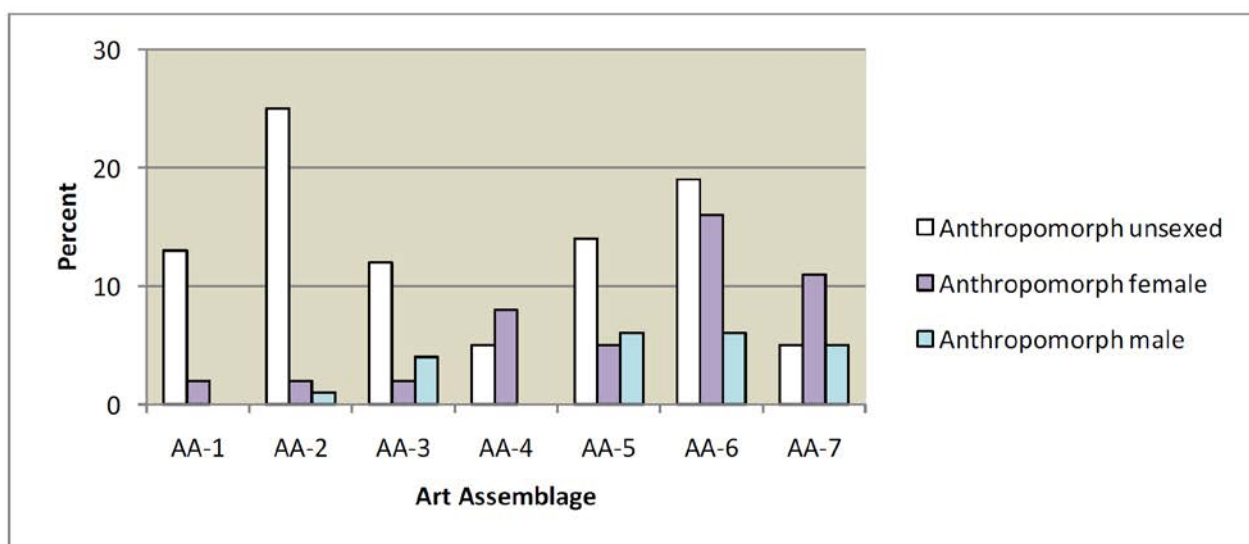


Figure 9.35: Anthropomorph Type percentages by Art Assemblage

Table 9.38: Fish Type numbers by Art Assemblage

Motif Type	Art Assemblage							Total
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7	
Archer fish			1					1
Fish (unspeciated)	1	3	24		10		8	46
Catfish eel-tailed		3	2	2	12	1	6	26
Bream		1	9				3	13
Longtom			2		1		1	4
Saratoga			1		1		6	8
Barramundi							9	9
Catfish fork-tailed							1	1
% of Art Assemblage	<1	8	17	5	9	1	18	

Assemblages (AA-1 to AA-3) and possum in the later (AA-4 to AA-7).

Therianthrope and Zoomorph Motif Types occur throughout the repertoire in very small numbers

(Table 9.39), and each of these individual motifs is unique. Of the four variations of Therianthrope, only the macropod-headed type occurs in more than one Art Assemblage; the other three variations occur in different Art Assemblages to each other.

Table 9.39: Therianthrope and zoomorph numbers by Art Assemblage

Motif Type	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
Therianthrope snake-body	1						
Therianthrope macro-head	1		1		1		1
Bolung		1	1				
Therianthrope bird-footed					1		
Therianthrope macro-foot							3

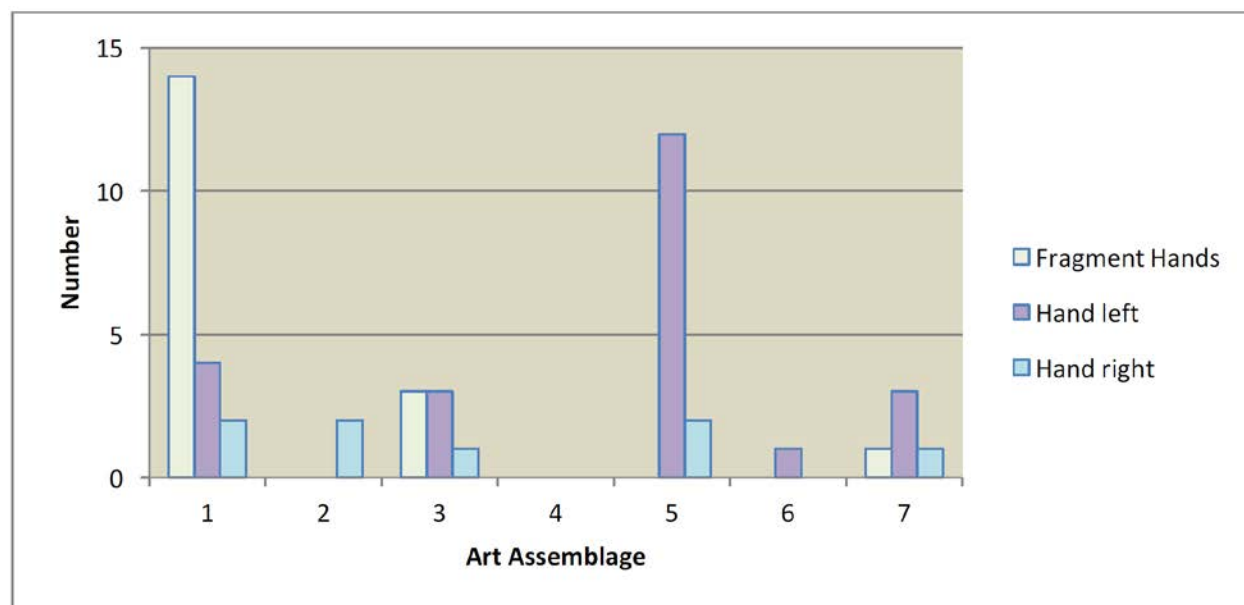


Figure 9.36: Hand Motif Types by Art Assemblage

Hands (all expressed as stencils) include 'Left hand', 'Right hand', '2MF' and '3MF' varieties, as well as undifferentiated 'Hand'. The undifferentiated 'Hand' motifs occur in all Art Assemblages except AA-4, and 2MF and 3MF only occur in AA-1. While all hand types occur in low numbers (1 to 14), stencils of left hands outnumber right in all except AA-2, where left hands are absent (Figure 9.36). In those Art Assemblages where both left and right hands occur, the proportion of left to right hands is similarly variable, ranging from 6:1 to 2:1. This overall numerical dominance of left hand over right hands is common in the greater majority of hand stencil sites throughout Australia (Gunn 2007).

The motifs also demonstrate a change from broad spearthrowers in AA-2 to long spearthrowers in Art Assemblage AA-3. According to Lewis (1988), broad spearthrowers were depicted in the Arnhem Land rock art between 6000 and 2000 years ago, and the long spearthrower only after 2000 years ago, remembering that these dates are proposals and have not been directly dated. Lewis' sequence of spearthrower types is confirmed here. Broad spearthrowers are

represented in Art Assemblages AA-1 (one motif) and AA-2 (one motif) and both are held in the hands of anthropomorphs with headdresses (hence classed as anthropomorph with artefact, rather than spearthrower types). Art Assemblages AA-3 to AA-7 contain eight long spearthrowers, either singly or laid out with other implements. The data here suggests that the long spearthrower's first appearance was around 500–400 years ago; as the period of Art Assemblage AA-2 is remains poorly defined, more precise timing of the change in technology remains speculative.

Motif Sizes

Motif length is taken as an indicator of motif size, although it is recognised that a 100 cm long snake will have less width (and area) than a 100 cm long macropod. Of the 325 motifs that could be measured the minimum length is 1 cm and the maximum is 540 cm. Three motifs on Panel J1 are 540 cm long (Motifs J-50, J-52 and J-58). Motifs J-52 and J-58 are repaintings of the earlier large macropod Motif J-50. Consequently, this one macropod motif (consisting

Table 9.40: Motif sizes by Art Assemblage

Motif Size	Art Assemblage						
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7
min	6	35	1	26	7	13	5
max	69	540	226	200	540	186	347
>100cm	0	4	10	2	20	4	35
50-100cm	3	11	22	4	48	6	45
<50cm	3	5	26	4	36	5	32
(n)	6	20	58	10	104	15	112
% of Art Assemblage	2	13	17	20	34	41	57

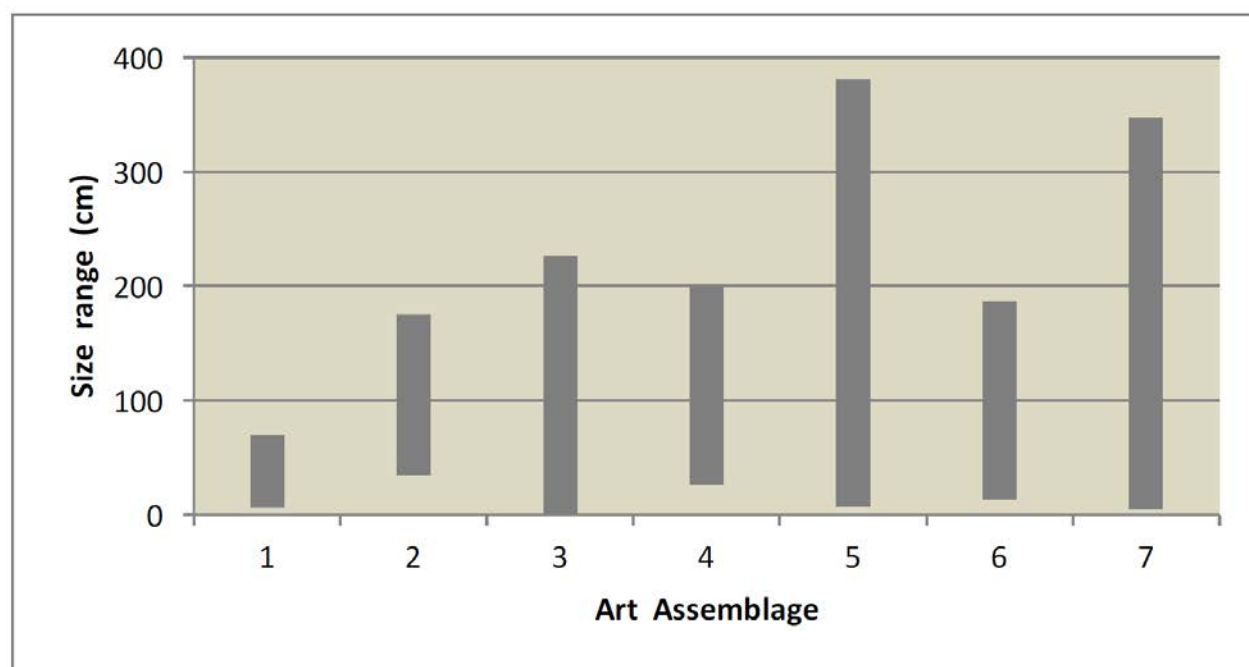


Figure 9.37: Maximum and minimum motif sizes by Art Assemblage

of three superimposed motifs) exerts a strong bias in the overall size statistics and is removed from further discussions. A further concern for the statistical analysis is that the measurement of motif lengths from the earlier Art Assemblage AA-1 is severely restricted by poor motif preservation (Table 9.40). Despite this limitation, visual assessment reveals that the size ranges are largely representative of all the motifs from each Art Assemblage. The motif sizes of each of the Art Assemblages, then, is varied and shows a general trend to increase with time (Table 9.40; Figure 9.37). The increase in size over time is also apparent in most of the Motif Types within each Art Assemblage (Table 9.41). For example, the trend to size increase is

apparent when the ranges of all anthropomorphs, all macropods and all fish are plotted (Figures 9.38, 9.39 and 9.40). However, the relative size of these three motif groups is not consistent. In Art Assemblage AA-7 the largest macropods exceed the length of the largest anthropomorphs, and the largest anthropomorphs exceed that of the largest fish. In contrast, in Art Assemblage AA-5, the largest fish exceed the size of the anthropomorphs and macropods, while in AA-3 the larger anthropomorphs exceed the size of both the larger macropods and fish. If size can be taken as a rough guide to importance (cf. Maddock 1970), then different Motif Types have played varying roles at different times during the site's art history.

Table 9.41: Motif size range for grouped Motif Types by Art Assemblage

Art Assemblage	Motif type	Size range			n
		min	median	max	
AA-1	Anthropomorph			52	1
	Crocodile			65	1
	Goanna			69	1
	Therianthrope	34		42	2
	Footprint			6	1
AA-2	All Anthropomorphs	42		110	4
	Echidna	52		68	2
	All Fish	35		86	4
	Crocodile			175	1
	Goanna			50	1
	Macropod			53	1
	Possum	53		61	2
	Snake	57		540	4
	Bolnug			46	1
AA-3	All Anthropomorphs	86	na	226	8
	All designs	26	na	47	3
	Dot	1	na	1	2
	Echidna	na	na	52	1
	All birds	na	na	54	1
	All Fish	13	29	95	18
	All Macropods	37	na	165	7
	Quadruped	na	na	200	2
	Snake	25	na	186	4
	Therianthrope	na	na	41	1
	All Turtles	54	na	78	3
	Unknown	8	na	9	2
	Yam	8	na	13	7
AA-4	All Anthropomorphs	26	na	82	3
	All birds	63	na	100	2
	Macropod	na	na	125	1
	All Objects	47	na	92	3
AA-5	All Anthropomorphs	12	74	159	33
	Bandicoot	na	na	56	1
	All Birds	20	na	67	6
	Crocodile	84	na	380	4
	All Designs	7	na	40	2
	All Fish	14	55	186	15
	All Geometric	7	na	15	5
	All Macropods	36	92	160	19
	Possum	52	na	63	2

	Quadruped	na	na	125	1
	Snake	90	na	540	3
	Therianthrope	na	na	39	1
	All Turtles	16	na	100	7
	Unknown	15	na	58	5
AA-6	All Anthropomorphs	15	na	147	8
	All Fish	na	na	29	1
	All Objects	22	na	76	4
	Snake	na	na	186	1
	Turtle long-necked	na	na	84	1
AA-7	All Anthropomorphs	29	97	302	32
	All birds	55	na	160	3
	Animal			18	1
	Anthropomorph body parts	5		54	4
	Crocodile	na	na	144	1
	Dingo	na	na	71	1
	All Fish	25	88	239	30
	Foot print	na	na	6	1
	All Geometric	6	na	23	5
	Horse	na	na	347	1
	All Macropods	54	151	345	14
	Possum	na	na	45	1
	Snake	42	na	112	3
	Therianthrope	28	na	83	4
	All Turtles	38	na	135	5
	Unknown	23	na	85	6

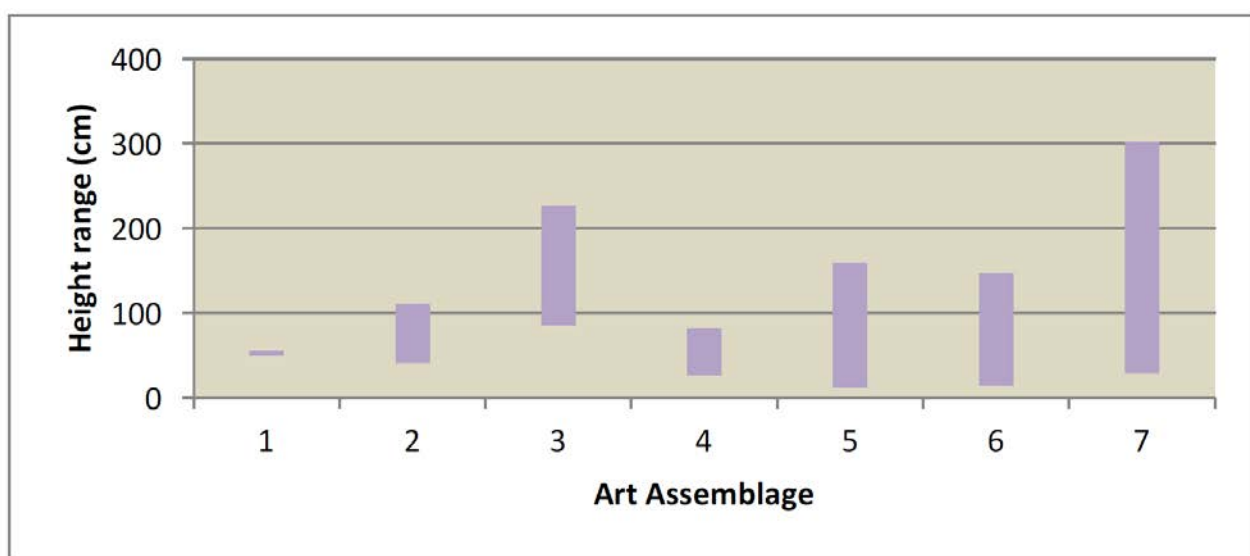


Figure 9.38: Size range of all anthropomorphs by Art Assemblage

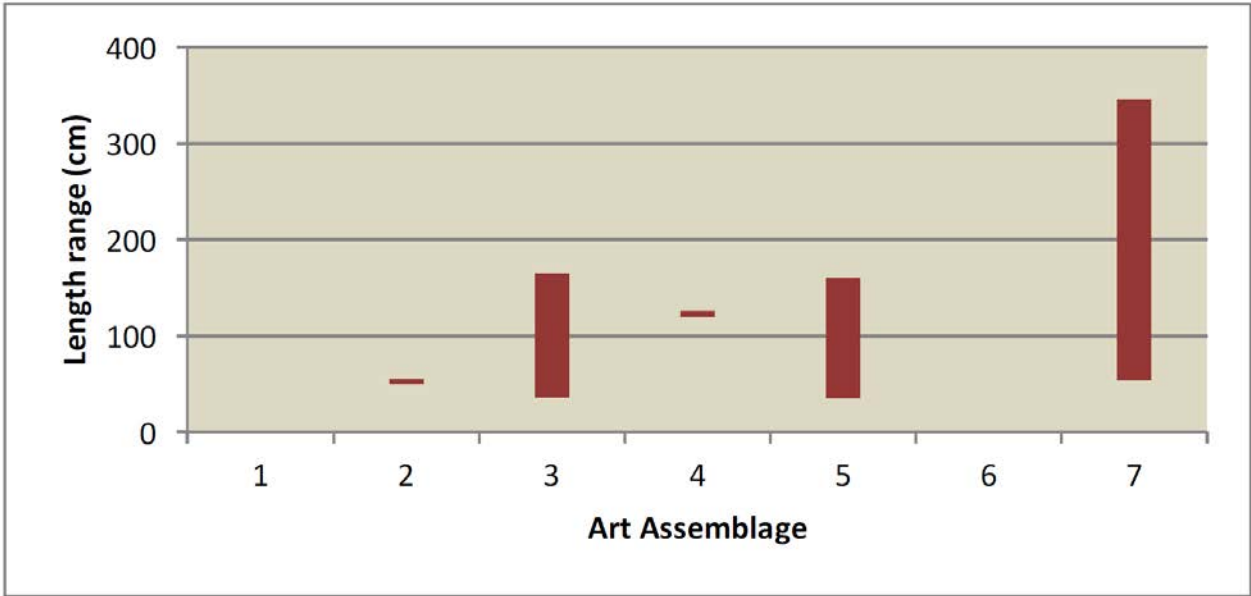


Figure 9.39: Size range of all macropods by Art Assemblage

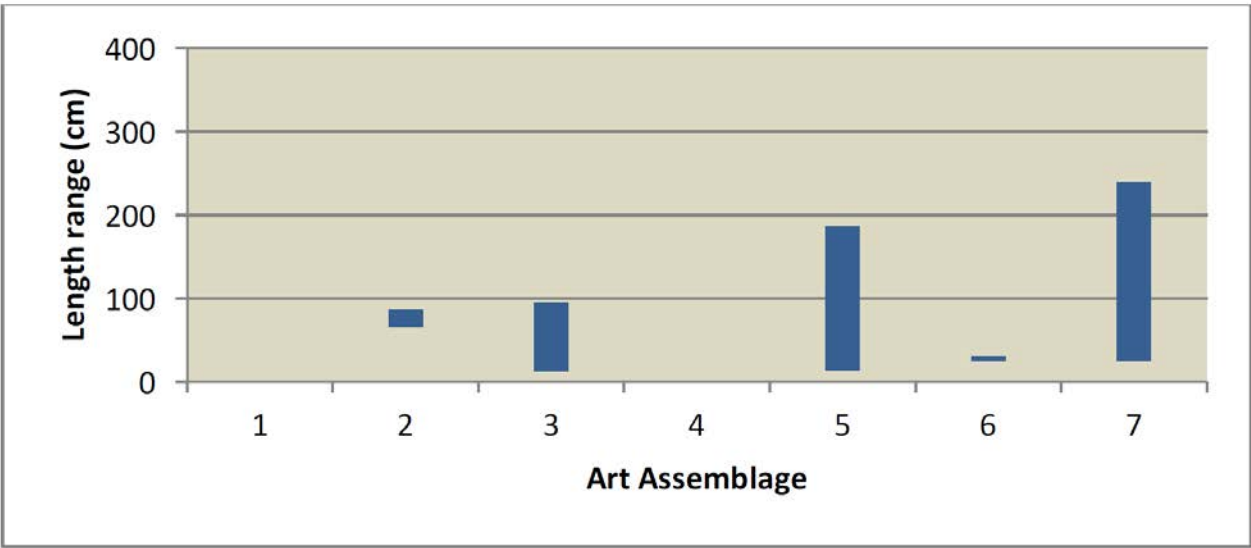


Figure 9.40: Size range of all fish by Art Assemblage

Overall, the increase in size from Art Assemblage AA-4 to AA-5 is substantial and notable as it parallels the change in dominant colour use from red to white. Among the more distinct motifs within Art Assemblage AA-7, monochrome motifs tend to be smaller than polychrome motifs (Figure 9.41). Similarly, the simplest forms tend to be restricted to the smaller motifs, but an increase in form complexity was only marginally paralleled by an increase in motif size (Figure 9.42).

Hand size measurements could only be recovered from 12 of the hand stencils. The middle finger lengths

Table 9.42: Hand middle finger lengths by Art Assemblage

Art Assemblage	Hand stencils	mf lengths
1	Hand left	6, 8.5
	Hand 3MF	8, 8.5
	Hand 2MF	8
	Hand	8
5	Hand left	6, 6.5, 7.5, 8.5, 8.5
7	Hand left	7.5

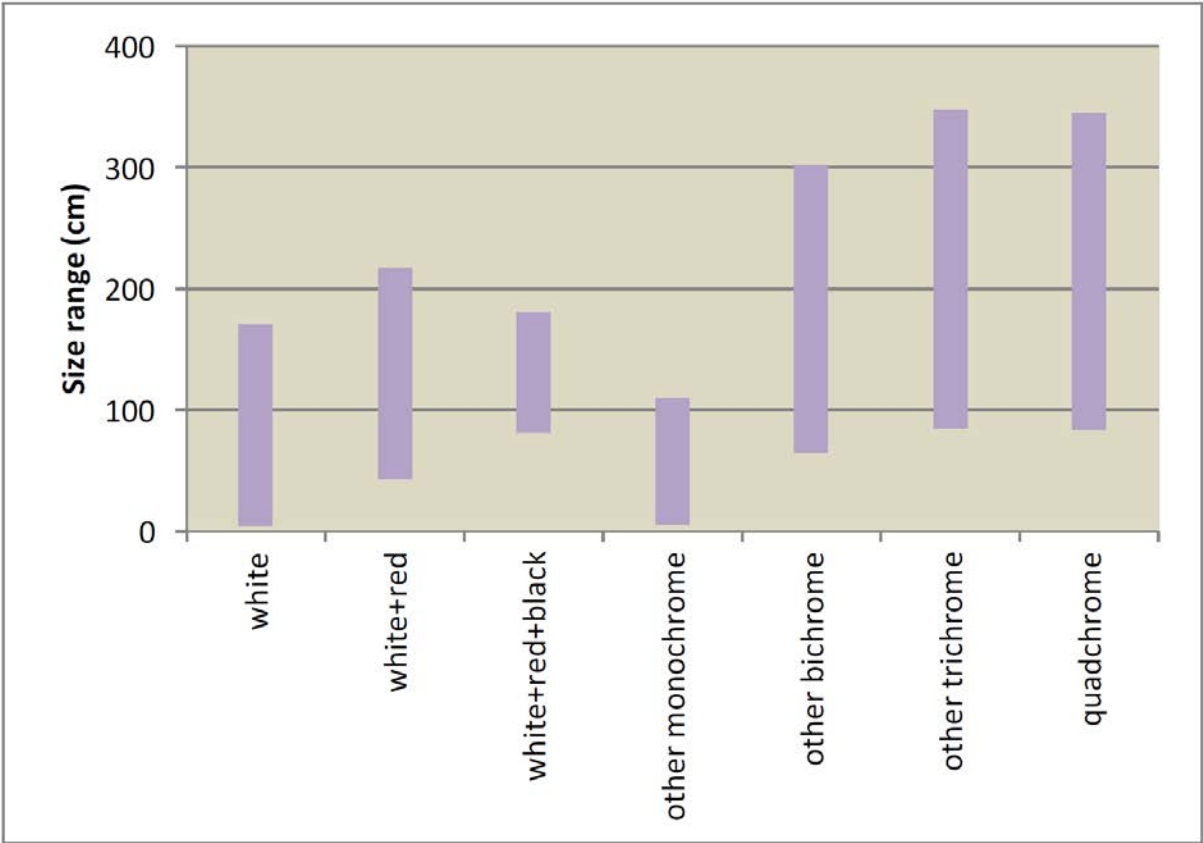


Figure 9.41: Size range of Motif Colours from AA-7

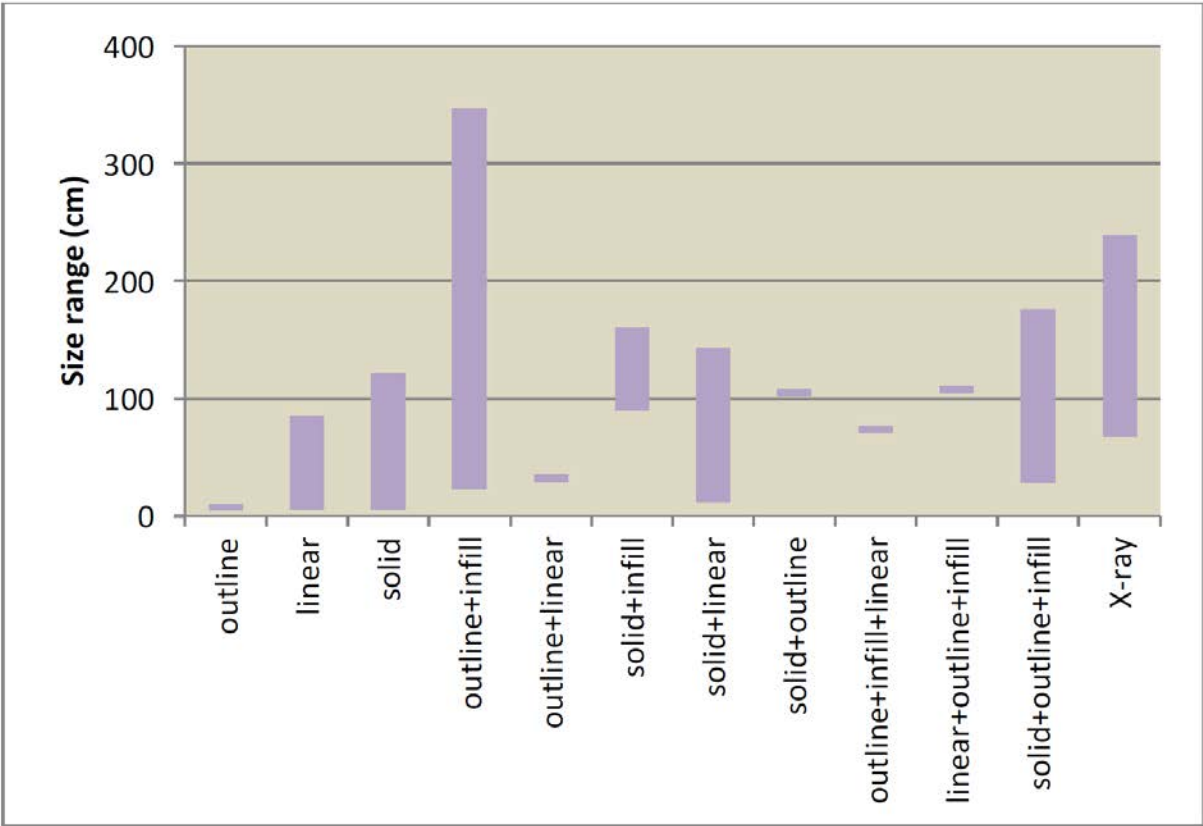


Figure 9.42: Size range of Motif Forms from AA-7

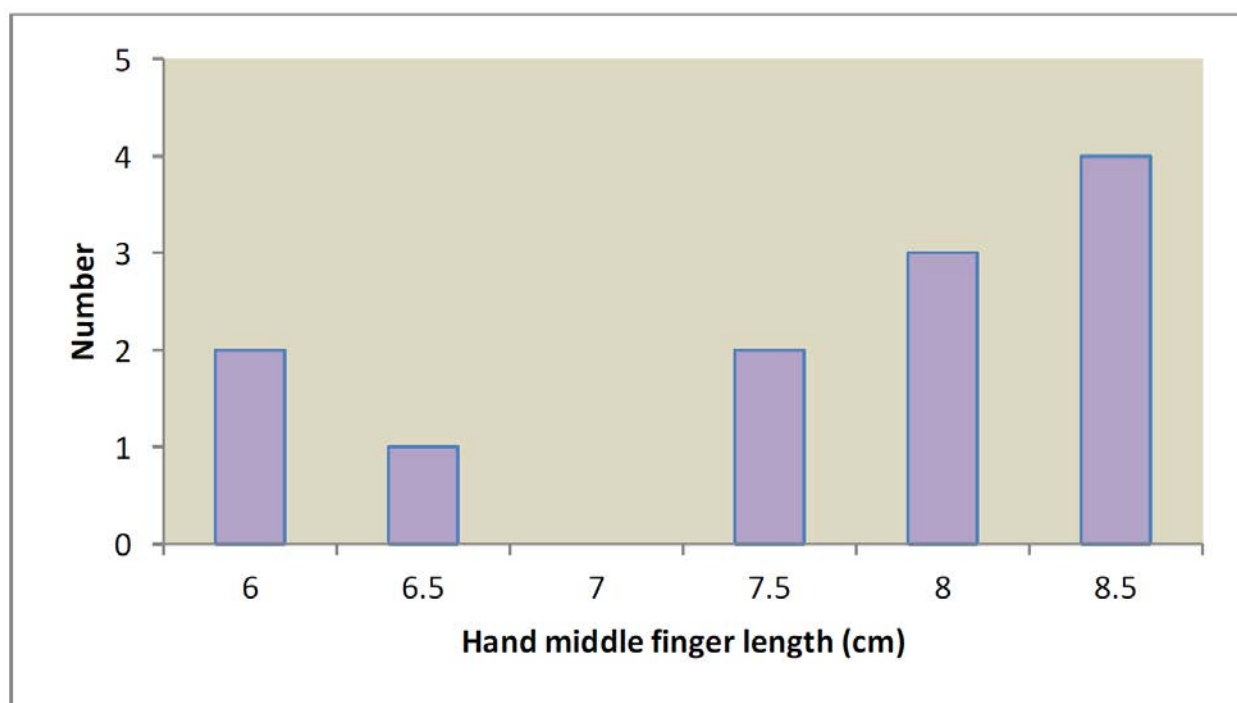


Figure 9.43: Middle finger lengths from all hand stencils measured

Table 9.43: Phase sequences for the sequential components of the four largest composite motifs on Panel J1

Approx. Years BP	Art Assemblage	PHASE J1/-	Layer J1-	Macropod	Crocodile	Quadruped	Snake
c.100 - >15	AA-7	V	L6	J-227			
c.400 - >100	AA-6						
c.450 – c.400	AA-5	V	L7		J-148	J-62	
		V	L10				J-58
		V	L14	J-203			
c.450	AA-4						
c.450	AA-3	IV	L18	J-201	J-123		
		IV	L19			J-60	
		IV	L22			J-46	
		IV	L27	J-194			
>1500 - >450	AA-2	III	L28				J-52
		III	L36				J-50
<14,000 - >3,000	AA-1						

Base colours white, red, yellow and orange indicated (see Table 7.27 for minor colours)

range in size from 6.0 cm to 8.5 cm (Figure 9.43). These measurements come from Art Assemblages AA-1, AA-5 and AA-7 and show no particular change in hand size over time (Table 9.42); they indicate that the individuals who had their hands stencilled here were either adolescent males or adult females, and adult males (Gunn 2006b). No small hands of juveniles or infants were observed, even amongst those stencils that could not be measured.

