



KEYWORDS: *Noongar – Rock art – Western Australia – Comparative analysis*

## ROCK ART OF THE ESPERANCE REGION AND ITS PLACE IN THE NOONGAR TRADITIONS OF SOUTH-WEST WESTERN AUSTRALIA

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**Abstract.** This paper presents a formal analysis of the two known rock art sites in the Esperance region of Western Australia — Marbaleerup and Boyatup — and compares and contrasts them with the characteristics of 43 other known rock art sites in the Noongar lands. The Esperance region lies at the eastern edge of the traditional lands of the Noongar people, a language and landholding group who occupy the southwest corner of the Australian continent — Noongar country. The peripheral location of the Esperance Nyungar lands and their proximity to neighbouring non-Noongar groups gives rise to questions about how its rock art compares to other Noongar rock art. The analysis seeks to determine the prominent formal characteristics of the art at Marbaleerup and Boyatup: do they share some or all of the characteristics of Noongar rock art? The results suggest that Esperance Nyungar rock art is consistent with that clustered around the north-eastern periphery of Noongar country. On this basis we propose the existence of an Eastern Noongar rock art tradition.

### Introduction

The recent recording of two rock art sites in the country of the Esperance Nyungars in southern Western Australia revealed that they appeared to share formal characteristics with rock art sites from their Noongar neighbours to the west<sup>1</sup>. Using both quantitative and qualitative methods, the two suites of rock art are compared to determine whether or not such a subjective association was justified and whether or not such a simplistic approach was suitable. The approach has been used previously in a similar borderland context (Gunn 2002).

Marbaleerup, or Mount Ridley, is a distinctive

granite dome (Fig. 1) some 80 km north-east of the town of Esperance, in southern Western Australia. It is an inselberg of undifferentiated Precambrian granite amid an open, flat expanse of Mallee woodland and frequent salt lakes. The mount contains a cluster of eleven rock art sites with over 200 motifs, which form a notable feature of Aboriginal site 2882 (Western Australia Department of Aboriginal Affairs, DAA, register). Marbaleerup is a place of great cultural significance for Aboriginal people, particularly the local Esperance Nyungar traditional owners (Native Title Determination: 14 March 2014).

Boyatup (DAA site 2462) is situated some 130 km east of Esperance and 115 km south-east of Marbaleerup (Fig. 2). It is another granite dome but composed of Middle Proterozoic bedrock. Boyatup lies 13 km north of the coast, among the undulating dune systems and coastal scrub heath that characterise the Esperance coastal zone. It contains a single small rockshelter with



Figure 1. Marbaleerup from the north-west.

1 While 'Noongar' is the more commonly accepted spelling, there is some variation. 'The Esperance Nyungars' is the formal name of the Native Title holders in the Esperance region. We use 'Noongar' throughout this paper, except when referring directly to The Esperance Nyungars.



Figure 2. Boyatup from the east.

21 red pigment motifs, predominantly hand stencils, and is the easternmost rock art site known on Noongar country.

Esperance is situated in a frontier zone both in terms of geography and Aboriginal territorial organisation. As the names Marbaleerup and Boyatup are grounded within the Noongar language tradition through the 'up' suffix (Education Dept 2010), their Noongar associations are well founded. The area is also at the south-eastern edge of the Southwest Australian Floristic Region, an environmental zone that defines the south-west corner of the Australian continent based on flora and rainfall (Hopper and Gioia 2004). The region is also situated at the outer extremities of the Noongar country, otherwise referred to as the Southwest Culture Bloc (Berndt 1973) or the Southwest Region (Horton 1994: 1010). As such, the Southwest forms a well-defined cultural and geographic region (Ferguson 1987).

Dynamic negotiations over territory and identity in the Esperance area between Esperance Nyungar and non-Noongar affiliated groups (particularly the neighbouring Ngadju to the east) during the late Holocene have been widely discussed in ethno-historic literature

(Eyre 1845; Forrest 1875; Curr 1886; Helms 1896; Tindale 1974; White 1985; Von Brandenstein 1988). These negotiations centred on distinct differences in lore and ritual observances between the Noongar and the Western Desert culture bloc to which the Ngadju belong (Fig. 3). It has been suggested that Western Desert rites were being impressed upon the Noongar as part of a territorial expansion toward the southwest, positioning northern and eastern Noongar groups (including the Esperance Nyungars) at the edge of a

'rapidly moving frontier of cultural change' (Gibbs and Veth 2002: 11). If so, there was not necessarily a fixed boundary between Noongar and non-Noongar territories, but more likely an interaction zone that shifted and changed over time. Much of the corpus of rock art (referred to here as 'Noongar rock art') clusters toward the outer periphery of areas currently considered Noongar (based on native title claim areas). Some of the sites discussed here lie outside the Noongar claim boundary (Fig. 3), but many are situated clearly within Noongar territory or have ethnographically established Noongar connections. The similarity of the rock art in those sites outside the present Noongar boundary with those inside (see below) is the principal reason for aggregating all the sites as Noongar; however, the extent to which non-Noongar people may have been involved with or influenced 'art' production at some or all of these sites remains unknown.

Ethnographic accounts maintain that rock art reflects the visual language of the producer, whether resident or visitor, who has some connection and rights to the place (Chaloupka 1993; Flood and David 1994; Gunn 1995, 2002; Mulvaney 1996; Chapman 2002). Hunter-gatherer behaviour is also territorially organised (Stanner 1965; Wobst 1977, 1983), and differences in rock art style have been attributed to territorial affiliation and cultural regionalisation of rock art sites (McBryde 1974; Morwood 1984; David 1991, 1994; Taçon 1993; David and Chant 1995; Gunn 1995, 2002; David and Lourandos 1998; Chapman 2002; McDonald 2008). Hence, a comparative analysis of Marbaleerup and Boyatup rock art with that of other Noongar art may be informative about territorial affiliation and the social role of rock art in south-west Western Australia.

## Methods

Initially, Esperance Nyungar rock art is described qualitatively and quantitatively, based on previously unpublished data from technical reports and field notes. The rock art of the other 38 Noongar