Panel J1 polychrome motifs

As mentioned in Chapter 7, the four largest polychrome motifs on Panel J1 have each been repainted on successive occasions. Each re-painting event was distinguished as a separate motif due to clear differences in pigment preservation:

- snake (540 × 18 cm; Motifs J-50, J-52 and J-58),

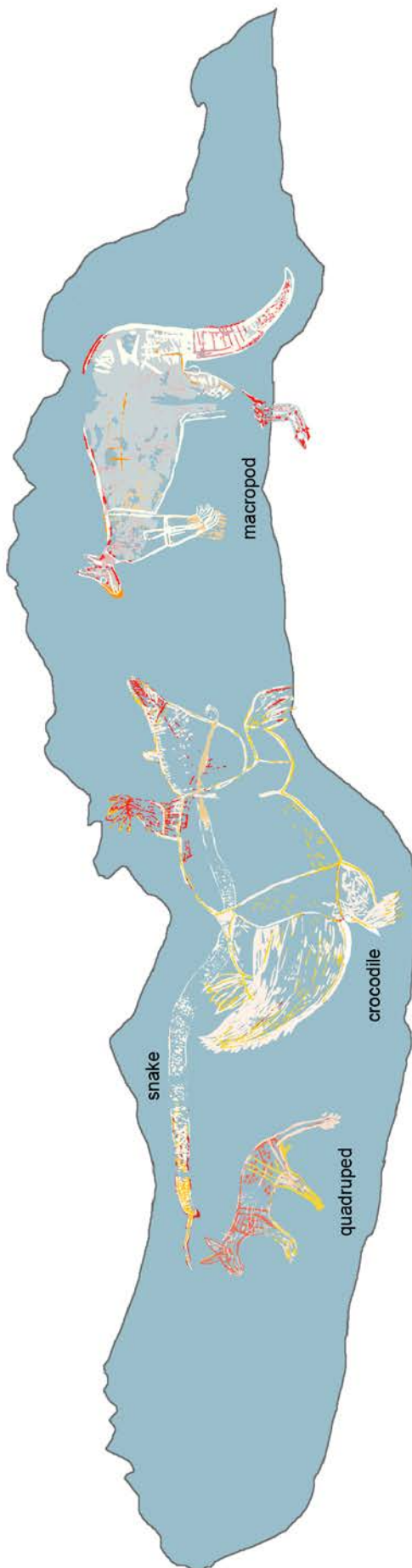


Figure 9.44: Panel J1 showing relative positions of the four polychrome motifs: quadruped, snake, crocodile and macropod

- macropod (345 × 200 cm; Motifs J-194, J-201, J-203 and J-227),
- crocodile (380 × 205 cm; Motifs J-123 and J-148), and
- quadruped (200 × 97 cm; Motifs J-46, J-60 and J-62) (Figures 7.310 to 7.313).

These four motifs form a distinct set due to their placement in relation to each other on Panel J1, and through their painting treatment (Figure 9.44). From their various positions within the Panel J1 Harris Matrix, the sequence of repainting can be detailed for each motif (Table 9.43). These patterns of superimpositioning indicate that the original paintings of each of the motifs (Motifs J-46, J-50, J-123 and J-194) were not produced at the same time. Nonetheless, it is likely that three of these motifs (Motifs J-50, J-123 and J-194) were painted within a relatively short time of each other: all around 450 years ago. Further, while the retouching of each motif occurred at different times, the episodes of white retouching of all four motifs must have occurred within a few years of each other, as they all occur during the short duration of Art Assemblage AA-5 (c.50 years). The snake (Motif J-50) is the earliest of the four and was partially superimposed by the crocodile (Motif J-14). The snake motif was, however, of sufficient interest at a later date to warrant repainting over the initial red version of the crocodile. The macropod was the most recently repainted, during Art Assemblage AA-7, when it was partially retouched in orange, then extensively in white, with subsequent highlights in red (Motif J-227). Despite the size of these motifs, none are visually outstanding due to their lack of solid infill and the resultant visual mixing with the many underlying motifs.

Variations across space

The ceiling panels used for art production varied with each Art Assemblage (Table 9.44), indicating that the focus of artistic activity in the shelter has also varied over time (Figures 9.45a and 9.45b). During initial use of the shelter (during Art Assemblages AA-1 and AA-2; within the period 14,000 to 450 BP) artistic activity occurs throughout most of the shelter, but concentrated on the northern verandah of Panel J1. As mentioned above, whether or not Panels D and E1 were used during these early Art Assemblages is unknown due to the excessive superimpositioning of motifs. From the distribution of panels used during these Art Assemblages it is highly likely that these two panels were also used, although the degree of their use remains unknown. During Art Assemblages AA-3 and AA-4 (around 500 years ago) the art tends to concentrate towards the eastern interior of the shelter. Over the period of Art Assemblages AA-5 to AA-7, the art is again distributed throughout the shelter; however, during AA-7 the art is concentrated mainly on a cluster of panels away from the south-west corner of the site.

Table 9.44: Motif numbers by Panel and Art Assemblage

PANEL	Art Assemblage							TOTAL
	AA-1	AA-2	AA-3	AA-4	AA-5	AA-6	AA-7	
A1	1						1	2
A2	20							20
A3	28	7			14		6	55
A4	5				2			7
A5		3			2			5
A6		2	2	3			6	13
A7	7				2		1	10
B1	23	10	1				13	47
B2		5	3		7		6	21
C1	3		1				1	5
C2	24	17	21	7		1	15	85
C3	1		6		5			12
D			22		25		19	66
E1			37		36		9	82
E2	1		22	2			3	28
E3		3	2				3	8
E4			4	1	1			6
E5			2		1			3
F1	12	17	27	19	31	7	13	126
F2		1	21	1			9	32
F3		2	4				5	11
F4			43		8		3	54
F5			5				1	6
G			11	1	4		1	17
H	41	16	9	8	19	23	16	132
J1	80	50	27		66		15	238
J2	3	5					1	9
J3	2	2			4		3	11
J4							1	1
J5	1				2			3
K1		1	3				7	11
K2	17	8	42		27			94
K3	7		9	4	14		4	38
K4	5	1	1			1		8
K5	4				7	4	2	17
K6	1		1		3			5
L	9		10		22		17	58
M1			2			1	1	4
M2	3	2	3					8
M3				3			6	9
M4	7		2				7	16
N			5				2	7
Total	305	152	348	49	302	37	197	1390

Overall, Panel J on the northern verandah was decorated almost constantly over time. With its northerly aspect, this panel is the best lit of all the ceiling panels and forms the ceiling of the warmest floor area of the shelter. Also, the art tends to be most prolific on those panels above the broad interior area, which forms the most natural thoroughfare through the shelter from north to south. This thoroughfare passes below Panels C1-C3, D, E1-E5, F1 and G (Figure 9.46), an open area created by the manual removal of several pillars (Delannoy et al. 2017) and, hence, the most likely principal occupation space (Table 9.45).

The present floor (and ceiling plan) of the shelter has existed for the past 11,000 years at least (Delannoy et al.

2017). Hence, it is concluded that all of the extant ceiling art was produced within the physical construct of the existing site. Consequently, the changes in panel use over time detected here were not influenced by the site modifications, but must result from some as yet unidentified social or environmental events. The apparent movement of concentrated art production from the northern verandah (Panel J1) into the interior of the shelter during Art Assemblages AA-3 and AA-4 does not correlate with any change in monsoonal rain activity (Denniston et al. 2013), hence the motivation for the change cannot be one simply related to long term changes in weather patterns. The reasons for such movements may yet be discovered in the unexcavated floor deposits of the shelter.

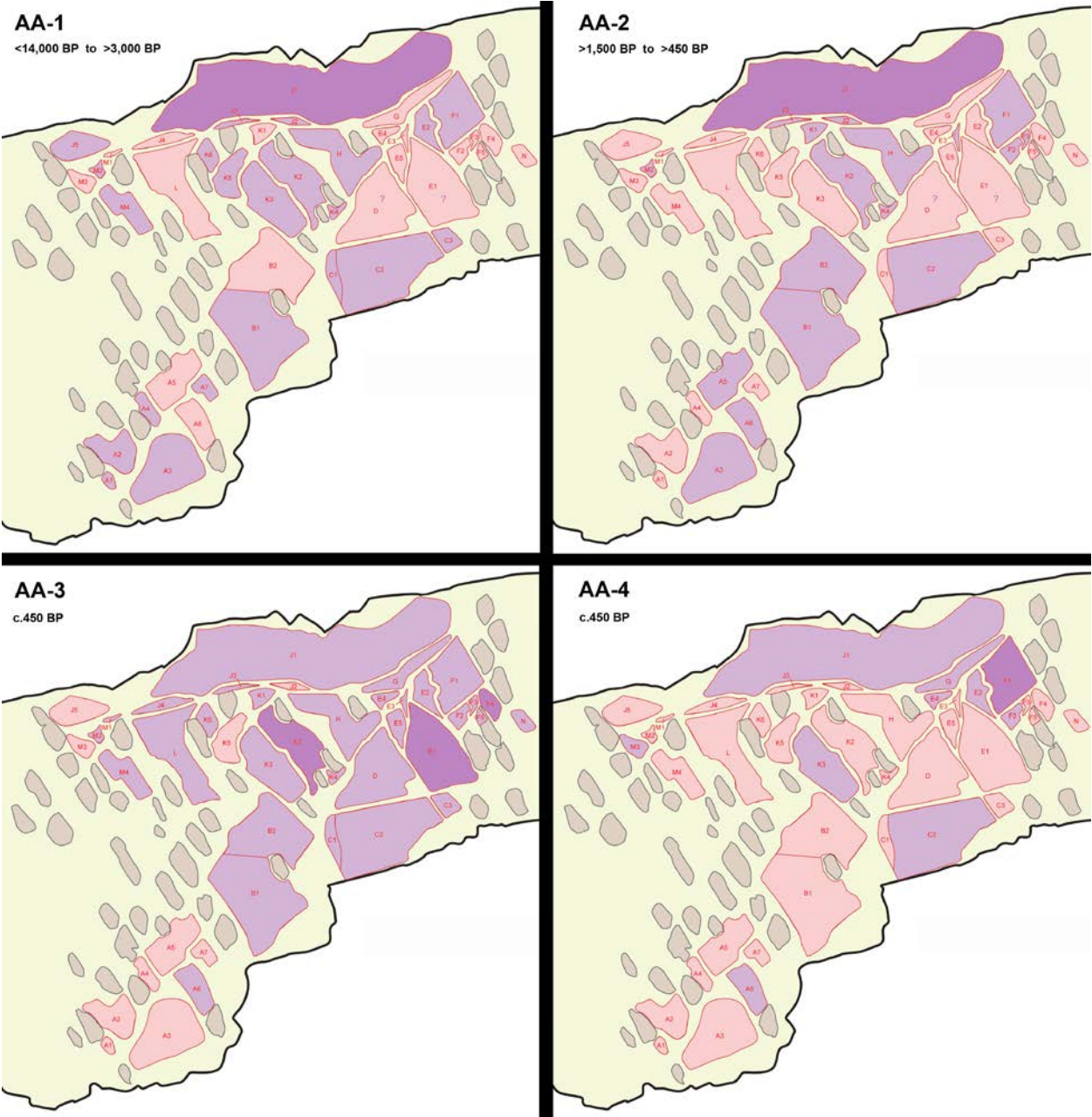


Figure 9.45a: Art Assemblage occurrences per panel (AA-1 to AA-4)
Numerically major panels for each Art Assemblage highlighted

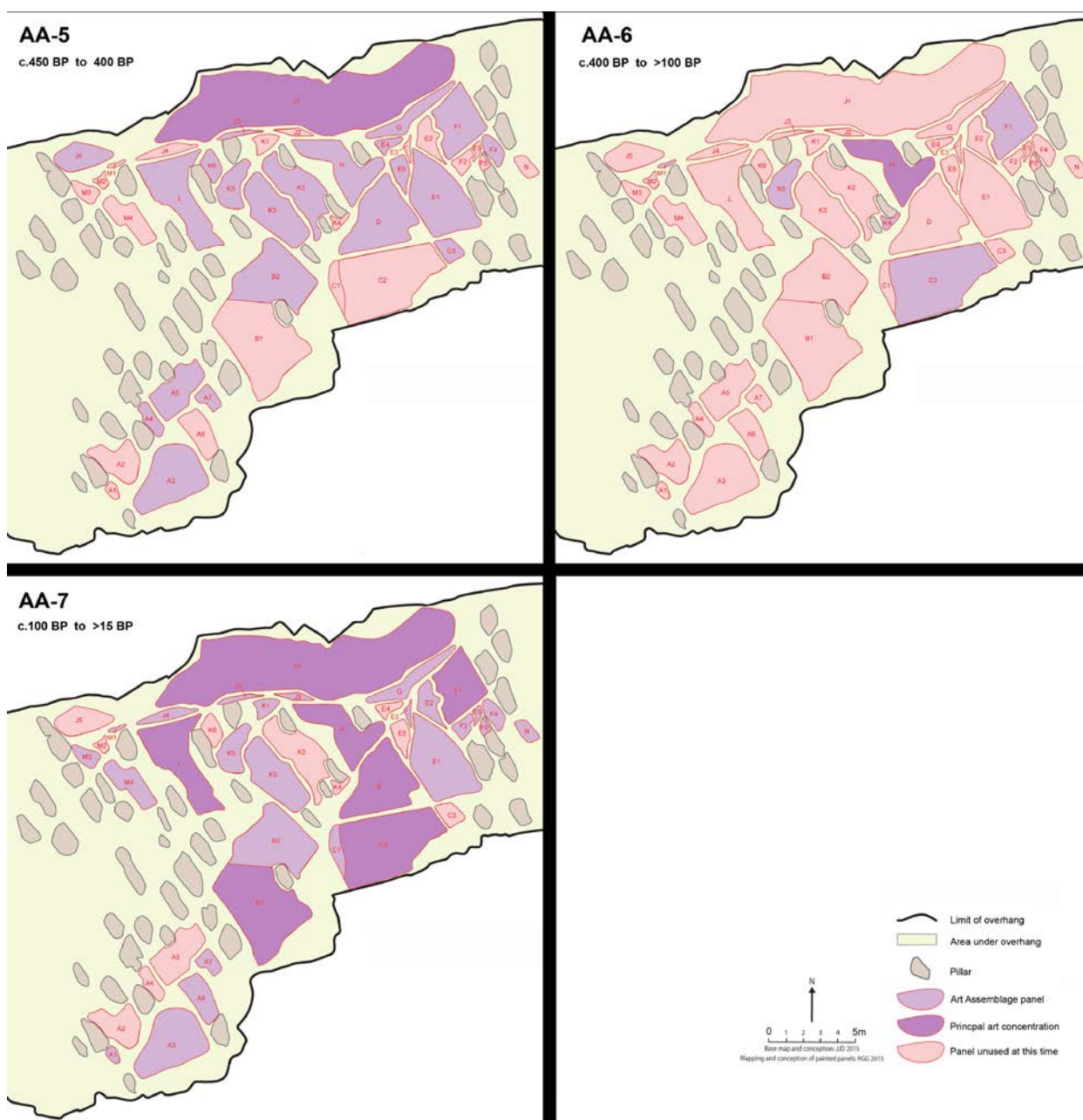


Figure 9.45b: Art Assemblage occurrences per panel (AA-5 to AA-7)
 Numerically major panels for each Art Assemblage highlighted

Distribution of select Motif Types

Comparison of select motif types throughout the shelter and over time provides a further glimpse into the way the shelter was used for art production. Apart from the distribution of hand stencils during Art Assemblage AA-1, examination of motif distribution patterns is limited to the more recent assemblages of AA-5, AA-6 and AA-7, as the full complement of the earlier Art Assemblages is unknown due to their probable partial or complete obstruction by later superimpositions.

Hand stencils

The distribution of hand stencils by colour (Figure 9.47) reveals two concentrations: red hand stencils at the western end of the shelter and white hand stencils in the centre. The five yellow hand stencils occur across both areas. The red and white stencils largely equate with different Art Assemblages: red with AA-1 and AA-2, and white with AA-3 to AA-7. The exceptional hand stencils are Motif E-21 (red from AA-3) and Motifs C-1 and H-21 (white from AA-1). Yellow

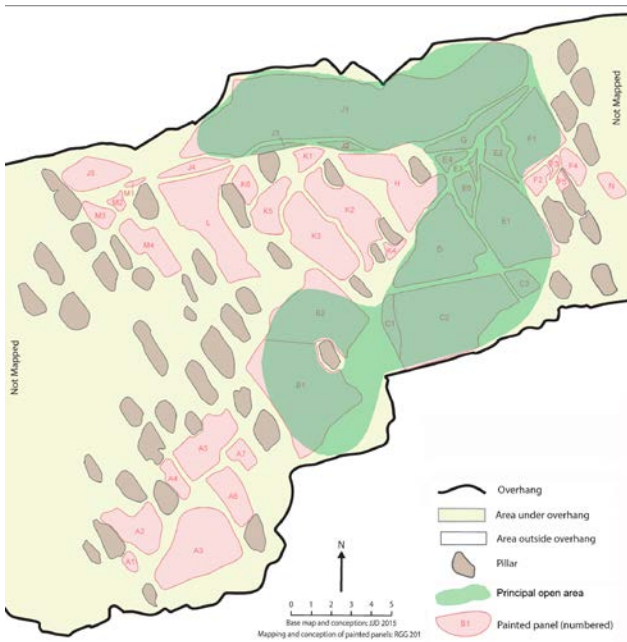


Figure 9.46: Location of principal open areas within the shelter

hand stencils occur in Art Assemblages AA-1, AA-2, AA-5 and AA-6.

Hand stencils from Art Assemblages AA-1 and AA-2 are concentrated in the south-west corner of the shelter, while other motifs from these Art Assemblages occur throughout the shelter. This difference in the distribution patterns suggests that, over the time of these Art Assemblages, hand stencil production fulfilled a different artistic role to that of painting.

While occurring throughout the shelter, white hand stencils tend to be concentrated on the same panels as the more recent paintings of Art Assemblages AA-3 to AA-7; they occur on both well-painted panels (such as Panel H), and lesser painted panels (such as Panels E2 and K5). White hand stencils from Art Assemblages preceding AA-5 only occur in AA-3, where they occur on Panels H (four examples) and K2 (two examples); the single red hand stencil from AA-3 occurs on Panel E1. None of the hand stencils within AA-3 occur in the south-western end of the shelters where most of the early red hand stencils are found. The broad distribution of white hand stencils, then, differs from the more concentrated distribution of the majority of red hand stencils, further supporting the notion that the artistic role of white hand stencils differed from those that are red.

Jawoyn Lady motifs

Ten Jawoyn Lady motifs were recorded from Art Assemblages AA-5 and AA-7, although none occur in the intervening Art Assemblage AA-6. The standard Jawoyn Lady motif is a distinctive full-frontal female figure painted as a white silhouette anthropomorph with red outline and infill patterns (Gunn 1992a). Here, however, there are also four profile variations of the motif (Motifs A-111, B-61, B-62 and C-84) and three male versions (Motifs H-110, J-246 and M-17, recorded in the motif lists as ‘Anthropomorph male’). All of these variations are also from Art Assemblages AA-5, AA-6 and AA-7.

The standard Jawoyn Lady motifs, painted in full-frontal pose, occur as either single figures or in pairs,

Table 9.45: Summary of art distribution over time

Years BP (Approx.)	Art Assemblage	No. of motifs	Shelter art distribution
14,000 – 3000	AA-1	305	Much of the area of the ceiling is utilised, with greatest attention given to the area beneath the outer panels, and particularly the northern verandah (Panel J1). The lack of representation of the interior Panels D and E1 during this time may be due to over-painting and concealing of motifs from this Art Assemblage by more recent art on these heavily decorated panels during later Art Assemblages
1500 – 450	AA-2	157	Most of the ceiling panels continue to be utilised and again focus on Panel J1. As for AA-1, any use of interior Panels D and E1 may now be undetectable
450	AA-3	343	Ceiling use is extensive but concentrated on the central interior panels (particularly Panels E1 and K2)
450	AA-4	49	The few motifs of AA-4 have a more limited distribution, focusing on the north-eastern interior of the shelter
400	AA-5	302	Following AA-4, there is again a wide use of the shelter ceiling for art production, although noticeably avoiding the southern entrance (Panels B1 and C2)
400 - 100	AA-6	37	As with AA-4, the few motifs of AA-6 are concentrated within the interior of the shelter but with renewed use of the southern entrance panel, Panel C2. This is the only time that the northern verandah (Panel J1) is not utilised
100 - 15	AA-7	197	Throughout this most recent time of art production, most of the ceiling art panels are utilised, except those in the south-western corner. Most panels utilised are densely painted, leaving no focal concentration

and are concentrated at the eastern end of the shelter, although they do not otherwise form a localised group (Figure 9.47). The 'other' 133 anthropomorphs from Art Assemblages AA5 to AA-7 (including the Jawoyn Lady variations but excluding the anthropomorphic body parts) are mostly white monochromes (59%) or white+red bichromes (22%) and are, in contrast, widely distributed throughout the shelter (Figure 9.48).

Northern X-ray fish

Twelve fish with the Northern X-ray form were recorded from Art Assemblage AA-7. This Motif Form is unrecorded in earlier Art Assemblages. These Northern X-ray form fish constitute a concentrated group on the largest innermost panels (Panels C2, D, E1 and H; Figure 9.48), central to the best protected area of the site and focused on Panel D. Their distribution contrasts with that of all 'other' fish from Art Assemblages AA-5, AA-6 and AA-7 (n=47), which occur more widely throughout much of the shelter, with a slight numerical focus on Panel J1 (Figure 9.49). The Panel J1 fish are all positioned along the southern margin of the panel and none are large despite the size of the panel surface.

The 'other' fish, like the 'other' anthropomorphs mentioned above, are mostly in monochrome white (47%) and white+red bichromes (36%). Six occur as other bichromes (four colour combinations) and two as other monochromes (one pink and the other yellow).

Macropod motifs

Forty-eight macropod motifs were recorded from Art Assemblages AA-5, AA-6 and AA-7, with equal numbers of monochrome and polychrome motifs (n=24 each). Both colour groups are widely distributed throughout the shelter (Figure 9.50), although the polychrome macropods tend to be more common on the larger panels. This difference is most likely a reflection of the polychrome motifs being generally larger than the monochrome motifs (mean 138 cm from 19 motifs, and 89 cm from 13 motifs respectively).

Individual artists

Through the Morellian Method, the hands of five individual artists were recognised (see above). The two works of Linear Painter A are from Art Assemblage AA-5, while those of the other identified four artists are all from Art Assemblage AA-7. The distribution of their works indicates that the artists did not restrict themselves to particular panels, although most favoured panels within the same general area of the shelter (Figure 9.51). Whether or not the instances on different panels represent single or multiple visits to the shelter is unknown.

The beeswax appliqué motifs fall into two spatially discrete groups; both of which are also separated on the basis of their radiocarbon ages (Table 8.39). The first group, A, consists of two on Panel F1 (Motifs F-27 and F-28) and two on Panel J1 (Motifs J53 and J-54). The second group, B, consists of motifs on Panel H (Motif H-122) and Panel K4 (Motif K-137).

As mentioned above, two other beeswax motifs on Panel F1 (Motif F-29 and F-30), which were not dated but are of similar colour, texture and location to Motifs F-27 and F-28 are also included within the first group. Another four beeswax motifs on Panel F1 (Motifs F-105 to F-108) are of similar colour and texture to Motif K-4 in the second group. The motifs from group A are all small pellets and are all superimposed by red radial designs. Those motifs in group B consist of two anthropomorphs (Motifs H-122 and K-137) and four beeswax additions to a white painted anthropomorph. The close spatial placement and similar Motif Type (single pellets) and age of the group A motifs is suggestive of being the work of a single artist (Figure 9.52). The two anthropomorph motifs in group B, both stick figures with distinctly different shapes and quality of application, are therefore unlikely to be by the same artist.

Summary

The art on the ceiling of Nawarla Gabarnmang represents the cumulative effort of many artists over several thousand years: beginning at some time between 14,000 and 3,000 years ago, and ceasing by AD 1935.

Over this time, the repertoire of the art on the ceiling of Nawarla Gabarnmang remains essentially figurative, dominated by anthropomorph and fauna Motif Classes. 'Anthropomorph' (unsexed) is the most common Motif Type in all Art Assemblages except AA-4 and AA-7, where 'Fish' (unidentified) and 'Anthropomorph female' dominate respectively. Non-figurative motif types and hands (exclusively hand stencils) occur as minor components throughout all Art Assemblages.

In general, the more poorly preserved art occurs in the earliest Art Assemblages and the better in the most recent.

Motif Form varies with Art Assemblage, although linear, solid and outline+infill types are consistently well represented.

The change in Colour from red to white around 450 years ago is considered a real and significant change in the art repertoire. Although white pigment is more fugitive than red, and hence may originally have been present in greater numbers in the earlier repertoires, the number of red motifs drops from 585 (73%) in Art

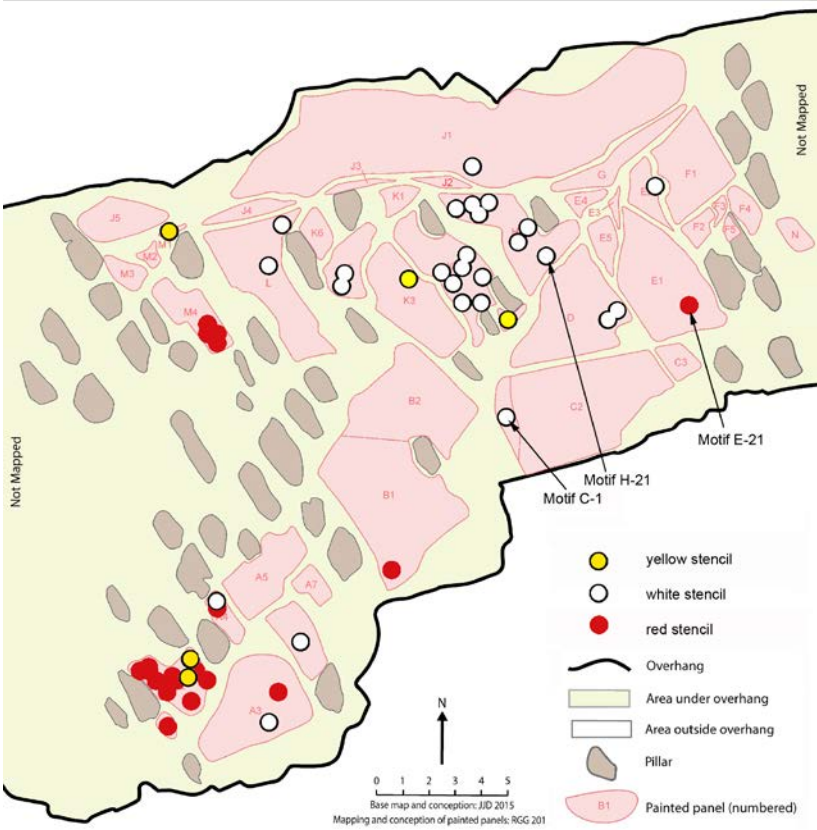


Figure 9.47: Distribution of all hand stencils by colour

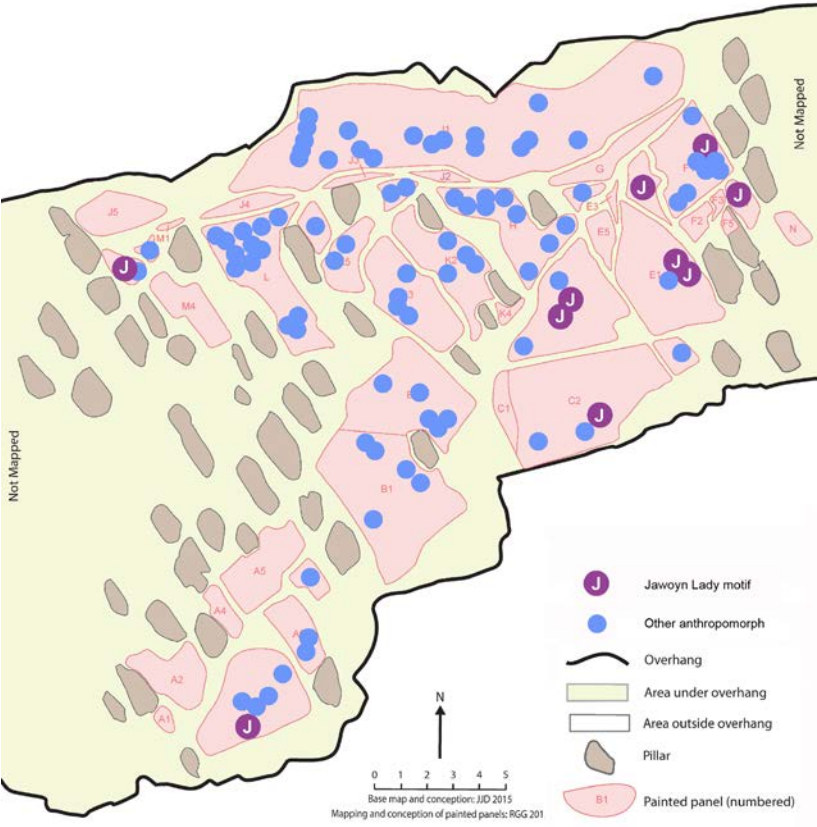


Figure 9.48: Distribution of Anthropomorph motifs from Art Assemblages AA-5, AA-6 and AA-7
'Jawoyn Man' motifs occur on panels H, J3 and M3

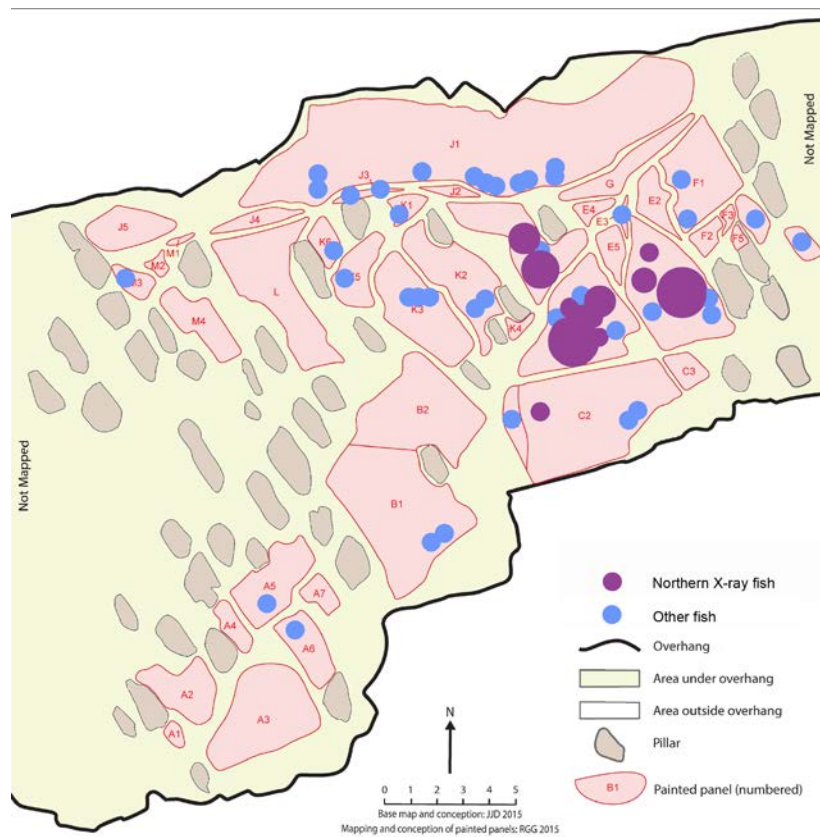


Figure 9.49: Distribution of all Fish motifs from Art Assemblages AA-5, AA-6 and AA-7
Northern X-ray fish shown by comparative size

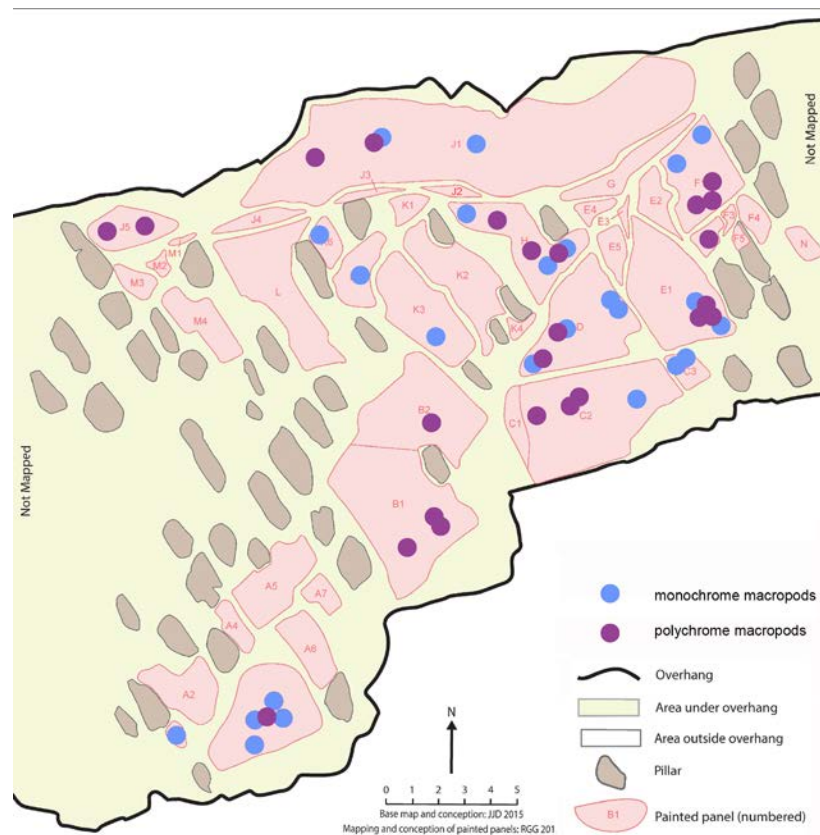


Figure 9.50: Distribution of all macropod motifs from Art Assemblages AA-5, AA-6 and AA-7

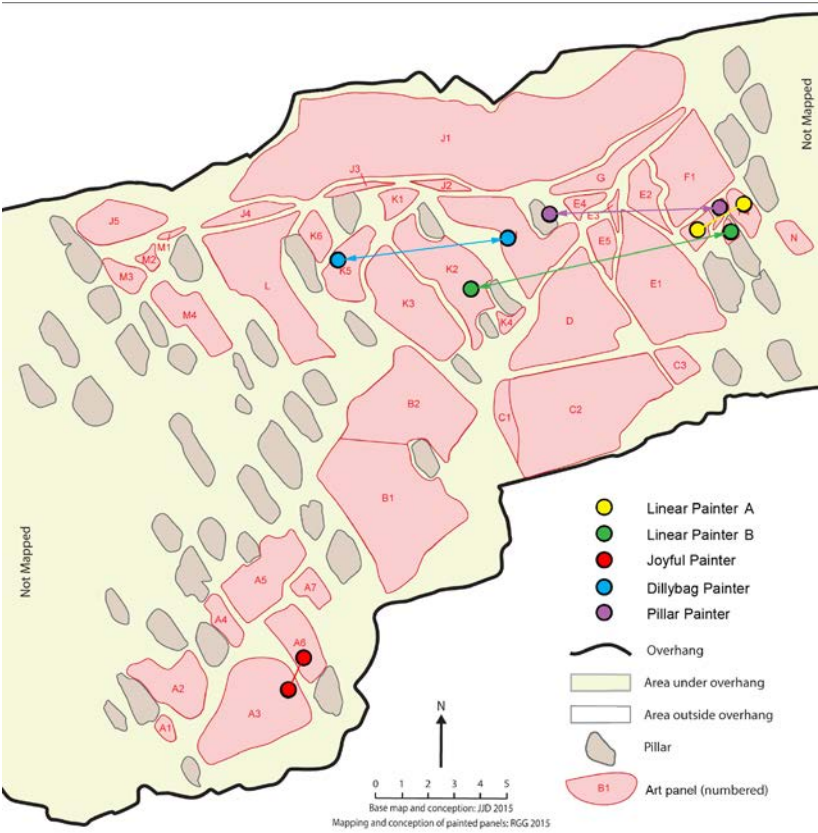


Figure 9.51: Location of motifs associated by the Morellian Method

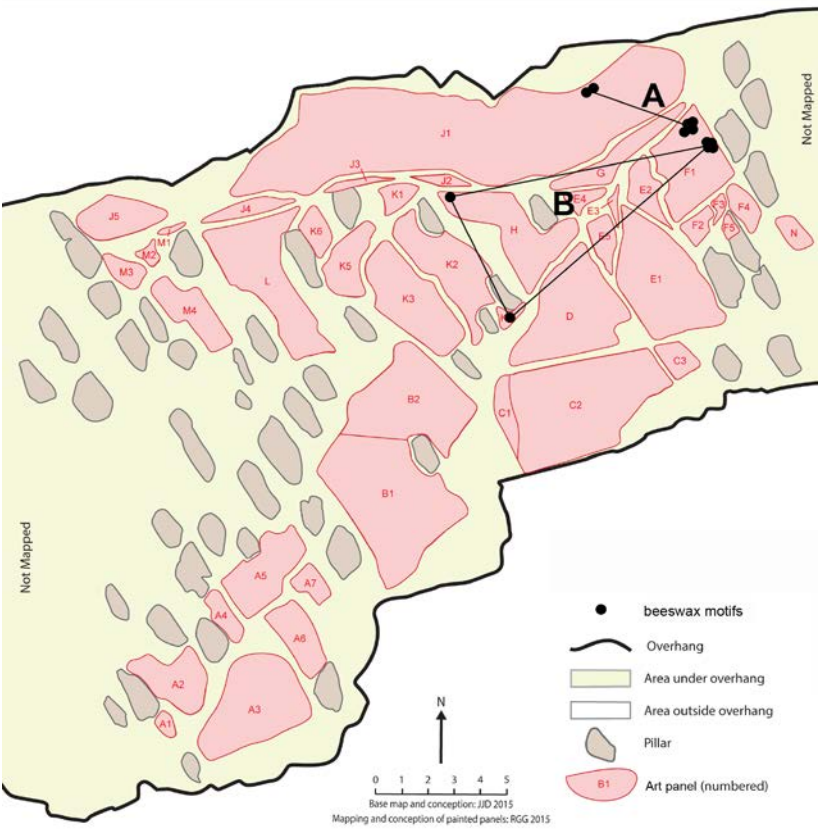


Figure 9.52: Distribution of beeswax motif temporal groups A and B
A: c.500 years old B: c.240 years old

Assemblages AA-1 to AA-4, to 12 (4%) in AA-5 to AA-7; a decrease that is highly unlikely to be attributable to attrition alone.

The restricted time range represented by Art Assemblages AA-3 to AA-5 covers at most some 200 years (500 to 300 years ago). This short time, however, saw a major shift in the art at this shelter that included:

- white and white-based paintings replacing red paintings;
- a dramatic and sustained increase in the proportion of motifs with solid+outline+infill forms;
- a greater presentation of large motifs (>100 cm in length);
- an increase in the number and percentage of sexed anthropomorphs (principally females); and
- the introduction of the 'Jawoyn Lady' motif and Jawoyn X-ray motifs.

A second conspicuous change in the repertoire occurs during the most recent Art Assemblage (AA-7). This is based around the inclusion of Jawoyn X-ray forms

(primarily on Macropod motifs) and the subsequent introduction of the Northern X-ray form, often on prominent large, polychrome barramundi motifs.

The distribution of hand stencils from the earlier and later Art Assemblages indicates a change in preferred panel use from the south-west of the site to the north-central area.

Motif distributions from Art Assemblages AA-5, AA-6 and AA-7 show little concentrated patterning except for the polychrome Northern X-ray motifs, which focused on the central inner panels. If the placement of the art reflects the pattern of occupation of the shelter, then it would appear that, for the past 450 years, there was no particular geographical focus in the shelter's use for art, until the most recent past when the polychrome Northern X-ray fish were focused on the central inner area.

Having described the archaeological facets of the art at Nawarla Gabarnmang, in the next chapter it is imperative to look at the art from the Jawoyn perspective in order to introduce a local cultural perspective to the study.



Talking with elders Lily Bennett and Dudley Lawrence; Wamud Nadjamerrek; Margaret Katherine; and Peter Bolgay



10. INTERPRETING JAWOYN ROCK ART



[The] meaningfulness [of rock art] has always been related to and largely derived from other modes of expression, largely verbal ones.
(Merlan 1989: 21).

In order to give a more social perspective to the art of Nawarla Gabarnmang, it is essential now to introduce its meaning and significance to the Jawoyn people of today and of the recent past. This chapter turns to the question of the interpretation of the rock art from the perspective of an outsider and then present an overview of interpretations provided by Jawoyn and related community elders. From this standpoint, interpretations of specific motifs and motif types at Nawarla Gabarnmang are highlighted and discussed.

When viewing and trying to appreciate Aboriginal rock art, ‘outsider’ visitors will almost invariably seek some form of meaning for the individual motifs: why were they painted and what do they mean? (Lawson 2015: 199–228; and see Chapter 1). While the quest for meaning has resulted in some valuable scholarly ethnographic research (e.g. Lewis-Williams 1981; Spencer and Gillen 1899; Vinnicombe 1976), much speculation has been posited, leading to wild and at times racially offensive conclusions, such as by imposing interpretations of a motif from one culture onto a similar motif in the art of another, often unrelated culture (e.g. Sale 1992; Wilson 2006). Consequently, much of the quest of etic researchers for the interpretation of rock art not produced by living artists has been quixotic (see Merlan 1989). Furthermore, any attempt to elicit original meanings for these older works from contemporary custodians by expectant researchers can place the custodians in an embarrassing position if they are unaware of any cultural meanings. Merlan (1989) describes how a group of custodians, visiting an art site for the first time, derived their interpretation of the art only through prolonged discussion, debate and consensus involving a range of social and cultural issues.

The problem of interpreting ‘old’ art, however, is not limited to ethnographic studies. For example, due to a multitude of social changes, students of ‘Western Art’ today would have difficulties fully interpreting early Italian Renaissance paintings from the 1400s. Baxandall (1988: 72–80) argues that in the Quattrocento (15th Century AD), viewers would recognise the content represented in religious paintings of the period through their familiarity with *festaiuolo* (characters in religious plays whose role was to mediate between the audience and the story by performing set poses

and gestures), as well as through nuanced references presented by a dynamic clergy, many of who were accomplished performers who used ‘a codified range of gesticulation’ that was recognised throughout Europe at the time (Baxandall 1972: 64). The *festaiuolo* were depicted with artistic devices, such as eye contact with the viewer, so that the viewer became actively involved in the scene depicted. In addition, poses used in paintings of the time were often derived from popular dances that, in their turn, used stock choreographed arrangements and figure poses to convey particular meanings. Baxandall queries whether viewers from the 20th Century (and now the 21st Century) could have the same ‘predisposition to see such refined innuendo’ (Baxandall 1972: 76) and, hence, whether they could be in a position to fully appreciate the significance the art had to the people of the Quattrocento.

The importance of dance in traditional Aboriginal life in Arnhem Land, and elsewhere across Australia, is well documented (e.g. Elkin 1979: 284–307; Howitt 1904). The choreography of these performances was mostly rigid and tightly controlled as, like the *festaiuolo* performances, they were based on a strict range of choreography and decoration (e.g. Elkin 1972; Spencer and Gillen 1899). As with most art, however, change and divergent interpretations by individuals were at times accommodated into the performances (Berndt and Berndt 1977: 268). The depiction of dance and religious themes in the rock art of western Arnhem Land, and other areas of Australia, is widely recognised (e.g. Elkin 1979: 271–276; Gunn 1993; Maddock 1970; also Welch 1997, 2012b). Consequently, it is likely that particular dance poses depicted in rock art could be recognised and read by viewers familiar with the culture of the region in which the motifs occur (on the assumption that the motifs were painted for a receptive audience; cf. Berger 1972: 46–47). Such readings, however, would not be possible to people without knowledge of both the artistic conventions used and the dance pose or act to which it referred within that particular culture. The same referential process can be assumed for all other rock art motifs. As with rock art (McCarthy 1979; Walsh 1988), dance also has regional variations, such as lithesome compared with angular stances (Elkin 1979: 298), suggesting that a dance pose portrayed in one rock art region might well be interpreted differently by a person from another region at the same time.

In the later 1960s, Maddock (1970; see Chapter 4) undertook an anthropological study of two major rock art sites in Dalabon country, which lies within the cultural block encompassed by the Jawoyn nation. The two sites contain large polychrome motifs of macropods and, at one site, a large polychrome depiction of Bolung (the Rainbow Serpent). Maddock learnt that the large central macropods in each site are thematically associated through the auspices of an encompassing mythology and ritual. The smaller peripheral motifs, consisting of monochrome and bichrome figures, were of little interest to the Dalabon elders that accompanied him, as they were more preoccupied with the central figures that held mythological and ritual importance for them. After presenting and discarding several alternative hypotheses relating to myth (minor characters or totems), rite and social structure (totemic of participating clans or performers), Maddock was unable to identify any relationship between the small peripheral motifs and the large central figures (1970: 455–459). My examination of Edwards' photographs of the art at the two sites, taken in conjunction with Maddock's study (see Chapter 4), found that there is little consistency in the formal attributes of the peripheral motifs at these sites, such as colour, position, or motif type, although all were notably smaller than the major figures. This then indicates that, if any thematic relationship existed between the peripheral and central motifs, it could not be established by formal analysis alone. In a footnote Maddock mentioned that the white silhouette motifs that he saw at several sites in the region were attributed by the Dalabon men to the works of people rather than Dreaming Beings, and that they were done to 'while away the time' (Maddock 1970: 461).

As has been shown above, the rock art now visible on the ceiling at Nawarla Gabarnmang was produced over the thousands of years and perhaps up to 13,500 years ago (see Chapter 9). Over this long period of time, the culture(s) of the people using the shelter changed, as Jawoyn culture continues to do so today. Consequently, the original meanings of the motifs on the ceiling to the people at the time the art was produced cannot now be attained. Despite these cautionary words, the Jawoyn today do interpret some of the individual rock art motifs within their lands from their own, present-day cultural perspectives; the art is still meaningful to them today. They also have a good knowledge of the associated rituals to which some of the art refers (including some rituals that are no longer performed; see Chapter 4). A sample of these interpretations, recorded by myself and others, is presented here (Table 10.1), but again, these are contemporary interpretations that may or may not equate with those of the original artists (see also Davidson 1999). These interpretations do, however, serve to illustrate how Jawoyn people today see the art within their lands. The motifs for which interpretations have been collected include

well-preserved (recent) polychrome and monochrome motifs, and also several poorly-preserved red motifs (such as the thylacine), indicating that current interpretations are not restricted to the most recent art but also incorporate some of the more ancient motifs. Images of both Bolung and Namarrkan within the *Mimi* periods also suggest that some contemporary interpretations may have considerable time depth (cf. Taçon et al. 1996), although it is also possible that, while the image remains constant, the story associated with the images may have changed over time.

Motif interpretations

As detailed in Chapter 4, both Arndt (1962) and Maddock (1970) provide interpretations of certain types of rock art motifs from Jawoyn and neighbouring Dalabon elders. Arndt mentions that images of the powerful Dreaming Being Bula (which he incorrectly identified as being images of Nargorkun) are large solid figures depicted in white silhouettes with bold red outline and limited linear infill (1962: 309). The graceful Narlenji-lenji spirits, the consorts of Bula, are also depicted in white silhouette with red outline but with finer and more complex infill. Arndt was told by Jawoyn men that the Jawoyn X-ray paintings in these shelters are the shades of animals killed as food for Bula. Arndt (1962) also mapped the location and extent of the spiritually dangerous country of Bulla.luk (now known as Bulajang) and described the apocalyptic powers of Bula.

Maddock (1970) described the art at two sites in Dalabon country, near Bulman, on the eastern side of the Jawoyn Lands (Figure 1.1). Maddock was told by the Dalabon men who accompanied him to the sites that the large, centrally placed motifs are images of the major Dreaming characters of Bolung and Gudabu (called Gupu by the Jawoyn) that are related to 'several religious cults' (Maddock 1970: 450). Such images occur at important Dreaming sites that have, or once had, a secret/sacred aspect. The cults the two characters were associated with included the Jabuduruwa, Lorgon, Ubar and Maraian (now spelt as Yabudurruwa, Lorrkkon, Wuwarr and Marayin respectively) cults common to the Dalabon and Jawoyn that relate to initiation and death (Maddock 1970: 450; see also Chapter 3). The central images are either white+red bichromes or white+red+yellow polychromes with double or triple outline and/or spray-dot infill. Maddock found that there is a common relationship between the colours and patterns with which the images of Dreaming characters are decorated and the colours applied to the bodies of performers in the associated cult rituals. From personal discussions with senior Arnhem Land elders who have knowledge of Jawoyn rock art, the findings of Maddock regarding the interpretation of the Dalabon art apply equally to Jawoyn rock art. While no such large polychrome images similar to those recorded

Table 10.1: Contemporary Jawoyn rock art interpretations
(from Arndt 1962; Cooper and Gunn 1986; Gunn 1992a; Gunn 1996; Gunn and Haydock 1998; and Gunn field reports 2005 to 2012)

Motif(s)	Interpretation
Dreaming images: <i>Shades of Dreaming Beings, or created by them</i>	
Large solid-bodied anthropomorphs, zoomorphs and unrealistic zoomorphs with white silhouettes outlined and infilled with bold red (some also including black highlights). Most c.50–200 cm tall and placed in visually prominent positions on vertical walls	Major characters from the Bula cult or other regionally major cults such as Bolung and Yabudurruwa. These include images of Bula and his main wives, the old Narlenji-lenji. Restricted images.
A large snake-like therianthrope figure, in white with red and yellow embellishments including spray-dots. Placed in visually prominent position on vertical walls (single motif >200 cm in length)	Bolung. Shade of Bolung. Restricted image
Small (c.50 cm) snake-like creature with macropod head in bold white+red adjacent to large Sugarbag motif	Bolung. Shade of Bolung. Unrestricted image
Long (>200 cm), segmented snake-like designs in bold white+red with sold white 'head' and segments decorated in brush-splotched white and red	Wam: 'Sugarbag' beehives with bees, honeycomb and eggs. Unrestricted images
Large (c.200 cm) macropod in red and white outline and internal divisions, outlined eyes and red spray spots infill	Gupu at Jowokba (Koel Dreaming). Restricted site and image. The bone arrangement at this site was placed here by Narrakan, a Jawoyn man, in the 1920s
Large (>100 cm) white+red macropod depicted in Jawoyn X-ray form. Usually paired (facing or back-to-back) with smaller macropod	Gupu, plains kangaroo (Antilopine wallaby) travelling southeast. He brought the Wuwarr ritual to the Jawoyn from the northern coast. Yirritja moiety. Companion of Barak but travelling in the opposite direction. Unrestricted image
Large (>100 cm) white+red macropod depicted in Jawoyn X-ray form: the smaller of a pair	Barak, male black hill-kangaroo (Euro). Duwa moiety. Travelling northwest from the inland. Companion of Gupu but travelling in the opposite direction.
Anthropomorph with a macropod head in white with bold red outline and body sub-divisions (single figure c.100 cm in height)	Naderl (Narterr). Spirit figure from the escarpment area. Unrestricted images
Image of a solid male or unsexed anthropomorph with axe-like protrusions from his head, arms or elsewhere around his body. Partially encircled by a line from one foot over his head to the other foot. Can be painted (in a variety of colours), drawn in white, or appliquéed with beeswax.	Namarrkan, the lightning man. Associated with the onset of the rains heralding the wet season. He is closely associated with Jatete, Leichhardt's Grasshopper. (see Fig. 10.1)
White lizard with red simple (segmented) infill (most c.80 cm)	Galwan; goanna companion of Bula and also instigator of the Yabudurruwa ritual. Restricted image
White short-necked turtle with red decorative infill (c.80 cm)	Ngart; turtle companion of Bula. Unrestricted image
White flying fox with red decorative infill (most <50 cm). Usually depicted inverted as if roosting	Warlang; child of Bolung. Unrestricted image
Large poly- or bi-chrome motifs with spray dots (>100 cm)	'Important' and restricted image.
Large (>100 cm) anthropomorphic female figure in red with white outline and bright red eyes outlined in white	Narlenji-lenji, a creation Being and wife of Bula. This image is unrestricted but others elsewhere still retain restricted status
Sinuously elongated white silhouette female figures with red outline and delicate red hatched infill. Occasionally black eyes and/or black pubic oval. Termed Jawoyn Ladies by Gunn (1992a). Most around 80 cm long	Young Narlenji-lenji. Within Bulajang seen as the consorts or young wives of Bula. The pattern on body refers to moiety body painting. Specific meanings for versions outside Bulajang were not obtained. Unrestricted images
White female figure with red decorative outline and patterned infill. Has legs but without delineated feet	Ngalworreworre (Jawoyn name for spirit Mermaid). Lives with Bolung in deep pools: cf. Narlenji-lenji above
Red Yam-style figure high up on a rock face that overlooks a Wuwarr ceremony ground (c.80cm)	Walang.gara, Boss-man for the Wuwarr ceremony. Trailing tendrils are feathered ornaments (feathers everywhere)
Leaf-shaped motifs in red+yellow (c.40 cm)	Long yams. Monochrome versions are painted by humans

Solid disc-shaped motif outlined in red (c.40 cm)	Round (cheeky) yams. Monochrome versions are painted by humans
Bichrome and polychrome Jawoyn X-ray paintings mostly of anthropomorphs, macropods and fish (most 50–250 cm in length)	Generally ascribed as being mythological characters, or food animals and fish favoured by Dreaming Beings. Painted by the Dreaming Beings. Many of these, and particularly macropods, relate to the Wuwarr cult. Unrestricted images
Mimi images: <i>painted by Mimi spirits</i>	
Thin ‘old-looking’ red anthropomorphs usually with some form of large headdress (10–40 cm)	Shade of Mimi rock spirits who live in the rock. Image created as Mimi pass into the rock: these were not ‘painted’
Large, solid red image of a standing portly female figure (c.100 cm)	Image of Alwurrwurrow; old woman for the Young Women Dreaming site of Ngaworreworre
Red dog-like animal, often with striped torso, non-prehensile tail and marsupial genitalia (thylacine)	Dog companion of the Ngalyod (Bolung)
White paintings (most <50 cm in length)	Of little interest to custodians
Abraded grooves (c.10 cm); abraded not painted	Gilk, same term as for body scarring and cicatrices that they represent. Carved by Mimi spirits with lawk (stone points) or stone axes
Jawoyn images: <i>painted by humans</i>	
White anthropomorph with red outline and linear infill. Distinct spike-like fingers and deformed feet	Ngar.mwul (white devil): a very dangerous spirit; “a very cheeky one”. He lives in caves in particular places in the stone country. He kills people by taking out their heart and is particularly dangerous to infants and children. He is drawn to cooking meat, particularly kangaroo, emu, or goanna. When he is nearby you have to sit very still. Similar character to Namorrodor from Oenpelli area.
Large (282 cm) snake-like creature with macropod head outlined in white with white spray dots. Groups of hanging flying fox above and below the creature.	Bolung and her (flying fox) children. She gives birth to her children at prominent waterholes by vomiting them into the air. Unrestricted image
Particular bi- or monochrome enclosed designs (c.50 cm)	Lorrkkon designs: associated with burial rituals
White+red crocodile with Jawoyn X-ray form (c.1.5 m)	Freshwater crocodile; Duwa moiety
White silhouette emu (c.1.5 m)	Turk (Emu); Yirritja moiety
White outlined emu-like bird with large scythe-shaped beak	Jarnarran: Jabiru
White bird-like figure with crest but without wings (c.20 cm)	Ngarratj; sulphur crested cockatoo
Panel of red figures of two different ages (tones and weathering) including two human figures, a bird and three elongated designs (c.1 m)	A single scene of a woman catching fish in a fish-trap, with her child and a bird helping her
White paintings (most 20–50 cm in length) but of varying quality	Of little interest to custodians, but were often characters in myths (of significance to the artist or the site) or sorcery figures (with deformed or aberrant features)

at the Dalabon sites occur at Nawarla Gabarnmang, analogous images occur in several other Jawoyn sites on and around the plateau; several of these sites are still regarded by the Jawoyn as major Dreaming sites (JRAHP 2005-2012). Although many of these Dreaming sites and their images are still culturally sensitive (viewing is gender restricted and, hence, they cannot be illustrated here), a few sites and images have been de-sanctified by the Jawoyn. One such site is the southern Jawoyn site of Wamluk, which contains large, boldly painted, polychrome images of the Wam (wild honey) Dreaming Beings as well as a range of smaller and less significant monochrome motifs (pers. comm., Larry Atkinson and Peter Bolgay, 2005; Figures 10.1 and 4.58). Overall,

Maddock concluded that the paintings were ‘graphic expressions of episodes recounted in myth or enacted in rite’ (Maddock 1970: 453).

The smaller monochrome paintings in Jawoyn rock art are often of little interest to Jawoyn people today. Paralleling Maddock’s findings at the Dalabon sites, knowledgeable elders from both Jawoyn and their northern Mayali neighbours consider the paintings portray mundane events of the people who have visited the sites (such as hunting, fishing, sexual aspirations, or sorcery), with most hand stencils being statements of personal associations to the place in which they occur (pers. comm., Larry Atkinson and Peter Bolgay, 2005).

Following work with the senior traditional owners of Bulajang in the 1980s (see Chapter 4), I summarised the major Dreamings of the region:

Bulajang is not purely restricted to the activities of [the major creation Dreaming Being] Bula as many other major Dreaming Beings also have Dreaming Sites there. These include Gupu, the plains kangaroo (Ubarr or Wuwarr), and Gorkawyn (Garkan), the brown goshawk, both of whom came from the north-west with Bula; Galwayn, the goanna (Jabaduruwa); Gnart, the turtle (a companion of Bolung, Gunabibi); NaDerr, the kangaroo-headed Being; and Belerrk, the gecko (Gunn 1992: 176).

In 2005, when discussing the dramatically decorated Jawoyn site of Wamluk with Mayali elder Peter Bolgay, he proposed that

the major images were of 'Sugarbag' (wam: native honeybees) on the basis of his interpretations of the main snake-like motifs with their internal divisions and dots, and the groups of dots at one end of the enclosures. Peter could give no reason for why the site was so well decorated. The relatively recent age of the paintings at Wamluk, their extremely large size and red and white colouring, their interpretation as beehives, and the aggregate of red circles outlined in white suggest that the site may be related to the Yabudurruwa ritual (Gunn 2006a: 17).

This interpretation was accepted by Jawoyn elder Larry Anderson when he visited the site later that year (Figure 10.1), and it was subsequently accepted by Bardayal Nadjamerrek, a senior custodian of the Sugarbag Dreaming within his own country to the north (Munro 2010) and an prominent artist, on his visit to this site with Ray Whear the following year (Ray Whear, pers. comm., 2008). The different infills of the segments of the motif represent the different stages of development of the beehive (the eggs and the honey) and the dots at one end represent the bees returning to the hive.

In 1949, Elkin was permitted to attend the 'very high and important sacred Yabudurruwa ceremony' for men of the Yirritja moiety near Barunga (Elkin 1951: 292). In his account of this burial ritual, that extended for eight days and involved performances pertaining to a range of totemic species, he described the body decorations worn by the participants (Elkin 1972). One of the designs included that of the honey-bee (sugarbag) totem, represented by a snake-like design extending across the face of the performer and down the front of the body via the shoulder or throat. According to Elkin:

the ritual is primarily and latently concerned with the problem of 'rising from the dead,' of ensuring the life of the soul of the departed Yabuduruwa

[sic] person, and so making reincarnation possible. The totemic aspect, however, is patent. It is the ritual of the Goanna, whose Dreaming, that is its mythological and heroic, exploits are re-enacted. It is a commemoration of Goanna and at the same time of other totemic creatures ... associated mythologically with Goanna, and/or are the cult totems of the main actors in a particular performance. Increase of natural species and the co-existence of man's soul after death are the objectives. The one ritual ensures both, for man and nature form a whole and are mutually dependant (Elkin 1972: 174).

The principal performer in the Yabudurruwa ritual represents the goanna Dreaming Being *Galwan*. The decorations painted on the bodies of the goanna performer during the ceremony, and also 'messengers' sent out to inform people of the up-coming ceremony, consist of solid red ovals with white outline representing the fat of the goanna. These designs sound very similar to the oval motifs incorporated into the images of the Sugarbag Dreaming in the Jawoyn rock shelter at Wamluk (Figure 4.58). According to Elkin (1951), on Galwan's journeys across Jawoyn country, he carried various natural species which were left at various locations, with these localities becoming Dreaming sites for that species. The honeybees were principal characters in the performance Elkin witnessed and, as the ceremony celebrated the activities of Galwan, it can be assumed that the honeybees were one of the species accompanying him on his travels.

Of the almost 50,000 motifs recorded during the seven years of the Jawoyn Rock Art and Heritage Project (JRAHP), only a very small number of motifs were given specific interpretations by the elders we worked with (Table 10.3). Mostly these interpretations were for individual motifs, although they were often extrapolated by the elders themselves to all other representations of that motif type that exhibited comparable formal attributes. For example, the Jawoyn Lady motif devoid of feet, the Ngalworreworre (also referred to as 'mermaid' by elders today; Table 10.1, Figure 10.2), was identified to the author at one site by Larry Atkinson (2005) and at another by Peter Bolgay (2005; Gunn 2005b). The figure was identified by the presence of 'fins/paddles' instead of feet. The motif was recognised by them due to its formal features rather than on personal knowledge of that motif or any mythical knowledge pertaining to the place where it occurred. For Larry Atkinson and Peter Bolgay, any Jawoyn Lady motif that has legs but no feet, was recognised as representing a Ngalworreworre image. Similarly, the sugarbag motifs at the main Wamluk shelter were recognised by both elders due to their formal attributes: snake-like shape subdivided into cells, and the presence of dots around the narrow end

(Figure 10.1). The shape was interpreted as representing the beehive, the cell-like divisions as the different areas within the hive where the honey was in varying stages of production or honeycomb (egg chamber), and the dots at one end are the bees returning to or leaving the hive. The presence of the large polychrome sugarbag images at the Wamluk shelter indicated to them the high significance of the site as a Sugarbag Dreaming. Further, for Peter Bolgay, any painting that had these attributes, whether at a sugarbag site or elsewhere, must be a painting of sugarbag, whether it is a polychrome Dreaming figure or a monochrome human painting (Figure 10.3).

As mentioned in Chapter 3, in 1942 the Jawoyn were moved into settlements around Katherine (Merlan 1998: 5), and from then on rarely went onto the plateau, with many areas of the plateau not revisited again. Consequently, the Jawoyn people have been dislocated from *batlerrluk*, their term for the stone country of the Arnhem Land plateau, for over 75 years (see Chapter 3). Apart from occasional journeys along pathways across the plateau in the 1930s to 1960s, when the senior elders with whom I worked were young children, they mostly visited sites in the company of their parents or other elders who told them specific interpretations of the rock art. In other cases, their interpretations of the art derive from a free association of the current social and mythological context of motifs and/or sites (cf. Merlan 1989, Morphy 2012). Hence, although elders may not have visited a particular site or been told the meanings of particular motifs, they derive their knowledge from the same cultural tradition as the more recent rock painters, including a culture still rich in song, story, performance and bark/canvas painting (Smith 1994). Overall, four categories of rock art are recognised by the Jawoyn today:

- images of and by Dreaming Beings. These were created by the Dreaming Beings themselves impressing their bodies onto the rock face, either in passing or by passing into the rock. Such sites have high mythological and usually ritual importance. Images are mostly large (1–4 m long) white silhouettes with bold red outline and infill (some also have yellow and/or black highlights). Others have white or red spray dots over the body. Invariably these images are visually striking and, in all but a small number of cases, they are prominently placed on vertical walls. These images are mostly deemed by elders to be restricted and, unless the site has become de-sanctified (such as the Wamluk site mentioned above), should not be shown to the general public;
- images painted by Dreaming Beings of spirit figures, fauna or flora that are associated with the activities of the Dreaming Beings. These

motifs usually occur in shelters along with images of the Dreaming Being itself. Most subject images are 0.5–2 m long, and have white silhouettes with fine red outline and infill, including Jawoyn X-ray infill. The images are usually visually striking;

- images of Mimi spirits created by the Mimi spirits impressing their bodies onto the rock face as they enter into the rock where they reside. The motifs have thin bodies and limbs, and usually some form of large headdress. Red is the most common colour used, although some are in yellow; most are around 20 cm tall, but ranging from 10 cm to 100 cm; and
- motifs painted by humans. These include the characters from myths (particularly dangerous spirits, painted as a reminder to young people to beware and act appropriately, in order to avoid the spirit's wrath, e.g. Figure 10.4); motifs related to rituals (such as clan burial symbols and ceremonial wands); sorcery paintings (mostly depicting deformed anthropomorphs); and items from everyday life (spears, dillybags, fish or small game animals the artists have caught or hope to catch, etc.). These motifs can range in length from 5 cm to 200 cm, and they can be painted in one or two of a variety of colours. These everyday motifs are mostly in white monochrome and less than 30 cm in height. This group also includes most contact-period motifs, dry pigment drawings, beeswax appliqué, and hand and object stencils.

Two notable and recurrent motifs of interest to the elders are those of the Narlenji-lenji and Ngalworreworre (Figures 4.60 and 4.61). Representations of the young Narlenji-lenji spirits are a particularly conspicuous motif in the rock art of the Jawoyn-Mayali region of the western and central Arnhem Land plateau, particularly within Bulajang (Gunn 1992a). This motif was termed 'Jawoyn Lady' by Gunn (1992a). In Bulajang (see Figure 3.1) the Narlenji-lenji are described as being the consorts (young wives) of Bula. These often delicate figures are mostly shown fully decorated ('dressed-up') with moiety body patterns (triangular patterns on the leg margins refers to the Yirritja moiety; diamond patterns to the Duwa moiety; Larissa Lee, pers. com., 2010), arm bands, crossed straps (girdle) across their breasts, brolga bone nose-peg, and hair done in plaids forming a headdress (Gunn 1992a: 180; 2005b: 11–12). They are often depicted in either sensual, floating poses or explicitly sexual positions. Those Narlenji-lenji images depicted with plain white breasts are young women; while those with red speckled breasts are young mothers either breast-feeding babes or with young children (Peter Jatbula, pers. comm., 1987): no images of their children have been recorded. Typically the women are depicted as individual figures, although

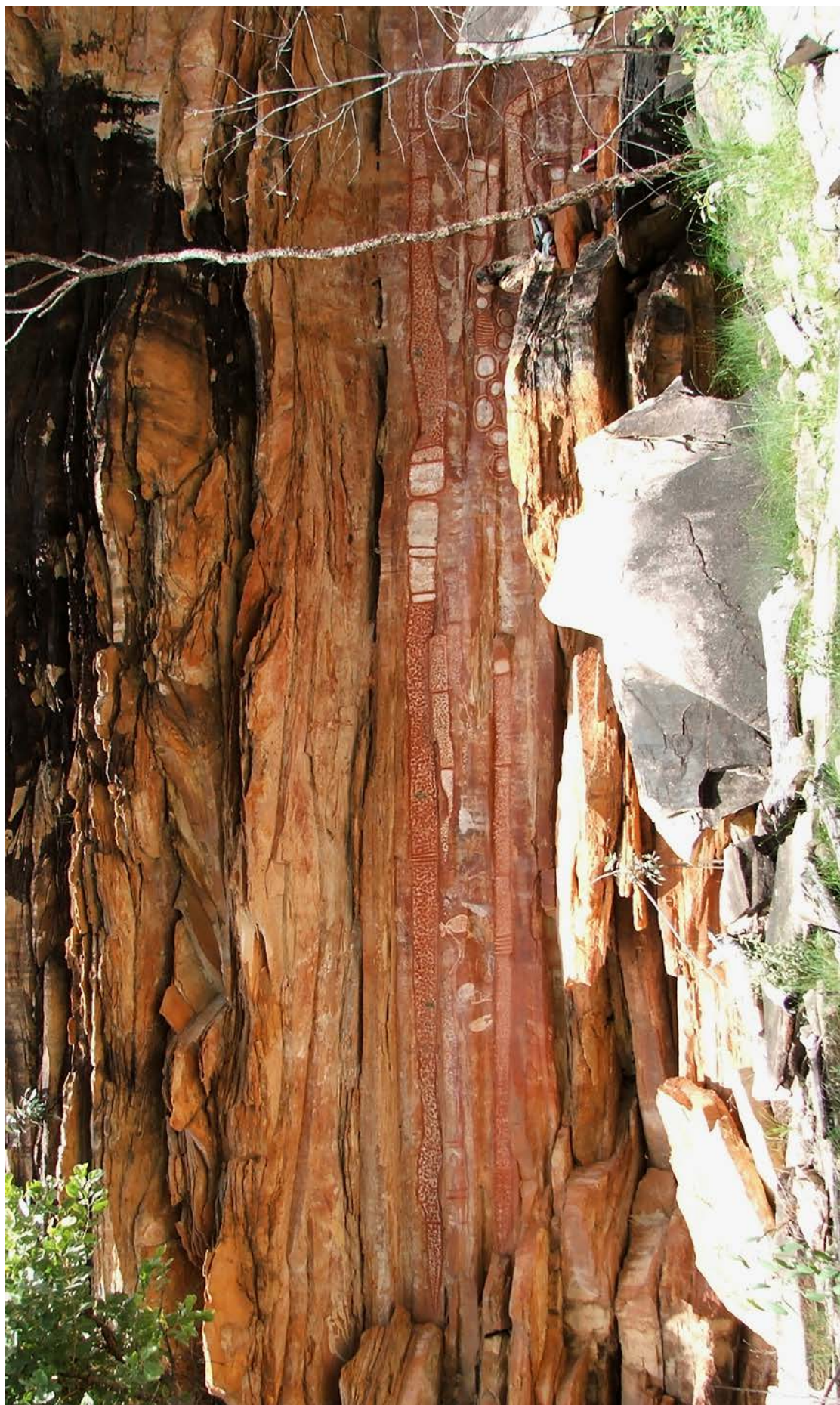


Figure 10.1: Larry Atkinson at the 'Sugarbag Dreaming' site of Wamluk (2005)



Figure 10.2: Ngaworreworre figure with 'paddles' for feet (site EVA-09/5)

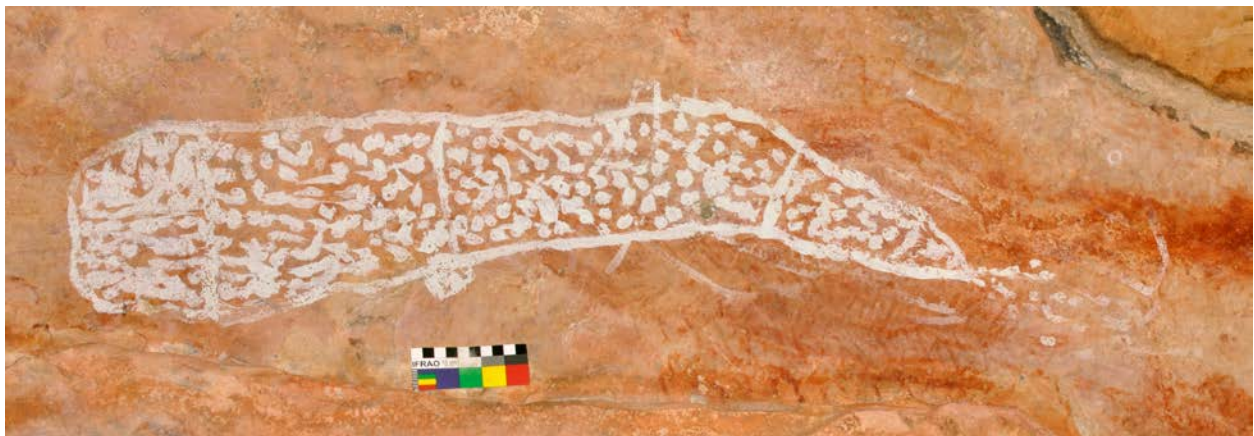


Figure 10.3: Monochrome sugarbag motif (site ARN-029/20a)

there may be more than one on a panel. At a site some 20 km south of Nawarla Gabarnmang, however, four parallel and life-sized Narlenji-lenji figures are depicted in a unified composition. At a small number of Jawoyn sites, the Narlenji-lenji are depicted in the act of coitus with a male figure, usually painted simply in monochrome white. Singular male figures with decorative infill patterning similar to that of the Narlenji-lenji are rare. The Narlenji-lenji are depicted

to illustrate their seductive powers and the danger they represent to young men who hunt alone; such men will be lured away to a place inside the rocks to play, and from where they will never escape (Peter Jatbula, pers. comm., 1987).

In contrast to the Narlenji-lenji, the comparable-looking and often similarly patterned Ngaworreworre are water-spirits primarily associated with a waterhole,



Figure 10.4: Image of *Ngamwul* (shooting star) who tries to snatch the spirit of infants at night (Site N-09/255e)

Worreluk, within Wuratljuk (Gunn and Haydock 1998; Gunn 2005a) in the southern Jawoyn Lands (see Figures 4.51 and 4.57). Images of the Ngalworreworre are also concentrated in sites within the southern Jawoyn Lands. Unlike the Narlenji-lenji, the Ngalworreworre are depicted without toes (colloquially called 'mermaids', and their feet referred to as 'like fins or paddles') and occasionally, like the Narlenji-lenji, wearing a brolga bone nose-peg. The Ngalworreworre are the wives/girlfriends of the rainbow-snake Bolung and live with him/her in deep pools. They are very shy but, when nobody is camping nearby, come out of the water at night to lie about on the sand. Their spirits are 'inside' Bolung, along with those of flying foxes and kangaroos. Bolung vomits them up: Ngalworreworre into water, kangaroo onto land, and flying foxes into the air. Analogous to the seductive Narlenji-lenji, the Ngalworreworre are also dangerous. They call to men to swim and play with them, only to drag them under and behind an underwater rock wall, to live forever as their 'friend'. According to Peter Bolgay, a man of Duwa moiety can be saved from them by a Yirritja moiety man but not by another Duwa man. They do not present a threat to Yirritja people. The Ngalworreworre are also known as *Yowkyow* or *YowgYowg*, and in Mayali they are called *Algunburrayami* (Peter Bolgay, pers. comm., 2006).

In the contemporary mythology of western Arnhem Land, the thylacine (as it is depicted in rock art) is seen as a benevolent companion (the 'dog') of the Rainbow Snake (Chaloupka 1991: 50, 1993: 45-52). Motifs of thylacines are not uncommon in the rock art of the Arnhem Land plateau, and all are considered to be greater than 3000 years old (see Chapter 9). As motifs of thylacines represent a character in current Arnhem Land myths, is seen as evidence that the Jawoyn, and other groups from around the Arnhem Land plateau, are not only aware of the older art in their rock shelters, but that they actively interact with it.

Interpretations of colour

To the Jawoyn, particular colours are related to particular moieties: light colours (white and yellow) to the Yirritja moiety, and dark colours (red and black) to the Duwa (Peter Bolgay, pers. comm., 2005; see also Smith 1994: 75).

Good quality red and yellow pigments ('ochres') are known to have been highly valued in many parts of Australia and were the subject of trade over long distances (e.g. McBryde 2000). The ochres are usually derived from outcropping sources that, according to

local mythologies, were often produced from the blood of injured or dying Dreaming Beings (e.g. Spencer and Gillen 1899: 201; Davidson 1952: 82) or the menstrual blood of female Dreaming Beings (Chaloupka 1993: 84). Chaloupka (1993: 83) mentions that nodules of the white pigment huntite found around the Arnhem Land plateau are the faeces of the Rainbow Snake. Brandl (1973: 106), in contrast, mentions that Aboriginal artists he worked with extracted white pigment from numerous places on the Cadell River, to the north-east of the plateau, yet does not mention any Dreaming associations with the sites.

Several high-quality pigment sources (red, white and yellow) are known from below the northern and western margins of the Arnhem Land plateau, all of which have Dreaming associations (Chaloupka 1993: 83–86). Three pigment sources reported from within Kakadu National Park are within walking distance of Nawarla Gabarnmang. Ochre from these three sources was traded to areas beyond the Arnhem Land plateau (Chaloupka 1993: 83). No such sources of high-quality ochre (strong colour and non-granular) are known from on top of the plateau and so it is assumed that all, or at least most, of the pigment used at Nawarla Gabarnmang was carried or traded in from these outer sources.

Interpreting the art at Nawarla Gabarnmang

Extrapolating from interpretations of Jawoyn rock art given by knowledgeable custodians, we now look at the art at Nawarla Gabarnmang, beginning not with the Jawoyn motifs, but with the large, polychrome fish with the Northern X-ray form that visually dominate the shelter.

When first visiting Nawarla Gabarnmang, Peter Bolgay (Figure 10.5) was perplexed at the presence of the fish painted in what he considered a northern art form. The painting of fish in this manner, and particularly barramundi, is common in the recent rock art of the northern Kakadu National Park and Oenpelli region (Taçon 1987, 1993). Their prevalence in that region derives from the special significance fish have as symbols of life through their perceived qualities of ‘rainbow-ness’ and ‘transformation’ (reincarnation: barramundi change sex from male to female with age) (Taçon 1989b). Further, as mentioned in Chapter 4, images of barramundi are also an expression of *Namarnkol*, the Barramundi Dreaming Being, the creator of the East Alligator River and another manifestation of the Rainbow Snake – two of the major creation Beings for the people of the Kakadu-Oenpelli region (Taçon 1989a(1): 275–343; Gunn 1992a). According to Taçon (1989c), Northern X-ray paintings are the most significant form of *Garre wakwami* (Dreaming) paintings, having both sacred and profane meanings ‘of which only initiated men are permitted to know the deeper,

sacrosanct levels of meaning as most relate to aspects of Dreaming stories, Dreaming law or belief’ (Taçon 1989: 324). As Taylor (1996: 224–241) points out, however, Ancestral Beings (Dreaming Beings) are not painted with realistic internal organs but with *rarrk* (fine cross-hatching). Images of Dreaming Beings I have observed along the East Alligator River are large and occur as red silhouettes with thick yellow outlines. For example, the large image of the Dreaming Being *Birriwil*, on the north-western corner of the Arnhem Land plateau (Figure 4.42), and the image of the Rainbow Snake with which she is associated within Kakadu National Park (Mountford 1956: 214–215) are both solid red silhouettes with bold yellow outlines. While less solid in form, the image of the Waterlily Dreaming Being, *Inagwurdurwil*, from this area is also in bold red and yellow colours (Mountford 1956: 214; Gunn 1992b). This colour difference between the Dreaming Beings and the finely-painted, white-based polychrome X-ray fish suggests that latter are either not representations of Dreaming Beings, yet being Dreaming paintings, or are representations of a different and, as yet, unidentified class of image of Dreaming Beings.

Peter Bolgay, drawing on his personal knowledge of traditional Aboriginal group movements over and around the Arnhem Land plateau, and of Nawarla Gabarnmang’s proximity to the upper reaches of the watersheds of the northern-flowing East Alligator, Katherine and Mann Rivers, concluded that the shelter would have been used by people from the north when coming up onto the plateau for ceremonies and trade with Jawoyn people. He therefore suggested that the polychrome paintings (Figure 9.25) would have been produced during these visits (Gunn et al. 2012b). As the Northern X-ray fish constitute the most recent paintings within the shelter, these visits by northern peoples would represent the last substantial painting event(s) within the site (see Chapter 9 and Figure 9.31). Oral history (see Chapter 3), however, records that such uses of the shelter by northern groups did not prevent its use by local Jawoyn people, such as by Margaret Katherine’s father’s family in the 1950s (Margaret Katherine, pers. comm., 2010), or itinerant travellers from the north, such as Bardayal Nadjamerrek on his walks across the plateau in the 1930–1950s (see Chapter 6).

Three factors indicate that these Northern X-ray fish were a visual statement of some importance to the visitors. These are:

- their exceptionally large size (cf. Maddock 1970);
- the large quantity of different coloured ochres required for their production; and
- their prominent positioning within the shelter.

As these fish motifs were placed on the larger, central ceiling panels (see Chapter 9), it can be concluded



Figure 10.5: Peter Bolgay discussing mythology while painting a representation of the Dreaming Being Namarrkan, Manyallaluk 2006

that use of the shelter by the northern visitors was not restricted to a marginal zone but occupied a place central to the main occupation area (Figure 9.50). Further, several of the Northern X-ray fish are in superimposition with each other, are not superimposed by any Jawoyn style motifs; and have been retouched on more than one occasion. Hence, it is probable that these visits by the northern guests were more than overnight stopovers, possibly occurring over more than one season, and largely corresponded with a cessation of previous Jawoyn art-related activities. From the Panel D art sequence (Figure 8.31), this use of the shelter for rock art production by the northern visitors began sometime after AD 1845, and ceased prior to AD 1935.

The white and orange turtle, Motif E-75 (Figure 7.143), central to Panel E1, that preceded the polychrome fish motifs, is a large and striking motif, 135 cm long. Although now partially hidden by superimposed motifs, when first painted the turtle motif would have dominated the panel and the central area of the site. The short-necked turtle, *Ngart*, was a Dreaming Being and a companion of Bula. The motif is painted in the manner of the Bula style (Gunn 1992a); a style Jawoyn elders considered to occur only in sites of restricted

male rituals associated with the Bula cult (Arndt 1962a, 1966; Gunn et al. 2012b). Such ritual sites also have stone pathways that form an integral feature of the Bula ritual (Arndt 1962; Gunn 1992a: 182). All of the known Bula sites occur within Bulajang some 30 km to the west. The location of Nawarla Gabarnmang outside Bulajang and the lack of a stone pathway leading to the shelter, suggests that it is unlikely that Nawarla Gabarnmang was the site for the performance of the Bula ritual. Consequently, the *Ngart* motif is seen as an illustration of a particular aspect of the Bula mythology, possibly referring to a place nearby (cf. Maddock 1970). By reference to the superimposition sequences for Art Assemblage AA-7 discussed above, the *Ngart* motif here must be less than 170 years old (see Chapter 9). The age of other motifs with known Jawoyn meanings will be discussed in detail in the following chapter.

Ten examples of the Jawoyn Lady motif were recorded at Nawarla Gabarnmang (Figure 10.6). This motif is a particular form of graceful female figure unique to the Jawoyn Lands of the Arnhem Land plateau (Gunn 1992a). Unlike the sensuous poses of the motif prevalent in northern Bulajang (Gunn 1992a), however, those here and at other sites on the Arnhem Land plateau

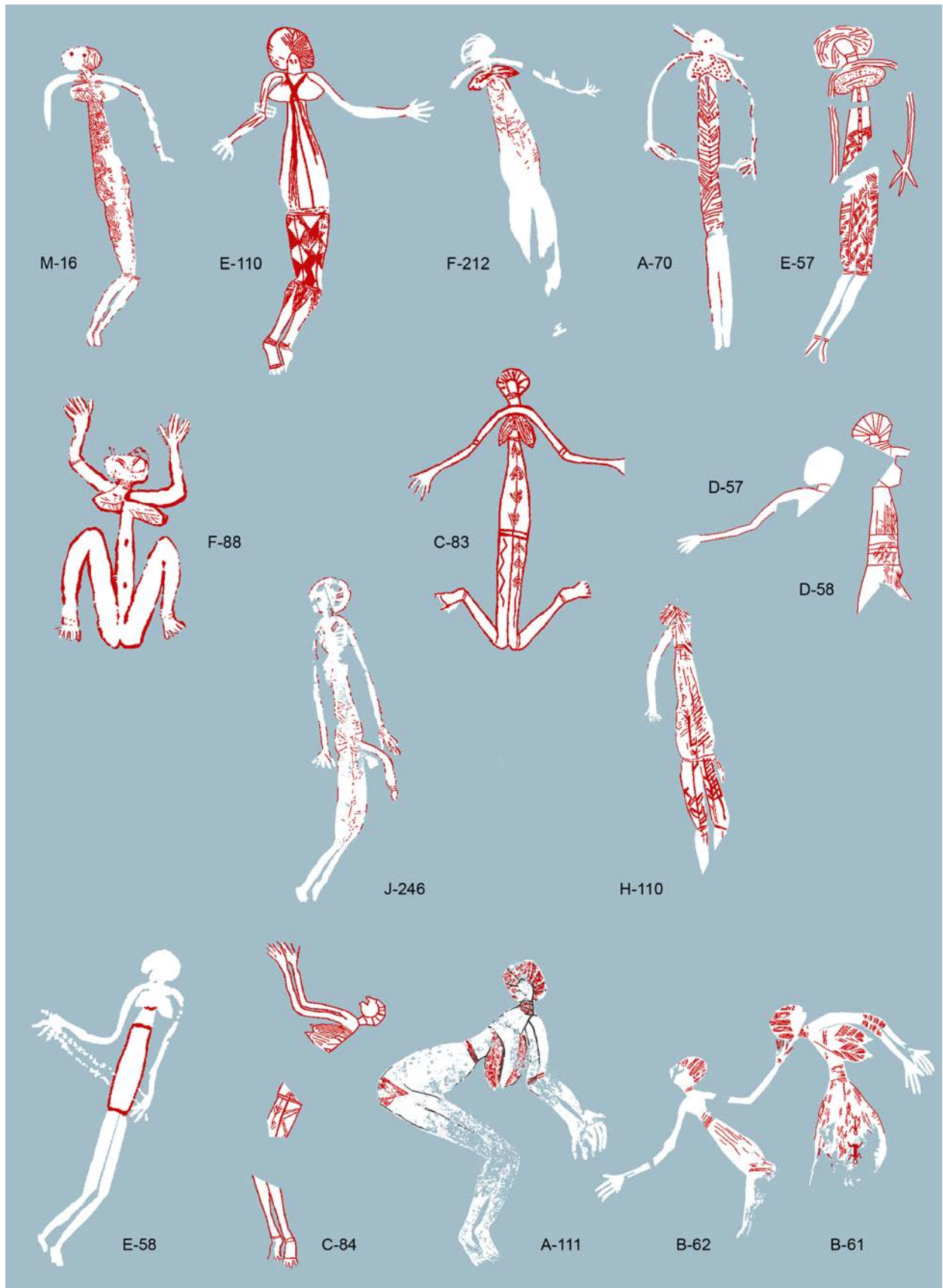


Figure 10.6: Narlenji-lenji figures (female) and male figures

tend to be more rigid. The interpretation of the Jawoyn Lady motif as representing the seductive Narlenjilenji was recorded within Bulajang (Gunn 1992a: 180), and consequently the more rigid versions depicted at Nawarla Gabarnmang may indicate a different local interpretation or social role. Based on the patterns of superimposition, the Jawoyn Lady motifs at Nawarla Gabarnmang form two chronologically distinct groups: an earlier and a more recent one. The earlier group (Motifs E-57, E-58, F-88 and F-212) are on panels at the eastern end of the shelter, whilst those from the more recent group (Motifs A-70, C-83, D-57, D-58, E-110 and M-16) are more widely distributed. In addition to these motifs, four female anthropomorphs (Motifs A-111, B-61, B-62 and C-84,) are depicted in profile but otherwise share similar artistic traits (colour, form and decoration) to the Jawoyn Lady motifs; they are therefore seen as variants of it. One of the variant motifs (Motif E-58) is shown holding a loop between her hands. Jawoyn elder Sybil Ranch said this loop is a representation of a string band sometimes held by women when dancing (pers. comm., 2010). In motifs elsewhere in Arnhem Land rock art, the band is shown as a single line extending the thumb or finger of one hand to the other. Unusually in Jawoyn rock art, two male figures also share the infill decorative aspects of the Jawoyn Lady. One male figure (Motif H-110) is adjacent and parallel to a fragmented figure that is most likely to have been a Jawoyn Lady motif (Motif H-112), while the other (Motif J-246) is a single figure depicted with a spear and spear-thrower. These minor variations in the form and internal decoration of the Jawoyn Lady motifs at Nawarla Gabarnmang and those within Bulajang suggest a link between the two areas; however, this aspect of Jawoyn rock art must await future study.

Further occurrences of both female and male figures in another variation of the Jawoyn Lady style are also seen at the famous Burrunguy panel in Kakadu National Park, painted by Najombolmi in 1964 (Figure 4.32; Chaloupka 1982; Haskovec and Sullivan 1989). Najombolmi's figures are decorated with a bold rather than fine infill patterning, but this may be attributed to their unusually large size (c.2 m tall) and the need to make the infill design more visible relative to the size of the figure. Najombolmi's panel also contains two fish with the Northern X-ray form, indicating that his art combined both northern and Jawoyn art forms.

Depictions of what are likely to be representations of Gupu and Barak, the central macropod characters associated with the Wuwarr mythology (a major cult for the Jawoyn; see Chapter 3), were recorded on three panels at Nawarla Gabarnmang (Panels B, C and J; Figure 10.7; Peter Bolgay, pers. comm., 2006). The Wuwarr and

Yabudurruwa cults are the two major religious cults for the Jawoyn prior to the introduction of Christianity (see Chapter 3). All five of the Gupu/Barak images are large, prominently placed on their respective panels, and have not been superimposed by other motifs. The three panels (Panels B1, C2 and J5) are all amongst the outer art panels of the shelter (see Figure 7.1).

Typically in Jawoyn Lands, the Dreaming Beings Gupu and Barak are represented back-to-back, illustrating their travels in opposite directions, and this is the case in the pair depicted on Panel J (Motifs J-254 and J-255), and in several other sites recorded during the JRAHP. Motifs J-254 and J-255 are painted in complimentary colour: yellow+white and white+red. The principal colours of these macropods, yellow and white, are colours associated with the Yirritja moiety (Smith 1994: 75; see Chapter 3). Neither of these macropods has male genitalia. The two facing macropods, Motifs B-42 and B-43, are large, prominently placed, and decorated with the Jawoyn X-ray form; they are consistent with other Gupu and Barak images in Jawoyn Lands. Motif C-82 would appear to be a singular illustration of one of these Dreaming Beings. Each of these three macropods is male (Motifs B-42, B-43 and C-82). The decoration of the Gupu and Barak images here is much simpler than at some other sites within Jawoyn Lands. At these other sites, the images are decorated with spray dots, multi-coloured outlines, and wear ceremonial paraphernalia. Viewing of these images is restricted to adult males (Bardayal Nadjamerrek, pers. comm., 1989). Given the differences between the simpler decoration on the images at Nawarla Gabarnmang and the complex decoration on the restricted images, it is unlikely that the representations of Gupu and Barak at Nawarla Gabarnmang were restricted images.

Other images that can be interpreted at Nawarla Gabarnmang are:

- Namarrkan, the Lightning Man: Motif K-110 (Panel K3, painted in yellow) and Motif L-9 (Panel L, painted in red) (Figure 10.8; note also Figure 10.9);
- Bolung: two representations; Motifs F-142 (red with white outline+infill; Figure 7.207) and Motif M-9 (red; Figure 7.445). The two representations differ in colour and form, although they both have a snake body with macropod head;
- Bolung's dogs: three red thylacine motifs; Motifs A-33, J-172 and J-257 (Figures 7.19, 7.315 and 7.297). All three are different in pose and form, yet have diagnostic attributes appropriate for thylacine identification; and
- Anthropomorphic figures with macropod heads or feet are various kinds of malevolent spirits

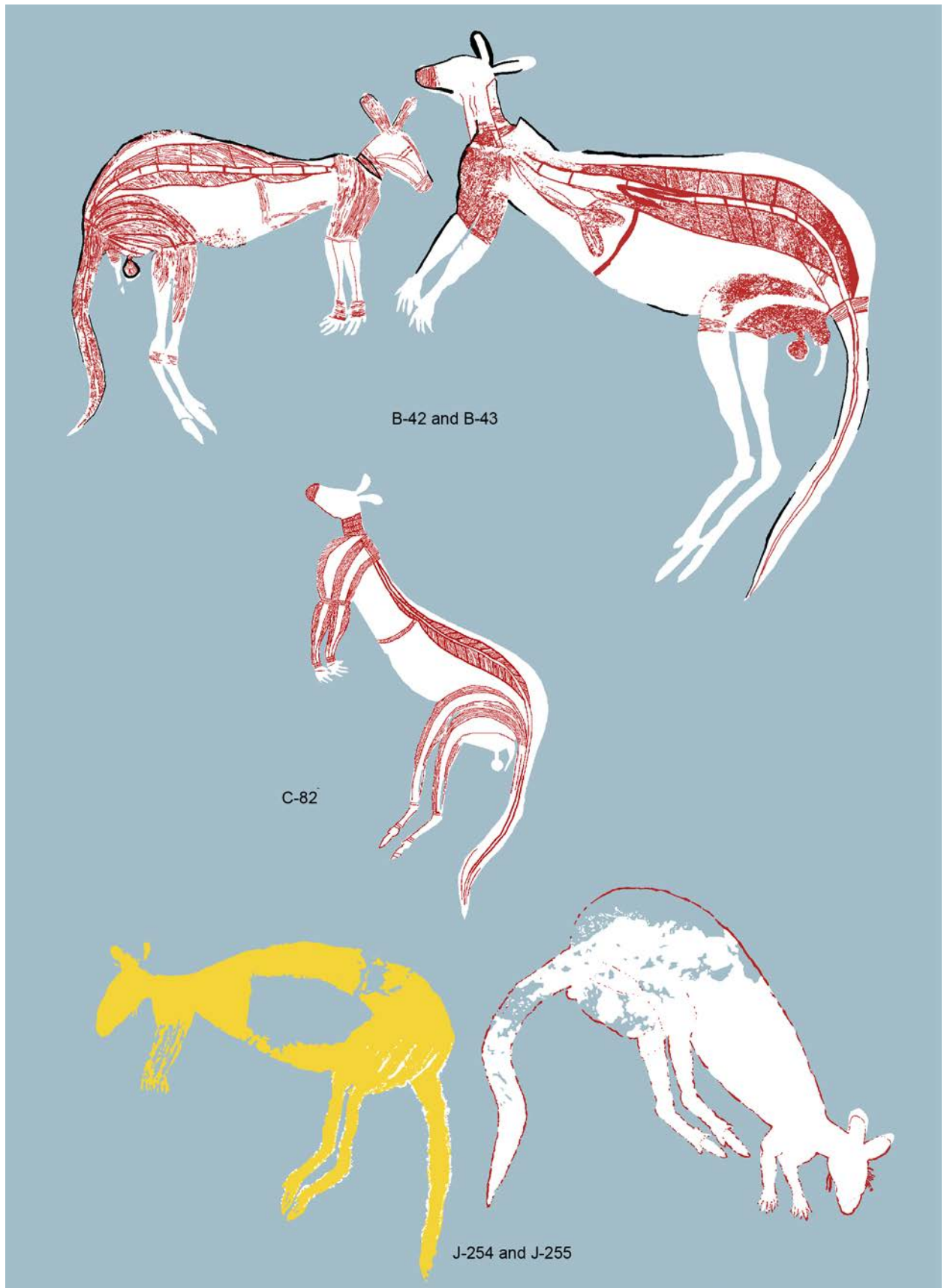


Figure 10.7: Macropods at Nawarla Gabarnmang pertaining to the Wuwarr mythology

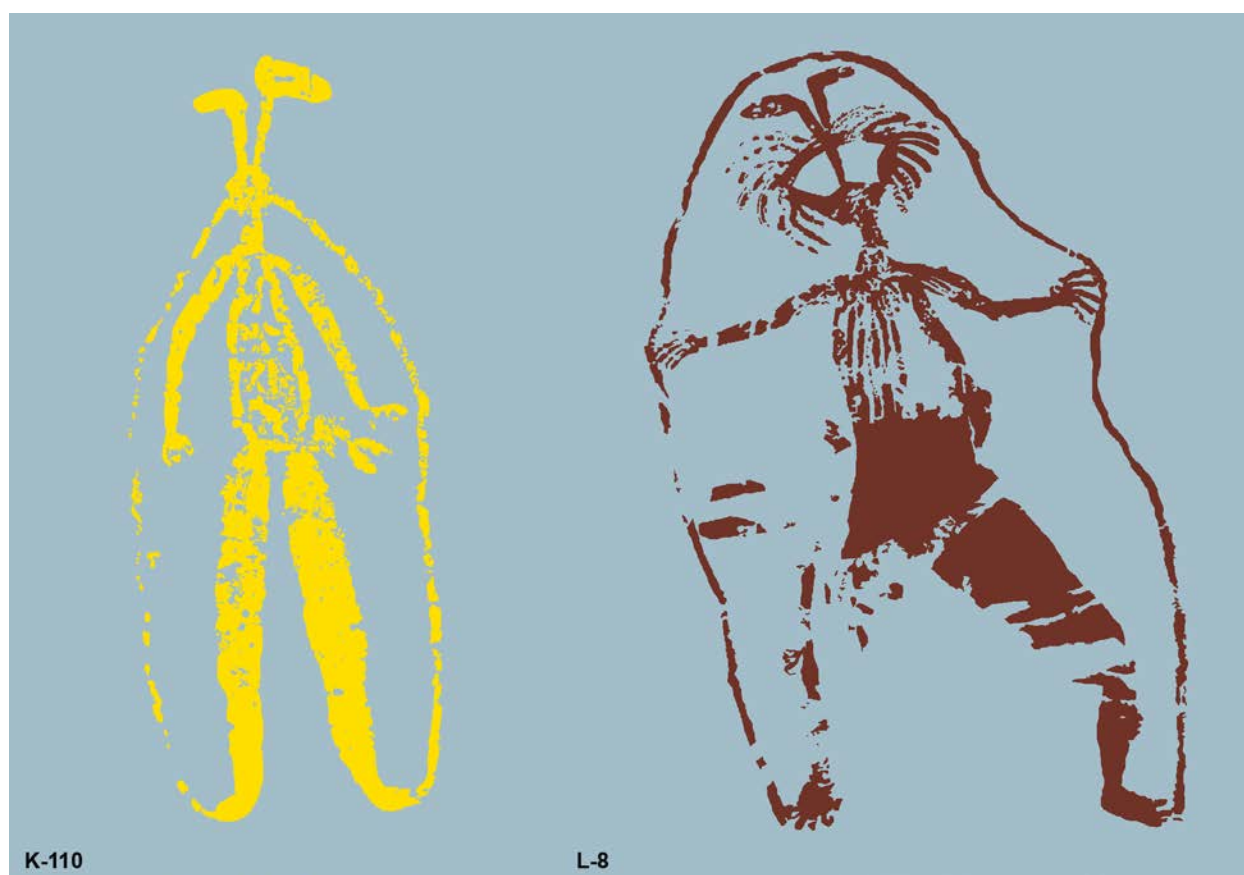


Figure 10.8: The two painted anthropomorphs interpreted as images of Namarrkan

(Margaret Katherine, pers. comm., 2010), as is the large figure on Panel G with its spindly fingers and greatly exaggerated penis (Figure 10.9).

From Maddock's (1970) findings mentioned above, it is likely that many of the other motifs within Nawarla Gabarnmang illustrate figures related to the mythologically of the major figures listed above. Similarly other monochrome motifs, such as the small animals and fish, most likely reflect mundane activities such as hunting and fishing. It is clear, however, that the majority of motifs (c.96%) could not be specifically interpreted by the elders I worked with. This is not to say that when more Jawoyn people visit this difficult-to-access site in the future, further explanations/interpretations/re-interpretations may not be forthcoming. On visiting the site soon after its location,

Margaret Katherine, Nawarla Gabarnmang's senior traditional owner, stated that none of the motifs are of a restricted nature and that the site was open to all men, women and children. Also, during his inspection of sites recorded during the JRAHP with Ray Whear and linguist Murray Garde in 2010, Bardayal Nadjamerrek identified several sites that had gender restrictions but did not include Nawarla Gabarnmang among them (Ray Whear, pers. comm., 2010).

The range of motifs interpreted, either directly by elders or by analogy from other Jawoyn/Dalabon sites, although limited, is sufficient to provide an outline of the most recent art assemblages at Nawarla Gabarnmang and allow an art history of this recent period to be developed, which is presented in the following chapter.

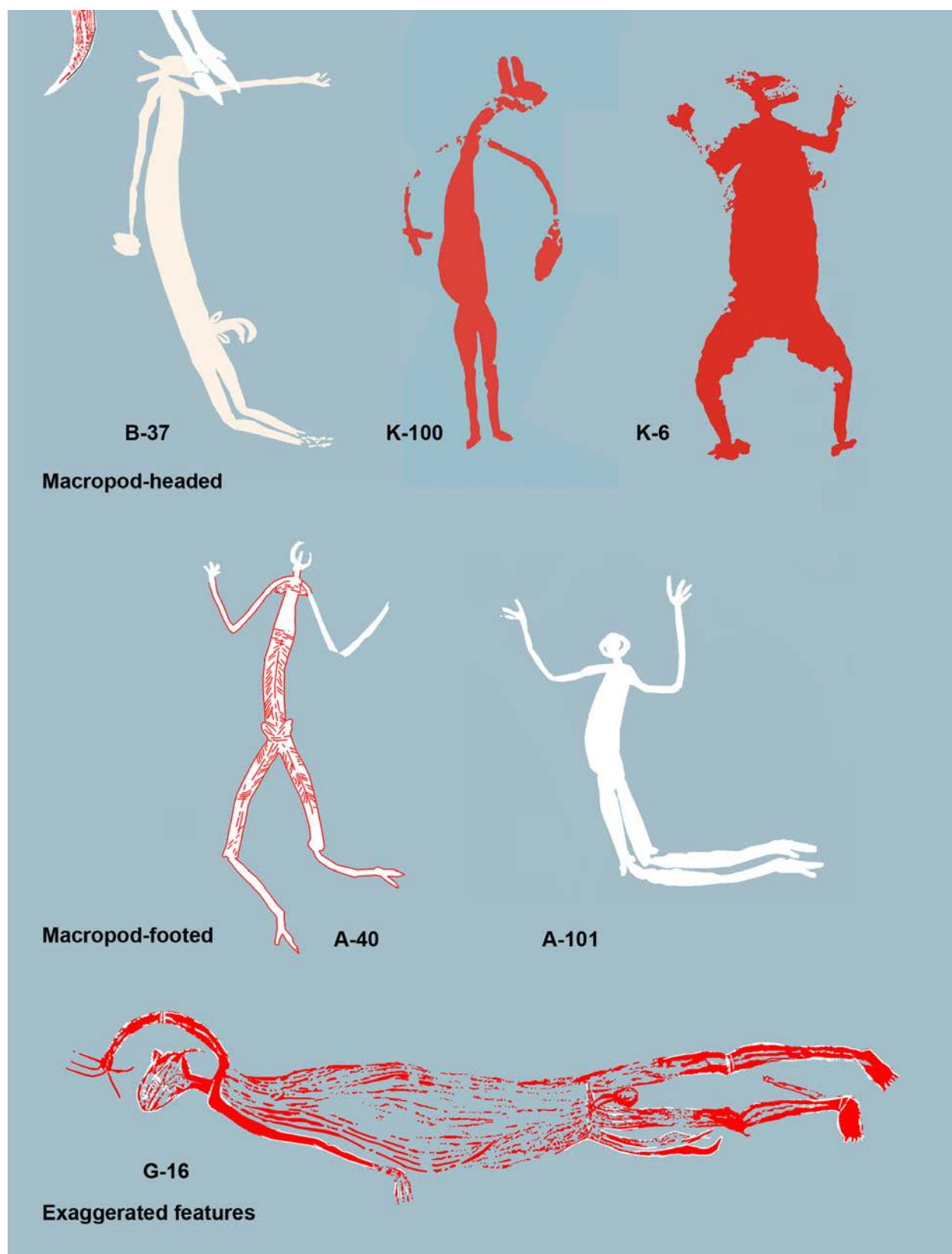


Figure 10.9: Spirit figures from Nawarla Gabarnmang



Art over art over time



11. A STORY OF ART

What each artist does is articulated in relation to what went before, and affects our view of the past.
(Kemp 2014: 3).



The previous chapters have demonstrated that Nawarla Gabarnmang is an exceptional and outstanding Aboriginal site. The site is unusual in its geological form, its human modification, its long period of occupation, and in the quantity and remarkable quality of its artwork. It is also the most densely decorated shelter yet recorded within Jawoyn Lands. The site is the largest of 71 art shelters located on an isolated sandstone outcrop, 2 × 1 km in area; an outcrop that also contains a large number of standing stones and several large-area stone arrangements typically associated with ritual performances. Nawarla Gabarnmang has by far the highest quantity of rock art and the greatest area of occupation deposit of any of these shelters. Within a radius of 200 m around Nawarla Gabarnmang there are 11 art sites, three large areas of grinding patches (indicative of food preparation), a conical stone, interpreted by Margaret Katherine as a 'Dreaming stone' (a place where small-scale species-maintenance rituals were performed), and six standing stones of unknown function. In addition the shelter is central to a variety of food resources, and a series of waterholes occur immediately to the north giving an ample water supply. The exceptionally large, charcoal-rich floor area (c.30 × 15 m) of the shelter, the suite of surrounding site types, and the proximity of ceremonial sites on top of the outcrop 500 m to the south, suggest that during recent times at least Nawarla Gabarnmang was the principal camping place around this outcrop and the focal site of a multifaceted archaeological complex (Figure 6.13).

The ceiling of Nawarla Gabarnmang presents an active canvas that showcases well over three thousand years of art. Through the detailed archaeological recording of the 1391 motifs on its ceiling and the application of the Harris Matrix presented here, the various motif sequences identified present a unique picture of the dynamics of Jawoyn rock art over time.

The chronology of the Art Assemblages (AA-1 to AA-7) at Nawarla Gabarnmang has now been broadly identified (Table 9.29, Figure 9.30). There are significant similarities between some Art Assemblages that suggest an overarching artistic association over time. These associations provide the identification of three art periods (Figure 11.1). This framework places Art Assemblages AA-1 and AA-2 into a 'Mimi A' period, AA-3

and AA-4 into a 'Mimi B' period, and Art Assemblages AA-5, AA-6 and AA-7 into a 'Jawoyn Bim' period. The Jawoyn Bim period is firmly established, through radiocarbon dating and oral history, as beginning 510–390 years ago and ceasing 170–80 years ago (AD 1845–1935). The Mimi B period began sometime after 450 years ago and ceased around 500 years ago, while the Mimi A period, as exhibited at Nawarla Gabarnmang, occurred at some time between 14,000 and 500 years ago. Due to the paucity of specifically dated motifs, further subdivision of Art Assemblages AA-1 and AA-2 that encompass the period of the more well-known Arnhem Land rock art styles such as Dynamic and Yam styles (Chaloupka 1993), is not possible at this stage.

The oldest piece of rock art located within Nawarla Gabarnmang is a portion of a charcoal drawing on a rock fragment that appears to have fallen from the ceiling around 28,000 years ago (David et al. 2013; Figure 4.9). The drawing does not conform to any recognised Mimi art (cf. Chaloupka 1993). Hence, whether the drawing is a remnant from an earlier expression of the Mimi A period, or from a tradition preceding or independent of the Mimi A period, is unknown.

Excavation of the floor deposits also recovered a faceted crayon of a distinctive mulberry coloured pigment dated to between 14,770 and 21,585 cal BP (David et al. 2011). A small macropod motif (Motif A-85) is the oldest mulberry coloured motif on the existing ceiling, however this cannot be more than 14,000 years old. This motif (Motif A-85) has a similar partitioned body, also referred to as 'incipient X-ray' by Brandl (1973: 27), to a bird motif at the nearby 'Genyornis' site (Gunn et al. 2011). The bird motif was painted at some time between 14,000 and 5000 years ago (Barker et al. 2017). If, as is generally assumed, these stylistic features are chronologically restricted, then Motif A-85 is likely to be at least 5000 years old, which as Barker et al. suggest, is consistent with the age of c.8000 years ago proposed by Chaloupka (1993: 183–185). However, to what extent Motif A-85 is contemporaneous with other motifs within the AA-1 Art Assemblage is unknown, particularly as the Art Assemblage also contains 3MF hand stencils which are generally thought to be around 10,000 years old (Chippindale and Taçon 1998). Jawoyn interpretations of the artwork and site use, in addition to the results of the archaeological excavations, suggest

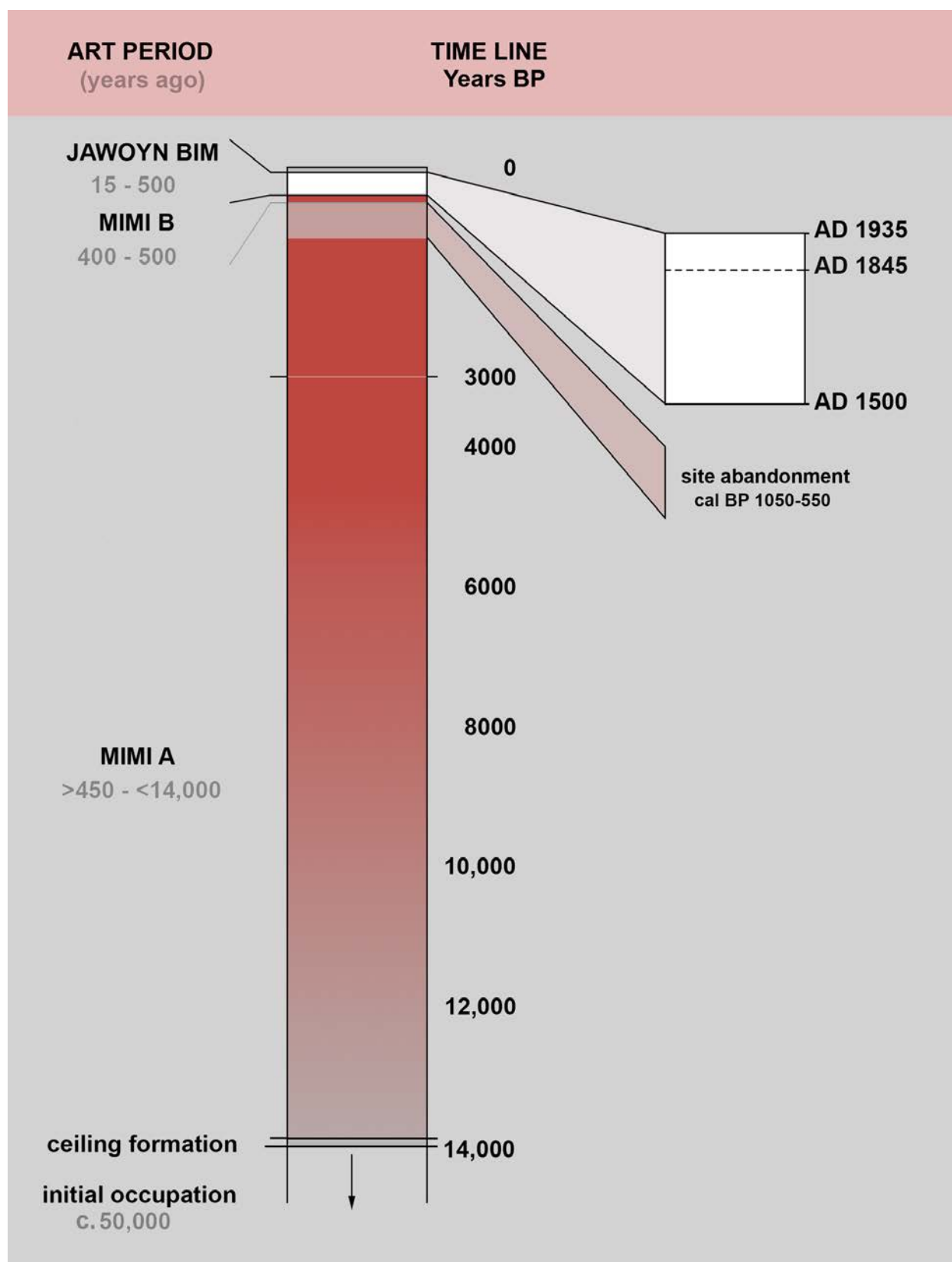


Figure 11.1: Chronology of the Art Periods represented on the ceiling of Nawarla Gabarnmang

that Nawarla Gabarnmang was a place of general habitation for the duration of the most recent period of artwork: the Jawoyn Bim period with which they directly associate. It has now been firmly established that, at Nawarla Gabarnmang, the Jawoyn Bim period began around 500 years ago and continued into the ethnographic present. Beginning around AD 1440–1560, it continued until after AD 1845 and ended prior to AD 1935. This is the only period for which we have a relatively precise chronology and a close examination of this period and its artistic content in relation to the preceding Mimi periods is critical to developing an art history of the site.

Jawoyn Bim

The art period of Jawoyn Bim (c.AD 1500–1935) consists of three temporally discrete Art Assemblages (AA-5 to AA-7). These three Art Assemblages are linked through the predominant and extensive use of white pigment, a pigment rarely present in the earlier Art Assemblages, and a range of new and distinctive motif types. These include bichrome ‘solid+outline+infill’ forms (white silhouette, outlined and infilled with fine red linear decoration), such as the Jawoyn X-ray macropod and Jawoyn Lady motifs. There is also a greater emphasis on female anthropomorphs, the introduction of female sexual symbols and the depiction of copulating couples. Other previously unrepresented motif types include the dingo and fork-tailed catfish, although there are only a very few examples of each type (most represented by a single motif).

In addition, the Jawoyn Bim period is the only period with white, dry pigment drawings (six from AA-5 and six from AA-7). These drawings are either outline+infill (n=6) or linear (n=6) in form and represent a range of non-figurative motifs: Design irregular (n=7); Unknown (n=2); and single examples of Design apex, Y-shape and Scribble. There is one other dry pigment drawing within the shelter, the charcoal drawing Motif A-8 on Panel A2 excluded from the above analysis as it could not be attributed to any Art Assemblage (see Chapter 9). Hence, we cannot conclude that drawing is a technique exclusive to Jawoyn Bim. Motif A-8 is also anomalous to this group of white drawings, being black in colour, linear+outline in form, and representing a running anthropomorph with a large headdress. As discussed in Chapter 7, this motif resembles other dry pigment drawings considered possibly in the order of 6000 years old (Gunn and Whear 2007c). This study is unable to shed any further light on the possible age of this drawing (Motif A-8).

Other differences in the repertoire of the Jawoyn Bim compared to the earlier Mimi period art are minor, as one of the notable characteristics of all art periods at Nawarla Gabarnmang is the general consistency in

proportions of Motif Form, Motif Class, and Motif Size. This consistency is apparent, for example, when a selection of macropods is compared (Figure 11.2). The most obvious change within the shelter’s art is with the most recent paintings. The motifs in the Northern X-ray form tend to be larger, have more intricate infill, and use more colours than the previous Jawoyn motifs. While it is possible that these paintings were produced by Jawoyn artists ‘in the style’ of the northern artists, it is highly unlikely that Jawoyn artists would have spent so much time and pigment on the paintings given their lack of association with the barramundi as a mythological character or as a major food resource as they are not local to the Arnhem Land plateau. Several other aspects argue against Jawoyn authorship:

- the size of X-ray fish suggests they were done by artists with a close attachment to the fish species given the time and quantity of pigment that was required,
- the competence and detail of the painting suggests artists very familiar with this X-ray form of painting, and
- the fact that these Northern X-ray motifs were repainted on more than one occasion and that some examples are superimposed over others.

This then concurs with Peter Bolgay’s conclusion that these paintings are most likely the work of northern visitors.

Reasons for change

As Wolff (1981: 9) stated: ‘Everything we do is located in, and therefore affected by, social structures’. The major change in the art tradition from Mimi to the Jawoyn Bim periods around 500 years ago was rapid. The change occurred within a one hundred year window (c.500–400 years ago). At this time white pigment replaced red as the preferred painting colour; larger motifs, utilising far greater quantities of pigment, became more common; and, when used, infill decoration is far more intricate. This change in colour preference is not reflected in any notable change in the choice or percentage of motif types depicted, other than a minor rise in the number of anthropomorph images (from 19% during Mimi periods to 28% in the period of the Jawoyn Bim). The pigment shift is not paralleled by a change in spearthrower technology, with the long spearthrower being depicted both before and after the change in pigment use. On the basis of the evidence presented here, however, the appearance of long spearthrowers in AA-3 is within 100 years of the appearance of the pigment change in AA-5. Archaeological excavation of Square P (David et al. in press) indicates a 500 year break in the deposits from 1050–550 cal BP; XU20 – XU19). This hiatus in deposit formation is reflected in all seven excavation pits across the site and is interpreted as

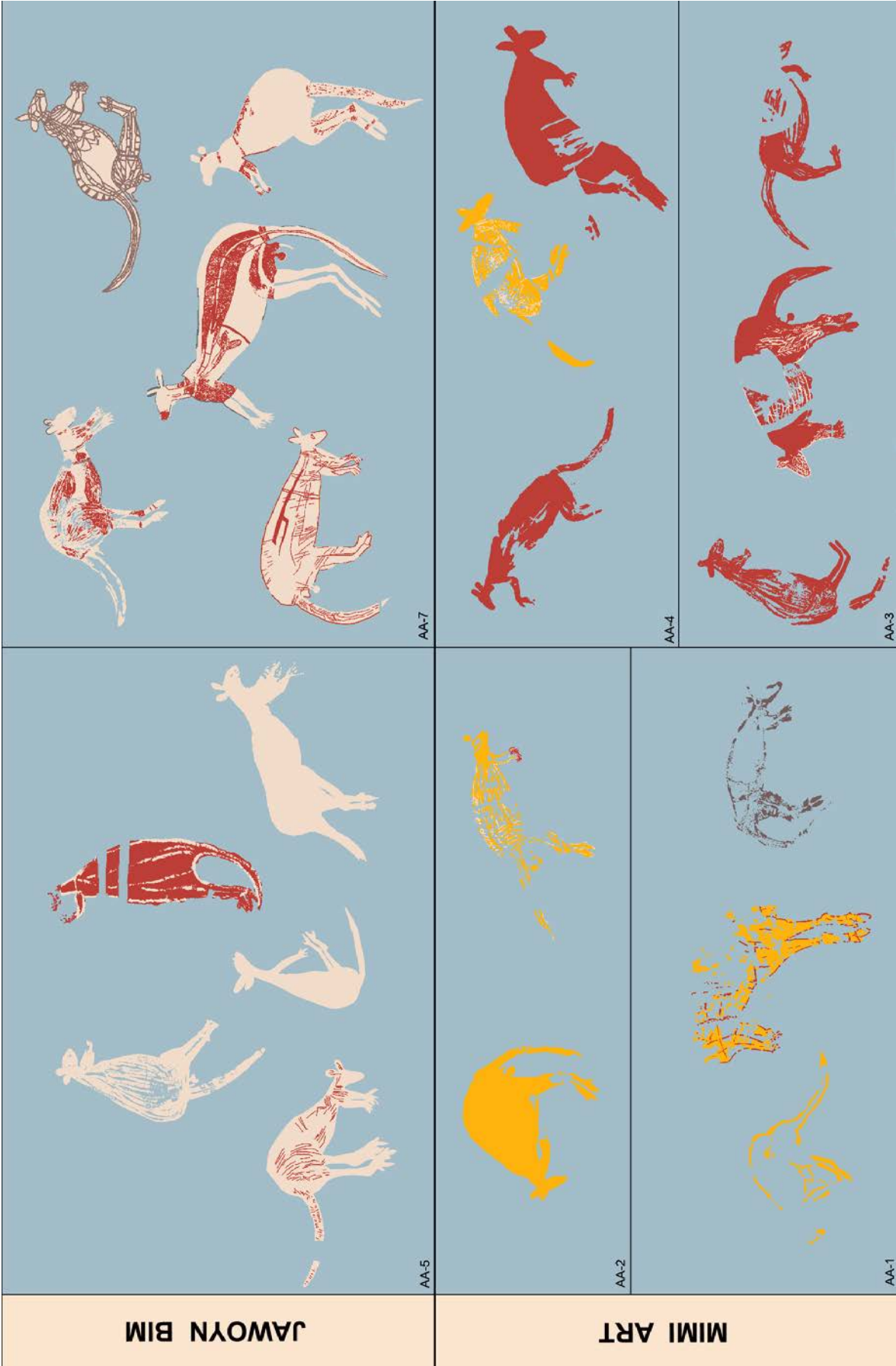


Figure 11.2: Selection of macropod motifs from the Art Assemblages (n.b. No macropods are depicted in AA-6)

reflecting a period of site abandonment ((Bruno David, unpublished data, personal communication 2018). The reason for this change in use of place is as yet unknown. The resumption of the site's use around 500 years ago saw people returning with long rather than broad spearthrowers and soon after, at the beginning of the Jawoyn Bim period, changing to a preference for white pigment.

What were the factors that caused this dramatic change from red-based to white-based art? Unlike previous chronologies of Arnhem Land rock art that have pegged changes in the art to changes in the environment, there does not appear to have been any such major environmental change at around 500 years ago. The climate was similar to that of today.

The date of around 500 years ago does, however, coincide with proposed dates for the earliest arrival of Macassan fishing fleets from Indonesia to the northern Australian coast including the Arnhem Land coast (see McConvell 1996; Taçon et al. 2010; Wesley and Litster 2015). Along with their depictions in rock art (Chaloupka 1993; Taçon et al. 2010), these visitors are presumed to have had considerable social ramifications along the northern coast of Australia (Berndt and Berndt 1977; Clark 2000; McConvell 1996; McIntosh 2008). The arrival of the Macassans also paralleled the introduction of new diseases, such as yaws and smallpox (Berndt and Berndt 1977) and Machado-Joseph Disease (Martins et al. 2012), which may have spawned the flourish in sorcery painting in these northern areas (Berndt and Berndt 1977). Sorcery painting, as recorded in the ethnography, is known only from the Jawoyn Bim period at Nawarla Gabarnmang. There is as yet no obvious causative link between the instigation of prolific white pigment use across northern Australia and the arrival of the Macassans; although a similar change to white-based art is also thought to have occurred at around the same time in the Kimberley region, 700 km to the east (Watchman 2000: 41).

What compelling force then could have caused such a radical, rapid and complete change in Jawoyn rock art, changing from a preference for red to its tonally antithetic colour, white? This force or cause remains unknown.

Dating the stories

While Nawarla Gabarnmang is but one of more than a thousand sites within Jawoyn Lands, the information gleaned in this study provides an initial assessment for the ages of some of the characters within a small number of Jawoyn myths. While the ages do not provide either a beginning or an end for the antiquity of particular myths, they at least provide an indication of the time periods in which they were being represented here.

Images that relate to the Wuwarr mythology (see Chapter 3), including those of the central characters Gupu and Barak (Dreaming Macropod Beings; e.g. Motifs B-42 and B-43, C-82, J-254 and J-255; cf. Maddock 1970), occur only within Art Assemblage AA-7 and were therefore painted within the last 90 years of art production at the site (post AD 1845). Images of the Narlenji-lenji (Female Spirit Beings; e.g. Motifs A-70, C-83, D-58, E-57, E-110, J-217, K-171), in contrast, occur within Art Assemblage AA-5 (510-390 cal BP) as well as AA-7, and so have been within the repertoire for the past 500 years or so. Whether or not images of Gupu and Barak occur in other shelters, which pre-date their images here, is unknown.

Other depictions of mythological Beings dated through the sequencing of the art include two images of Namarrkan, the lightning man: an anthropomorph encircled by a 'string', with two axe-like objects protruding from its head. Both images, one in yellow (Motifs K-110; Figure 7.386) and one in red (Motif L-8; Figure 7.431), are on adjacent panels (Panels K3 and L) and occur in Art Assemblage AA-3, dated to 510-390 cal BP. Motif L-16 (Figure 7.428), an anthropomorph with long antenna-like lines emerging from its head and curling down parallel with its body, may also be related to Namarrkan through the mythology of Jatete (Leichhardt's Grasshopper, *Petasida ephippigera*; see Chapter 10), as it is adjacent to the red Namarrkan mage (Motif L-8) and is seen as contemporary with it.

Representations of Bolung, the Rainbow Snake (Motifs F-142 and M-9) occur in Art Assemblages AA-3 and AA-2 respectively. AA-3 dates to around 500 years ago, but no specific age for AA-2 is available other than that it is older than AA-3. Motif F-142 (Figure 7.207) is a poorly preserved red, elongated snake-like creature with a macropod head that is outlined and dot infilled in white. Motif M-9 (Figure 7.447) is a similar, red, snake-like figure with a macropod head but with its tail curled up parallel to its body forming a very emblematic design. Neither motif is large (c.60 cm and 46 cm respectively), nor highly decorated.

There is no consistency in the illustration of characters or myths in the art repertoire at Nawarla Gabarnmang. This suggests that different myths or aspects of myths were depicted on different occasions, or that the site was used by a variety of people (Jawoyn or non-Jawoyn) at various times, with different stories to portray. Although Nawarla Gabarnmang is a named residential shelter, due to its unique size and form it is highly likely, in the eyes of the Jawoyn, that the site was specifically created by a Dreaming Being. During the Jawoyn Bim period for which we have reliable knowledge, the Dreaming Being did not leave its own image on the ceiling. At this time Nawarla Gabarnmang was a place where people painted images important to them: pictures of Dreaming Beings, as well as those of spirit figures and mundane events.

Non-figurative motifs

Smith (1994: 259) states: 'geometric and figurative art ... forms a basic interpretative dichotomy within most, if not all, artistic systems'. Previous discussions of Arnhem Land rock art, however, have tended to focus on the figurative elements (anthropomorphs and fauna), with little or no mention of the non-figurative components (e.g. Taçon 1989c). At Nawarla Gabarnmang non-figurative motifs are found to be a consistent, minor component throughout all Art Assemblages (mean 16%), and are present on 31 of its 41 art panels (e.g. Figure 9.29). Single elements (e.g. Line, Dot, Oval, T-shape) and

multiple element designs (e.g. Line pair, Line set, Design grid, Design radial, Oval concentric) occur in similar numbers throughout all Art Assemblages. Of these, Line, Design regular, and Design irregular, are consistently among the most common non-figurative Motif Types. The range of non-figurative Motif Types is also similar throughout all Art Assemblages (Table 11.1; Figure 11.3). While these Motif Types may be largely stylistically undiagnostic, their repeated occurrence indicates that they were a significant component of the graphic system of the culture in which they were produced and, hence, must be considered when undertaking any complete art analysis of Arnhem Lands rock art.

Table 11.1: Non-figurative motif numbers by Art Assemblages

Motif Type	Assemblage							Total
	1	2	3	4	5	6	7	
Single elements								
Disc	3			1				4
Area	2						1	3
Line	5	4	5	1	1	2	4	22
Q-shape	1							1
Arc	1	1	1		1			4
Bar	1		4		6		3	14
Dot		1	9			2		12
Y-shape		1			1		2	4
Triangle			1					1
T-shape			1					1
V-shape			1		1			2
Oval					2			2
Scribble							2	2
Smear							3	3
Designs								
Design grid	1							1
Design line set	2							2
Design regular	5	3	4		8		1	21
Design irregular	3	3	3		11		4	24
Design apex	2		3		4		2	11
Line pair	1	1	1					3
Design radial			4			3	1	8
Design zigzag			1				2	3
Oval concentric					3			3
Dot pair					1			1
Bar pair					1			1
(n)	27	14	38	2	40	7	25	153

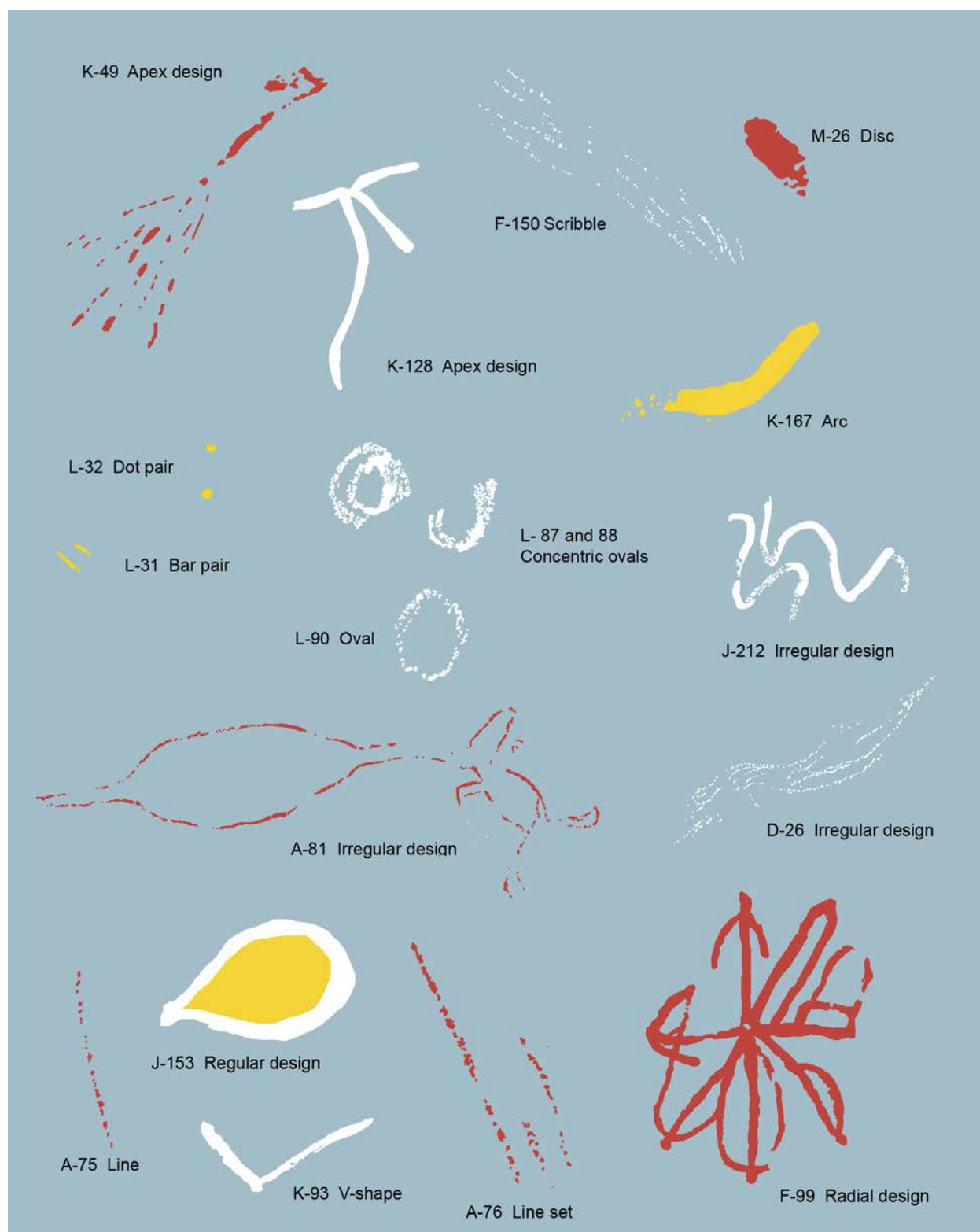


Figure 11.3: Examples of non-figurative motifs (all phases)

Chronological revisions for Arnhem Land rock art

Although the ceiling art of shelter of Nawarla Gabarnmang is an unusually large and well-decorated, it cannot be expected to reflect the full range of Jawoyn rock art across the plateau or within the full 50,000 km² extent of the Jawoyn Lands. Nevertheless, the quantity and quality of the art at Nawarla Gabarnmang and the patterns that we can construct from the art are likely to have relevance to broader understandings of Arnhem Land rock art.

Given that stylistic conventions are chronologically restricted, then it is possible to provide age ranges for a number of recognised artistic conventions found at Nawarla Gabarnmang (Table 11.2). These conventions can then be compared to those from other rock art sequences from across the wider region to provide an initial dating for their occurrence throughout the Arnhem Land plateau.

The various chronologies of Arnhem Land rock art to date have been based mainly on perceived associations of styles, implement types, and physical changes in the environment over time. Nelson's beeswax project (Nelson 2000) provided a large number of radiocarbon dates for specific motifs across Northern Australia; unfortunately the relationships of these motifs to other art styles remained elusive. Elsewhere, beeswax dates have mostly been used to age individual images (e.g. Gunn and Whear 2008). The notable exception is the dating of an early contact boat motif through its superimposition over a beeswax motif dated by radiocarbon dating to pre AD 1664, or around 300 years ago (Taçon et al. 2010).

As the 3MF hand stencils are generally considered to be a time-restricted motif, their dating at the nearby 'Genyornis' site to <14,000 years (Barker et al. 2017) supports the more recent hypotheses that the majority of Arnhem Land rock art is of Holocene age (e.g. Chippindale and Taçon 1998).

As mentioned above, the Nawarla Gabarnmang ceiling lacks examples of the more well-known early styles

from the Dynamic and Yam periods, and has only small numbers from Lewis' long spearthrower or boomerang periods. Motifs of Lewis' broad spearthrowers occur in Art Assemblages AA-1 and AA-2. Long spearthrowers, in contrast, occur in Art Assemblages AA-3, 4, 5 and 7. According to Lewis (1988), long spearthrowers were painted within a period between 2000 years ago and the present (and probably <1000 years), while broad spearthrowers were painted in the period 6000 to 1000 years ago. From this study, the depiction of a broad spearthrower (Motif J-102) in AA-2 Art Assemblage indicates the image was painted within a period from 1500 to 450 years ago. However, as these results provide neither an upper or lower time frame for broad spearthrower motifs, they are consistent with, but unable to offer any refinement of, Lewis' chronology. More recently, Hayward (2017) has challenged the deep time of Lewis' period, suggesting rather that the period of the broad spearthrower was limited to no more than 2-3000 years ago; a finding that my results do not contradict.

A Rainbow Snake with a similar form to Motif M-9 is recorded by Taçon et al. (1996: 117), for which they proposed an age of 'modern' (less than 4000 years old; 1996: 105). Their example, along with another of similar form, is from a site above the Arnhem Land escarpment some 40 km to the west of Nawarla Gabarnmang (Paul Taçon, pers. com., 2016). This convention of Rainbow Snake depiction is associated by Lewis with his 'Hooked stick' period (Lewis 1988: 273-278) between 9000 and 6000 years ago, while Chaloupka ascribed the convention to his 'Yam style' (Chaloupka 1993: 145), which he also ascribed to a time greater than 6000 years ago (Chippindale and Taçon 1998: 107). The allocation of Motif M-9 to Art Assemblage AA-2 (>450 years ago), does not contribute to resolving the dating of this convention.

White-based paintings, such as the polychrome Northern X-ray fish here, are a feature of the recent rock art at sites around the northern perimeter of the Arnhem Land plateau and outliers (Taçon 1989b: 318, 330; 1993). Previous estimates of the maximum age for this change to a predominance of white-based paintings elsewhere in western Arnhem Land rock art have suggested dates around 4000 years ago based on studies in the northern Kakadu-Oenpelli area (Chaloupka 1993; Chippindale and Taçon 1998). Whether the age of the change here reflects a slow adoption of a northern manner or whether the change in the northern area also dates to this recent time is unknown. The dating of the large polychrome paintings exhibiting the Northern X-ray form indicates that they were produced within a time period of less than 100 years, between AD 1845 and AD 1935. Whether the age of the white-based art at Nawarla Gabarnmang (<500 years) also reflects the age of the white-based art further north is unknown,

Table 11.2: Occurrence of recognised conventions at Nawarla Gabarnmang

Style/convention	Age range (years BP)
Northern X-ray	105 – 15
Jawoyn X-ray	450 – 15
Jawoyn Lady	450 – 15
Long spear-thrower	>1500 – 15
Broad spear-thrower	<14,000 – >3,000
3MF hand stencils	<14,000 – >3,000

although there is no evidence that the northern white-based art is older than this. As mentioned in Chapter 4, Taçon (2000) suggests that the production of 'more detailed polychrome works' occurred over the past 1500 years, paralleling the time of the establishment of the large Magela floodplain wetlands (Taçon 2000: 97). The large discrepancy between Taçon's 1500 years and my <500 years for this change to a prevalence of bichrome paintings is an important timing issue that deserves further study.

Within the period of the Jawoyn Bim (<500 to >80 years ago), there are differences and similarities in the art of the Jawoyn and that of their northern neighbours. Equally, there are important broader cultural similarities and differences. For example, the two groups share the major ceremonies of Kunapipi, Maraian and the Wuwarr/Ubar (Berndt and Berndt 1977), albeit with local variations. According to the Berndts, however, the Kunapipi came from the south and only became accepted by the northern groups in the mid 1900s (Berndt and Berndt 1977: 286). Hence this, and possibly other similarities, between the two groups may indeed be very recent, and unrelated to the introduction of a preference for white-based painting. On another level, the Jawoyn placed great emphasis on the local cult of Bula and the dangers of Bulajang: a cult that is strongly reflected in the art of the Bulajang region. The northern groups, in contrast, while having many local site/place specific mythologies, such as Birriwilk (e.g. Gunn 1992b), have no regional cult similar to that of the Bula at Bulajang.

The recent myths of the two regions also have both similarities and differences. For example, as mentioned above, the Rainbow Snake (Bolung/Ngalyod/Almudji) and the Lightning Man, Namarrkan, are beliefs common to both regions, whilst the Jawoyn water spirit Aworreworre is unknown to the northern groups, and the northern character of Namorrorddo (Chaloupka 1993: 60) is not recognised within Jawoyn mythology.

The other principal difference between the two groups is in their environments: the northern groups have the extensive bodies of open wetlands on the Alligator River floodplains, with their corresponding abundance of waterbirds and fish; in contrast, the water resources of the Jawoyn are largely confined to inland rivers with smaller areas of floodplain. As Taçon (1993) has proposed, this led to Jawoyn beliefs and mythologies focusing on land-based fauna (particularly macropods) in contrast to the emphasis on riverine fauna (particularly fish) amongst the northern groups.

Taçon (1989b: 318) proposed that there was a dramatic change in the art repertoires from his Early art period to his Recent period, with the latter being more elaborate and differing in some attributes. The repertoires at

Nawarla Gabarnmang, however, indicate considerable consistency between the Mimi and Jawoyn Bim periods, and the changes within the recent art repertoires were no more dramatic than those of previous times.

Future studies must identify and compare the detailed rock art stratigraphic sequences from other Arnhem Land rock art sites, and compare them with those of Nawarla Gabarnmang, to more firmly establish a regional sequence and chronology for the rock art of western Arnhem Land.

A story in art

Summarising the findings of this study, the art can tell the following story.

Around 50,000 years ago, very soon after the first Aboriginal people arrived in Australia, the rock shelter of Nawarla Gabarnmang was occupied (David et al. 2017). We do not know when people first began painting the ceiling; however, the earliest evidence of rock art in the shelter dates to before 28,000 cal BP. At that time, the interior of the shelter was not as open and expansive as it is today. Between 23,000 and 11,000 cal BP, the interior was gradually enlarged by the removal of select pillars (Delannoy et al. 2017). As a consequence, much of the original ceiling was destroyed as the pillars were removed. This expansion of the living space of the shelter occurred at the maxima of the dry phase of the LGM that peaked around 23,000-18,000 years ago. At this time there would have been a flux of Aboriginal people throughout Australia as they contracted to the better watered regions of the continent, including the Arnhem Land plateau (Williams et al. 2013). Such mass movements would have greatly disrupted the social order of all people involved as new conflicts or alliances developed. We do not know whether the expansion of the floor area at this well-situated and resource-rich occupation shelter is related to this disruption, nor do we have any knowledge of the art history at Nawarla Gabarnmang over or prior to the LGM.

The cessation of pillar removal and stabilising of the current ceilings around 11,000 years ago corresponds with the amelioration of the climate after the LGM. As people moved back into the lands evacuated during the LGM, their relationships to these lands probably stabilized (e.g. Smith 2013: 163-164). From this time the art history of Nawarla Gabarnmang becomes clearer.

The earliest surviving images are hand stencils in red ochre, including the 3MF type, produced sometime after 14,000 years ago and possibly more recently than 11,000 years ago. Over the ensuing 10,000 years or so, until around 450 years ago, the art is dominated by red silhouettes of a wide variety of naturalistic images: mainly male and female anthropomorphs,

spirit figures, and animals (principally macropods, but including notable images of emu, crocodile and snake). The Mimi periods also have paintings of the now extinct thylacine (within AA-2), as well as images of Bolung (in AA-2 and AA-3) and Namarrkan (in AA-3). These paintings occur in a variety of styles, with no one style being dominant or numerous (Figures 9.23, 9.25 to 9.27). Despite these variations in presentation, the portrayal of anthropomorphs (19%) and macropods (10%) remains the principal artistic concern throughout the Mimi periods, with the only numerical change being an increase in the number of fish, crocodiles and turtles depicted in the most recent Mimi art. These motif types suggest greater attention was being given to the aquatic world at this time (either in spiritual and/or mundane contexts). Similarly, towards the end of the Mimi period there is a change in the form of spearthrowers depicted: from a broad type to a long narrow type (Lewis' Broad spearthrower and Long spearthrower periods respectively). This is dated here to sometime between 1500 and 450 years ago.

The previously recorded Mimi styles of Dynamic and Yam style motifs and anthropomorphs with large headdresses or hooked sticks (see Chaloupka 1993) do not occur on the ceiling of Nawarla Gabarnmang. Their absence is notable and requires some discussion. As mentioned in Chapter 9 above, Dynamic style motifs, while not present on the ceiling, are portrayed on one of the outer pillars at Nawarla Gabarnmang and in several nearby sites. Nawarla Gabarnmang is, therefore, well within their distribution range, which is thought to encompass most of the Arnhem Land plateau. Further, the style of depiction is thought to be homogeneous throughout its range (Taçon 1989: 114). Within Jawoyn Lands, it is not uncommon to find panels containing only Dynamic style motifs.

Yam style motifs, in contrast, are reported to have considerable diversity and regionalism (Taçon 1989: 114; Hammond 2016). Within Jawoyn Lands, Yam style motifs are uncommon (pers. obs.), and those that do occur are on panels otherwise often well-decorated with other Mimi art styles. As motifs in the Yam style occur within 10 km of Nawarla Gabarnmang, to both the north and south, the site falls well within the range of their distribution (Gunn and Douglas 2011).

Examples of most other well-recognised Mimi styles, as well as some undefined styles, occur throughout the Jawoyn Lands of the Arnhem Land plateau (Gunn and Whear 2007a). A number of lesser publicised Mimi styles, such as the Northern Running Figure (Haskovec 1992; Jones and May 2017; Jones et al. 2017), however, are restricted to the northern margin of the plateau, beyond the limits of Jawoyn Lands. With the exception of hand stencils and object prints (Chaloupka 1993: 92, not represented at Nawarla Gabarnmang) Mimi motifs

within Jawoyn Lands tend to occur mainly on vertical (wall) panels (pers. obs.). However, occasional examples are found on horizontal (ceiling) panels, so it is not the orientation of the ceiling panels alone that prohibited their production at Nawarla Gabarnmang. Also, as mentioned above, the current ceilings were in place during the production of these various Mimi styles, so their absence on the ceiling panels here cannot be due to the destruction of panels on which they were painted. All other things being equal, then, their absence on these ceiling panels may be related to overpainting on the densely superimposed central panels or to social factors: the interior of the shelter appears not to have been an appropriate space for the placement of these figures. From casual observation, most Dynamic figures within Jawoyn Lands tend to occur within shelters with little or no occupation deposits, although they are often within complexes with major occupation shelters nearby. This patterning suggests that the pillar with the Dynamic figures at Nawarla Gabarnmang was seen by the artist(s) of the motifs as being outside the living area of the site. Certainly, the distribution, correlation and chronology of all of the various art styles across the Arnhem Land plateau are aspects that require much further study.

At around 450 years ago, about the time of the first arrival of the Macassan people, notable and dramatic change occurs in the repertoire, with a shift in the principal pigment colour from red to white. This change in the art heralds the time of human rather than spirit artists: the period of Jawoyn Bim. These paintings illustrate characters related to current Jawoyn mythology, such as particular spirit figures or ritual characters. With this visual revolution came a new manner of decorating many of the larger motifs. After painting a white silhouette in the shape of the required motif (anthropomorph or animal), decoration in red, of fine outline and delicate linear infill, was added. The infill was kept sparse and carefully delineated allowing ready recognition of the information encoded within the design. One of these notable figures is the Jawoyn Lady motif: images of the *Narlenji-lenji* or *Aworreworre* spirits. In addition, there is an increase in the number and variety of other bichrome colour combinations (e.g. cream+white, cream+red, yellow+white), giving the period a far more colourful aspect than the earlier, predominantly red, Mimi art.

Another art form that was introduced at this time, but of which there is only a single example at Nawarla Gabarnmang (Motif E-75; a turtle), is that of large white silhouette figures with bold outline, in either red or orange, with a sparse but bold linear infill. These images elsewhere relate to the more important Dreaming Beings, generally said to have been placed there by the Beings themselves (similar to Mimi paintings), but always suggesting some importance.

A suite of smaller paintings, that in Form and Motif Type are similar to red silhouette figures painted during the Mimi periods, are painted as white silhouettes during the Jawoyn Bim period. These white silhouette paintings are related to more commonplace matters, such as items of material culture, human figures, ceremonial dancers, and various game fauna.

The coming of Europeans into the landscape is represented by the incorporation of a very large depiction of a horse on a panel central to the shelter (Figure 7.119). Despite this incursion of an exotic image into the art, the repertoire continues to represent traditional Motif Types until, in the most recent years, the site was also used by peoples from the northern margin of the plateau when visiting Jawoyn Lands. These northern visitors displayed their presence dramatically by decorating the central areas of the ceiling, covering even the horse motif, with large, polychrome X-ray fish from their own rock art tradition.

As with the Mimi Period, the Jawoyn Bim (with the exception of the northern art), is dominated by anthropomorphs (25%) and macropods (10%). Unlike the Mimi anthropomorphs, however, many of the Jawoyn Bim anthropomorphs, male and female, are depicted in a floating or disorientated pose, with no clear indication of the viewing angle or implied ground-line. This manner of presentation suggests a less-worldly quality that possibly reinforces the figures being in the realm of spirits rather than the

world of people. However, given our lack of knowledge of the context or meaning of the anthropomorphs of the Mimi period, it is not possible to claim that the Mimi anthropomorphs with their implied ground lines were any more human-centred than those of the Jawoyn Bim.

The artwork at Nawarla Gabarnmang contains a range of diverse threads from different time periods. Noticeably the art also lacks some threads or motifs that are prominent in other areas of Jawoyn Lands; in particular the large and imposing images of Bula, Bolung or Gupu and Barak, or other such images from the Jawoyn Bim period. None of the motifs here are embellished with spray dots, recognised by elders as signifying motifs of ceremonial import. At one level, the absence of these motifs can be attributed to the lack of vertical walls at Nawarla Gabarnmang, as all known examples of such important motifs recorded on the Arnhem Land plateau occur on large wall panels within shelters with little protective overhang, open to the front. The form of these open shelters allows for the more dramatic viewing of portrayed images, such as would be practical for a group of people to view the images together. Such a social and visual context would not be possible on the viewing-restricted ceiling of Nawarla Gabarnmang. As such images relate to practices from the ethnographic past, a time that overlaps with the art at Nawarla Gabarnmang, it is concluded that the rituals to which these mythological images belong were not performed at Nawarla Gabarnmang.



Figure 11.4: Long yams painted by an unknown Jawoyn man in c.AD 2000 at Nipbamjarn waterhole



Figure 11.5: 'Mermaid' (Aworreworre) painting by Long John Dewar 2012
Courtesy of Leigh Douglas

At some time in the past 150 years, and possibly during the early 20th Century, the use of Nawarla Gabarnmang appears to have changed to accommodate visits by people from the northern margin of the Arnhem Land plateau. These visitors made a strong and affirming mark of their presence in the form of the large, polychrome X-ray barramundi and other smaller fish. Over this or subsequent years Jawoyn people continued to use the shelter but, apparently, added no new paintings to the ceiling panels.

By AD 1935 artists had ceased painting on the shelter's ceiling, and the period of Jawoyn Bim at Nawarla Gabarnmang had come to an end. This cessation, however, does not mark the end of Jawoyn rock art; more recent paintings known to me have been

produced at the behest of outsiders such as researchers, tour operators or photographers, such as those at Nipbamjarn waterhole, made for a tourist operator (Peter Bolgay, pers. comm., 2005; Figure 11.4). The story doesn't end here, however, as through visits to many of the sites within Jawoyn Lands during the JRAHP, Jawoyn artists have begun incorporating aspects of the rock art within their own bark and canvas paintings (Figures 11.5 and 11.6), as well as using the rock art to teach children an appreciation of their cultural heritage (Gunn and Whear 2007a).

This multifaceted influence of rock art within Jawoyn lands, as well as being recognised as a valuable archaeological resource, is a sign of its continuing role within the dynamics of contemporary Jawoyn culture.



Figure 11.6: 'Wuwarr' painting by Peter Bolgay 2005
Collection of the author

Conclusion

We have now established that a major shift in the art at Nawarla Gabarnmang, from red-based to white-based colours, occurred within the time span of 510-390 cal BP. This age range is considerably younger than that proposed by previous researchers, who have suggested ages in the thousands of years (Chaloupka 1993; Chippindale and Taçon 1988; Lewis 1988). From the nearby Genyornis site, it has been shown that the maximum age for one of the oldest Arnhem Land art traditions, the 3MF hand stencil, can be of transitional Pleistocene-Holocene age at most (contra Chaloupka 1993, but in line with the proposed chronology of Chippindale and Taçon 1988). The analysis of the art here shows an overall consistency of its repertoire throughout time: consistently dominated by naturalistic anthropomorphs and macropods, with lower but steady numbers of small naturalistic animals and reptiles, geometric designs, and hand stencils. This is despite the major shift from red-based to white-based paintings and the use of a variety of recognisable styles, particularly amongst the anthropomorphs. This uniformity suggests a continuum of artistic expression in which various styles of a Motif Type were incorporated for a time, only to later be either replaced by or united with a different form of the same motif, such as the simple, white monochrome, female figures and the decorative bichrome Jawoyn Lady figures.

The major change to a preference for white pigment around 450 years ago does little to change the overarching emphasis of the art. This is not to say that the art was fundamentally static, as the actual manner of depiction of most motif types varied throughout time. Taken together, this suggests that the art was the product of a vital and developing culture that retained its basic tenet of naturalism, concentrating on the depiction of an anthropocentric universe regaled with fellow creatures from the spiritual and physical worlds. As a minor, but consistent, component there are also

the statements of the artists as individuals, recording their transient presence through their hand stencils and the depiction of their daily activities.

Answering the original aims then, this study illustrates the importance of systematic archaeological (technical) characterisation in the recording of rock art. The method of characterisation was tested using the extensive repertoire of 1391 motifs displayed on 41 separate ceiling panels at the extraordinary site of Nawarla Gabarnmang, on the Arnhem Land plateau, Australia. The initial identification of motifs in the rock art was vastly improved through computer enhancement of photographic images through the DStretch programme (Harman 2009). The stratigraphic sequences of the art panels were achieved with the Harris Matrix programme (Harris 1989). The introduction of the Morellian Method from Art History (Ferne 1995) was used, along with the more common method of motif attribute comparisons (e.g. Chaloupka 1993), to correlate the sequences of the different panels across the site. To this overarching sequence, absolute dates or age ranges were added to provide the chronology of the art. The full potential of the method was, however, not achieved as the research team was unable to return to the site to undertake the planned detailed examinations of the art (such as further macroscopic analysis, radiocarbon dating and pigment analysis) or further excavation.

The analysis of this extraordinarily large and complex art site has for the first time revealed the potential of combining DStretch enhancement, the Harris Matrix, attribute analysis and the Morellian Method, to greatly assist in understanding and interpreting the rock art of Nawarla Gabarnmang, and by extension, of the Arnhem Land plateau. The combination of these methods has potential universal application in the analysis of rock art internationally.

In the end, we now have a greater understanding of the most recent art period of Jawoyn rock art, the Jawoyn Bim ... the art of Margaret Katherine's ancestors.



Margaret Katherine and the author discussing the findings of the study 8th October 2017. Photograph: Leigh Douglas

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APPENDIX 1: NAWARLA GABARNMANG MOTIF LIST INCLUDING PANEL ART PHASE AND SITE ART ASSEMBLAGE

Abbreviations

Motif type: (m) =male, (fragment) =female,

Colour: r =red, w =white, y =yellow, b =black, p =purple, k =pink, c =cream, o =orange

Motif form and type: fragment =fragment, trace =trace

Art Panel	Motif No.	Motif Colour	Motif Form	Motif Type	Panel Art Phase	Art Assemblage
A1	A-1	r	stencil	Hand right	I	1
A1	A-2	w	outline+infill	Macropod	II	7
A2	A-3	r	stencil	Hand left	I	1
A2	A-4	r	fragment	fragment	I	1
A2	A-5	r	fragment	fragment	I	1
A2	A-6	r	stencil	Hand	I	1
A2	A-7	r	stencil	Hand	I	1
A2	A-8	b	linear	Irregular design	III	>2
A2	A-9	r	stencil	Hand 3MF	I	1
A2	A-10	r	fragment	fragment	I	1
A2	A-11	r	stencil	Hand left	I	1
A2	A-12	r	stencil	Hand	I	1
A2	A-13	r	fragment	fragment	I	1
A2	A-14	r	stencil	Hand	I	1
A2	A-15	r	fragment	fragment	I	1
A2	A-16	r	fragment	fragment	I	1
A2	A-17	r	stencil	Hand 3MF	I	1
A2	A-18	r	fragment	fragment	I	1
A2	A-19	r	solid	Area	II	1
A2	A-20	r	solid	Area	II	1
A2	A-21	y	stencil	Hand 3MF	II	1
A2	A-22	y	stencil	Hand 3MF	II	1
A2	A-112	r	stencil	Hand 2MF	I	1
A3	A-23	m	stencil	Hand	I	1
A3	A-24	r	solid+linear	Anthropomorph	II	1
A3	A-25	r	solid	Animal	IV	2
A3	A-26	r	outline	Crocodile	II	1
A3	A-27	r	outline	fragment	II	1
A3	A-28	r	fragment	fragment	II	1
A3	A-29	r	linear	fragment	II	1
A3	A-30	r	fragment	fragment	II	1
A3	A-31	r	solid+dot	Paw track	II	1
A3	A-32	r	linear	fragment	II	1
A3	A-33	r	outline	Thylacine	II	1

A3	A-34	r	trace	trace	II	1
A3	A-35	r	outline+solid	Fish	II	1
A3	A-36	r	trace	trace	II	1
A3	A-37	r	linear	Line	II	1
A3	A-38	r	fragment	fragment	II	1
A3	A-39	r	fragment	fragment	II	1
A3	A-40	r	solid	Anthropomorph	II	1
A3	A-41	r	solid	fragment	II	1
A3	A-42	y	outline+infill	Anthropomorph	III	1
A3	A-43	y	solid	fragment	III	1
A3	A-44	y+r	solid+outline+infill	Macropod+spear	III	1
A3	A-45	y	outline	Macropod female	III	1
A3	A-46	r	outline+solid+infill	Macropod	IV	2
A3	A-47	r	linear	Y-shape	IV	2
A3	A-48	r	outline+infill	Macropod	IV	2
A3	A-49	r	solid	Anthropomorph (m)	IV	2
A3	A-50	r	solid	Goanna	IV	2
A3	A-51	r	outline	Anthropomorph	IV	2
A3	A-52	w	outline	Arc	V	5
A3	A-53	w	solid	Macropod track	V	5
A3	A-54	w	stencil	Hand left	V	5
A3	A-55	w	linear	Line	V	5
A3	A-56	w	outline+solid+infill	Macropod	V	5
A3	A-57	w	outline+solid+infill	Macropod male	V	5
A3	A-58	w	outline+solid+infill	Macropod	V	5
A3	A-59	y	solid	Anthropomorph foot	V	5
A3	A-60	w	solid+outline+infill	Anthropomorph (f)	V	5
A3	A-61	w	dot	Unknown	V	5
A3	A-62	w	solid+linear	Anthropomorph (m)	V	5
A3	A-63	w	solid+linear	Unknown	V	5
A3	A-64	w	linear	Apex	V	5
A3	A-65	w	solid+outline	Macropod male	V	5
A3	A-66	w+b	solid+infill	Anthropomorph (f)	VI	7
A3	A-67	w+r	solid+infill	Macropod male	VI	7
A3	A-68	w	solid+linear	Unknown	VI	7
A3	A-69	w	solid+linear	Unknown	VI	7
A3	A-70	w+r	solid+outline+infill	Jawoyn Lady	VI	7
A3	A-71	w+r	solid+infill	Emu	VI	7
A3	A-72	r	stencil	Object	II	1
A3	A-73	r	trace	trace	II	1
A3	A-74	r	trace	trace	II	1
A3	A-75	r	linear	Line	II	1
A3	A-76	r	linear	Line set	II	1
A3	A-77	r	outline+infill	Regular	II	1
A4	A-78	r	stencil	Hand	I	1
A4	A-79	r	fragment	fragment	I	1

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A4	A-80	r	trace	trace	I	1
A4	A-81	r	outline	Irregular	II	1
A4	A-82	w	stencil	Left hand	III	5
A4	A-83	w	linear	Irregular	III	5
A4	A-113	r	fragment	fragment	I	1
A5	A-84	r	fragment	fragment	I	2
A5	A-85	r	outline+infill	Macropod	I	2
A5	A-86	r	fragment	fragment	I	2
A5	A-87	w	solid+linear	Bandicoot	II	5
A5	A-88	w	solid	Saratoga	II	5
A6	A-89	y	outline	Snake	II	3
A6	A-90	y	linear	Ritual	II	3
A6	A-91	r	fragment	fragment	I	2
A6	A-92	r	outline+infill	Macropod	I	2
A6	A-93	r	outline+solid+linear	Turkey	III	4
A6	A-94	r	solid	Object	III	4
A6	A-95	r	solid+linear	Bird	III	4
A6	A-96	w	stencil	Left hand	IV	7
A6	A-97	w+b	solid+outline+infill	Barramundi	IV	7
A6	A-98	w+b	solid+outline	Turtle short-necked	IV	7
A6	A-99	w+b +r	solid+outline+infill	Anthropomorph (f)	IV	7
A6	A-100	w+b	solid+outline	Crocodile	IV	7
A6	A-101	w	solid+linear	Roo-footed	IV	7
A7	A-102	r	solid+linear	fragment	I	1
A7	A-103	r	trace	trace	I	1
A7	A-104	r	fragment	fragment	I	1
A7	A-105	r	fragment	fragment	I	1
A7	A-106	r	fragment	fragment	I	1
A7	A-107	r	solid+dot	Irregular design	I	1
A7	A-108	r	outline	Goanna	I	1
A7	A-109	w	solid+linear	Anthropomorph	II	5
A7	A-110	w	solid	Unknown	II	5
A7	A-111	w+r+b	solid+outline+ifill	Anthropomorph (f)	II	7
B1	B-1	m	outline+infill	fragment	I	1
B1	B-2	r	outline	Macropod	I	1
B1	B-3	r	fragment	fragment	I	1
B1	B-4	r	linear	fragment	I	1
B1	B-5	r	fragment	fragment	I	1
B1	B-6	r	linear	fragment	I	1
B1	B-7	y	outline+infill	Anthropomorph	II	1
B1	B-8	y+r	solid+linear	Animal	II	1
B1	B-9	y	solid	fragment	II	1
B1	B-10	y	outline+infill	fragment	II	1
B1	B-11	y	trace	trace	II	1
B1	B-12	r	solid	Emu	III	1
B1	B-13	r	outline+infill	Animal	III	1
B1	B-14	r	linear	Irregular design	III	1

B1	B-15	r	fragment	fragment	III	1
B1	B-16	r	fragment	fragment	III	1
B1	B-17	r	fragment	fragment	III	1
B1	B-18	r	fragment	fragment	III	1
B1	B-19	r	solid	Macropod	III	1
B1	B-20	r	fragment	fragment	III	1
B1	B-21	r	solid	Emu	III	1
B1	B-22	r	stencil	Hand right	IV	2
B1	B-23	r	outline	Possum	IV	2
B1	B-24	r	solid	Fish	IV	2
B1	B-25	r	solid	Echidna	IV	2
B1	B-26	r	solid	Echidna	IV	2
B1	B-27	y	solid	Echidna	V	3
B1	B-28	r	outline+infill	Possum	IV	2
B1	B-29	r	linear	fragment	I	1
B1	B-30	r	fragment	fragment	IV	2
B1	B-31	r	outline+infill	Macropod	IV	2
B1	B-32	r+w	outline+infill	Fish	IV	2
B1	B-33	w	solid	Turtle short-necked	VI	7
B1	B-34	w+r+b	solid+infill	Macropod	VI	7
B1	B-35	w	linear	Possum	VI	7
B1	B-36	w	solid	fragment	VI	7
B1	B-37	w	solid	Anthropomorph (m)	VI	7
B1	B-38	w+r	solid+outline+infill	Anthropomorph	VI	7
B1	B-39	w	solid+outline	Anthropomorph (f)	VI	7
B1	B-40	w+r	solid+outline+infill	Roo-footed	VI	7
B1	B-41	w+r	solid+outline+infill	Anthropomorph (m)	VI	7
B1	B-42	w+r	X-ray	Macropod male	VI	7
B1	B-43	w+r	X-ray	Macropod male	VI	7
B1	B-44	w	outline+infill	Fish	VI	7
B1	B-45	w	outline+infill	Fish	VI	7
B1	B-67	r	solid	Fish	IV	2
B1	B-68	r	outline+infill	Snake	III	1
B2	B-46	y+w+r	outline+infill	Macropod	I	2
B2	B-47	y	linear	Line	I	2
B2	B-48	y	solid+outline	Macropod	I	2
B2	B-49	y	fragment	fragment	I	2
B2	B-50	y	fragment	fragment	I	2
B2	B-51	r	solid	Anthropomorph (f)	II	3
B2	B-52	r	outline+infill	Macropod	II	3
B2	B-53	r	outline+infill	Macropod male	II	3
B2	B-54	w	solid+linear	Unknown	III	5
B2	B-55	w	fragment	fragment	III	5
B2	B-56	w	fragment	Anthropomorph	III	5
B2	B-57	w	outline+infill	Anthropomorph	III	5
B2	B-58	w	fragment	fragment	III	5
B2	B-59	w	solid+outline+infill	Crocodile	III	5

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B2	B-60	y	solid+outline+infill	Anthropomorph (m)	III	5
B2	B-61	w+r	solid+infill	Anthropomorph (f)	III	7
B2	B-62	w+r	solid+infill	Anthropomorph (f)	III	7
B2	B-63	w+r	X-ray	Macropod male	III	7
B2	B-64	w+r	solid+outline+infill	Crocodile	III	7
B2	B-65	w	solid+linear	Anthropomorph (f)	III	7
B2	B-66	w	outline+infill	Turtle short-necked	III	7
C1	C-1	w	stencil	Hand right	I	1
C1	C-2	r	outline+solid+linear	Anthropomorph	II	1
C1	C-3	r	solid+infill	Anthropomorph	II	1
C1	C-4	y	outline+infill	Regular	III	3
C1	C-5	w	outline+infill	Fish	IV	7
C2	C-6	r	fragment	fragment	I	1
C2	C-7	r	fragment	fragment	I	1
C2	C-8	r	trace	trace	I	1
C2	C-9	r	trace	trace	I	1
C2	C-10	r	linear	fragment	I	1
C2	C-11	r	outline+infill	fragment	I	1
C2	C-12	r	trace	trace	I	1
C2	C-13	r	fragment	fragment	I	1
C2	C-14	r	fragment	fragment	I	1
C2	C-15	r	outline+infill	fragment	I	1
C2	C-16	r	fragment	fragment	I	1
C2	C-17	r	outline+infill	fragment	I	1
C2	C-18	r	outline+infill	Anthropomorph	I	1
C2	C-19	r	fragment	fragment	I	1
C2	C-20	r	linear	fragment	I	1
C2	C-21	r	outline+infill	fragment	I	1
C2	C-22	r	fragment	fragment	I	1
C2	C-23	r	outline+linear	fragment	I	1
C2	C-24	r	outline+infill+linear	fragment	I	1
C2	C-25	r	fragment	fragment	I	1
C2	C-26	r	fragment	fragment	I	1
C2	C-27	r	solid+linear	fragment	I	1
C2	C-28	r	linear	fragment	I	1
C2	C-29	r	solid	fragment	II	2
C2	C-30	r	outline+infill	Regular	II	2
C2	C-31	r	linear	fragment	II	2
C2	C-32	r	solid+linear	Object	II	2
C2	C-33	r	solid+linear	Anthropomorph	II	2
C2	C-34	r	linear	Line pair	II	2
C2	C-35	r	fragment	fragment	II	2
C2	C-36	r	fragment	fragment	II	2
C2	C-37	r	fragment	fragment	II	2
C2	C-38	r	linear+infill	fragment	II	2
C2	C-39	r	fragment	fragment	II	2
C2	C-40	r	solid	fragment	II	2

C2	C-41	r	outline+infill	Anthropomorph	II	3
C2	C-42	r	solid	Fish	II	3
C2	C-43	r	solid	Snake	II	3
C2	C-44	r	solid	Snake	II	3
C2	C-45	r	solid	Snake	II	3
C2	C-46	r	solid+linear	Longtom	II	3
C2	C-47	r	outline+infill	Archer	II	3
C2	C-48	r	outline+infill	Fish	II	3
C2	C-49	r	linear	Anthropomorph	II	2
C2	C-50	r	solid+linear	Anthropomorph (f)	II	2
C2	C-51	r	linear	Anthropomorph (m)	II	3
C2	C-52	r	solid	fragment	II	2
C2	C-53	r	solid	Macropod	II	2
C2	C-54	r	solid	Animal	II	2
C2	C-55	o	solid+outline+infill	Snake	II	3
C2	C-56	w	linear	Spear	III	3
C2	C-57	w	linear	fragment	III	3
C2	C-58	w	linear	fragment	III	3
C2	C-59	w	outline+infill	fragment	III	3
C2	C-60	w	solid	fragment	III	3
C2	C-61	w	solid+infill	Animal	III	3
C2	C-62	w	solid+linear	Bird	III	3
C2	C-63	w	outline+infill	fragment	III	3
C2	C-64	w	solid+linear	fragment	III	3
C2	C-65	w	solid+outline	Fish	III	3
C2	C-66	w	solid	Snake	III	3
C2	C-67	y	solid	Animal	IV	4
C2	C-68	y	fragment	fragment	IV	4
C2	C-69	y	solid	Bird	IV	4
C2	C-70	y	solid	Bird	IV	4
C2	C-71	y	linear+outline+infill	Emu	IV	4
C2	C-72	y+w	solid+outline+infill	Macropod	IV	4
C2	C-73	y	fragment	fragment	IV	4
C2	C-74	w+r	solid+outline+infill	Macropod male	V	7
C2	C-75	w	solid	fragment	V	7
C2	C-76	w+r	solid+outline+infill	Macropod	V	7
C2	C-77	w	solid	Macropod legs	V	7
C2	C-78	w	solid	Macropod leg	V	7
C2	C-79	w	solid+linear	Anthropomorph (f)	V	7
C2	C-80	w	solid+linear	Bird	V	7
C2	C-81	w	solid+outline+infill	Macropod male	V	7
C2	C-82	w+r	X-ray	Macropod male	VI	7
C2	C-83	w+r	solid+outline+infill	Jawoyn Lady	VI	7
C2	C-84	w+r	solid+outline+infill	Anthropomorph (f)	VI	7
C2	C-85	w+r	solid+outline+infill	Catfish eel-tailed	VII	7
C2	C-86	w+r	X-ray	Catfish fork-tailed	VII	7
C2	C-87	p+r+w+y	solid+outline+infill	Turtle short-necked	VII	7

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C2	C-88	w+r+b	X-ray	Saratoga	VII	7
C2	C-89	y	solid+outline+infill	Snake	IV	6
C2	C-102	r	linear	fragment	I	1
C3	C-90	r	trace	trace	I	1
C3	C-91	y	linear	Spear set	II	3
C3	C-92	y	solid+linear	Anthropomorph	II	3
C3	C-93	y	solid+linear	Bird	II	3
C3	C-94	y	solid+linear	Anthropomorph	II	3
C3	C-95	y	outline+infill	Snake	II	3
C3	C-96	r	solid+linear	Anthropomorph	III	3
C3	C-97	w	linear	Anthropomorph	IV	5
C3	C-98	w	solid	Macropod female	IV	5
C3	C-99	w	solid	Macropod	IV	5
C3	C-100	w	solid+linear	Copulating couple	IV	5
C3	C-101	w	solid	fragment	IV	5
D	D-1	r	solid+outline+infill	Macropod	I	3
D	D-2	r	fragment	fragment	I	3
D	D-3	r	fragment	fragment	I	3
D	D-4	r	fragment	fragment	I	3
D	D-5	r	trace	trace	I	3
D	D-6	r	outline+infill	Regular design	I	3
D	D-7	r	trace	trace	I	3
D	D-8	r	fragment	fragment	I	3
D	D-9	r	fragment	fragment	I	3
D	D-10	y	solid+linear	Unknown	II	
D	D-11	y	linear	fragment	II	3
D	D-12	y	fragment	fragment	II	3
D	D-13	y	solid	Anthropomorph (f)	II	3
D	D-14	y	fragment	fragment	II	3
D	D-15	y	fragment	fragment	II	3
D	D-16	y	fragment	fragment	II	3
D	D-17	y	fragment	fragment	II	3
D	D-18	y	fragment	fragment	II	3
D	D-19	y	fragment	fragment	II	3
D	D-20	y	fragment	fragment	II	3
D	D-21	y	solid+linear	Anthropomorph (f)	II	3
D	D-22	y	linear	Irregular design	II	3
D	D-23	w	fragment	fragment	III	5
D	D-24	w	fragment	fragment	III	5
D	D-25	w	outline+infill	Macropod	III	5
D	D-26	w	outline+infill	Irregular	III	5
D	D-27	w	stencil	Hand left	III	5
D	D-28	w	stencil	Hand left	III	5
D	D-29	w	outline+infill	fragment	III	5
D	D-30	w	fragment	fragment	III	5
D	D-31	w	fragment	fragment	III	5
D	D-32	w	outline+infill	Irregular	III	5

D	D-33	w	solid	Animal	III	5
D	D-34	w	outline+infill	Macropod	III	5
D	D-35	c	solid	Macropod	III	5
D	D-36	c	solid	Bird	III	5
D	D-37	c	solid	Animal	III	5
D	D-38	c+r	solid+outline+infill	Longtom	III	5
D	D-39	c+r	solid+outline+infill	Turtle	III	5
D	D-40	c+r	solid+outline+infill	Turtle	III	5
D	D-41	w+r	solid+outline+infill	Macropod	III	5
D	D-42	w	solid+linear	Anthropomorph (f)	III	5
D	D-43	w+r	solid+infill	Unknown	III	5
D	D-44	w+r	solid+outline+infill	Macropod male	III	5
D	D-45	w+r	solid+outline+infill	Anthropomorph	III	5
D	D-46	w+r	solid+outline+infill	Emu	III	5
D	D-47	r	outline	fragment	III	5
D	D-48	grw	outline+infill	Horse	III	7
D	D-49	k	fragment	fragment	III	7
D	D-50	k	trace	trace	III	7
D	D-51	k	fragment	fragment	III	7
D	D-52	k	fragment	fragment	III	7
D	D-53	w	outline+infill	Macropod	III	7
D	D-54	w+r	solid+outline+infill	Anthropomorph	III	7
D	D-55	w	solid	fragment	III	7
D	D-56	w+r	solid+infill	fragment	III	7
D	D-57	w+r	solid+outline+infill	Jawoyn Lady	III	7
D	D-58	w+r	solid+outline+infill	Jawoyn Lady	III	7
D	D-59	w+r + b	X-ray	Barramundi	IV	7
D	D-60	w+r+y	X-ray	Saratoga	IV	7
D	D-61	w+r	X-ray	Fish	IV	7
D	D-62	w+r+p	X-ray	Barramundi	IV	7
D	D-63	w+r	X-ray	Fish	IV	7
D	D-64	y+r+b	X-ray	Longtom	IV	7
D	D-65	w+r+p	X-ray	Saratoga	IV	7
D	D-66	w+r+p	X-ray	Barramundi	IV	7
E1	E-1	r	solid	Longtom	I	3
E1	E-2	r	solid	Saratoga	I	3
E1	E-3	r	outline+infill	fragment	I	3
E1	E-4	r	fragment	fragment	I	3
E1	E-5	r	fragment	fragment	I	3
E1	E-6	r	solid	Fish	I	3
E1	E-7	r	solid	Fish	I	3
E1	E-8	r	fragment	fragment	I	3
E1	E-9	r	fragment	fragment	I	3
E1	E-10	r	solid	fragment	I	3
E1	E-11	r	outline+infill	Snake	I	3
E1	E-12	r	outline+infill	fragment	I	3
E1	E-13	r	solid	fragment	I	3

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E1	E-14	r	outline+infill	fragment	I	3
E1	E-15	r	X-ray	Fish	I	3
E1	E-16	r	solid	Fish	I	3
E1	E-17	r	fragment	fragment	I	3
E1	E-18	r	solid	fragment	I	3
E1	E-19	r	solid	Anthropomorph	I	3
E1	E-20	r	solid	Unknown	I	3
E1	E-21	r	stencil	Hand right	I	3
E1	E-22	y	trace	trace	II	3
E1	E-23	y	linear	fragment	II	3
E1	E-24	y	fragment	fragment	II	3
E1	E-25	y	trace	trace	II	3
E1	E-26	y	outline+infill	fragment	II	3
E1	E-27	y	trace	trace	II	3
E1	E-28	y	trace	trace	II	3
E1	E-29	y	fragment	fragment	II	3
E1	E-30	y	solid	fragment	II	3
E1	E-31	y	outline+infill	Irregular design	II	3
E1	E-32	y	solid	fragment	II	3
E1	E-33	r	solid	fragment	III	3
E1	E-34	r	outline+infill	fragment	III	3
E1	E-35	r	solid+outline+infill	fragment	III	3
E1	E-36	w+r	outline+infill	Anthropomorph	IV	5
E1	E-37	w	outline+infill	Fish	IV	5
E1	E-38	w	outline+infill	Anthropomorph	IV	5
E1	E-39	w	solid	Anthropomorph	IV	5
E1	E-40	w	fragment	fragment	IV	5
E1	E-41	w	fragment	fragment	IV	5
E1	E-42	w+r	outline+infill	Macropod	IV	5
E1	E-43	w	solid+linear	Emu	IV	5
E1	E-44	w	solid+linear	Anthropomorph (f)	IV	5
E1	E-45	o+w	solid+linear	Anthropomorph	IV	5
E1	E-46	o	solid+linear	Anthropomorph	IV	5
E1	E-47	w+r	outline+infill	Snake	IV	5
E1	E-48	w+r	solid+outline	Animal	IV	7
E1	E-49	w+r	fragment	fragment	IV	7
E1	E-50	w	fragment	fragment	IV	7
E1	E-51	w	fragment	fragment	IV	5
E1	E-52	w	solid+linear	Possum	IV	5
E1	E-53	w	solid+linear	Unknown	IV	5
E1	E-54	w	fragment	fragment	IV	5
E1	E-55	w	solid	Macropod	IV	5
E1	E-56	w+r	solid+outline+infill	Fish	IV	5
E1	E-57	w+r	solid+outline+infill	Jawoyn Lady	IV	5
E1	E-58	c+r	solid+outline+infill	Jawoyn Lady	IV	5
E1	E-59	w	solid	Turtle long-necked	IV	5
E1	E-60	w	fragment	fragment	IV	5

E1	E-61	w	fragment	fragment	IV	5
E1	E-62	w	fragment	fragment	IV	5
E1	E-63	w	linear	Anthropomorph	IV	5
E1	E-64	w	outline+infill	Unknown	IV	5
E1	E-65	w	outline+infill	Catfish eel-tailed	IV	5
E1	E-66	w	fragment	fragment	IV	5
E1	E-67	w	outline+infill	Goanna	IV	5
E1	E-68	w	solid+linear	Anthropomorph	IV	5
E1	E-69	w	outline+infill	Unknown	IV	5
E1	E-70	w+o	solid+outline+infill	Macropod	IV	5
E1	E-71	w	solid	fragment	IV	5
E1	E-72	w	outline+infill	fragment	IV	5
E1	E-73	w	solid+linear	Macropod	IV	5
E1	E-74	w	fragment	fragment	IV	5
E1	E-75	w+o	X-ray	Turtle short-necked	V	7
E1	E-76	w+p	X-ray	Macropod male	VI	7
E1	E-77	w+r+o+p	X-ray	Barramundi	VI	7
E1	E-78	w+r+o+p	X-ray	Barramundi	VI	7
E1	E-79	w+o	solid+outline+infill	Barramundi	VI	7
E1	E-80	c	solid	Smear	VI	7
E1	E-81	r	outline+infill	Regular design	III	3
E1	E-82	y	fragment	fragment	II	3
E2	E-83	b	solid	Dot	II	2
E2	E-84	y	outline+infill	fragment	II	2
E2	E-85	y	outline+infill	fragment	II	2
E2	E-86	y	outline+infill	fragment	II	2
E2	E-87	y	fragment	fragment	II	2
E2	E-88	r	solid	fragment	III	3
E2	E-89*	r	solid+outline+infill	Macropod	III	3
E2	E-90	r	solid+linear	Macropod	III	3
E2	E-91	r	fragment	fragment	III	3
E2	E-92	r	solid	fragment	III	3
E2	E-93	r	linear	Radial	III	3
E2	E-94	r	fragment	fragment	III	3
E2	E-95	r	linear	Anthropomorph	III	3
E2	E-96	r	solid	fragment	III	3
E2	E-97	r	outline+infill+solid	Macropod	III	3
E2	E-98	m	outline+infill+solid	Emu	I	1
E2	E-99	r	linear	Anthropomorph	III	3
E2	E-100	r	linear	Anthropomorph	III	3
E2	E-101	r	solid+linear	Anthropomorph	III	3
E2	E-102	r	solid+linear	Anthropomorph (f)	V	4
E2	E-103	r	solid+linear	Anthropomorph	V	4
E2	E-104	y	linear	Anthropomorph	IV	3
E2	E-105	y	solid+linear	Anthropomorph (f)	IV	3
E2	E-106	y	outline+infill+linear	Turtle short-necked	IV	3
E2	E-107	y	outline+infill+linear	Turtle long-necked	IV	3

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E2	E-108	w	linear	Irregular design	VI	7
E2	E-109	w	stencil	Hand	VI	7
E2	E-110	w+r	solid+outline+infill	Jawoyn Lady	VI	7
E3	E-111	w	fragment	fragment	I	2
E3	E-112	w	outline+linear	fragment	I	2
E3	E-113	w	outline+linear	Anthropomorph	I	2
E3	E-114	r	solid+outline+infill	fragment	II	3
E3	E-115	r	fragment	fragment	II	3
E3	E-116	w	linear+outline+infill	fragment	III	7
E3	E-117	w	linear	Unknown	III	7
E3	E-118	w	solid+linear	Bream	III	7
E4	E-119	r	solid+outline+infill	Macropod	I	3
E4	E-120	r	fragment	fragment	I	3
E4	E-121	r	solid+linear	Unknown	I	3
E4	E-122	r	solid+outline+infill	Turtle long-necked	I	3
E4	E-123	o	outline+infill	Infill #E-122	II	4
E4	E-124	w	linear+outline+infill	Anthropomorph	III	5
E5	E-125	r	fragment	fragment	I	3
E5	E-126	y	fragment	fragment	I	3
E5	E-127	w	linear	Irregular design	II	5
F1	F-1	y	trace	trace	I	1
F1	F-2	y	fragment	fragment	I	1
F1	F-3	y+r	solid+outline	Animal	I	1
F1	F-4	y	fragment	fragment	I	1
F1	F-5	y	fragment	fragment	I	1
F1	F-6	r	fragment	fragment	II	1
F1	F-7	r	fragment	fragment	II	1
F1	F-8	r	fragment	fragment	II	1
F1	F-9	r	fragment	fragment	II	1
F1	F-10	r	solid+linear	fragment	II	1
F1	F-11	o	fragment	fragment	IV	4
F1	F-12	r	outline+infill	Snake	II	1
F1	F-13	r	fragment	fragment	II	2
F1	F-14	r	fragment	fragment	II	2
F1	F-15	r	fragment	fragment	II	2
F1	F-16	r	fragment	fragment	II	2
F1	F-17	r	fragment	fragment	II	2
F1	F-18	r	fragment	fragment	II	2
F1	F-19	r	solid+linear	Anthropomorph	II	2
F1	F-20	r	linear	fragment	II	2
F1	F-21	r	linear	Irregular	II	2
F1	F-22	r	outline+infill	fragment	II	2
F1	F-23	r	fragment	fragment	II	2
F1	F-24	r	fragment	fragment	II	2
F1	F-25	w	outline+infill	fragment	IV	4
F1	F-26	w	fragment	fragment	II	2
F1	F-27	b	solid	Dot	III	3

F1	F-28	b	solid	Dot	III	3
F1	F-29	b	solid	Dot	III	3
F1	F-30	b	solid	Dot	III	3
F1	F-31	r	fragment	fragment	III	3
F1	F-32	r	outline+infill	Unknown	III	3
F1	F-33	r	solid	Fish	III	3
F1	F-34	r	linear	Spear	III	3
F1	F-35	r	linear	Spear	III	3
F1	F-36	r	solid+linear	Spearthrower	III	3
F1	F-37	r	solid+linear	Anthropomorph	III	3
F1	F-38	r	solid	Fish	III	3
F1	F-39	r	outline+infill	Fish	III	3
F1	F-40	r	outline+infill	Fish	III	3
F1	F-41	r	solid	Fish	III	3
F1	F-42	r	solid	Fish	III	3
F1	F-43	r	solid	Fish	III	3
F1	F-44	r	solid	Fish	III	3
F1	F-45	r	solid	Fish	III	3
F1	F-46	r	solid	Fish	III	3
F1	F-47	r	solid	Fish	III	3
F1	F-48	r	solid	Fish	III	3
F1	F-49	r+w	solid	Possum	IV	4
F1	F-50	r+w	solid+infill	Possum	IV	4
F1	F-51	r	outline+infill	Anthropomorph	III	3
F1	F-52	r	solid	fragment	III	3
F1	F-53	r	solid	Macropod	III	3
F1	F-54	y	solid	Animal	I	1
F1	F-55	r	outline+infill	Radial	III	3
F1	F-56	r+w	solid+infill	Regular	II	2
F1	F-57	r+w	solid+infill	fragment	II	2
F1	F-58	r+w	solid+infill	Anthropomorph	II	2
F1	F-59	r	linear	fragment	III	4
F1	F-60	o	solid	Echidna	IV	4
F1	F-61	o	fragment	fragment	IV	4
F1	F-62	o	solid	Catfish eel-tailed	IV	4
F1	F-63	o	solid	Catfish eel-tailed	IV	4
F1	F-64	w+r	solid+outline+infill	Anthropomorph	V	5
F1	F-65	w	outline	Unknown	V	5
F1	F-66	w	outline+infill	Turtle short-necked	V	5
F1	F-67	w	outline+infill	Unknown	V	5
F1	F-68	w	outline+infill	Apex	V	5
F1	F-69	w	solid	fragment	V	5
F1	F-70	w	outline+infill	Snake	V	5
F1	F-71	w	solid	Anthropomorph (f)	V	5
F1	F-72	r+w	X-ray	Fish	VI	5
F1	F-73	r+w	X-ray	Macropod male	VI	5
F1	F-74	r+w	solid+outline+infill	Anthropomorph (f)	VI	5

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F1	F-75	r	linear	Object	III	4
F1	F-76	r	linear	Spear	III	4
F1	F-77	r	solid+outline+infill+linear	Spearthrower	III	4
F1	F-78	r	outline+infill+linear	Dillybag	III	4
F1	F-79	r	solid+linear	Anthropomorph (f)	III	4
F1	F-80	r	solid+linear	Object	III	4
F1	F-81	r	solid+linear	Anthropomorph	III	4
F1	F-82	r	solid+linear	Anthropomorph (f)	III	4
F1	F-83	r	linear	Spear	III	4
F1	F-84	r	solid+outline+infill	Anthropomorph	III	3
F1	F-85	w+r	solid+outline+infill	Macropod	VII	5
F1	F-86	w+r	X-ray	Macropod male	VII	5
F1	F-87	w+r	solid+outline+infill	Anthropomorph	VII	5
F1	F-88	w+r	solid+outline+infill	Jawoyn Lady	VII	5
F1	F-89	w+r	outline	Dillybag	VII	5
F1	F-90	w+r	solid+outline+infill	Anthropomorph (f)	VII	5
F1	F-91	r	outline+infill	Radial	VII	6
F1	F-92	o	solid	Unknown	IV	4
F1	F-93	w	outline+infill+linear	Irregular design	VII	5
F1	F-94	y	solid	Echidna	VII	5
F1	F-95	y	solid	Flying fox	VII	5
F1	F-96	y	solid	Flying fox	VII	5
F1	F-97	y	solid	Flying fox	VII	5
F1	F-98	r	linear	Radial	VII	6
F1	F-99	r	linear+outline	Radial	VII	6
F1	F-100	w	solid	Macropod	VII	5
F1	F-101	w	solid+outline+infill	Fish	VII	5
F1	F-102	w	solid+linear	Anthropomorph (m)	VII	5
F1	F-103	w	solid+linear	Anthropomorph (f)	VII	5
F1	F-104	w	outline+infill	Anthropomorph (f)	VII	5
F1	F-105	b	solid	Line	VII	6
F1	F-106	b	solid	Line	VII	6
F1	F-107	b	solid	Dot	VII	6
F1	F-108	b	solid	Dot	VII	6
F1	F-109	y	outline	Irregular	VII	5
F1	F-110	y	solid	Snake	VII	5
F1	F-111	y	solid+outline+infill	Macropod	VII	5
F1	F-112	o+w	solid+outline+infill	Snake	VII	7
F1	F-113	w	linear	Zigzag	VII	7
F1	F-114	w	linear	Zigzag	VII	7
F1	F-115	w	spray	Infill #111	VII	7
F1	F-116	w	linear	Radial	VII	7
F1	F-117	r	outline	Spear	VII	7
F1	F-118	r	outline	Spear	VII	7
F1	F-119	r	outline	Spearthrower	VII	7
F1	F-120	w	solid	Anthropomorph (f)	VII	7
F1	F-121	w	solid	Anthropomorph (f)	VII	7

F1	F-122	w+r	solid+outline+infill	Snake	VII	7
F1	F-123	w	linear	Infill #111	VII	7
F1	F-124	w	linear	Y-shape	VII	5
F1	F-125	w	spray	Irregular design	VII	7
F1	F-126	r+w	solid+outline+infill	Anthropomorph	II	2
F2	F-127	r	fragment	fragment	II	3
F2	F-128	r	fragment	fragment	II	3
F2	F-129	r	fragment	Macropod	II	3
F2	F-130	r	fragment	fragment	II	3
F2	F-131	r	fragment	fragment	II	3
F2	F-132	r	fragment	fragment	II	3
F2	F-133	r	solid+outline+infill	Anthropomorph	II	3
F2	F-134	r	linear+outline	Anthropomorph	II	3
F2	F-135	r	fragment	fragment	II	3
F2	F-136	r	fragment	fragment	II	3
F2	F-137	r	fragment	fragment	II	3
F2	F-138	r	solid	Anthropomorph	II	3
F2	F-139	r	solid	Catfish eel-tailed	II	3
F2	F-140	r+w	solid+outline+infill	Snake	III	3
F2	F-141	r	linear	Line	III	3
F2	F-142	r+w	solid+outline+infill	Bolung	III	3
F2	F-143	r	linear	Line	III	3
F2	F-144	y	solid+linear	fragment	IV	3
F2	F-145	y	fragment	fragment	IV	3
F2	F-146	r	solid+outline+infill	Turtle long-necked	III	3
F2	F-147	o	fragment	fragment	IV	4
F2	F-148	w	outline	Unknown	V	7
F2	F-149	w	linear	Apex	V	7
F2	F-150	w	linear	Scribble	V	7
F2	F-151	w	linear	Scribble	V	7
F2	F-152	w	solid+linear	Unknown	V	7
F2	F-153	w	solid	Unknown	V	7
F2	F-154	w	solid+outline+infill	Macropod-headed	V	7
F2	F-155	w	solid	Unknown	V	7
F2	F-156	b	outline+infill	Regular design	IV	3
F2	F-157	w+r+b	solid+outline+infill	Macropod male	VI	7
F2	F-229	y	fragment	fragment	I	2
F3	F-158	r	trace	trace	I	2
F3	F-159	y	solid+linear	fragment	II	2
F3	F-160	r	linear	Snake	III	3
F3	F-161	r	outline +infill	Fish	III	3
F3	F-162	r	linear	Bar	III	3
F3	F-163	r	linear	Bar	III	3
F3	F-164	r	solid+linear	Unknown	IV	7
F3	F-165	w	outline	Genitals female	IV	7
F3	F-166	w	outline	Genitals female	IV	7
F3	F-167	w	linear	Bar	IV	7

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F3	F-168	w	linear	Bar	IV	7
F4	F-169	y	fragment	fragment	I	3
F4	F-170	y	fragment	fragment	I	3
F4	F-171	y	fragment	fragment	I	3
F4	F-172	y	fragment	fragment	I	3
F4	F-173	y	fragment	fragment	I	3
F4	F-174	y	fragment	fragment	I	3
F4	F-175	r	fragment	fragment	II	3
F4	F-176	r	fragment	fragment	II	3
F4	F-177	r	fragment	fragment	II	3
F4	F-178	r	fragment	fragment	II	3
F4	F-179	r	fragment	fragment	II	3
F4	F-180	r	linear	Line	II	3
F4	F-181	r	linear	Bar	II	3
F4	F-182	r	linear	Bar	II	3
F4	F-183	r	solid	fragment	II	3
F4	F-184	r	solid	fragment	II	3
F4	F-185	r	solid	fragment	II	3
F4	F-186	r	solid	fragment	II	3
F4	F-187	r	solid	fragment	II	3
F4	F-188	r	solid	fragment	II	3
F4	F-189	r	solid	fragment	II	3
F4	F-190	r	solid+linear	Yam	II	3
F4	F-191	r	solid+linear	Yam	II	3
F4	F-192	r	solid+linear	Yam	II	3
F4	F-193	r	solid+linear	Yam	II	3
F4	F-194	r	solid+linear	Yam	II	3
F4	F-195	r	solid+linear	Yam	II	3
F4	F-196	r	solid+linear	Yam	II	3
F4	F-197	r	solid+linear	Yam	II	3
F4	F-198	r	solid+linear	Unknown	II	3
F4	F-199	r	solid+linear	Yam	II	3
F4	F-200	r	solid+linear	Yam	II	3
F4	F-201	r	solid+linear	Yam	II	3
F4	F-202	r	solid+linear	Yam	II	3
F4	F-203	r	solid+linear	Yam	II	3
F4	F-204	r	solid+linear	Yam	II	3
F4	F-205	r	solid+linear	Yam	II	3
F4	F-206	r	solid+linear	Yam	II	3
F4	F-207	r	solid+linear	Yam	II	3
F4	F-208	r	solid+linear	Unknown	II	3
F4	F-209	r	solid+linear	Yam	II	3
F4	F-210	r	solid	fragment	II	3
F4	F-211	r	solid	fragment	II	3
F4	F-212	w+r	solid+outline+infill	Jawoyn Lady	III	5
F4	F-213	w	outline+infill+linear	Turtle short-necked	III	5
F4	F-214	w	outline+infill	Regular design	III	5

F4	F-215	w	outline+infill+linear	Unknown	III	5
F4	F-216	w	outline+infill+linear	Unknown	III	5
F4	F-217	w	outline+infill+linear	Unknown	III	5
F4	F-218	w	outline+infill+linear	Turtle short-necked	III	5
F4	F-219	w	linear	Anthropomorph (m)	III	5
F4	F-220	w	outline+infill	Unknown	III	7
F4	F-221	c+k	outline+infill	Saratoga	III	7
F4	F-222	c	solid	Unknown	III	7
F5	F-223	r	solid	Anthropomorph	I	3
F5	F-224	r	dot	Dot	I	3
F5	F-225	r	dot	Dot	I	3
F5	F-226	r	solid+linear	Unknown	I	3
F5	F-227	r	fragment	fragment	I	3
F5	F-228	w	outline+infill	Unknown	II	7
G	G-1	y	outline+infill	Turtle short-necked	I	3
G	G-2	y	outline+infill	Turtle long-necked	I	3
G	G-3	y	solid+linear	fragment	I	3
G	G-4	y	outline+infill	fragment	I	3
G	G-5	y	fragment	fragment	I	3
G	G-6	r	fragment	fragment	I	3
G	G-7	r	linear	Irregular	I	3
G	G-8	r	outline+infill	Emu	I	3
G	G-9	r	linear	fragment	I	3
G	G-10	r	fragment	fragment	I	3
G	G-11	o	outline+infill	Emu	I	4
G	G-12	r+w	outline+infill	Crocodile	II	5
G	G-13	r+w	outline+infill	Unknown	II	5
G	G-14	r+w	solid+outline+infill	Crocodile	II	5
G	G-15	y	fragment	Unknown	I	3
G	G-16	r+w	outline+infill	Anthropomorph (m)	II	7
G	G-17	r	outline+infill	Unknown	II	5
H	H-1	r	solid	Goanna	I	1
H	H-2	r	linear	Line	I	1
H	H-3	r	fragment	fragment	I	1
H	H-4	r	fragment	fragment	I	1
H	H-5	r	fragment	fragment	I	1
H	H-6	r	linear	fragment	I	1
H	H-7	r	solid	Animal	I	1
H	H-8	r	solid	fragment	I	1
H	H-9	r	fragment	fragment	I	1
H	H-10	r	solid	Animal	I	1
H	H-11	r	outline+infill	fragment	I	1
H	H-12	r	fragment	fragment	I	1
H	H-13	r	fragment	fragment	I	1
H	H-14	r	fragment	fragment	I	1
H	H-15	r	solid	fragment	I	1
H	H-16	r	solid	fragment	I	1

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H	H-17	r	solid	fragment	I	1
H	H-18	r	fragment	fragment	I	1
H	H-19	r	fragment	fragment	I	1
H	H-20	r	fragment	fragment	I	1
H	H-21	w	stencil	Hand left	II	1
H	H-22	w	outline+infill	Regular	II	1
H	H-23	y	fragment	fragment	II	1
H	H-24	y	fragment	fragment	II	1
H	H-25	y	fragment	fragment	II	1
H	H-26	y	fragment	fragment	II	1
H	H-27	y	fragment	fragment	II	1
H	H-28	y	solid	Disc	II	1
H	H-29	y	solid	Disc	II	1
H	H-30	y	fragment	fragment	II	1
H	H-31	y	fragment	fragment	II	1
H	H-32	y	fragment	fragment	II	1
H	H-33	y	fragment	fragment	II	1
H	H-34	y	fragment	fragment	II	1
H	H-35	w	solid	Anthropomorph	VI	6
H	H-36	y	solid	Macropod	II	1
H	H-37	y	outline	Macropod	II	1
H	H-38	y	fragment	fragment	II	1
H	H-39	y	fragment	fragment	II	1
H	H-40	y	fragment	fragment	II	1
H	H-41	y	solid	Macropod	II	1
H	H-42	y	fragment	fragment	II	1
H	H-43	y	solid	Animal	II	2
H	H-44	y	fragment	fragment	II	2
H	H-45	y	outline+linear	Jabiru	II	2
H	H-46	y	fragment	fragment	II	2
H	H-47	y	fragment	fragment	II	2
H	H-48	y	fragment	fragment	II	2
H	H-49	y	linear	fragment	II	2
H	H-50	y	fragment	fragment	II	2
H	H-51	y	fragment	fragment	II	2
H	H-52	r	fragment	fragment	II	2
H	H-53	r	outline+infill+linear	Anthropomorph	II	2
H	H-54	r	outline+infill	fragment	II	2
H	H-55	r	fragment	fragment	II	2
H	H-56	r	fragment	fragment	II	2
H	H-57	r	outline+infill	fragment	II	2
H	H-58	r	solid+linear	Anthropomorph	II	2
H	H-59	w	stencil	Hand	III	3
H	H-60	w	stencil	Hand left	III	3
H	H-61	w	stencil	Hand left	III	3
H	H-62	w	stencil	Hand left	III	3
H	H-63	w	linear+outline+infill	Bird	III	3

H	H-64	r	outline+infill	Macropod	III	3
H	H-65	r	outline+infill	Macropod	III	3
H	H-66	r	fragment	fragment	III	3
H	H-67	w	fragment	fragment	III	3
H	H-68	r	solid	Macropod	IV	4
H	H-69	r	solid	Macropod	IV	4
H	H-70	r	solid	Turtle short-necked	IV	4
H	H-71	r	linear	Spear	IV	4
H	H-72	r	fragment	fragment	IV	4
H	H-73	r	solid	Snake	IV	4
H	H-74	r	solid	fragment	IV	4
H	H-75	r	solid	Animal	IV	4
H	H-76	r+w	solid+outline+infill	Snake	IV	5
H	H-77	r+w	solid+outline+infill	Macropod	IV	5
H	H-78	w	solid	fragment	V	5
H	H-79	w	outline+infill	Irregular	V	5
H	H-80	w	outline+infill	Regular	V	5
H	H-81	w	outline+infill	Regular	V	5
H	H-82	w	outline+infill	Regular	V	5
H	H-83	w	outline+infill	Unknown	V	5
H	H-84	w	stencil	Hand left	V	5
H	H-85	w	stencil	Hand left	V	5
H	H-86	w	outline+infill	Irregular	V	5
H	H-87	w	outline+infill	Concentric oval	V	5
H	H-88	w	outline+infill	Concentric oval	V	5
H	H-89	w	outline+infill	Concentric oval	V	5
H	H-90	w	outline	Oval	V	5
H	H-91	w	outline+infill+linear	Macropod	V	5
H	H-92	o	fragment	fragment	V	5
H	H-93	w	solid	Anthropomorph (f)	VI	6
H	H-94	w	solid+outline	Macropod male	VI	6
H	H-95	w	outline+linear	Anthropomorph (f)	VI	6
H	H-96	w	linear	fragment	VI	6
H	H-97	w	fragment	fragment	VI	6
H	H-98	w+r	solid+outline+infill	Anthropomorph	VI	6
H	H-99	w	outline+infill+linear	Dillybag	VI	6
H	H-100	w	linear	Digging stick	VI	6
H	H-101	w+r	solid+outline+infill	Anthropomorph (f)	VI	6
H	H-102	w	fragment	fragment	VI	6
H	H-103	w	solid	Anthropomorph (f)	VI	6
H	H-104	w	outline+infill	Emu	VI	6
H	H-105	w	solid	Macropod	VI	6
H	H-106	k	solid	Smear	VI	7
H	H-107	w	fragment	fragment	VI	6
H	H-108	w	fragment	fragment	VI	6
H	H-109	w+r	si	Turtle long-necked	VI	6
H	H-110	w+r	solid+outline+infill	Anthropomorph (m)	VI	6

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H	H-111	w	solid	Anthropomorph	VI	6
H	H-112	w+r	solid+outline+infill	Anthropomorph	VI	6
H	H-113	w+r	solid+outline+infill	Anthropomorph (m)	VI	6
H	H-114	k	solid	Smear	VI	7
H	H-115	w+r+b	X-ray	Macropod male	VI	7
H	H-116	w	linear	Apex	VI	7
H	H-117	w	linear	Line	VI	7
H	H-118	w+r	solid+outline+infill	fragment	VI	7
H	H-119	w+r	solid+outline+infill	Macropod	VI	7
H	H-120	w+r	solid+outline+infill	Anthropomorph	VI	7
H	H-121	r	solid+linear	Anthropomorph (f)	VI	7
H	H-122	b	linear	Anthropomorph	VI	6
H	H-123	w	solid+outline+infill	Anthropomorph (m)	VI	7
H	H-124	w	solid	Fish	VI	7
H	H-125	w	solid	Fish	VI	7
H	H-126	w	fragment	fragment	VI	7
H	H-127	w	solid+linear	Bird	VI	7
H	H-128	w+r+b	X-ray	Barramundi	VII	7
H	H-129	w+r+b	X-ray	Barramundi	VII	7
H	H-130	w	outline+infill+dot	Unknown	V	5
H	H-131	o	linear	Feather	V	5
H	H-132	w	linear	fragment	VI	6
J1	J-1	r	outline+infill	fragment	I	1
J1	J-2	r	outline+infill	fragment	I	1
J1	J-3	r	outline+infill	fragment	I	1
J1	J-4	r	outline+infill	fragment	I	1
J1	J-5	r	outline+infill	fragment	I	1
J1	J-6	r	solid	Macropod	I	1
J1	J-7	r	fragment	fragment	I	1
J1	J-8	r	fragment	fragment	I	1
J1	J-9	r	solid	fragment	I	1
J1	J-10	r	solid	fragment	I	1
J1	J-11	r	fragment	fragment	I	1
J1	J-12	r	outline+infill	Animal	I	1
J1	J-13	r	solid	fragment	I	1
J1	J-14	r	outline+infill	fragment	I	1
J1	J-15	r	linear	Anthropomorph	I	1
J1	J-16	r	outline+infill	fragment	I	1
J1	J-17	r	linear	fragment	I	1
J1	J-18	r	fragment	fragment	I	1
J1	J-19	r	solid	fragment	I	1
J1	J-20	r	solid	Animal	I	1
J1	J-21	r	solid	Macropod legs	I	1
J1	J-22	r	fragment	fragment	I	1
J1	J-23	r	linear	Anthropomorph	I	1
J1	J-24	y	solid	fragment	III	2
J1	J-25	y	solid	fragment	I	1

J1	J-26	y	solid	fragment	I	1
J1	J-27	y+r	solid+outline+infill	Macropod male	I	1
J1	J-28	r	fragment	fragment	II	1
J1	J-29	r	solid+linear	fragment	II	1
J1	J-30	r	solid	Animal	II	1
J1	J-31	r	linear	fragment	II	1
J1	J-32	r	linear	Line set	II	1
J1	J-33	y	solid	Macropod male	III	2
J1	J-34	w	linear	Regular design	V	5
J1	J-35	w	linear	fragment	V	5
J1	J-36	w	solid+linear	Anthropomorph	V	5
J1	J-37	w	solid+linear	Anthropomorph	V	5
J1	J-38	y	solid+outline	Animal	I	1
J1	J-39	r	fragment	fragment	I	1
J1	J-40	y	fragment	fragment	I	1
J1	J-41	y	solid+outline	Animal	I	1
J1	J-42	y	outline+infill	fragment	I	1
J1	J-43	y	fragment	fragment	I	1
J1	J-44	r	outline+infill	Grid	I	1
J1	J-45	r	fragment	fragment	I	1
J1	J-46	o	outline+infill	Quadruped	IV	4
J1	J-47	w	outline+infill	Unknown	III	2
J1	J-48	w	outline+infill	Anthropomorph	III	2
J1	J-49	w	outline+infill	Shield	III	2
J1	J-50	y	solid	Snake	III	2
J1	J-51	r	solid+linear	Anthropomorph	III	2
J1	J-52	r	outline+infill	Snake	III	2
J1	J-53	b	dot	Dot	IV	3
J1	J-54	b	dot	Dot	IV	3
J1	J-55	r	solid+linear	Radial	IV	3
J1	J-56	r	solid+linear	Radial	IV	3
J1	J-57	r	solid+linear	Unknown	II	1
J1	J-58	w	outline+infill	Snake	V	5
J1	J-59	y	outline+infill	Infill #51	IV	3
J1	J-60	y	solid+linear	Quadruped	IV	3
J1	J-61	y	outline+infill	Shield	IV	3
J1	J-62	w	outline+infill	Infill #60	V	5
J1	J-63	w	solid+outline+infill	Snake	V	5
J1	J-64	r	linear	fragment	I	1
J1	J-65	y	linear+outline+infill	Anthropomorph (f)	VI	7
J1	J-66	r	fragment	fragment	I	1
J1	J-67	r	linear	fragment	I	1
J1	J-68	r	fragment	fragment	I	1
J1	J-69	r	fragment	fragment	I	1
J1	J-70	r	fragment	fragment	I	1
J1	J-71	r	linear	fragment	II	1
J1	J-72	w	fragment	fragment	I	1

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J1	J-73	r	solid+outline+infill	Macropod	II	1
J1	J-74	r	solid+outline+infill	Macropod male	II	1
J1	J-75	r	solid+outline+infill	Macropod female	II	1
J1	J-76	r	outline+infill	Regular	II	1
J1	J-77	o+w	solid+infill	Object	III	2
J1	J-78	w	outline+infill+linear	Anthropomorph (m)	IV	3
J1	J-79	r	outline+infill	Regular	III	2
J1	J-80	w	solid+linear	Anthropomorph (f)	V	5
J1	J-81	w	linear	Apex	V	5
J1	J-82	w+y	solid+infill	Possum	V	5
J1	J-83	w+y	solid+infill	Possum	V	5
J1	J-84	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-85	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-86	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-87	y	solid	Bar	VI	7
J1	J-88	w	outline+linear	Anthropomorph (m)	V	7
J1	J-89	w	outline+infill+linear	Anthropomorph (m)	V	7
J1	J-90	w+r	outline+infill+solid	Macropod-footed	V	7
J1	J-259	y	fragment	fragment	I	1
J1	J-260	y	fragment	fragment	I	1
J1	J-261	w	fragment	fragment	I	1
J1	J-262	w	solid	Round yam	I	1
J1	J-91	y	outline+linear	Turtle short-necked	III	2
J1	J-92	y	solid	Crocodile	III	2
J1	J-93	y	outline+infill+linear	Turtle short-necked	III	2
J1	J-94	y	solid	fragment	III	2
J1	J-95	y	outline+infill	Macropod male	III	2
J1	J-96	r	linear	fragment	II	1
J1	J-97	r	fragment	fragment	II	1
J1	J-98	r	solid+linear	fragment	II	1
J1	J-99	r	fragment	fragment	II	1
J1	J-100	r	fragment	fragment	II	1
J1	J-101	r	fragment	fragment	II	1
J1	J-102	y+r+w	solid+outline+infill	Anthropomorph	III	2
J1	J-103	y+r+w	solid+outline+infill	Anthropomorph	III	2
J1	J-104	y	solid+infill	Anthropomorph	III	2
J1	J-105	y	solid	Turtle short-necked	III	2
J1	J-106	r	solid	Emu	III	2
J1	J-107	r	solid	Anthropomorph	III	2
J1	J-108	r	linear	fragment	III	2
J1	J-109	r	linear	fragment	III	2
J1	J-110	r	linear	Line	III	2
J1	J-111	r	fragment	fragment	III	2
J1	J-112	r	linear	Line	III	2
J1	J-113	r+w	solid+outline+infill	Echidna	III	2
J1	J-114	r	outline+linear	fragment	III	2
J1	J-115	r+w	solid+outline+infill	Shield	IV	3

J1	J-116	r	solid+linear	Apex	IV	3
J1	J-117	r	linear	Line pair	IV	3
J1	J-118	r+w	solid+outline+infill	Macropod male	IV	3
J1	J-119	r	linear	Waterlily	IV	3
J1	J-120	r+w	outline+infill	Macropod	IV	3
J1	J-121	r	outline	Object	III	2
J1	J-122	w	stencil	Hand left	V	5
J1	J-123	r+y	outline+infill	Crocodile	IV	3
J1	J-124	w	outline+infill	Macropod	V	5
J1	J-125	w	solid+linear	Copulating couple	V	5
J1	J-126	w	solid+linear	Anthropomorph	V	5
J1	J-127	w	solid+linear	Anthropomorph (f)	V	5
J1	J-128	w	linear	Apex	V	5
J1	J-129	w	solid+linear	Copulating couple	V	5
J1	J-130	w	solid+linear	fragment	V	5
J1	J-131	w	solid+linear	Anthropomorph	V	5
J1	J-132	w	linear	fragment	V	5
J1	J-133	w	solid+linear	Bird-footed	V	5
J1	J-134	y	linear+outline	Anthropomorph (m)	V	5
J1	J-135	y	solid	Object	V	5
J1	J-136	y	solid+linear	Anthropomorph	V	5
J1	J-137	y	solid	Spearthrower	V	5
J1	J-138	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-139	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-140	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-141	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-142	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-143	w+r	solid+outline+infill	Catfish eel-tailed	V	5
J1	J-144	w	solid+linear	Anthropomorph	V	5
J1	J-145	w	linear	Object	V	5
J1	J-146	w	solid	Spearthrower	V	5
J1	J-147	w+r	solid+outline+infill	Possum	V	5
J1	J-148	w+y +o	outline+infill	Crocodile	V	5
J1	J-149	w	solid+linear	Anthropomorph (m)	V	5
J1	J-150	w	solid+linear	Fish	VI	7
J1	J-151	w	solid+linear	Catfish eel-tailed	VI	7
J1	J-152	w	solid+linear	Catfish eel-tailed	VI	7
J1	J-153	w+y	solid+outline	Regular	VI	7
J1	J-154	w	solid+linear	Bandicoot	VI	7
J1	J-155	k	solid+linear	Bream	VI	7
J1	J-156	o	solid+linear	Anthropomorph (f)	VI	7
J1	J-157	o	solid+linear	Anthropomorph (f)	VI	7
J1	J-256	r	fragment	fragment	II	1
J1	J-257	r	solid	Thylacine	II	1
J1	J-258	w	fragment	fragment	III	2
J1	J-158	r	fragment	fragment	I	1
J1	J-159	r	fragment	fragment	I	1

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J1	J-160	r	fragment	fragment	I	1
J1	J-161	r	fragment	fragment	I	1
J1	J-162	r	fragment	fragment	I	1
J1	J-163	r	outline+infill	Regular	I	1
J1	J-164	r	fragment	fragment	I	1
J1	J-165	r	linear	Line	I	1
J1	J-166	r	linear	Apex	I	1
J1	J-167	r	solid	Animal	I	1
J1	J-168	r	outline+infill	fragment	I	1
J1	J-169	r	fragment	fragment	I	1
J1	J-170	r	outline+infill	Snake	I	1
J1	J-171	r	linear	Anthropomorph	I	1
J1	J-172	r	solid+outline+infill	Thylacine	II	1
J1	J-173	r	solid+outline+infill	Anthropomorph	III	2
J1	J-174	r	solid+outline+infill	Anthropomorph	III	2
J1	J-175	r	fragment	fragment	III	2
J1	J-176	r	solid	Animal	II	1
J1	J-177	r	solid+infill	Anthropomorph (f)	III	2
J1	J-178	r	solid+infill	Bream	III	2
J1	J-179	r	solid	Anthropomorph	III	2
J1	J-180	w	solid	Anthropomorph	III	2
J1	J-181	w	fragment	fragment	III	2
J1	J-182	w	fragment	fragment	III	2
J1	J-183	w	solid	Macropod	III	2
J1	J-184	r+w	outline+infill	Crocodile	III	2
J1	J-185	r	outline+infill	Anthropomorph	III	2
J1	J-186	r	fragment	fragment	III	2
J1	J-187	r	fragment	fragment	III	2
J1	J-188	r+w	solid+infill	fragment	III	2
J1	J-189	r+w	solid+infill	Anthropomorph	III	2
J1	J-190	r	fragment	fragment	III	2
J1	J-191	r+w	solid+infill	Catfish eel-tailed	III	2
J1	J-192	r+w	solid+infill	Catfish eel-tailed	III	2
J1	J-193	r	fragment	fragment	III	2
J1	J-194	r	outline+infill	Macropod legs	III	3
J1	J-195	r+w	solid+infill	Macropod male	IV	3
J1	J-196	r+w	outline+infill	Macropod	IV	3
J1	J-197	w	outline+infill	fragment	IV	3
J1	J-198	w	fragment	fragment	IV	3
J1	J-199	w	solid	Fish	IV	3
J1	J-200	w	solid	Possum	IV	3
J1	J-201	r	outline+infill	Macropod	IV	3
J1	J-202	c+r	solid+outline+infill	Turtle short-necked	V	5
J1	J-203	w	solid	Macropod	V	5
J1	J-204	w	solid	Anthropomorph (m)	V	5
J1	J-205	w	solid+linear	Anthropomorph (m)	V	5
J1	J-206	w	solid+linear	Anthropomorph (m)	V	5

J1	J-207	w	solid+linear	fragment	V	5
J1	J-208	w	fragment	fragment	V	5
J1	J-209	w+r	solid+outline+infill	Anthropomorph	V	5
J1	J-210	w+r	solid+outline+infill	Quadruped	V	5
J1	J-211	w+r	solid+outline+infill	Crocodile	V	5
J1	J-212	w	linear	Irregular	V	5
J1	J-213	w+r	solid+outline+infill	fragment	V	5
J1	J-214	w+r	solid+outline+infill	Goanna	V	5
J1	J-215	w+r	solid+outline+infill	Anthropomorph	V	5
J1	J-216	w+r	solid+outline+infill	Anthropomorph	V	5
J1	J-217	w+r	solid+outline+infill	Anthropomorph (f)	V	5
J1	J-218	w+r	solid+outline+infill	Anthropomorph (m)	V	5
J1	J-219	w	outline+infill	Regular	V	5
J1	J-220	w+r	solid+outline	Catfish eel-tailed	V	5
J1	J-221	w+r	solid+outline+infill	Fish	V	5
J1	J-222	w+r	solid+outline+infill	Macropod	V	5
J1	J-223	w	fragment	fragment	V	5
J1	J-224	c	solid+linear	Anthropomorph	V	5
J1	J-225	y	solid	fragment	V	5
J1	J-226	y+w	outline+infill	Bush-hen	V	5
J1	J-227	w+o+r	outline+infill	Macropod male	V	7
J1	J-228	w	solid	Saratoga	VI	7
J2	J-229	r	outline+infill	fragment	I	1
J2	J-230	r	fragment	fragment	I	1
J2	J-231	r	fragment	fragment	I	1
J2	J-232	r	solid+linear	Snake	II	2
J2	J-233	r	solid+linear	Snake	II	2
J2	J-234	y	fragment	fragment	II	2
J2	J-235	y	fragment	fragment	II	2
J2	J-236	y	linear	Line	II	2
J2	J-237	w	linear	Line	III	7
J3	J-238	r	solid+linear	Anthropomorph	I	1
J3	J-239	r	fragment	fragment	I	1
J3	J-240	y	fragment	fragment	II	2
J3	J-241	y+r	solid+outline	Quadruped	II	2
J3	J-242	r	solid+linear	Anthropomorph	III	3
J3	J-243	w	solid+linear	Anthropomorph (m)	IV	5
J3	J-244	w	solid+linear	Spear	IV	5
J3	J-245	w	solid	Spearthrower	IV	5
J3	J-246	w+r	solid+outline+infill	Anthropomorph (m)	IV	5
J3	J-247	w	solid	Catfish eel-tailed	V	7
J3	J-248	w	outline+infill	Catfish eel-tailed	V	7
J3	J-249	w	solid	Snake	V	7
J4	J-250	r	fragment	fragment	I	3
J4	J-251	r	fragment	fragment	I	3
J4	J-252	w	outline+infill+linear	Dingo	II	7
J5	J-253	r	fragment	fragment	I	1

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J5	J-254	y+w	solid+outline+infill	Macropod	II	5
J5	J-255	w+r	solid+outline+infill	Macropod	II	5
K1	K-1	y	solid	Macropod	I	2
K1	K-2	r	linear	fragment	II	3
K1	K-3	r	fragment	fragment	II	3
K1	K-4	r	fragment	fragment	II	3
K1	K-5	r	fragment	fragment	II	3
K1	K-6	r	solid	Roo-headed	II	3
K1	K-7	r	solid	Footprint	III	7
K1	K-8	r	solid+linear	Animal	III	7
K1	K-9	k	linear	Y-shape	III	7
K1	K-10	k	solid	Anthropomorph (f)	III	7
K1	K-11	w+r	solid+outline+infill	Catfish eel-tailed	III	7
K1	K-12	w	solid+linear	Anthropomorph	III	7
K1	K-13	w	outline+linear	Anthropomorph	III	7
K2	K-14	y	solid+outline+infill	Macropod female	II	2
K2	K-15	y	linear	Regular design	II	2
K2	K-16	y	linear	Anthropomorph	II	2
K2	K-17	y	fragment	fragment	II	2
K2	K-18	r	fragment	fragment	I	1
K2	K-19	r	fragment	fragment	I	1
K2	K-20	r	fragment	fragment	I	1
K2	K-21	r	fragment	fragment	I	1
K2	K-22	r	fragment	fragment	I	1
K2	K-23	r	fragment	fragment	I	1
K2	K-24	r	outline	Apex	I	1
K2	K-25	r	fragment	fragment	I	1
K2	K-26	r	fragment	fragment	I	1
K2	K-27	r	fragment	fragment	I	1
K2	K-28	r	linear	Anthropomorph	I	1
K2	K-29	r	solid+linear	Anthropomorph	I	1
K2	K-30	r	solid	fragment	I	1
K2	K-31	r	fragment	fragment	I	1
K2	K-32	y+r	solid+outline+infill	Snake	II	2
K2	K-33	r	linear	Infill for #14	I	1
K2	K-34	r	fragment	fragment	III	3
K2	K-35	r	fragment	fragment	I	1
K2	K-36	r	fragment	fragment	III	3
K2	K-37	r	fragment	fragment	I	1
K2	K-38	r	fragment	fragment	III	3
K2	K-39	r	fragment	fragment	III	3
K2	K-40	r	fragment	fragment	III	3
K2	K-41	r	fragment	fragment	III	3
K2	K-42	r	outline+infill	Echidna	III	3
K2	K-43	r	outline+infill	Dillybag	III	3
K2	K-44	r	outline+infill	Macropod female	III	3
K2	K-45	r	outline+infill	Macropod	III	3

K2	K-46	r	linear	fragment	III	3
K2	K-47	r	linear	Anthropomorph	III	3
K2	K-48	r	solid+linear	fragment	III	3
K2	K-49	r	linear	Apex	III	3
K2	K-50	r	fragment	fragment	III	3
K2	K-51	r	linear	V-shape	III	3
K2	K-52	r	outline+infill	Macropod male	III	3
K2	K-53	r	linear	Arc	III	3
K2	K-54	r	linear	Object	III	3
K2	K-55	w	stencil	Hand	III	3
K2	K-56	w	fragment	fragment	III	3
K2	K-57	w	stencil	Hand	III	3
K2	K-58	w	solid	Fish	III	3
K2	K-59	w	solid	Triangle	III	3
K2	K-60	r+w	solid	Catfish eel-tailed	III	3
K2	K-61	r	outline+infill+linear	Bream	III	3
K2	K-62	r	outline+infill+linear	Bream	III	3
K2	K-63	r	outline+infill+linear	Bream	III	3
K2	K-64	r	outline+infill+linear	Bream	III	3
K2	K-65	r	outline+infill+linear	Bream	III	3
K2	K-66	r	outline+infill+linear	Bream	III	3
K2	K-67	r	outline+infill+linear	Bream	III	3
K2	K-68	r	outline+infill+linear	Bream	III	3
K2	K-69	r	solid	Unknown	III	3
K2	K-70	r	outline+infill+linear	Anthropomorph	III	3
K2	K-71	r	solid	Bream	III	3
K2	K-72	y	outline+infill+linear	Anthropomorph	III	3
K2	K-73	y	linear	Line	III	3
K2	K-74	w+r	solid+outline+infill	Copulating couple	IV	5
K2	K-75	c+r	solid+outline+infill	Fish	IV	5
K2	K-76	c+r	solid+outline+infill	Fish	IV	5
K2	K-77	c	linear+outline	Anthropomorph	IV	5
K2	K-78	w	stencil	Hand left	IV	5
K2	K-79	w	stencil	Hand left	IV	5
K2	K-80	w	stencil	Hand left	IV	5
K2	K-81	w	solid	Bandicoot	IV	5
K2	K-82	w	outline+infill	Unknown	IV	5
K2	K-83	w	solid+linear	Roo-headed	IV	5
K2	K-84	w	stencil	Hand left	IV	5
K2	K-85	w	stencil	Hand left	IV	5
K2	K-86	w	solid+linear	Roo+spear	IV	5
K2	K-87	w	outline+infill	Jabiru	IV	5
K2	K-88	w	linear	Bar	IV	5
K2	K-89	w	solid+linear	Unknown	IV	5
K2	K-90	w	solid+linear	Anthropomorph	IV	5
K2	K-91	w	solid+linear	Anthropomorph	IV	5
K2	K-92	w	solid+linear	Anthropomorph	IV	5

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K2	K-93	w	linear	V-shape	IV	5
K2	K-94	w	solid+linear	Anthropomorph (m)	IV	5
K2	K-95	w	linear	Bar	IV	5
K2	K-158	y	linear	Irregular	II	2
K2	K-159	r	solid	Fish	III	3
K2	K-160	w	linear	Bar	IV	5
K2	K-161	w	linear	Irregular	IV	5
K2	K-162	w	linear+outline	Genitals male	IV	5
K2	K-163	k	linear	Bar	IV	5
K2	K-164	k	outline	Oval	IV	5
K2	K-165	r	linear	Infill for #16	III	3
K2	K-166	y	solid	fragment	II	2
K2	K-167	y	linear	Arc	II	2
K3	K-96	r	solid+linear	Anthropomorph (f)	I	1
K3	K-97	r	linear	Bar	I	1
K3	K-98	r	solid+linear	Snake-body	I	1
K3	K-99	r	outline+infill	Regular design	I	1
K3	K-100	r	solid+linear	Roo-headed	I	1
K3	K-101	r	fragment	fragment	I	1
K3	K-102	r	solid	Crocodile	I	1
K3	K-103	y	solid+linear	Anthropomorph	II	3
K3	K-104	y	solid+linear+outline+infill	Anthropomorph	II	3
K3	K-105	y	solid+linear	Anthropomorph	II	3
K3	K-106	y	outline+infill	Anthropomorph	II	3
K3	K-107	y	stencil	Hand right	III	5
K3	K-108	y	solid+outline+infill	Turtle long-necked	II	3
K3	K-109	y	solid+outline+infill	Turtle long-necked	II	3
K3	K-110	y	solid+outline+infill	Anthropomorph (m)	II	3
K3	K-111	r	outline+infill	fragment	III	4
K3	K-112	r	linear	Line	III	4
K3	K-113	c	solid+outline+infill	Macropod male	IV	5
K3	K-114	w	solid+linear	Turtle short-necked	IV	5
K3	K-115	w	solid+linear	Turtle long-necked	IV	5
K3	K-116	w	outline+infill+linear	Anthropomorph (m)	IV	5
K3	K-117	w	solid+linear	Fish	IV	5
K3	K-118	w	solid+linear	Fish	IV	5
K3	K-119	w	solid+linear	Fish	IV	5
K3	K-120	w	solid+linear	Emu	IV	5
K3	K-121	w	solid+linear	Jabiru	IV	5
K3	K-122	w	solid+linear	Bird	IV	5
K3	K-123	w	solid+linear	Anthropomorph	IV	5
K3	K-124	w	outline+infill+linear	Turtle long-necked	IV	5
K3	K-125	w	outline+infill+linear	Anthropomorph	IV	5
K3	K-126	w+r	solid+outline+infill	Emu	IV	7
K3	K-127	w	linear	Spear	IV	7
K3	K-128	w	solid	Turtle short-necked	IV	7
K3	K-129	w	solid+linear	Copulating couple	IV	7

K3	K-168	y	outline+infill+linear	Bird	II	3
K3	K-169	y	solid+linear	Unknown	II	3
K3	K-172	r	solid	Possum	III	4
K3	K-173	r	solid	Possum	III	4
K4	K-130	y	stencil	Hand right	I	2
K4	K-131	r	outline+linear	Echidna	I	1
K4	K-132	r	linear	fragment	I	1
K4	K-133	r	outline+infill	Unknown	I	1
K4	K-134	r	fragment	fragment	I	1
K4	K-135	r	outline+infill	fragment	I	1
K4	K-136	y	linear	Apex	II	3
K4	K-137	b	linear	Anthropomorph	III	6
K5	K-138	r	solid+linear	Anthropomorph	I	1
K5	K-139	r	fragment	fragment	I	1
K5	K-140	r	outline+infill	Anthropomorph (f)	I	1
K5	K-141	r	fragment	fragment	I	1
K5	K-142	c+w	solid	Turtle long-necked	II	5
K5	K-143	w	outline+infill+linear	Turtle long-necked	II	5
K5	K-144	w	solid	Unknown	II	5
K5	K-145	w	outline+infill	Irregular	II	5
K5	K-146	w	solid	Macropod	II	5
K5	K-147	w	solid	Anthropomorph (m)	II	5
K5	K-148	w	stencil	Hand right	II	5
K5	K-149	w+r	solid+outline+infill	Turtle long-necked	III	7
K5	K-150	w	outline+infill	Dillybag	III	6
K5	K-151	w	outline+infill	Dillybag	III	6
K5	K-152	w	solid	Catfish eel-tailed	III	6
K5	K-171	w+y+r	solid+outline+infill	Anthropomorph (f)	III	6
K5	K-172	w	stencil	Hand left	III	7
K6	K-153	r	linear	fragment	I	1
K6	K-154	r	outline+infill	Anthropomorph (m)	II	3
K6	K-155	w+y+r	solid+outline+infill	Anthropomorph (f)	III	5
K6	K-156	w	solid	Catfish eel-tailed	III	5
K6	K-157	w	outline+infill+linear	Macropod	III	5
L	L-1	r	outline+infill	fragment	I	1
L	L-2	r	solid	Footprint	I	1
L	L-3	r	linear	fragment	I	1
L	L-4	r	linear	Line pair	I	1
L	L-5	r	linear	Unknown	I	1
L	L-6	r	linear	Arc	I	1
L	L-7	r	linear	fragment	I	1
L	L-8	r	solid+outline+infill	Anthropomorph (m)	II	3
L	L-9	r+w	solid+infill	Anthropomorph (m)	II	3
L	L-10	r	solid	Anthropomorph (m)	II	3
L	L-11	r	fragment	fragment	I	1
L	L-12	r	solid	Anthropomorph	I	1
L	L-13	r	outline+infill	Bird	II	3

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L	L-14	r	linear	T-shape	II	3
L	L-15	r	solid	Macropod	II	3
L	L-16	r+w	solid+outline+infill	Anthropomorph	II	3
L	L-17	w	linear	Spearthrower	IV	5
L	L-18	w	solid	Anthropomorph	IV	5
L	L-19	w	outline+infill	Anthropomorph	IV	5
L	L-20	w	solid	Anthropomorph	IV	5
L	L-21	w	outline+infill	Regular	IV	5
L	L-22	w	outline+infill	Regular	IV	5
L	L-23	w	outline+infill	Bird	IV	5
L	L-24	w	solid	Anthropomorph	IV	5
L	L-25	w	outline+infill	Anthropomorph (f)	IV	5
L	L-26	w	outline+infill	Spearthrower	IV	5
L	L-27	w	linear	Spear	IV	5
L	L-28	w	linear	Spear	IV	5
L	L-29	w	linear	fragment	IV	5
L	L-30	y	linear+outline	Anthropomorph (m)	V	5
L	L-31	y	linear	Bar pair	V	5
L	L-32	y	dot	Dot pair	V	5
L	L-33	y	linear	Bar	V	5
L	L-34	y	linear	Bar	V	5
L	L-35	y	linear+outline	Anthropomorph	V	5
L	L-36	y	fragment	fragment	V	5
L	L-37	y	solid+linear	Anthropomorph	V	5
L	L-38	y	fragment	fragment	V	5
L	L-39	r+w	outline+infill	Anthropomorph (f)	III	3
L	L-40	r+w	outline+infill	Anthropomorph (m)	III	3
L	L-41	w+r	outline+infill	Anthropomorph (m)	VI	7
L	L-42	w	stencil	Hand right	VI	7
L	L-43	w	linear	Irregular	VI	7
L	L-44	w+r	solid+outline+infill	Anthropomorph	VI	7
L	L-45	w	solid+outline	Anthropomorph	VI	7
L	L-46	w+r	solid+outline+infill	Anthropomorph	VI	7
L	L-47	w+r	solid+outline+infill	Anthropomorph (m)	VI	7
L	L-48	w	stencil	Hand left	VI	7
L	L-49	w	solid+linear	Anthropomorph (f)	VI	7
L	L-50	w	solid+linear	Anthropomorph	VI	7
L	L-51	w	solid+linear	Anthropomorph (f)	VI	7
L	L-52	w	solid+linear	Anthropomorph (f)	VI	7
L	L-53	w+r	solid+outline+infill	Possum	VI	7
L	L-54	w+r	solid+outline+infill	Possum	VI	7
L	L-55	y+w	solid+outline+infill	Anthropomorph (f)	VI	7
L	L-56	y+w	solid+outline+infill	Anthropomorph (f)	VI	7
L	L-57	w+y	solid+outline+infill	Copulating couple	VI	7
L	L-58	w	outline+infill	Infill of #L-16	III	3
M1	M-1	r	outline+infill	Macropod	I	3
M1	M-2	r	linear	Zigzag	I	3

M1	M-3	y	stencil	Hand left	II	6
M1	M-4	w	linear	Line	III	7
M2	M-5	r	outline+infill	fragment	I	1
M2	M-6	r	linear+outline+infill	fragment	I	1
M2	M-7	r	solid	fragment	II	2
M2	M-8	r	linear+outline+infill	Waterlily	I	1
M2	M-9	r	solid	Bolung	II	2
M2	M-10	y	outline+infill+linear	Anthropomorph (m)	III	3
M2	M-11	y	linear	Line	III	3
M2	M-12	y	outline+infill+solid	Flying fox	III	3
M3	M-13	r	linear	Spear	I	4
M3	M-14	r	solid+linear	fragment	I	4
M3	M-15	r	solid	Disc	I	4
M3	M-16	w+r	solid+outline+infill	Jawoyn Lady	II	7
M3	M-17	w+r	solid+outline+infill	Anthropomorph (m)	II	7
M3	M-18	w+r	solid+outline	Anthropomorph (m)	II	7
M3	M-19	y	solid	Bream	III	7
M3	M-20	y	linear	Line	III	7
M3	M-21	y	outline+infill	Irregular	III	7
M4	M-22	r	stencil	Hand	I	1
M4	M-23	r	stencil	Hand 3MF	I	1
M4	M-24	r	stencil	Hand left	I	1
M4	M-25	r	stencil	Hand	I	1
M4	M-26	r	solid	Disc	I	1
M4	M-27	r	linear	Q-shape	I	1
M4	M-28	r	linear	Line	I	1
M4	M-29	y	solid+outline+infill	Anthropomorph (m)	II	3
M4	M-30	y	solid	Macropod	II	3
M4	M-31	w	linear	Y-shape	III	7
M4	M-32	w	linear	Irregular	III	7
M4	M-33	w	solid	Anthropomorph	III	7
M4	M-34	w+r	solid+outline+infill	Torso	III	7
M4	M-35	w+r	solid+outline+infill	Arms	III	7
M4	M-36	w+r	solid+outline+infill	Legs macropod-footed	III	7
M4	M-37	w	solid	Genitals male	III	7
N	N-1	r	linear	fragment	I	3
N	N-2	r	solid+linear	fragment	I	3
N	N-3	r	solid+linear	Bird	I	3
N	N-4	r	outline+infill+solid	Fish	I	3
N	N-5	r	outline+infill+linear	Emu	I	3
N	N-6	w	solid	Unknown	II	7
N	N-7	w	outline+infill	Saratoga	II	7

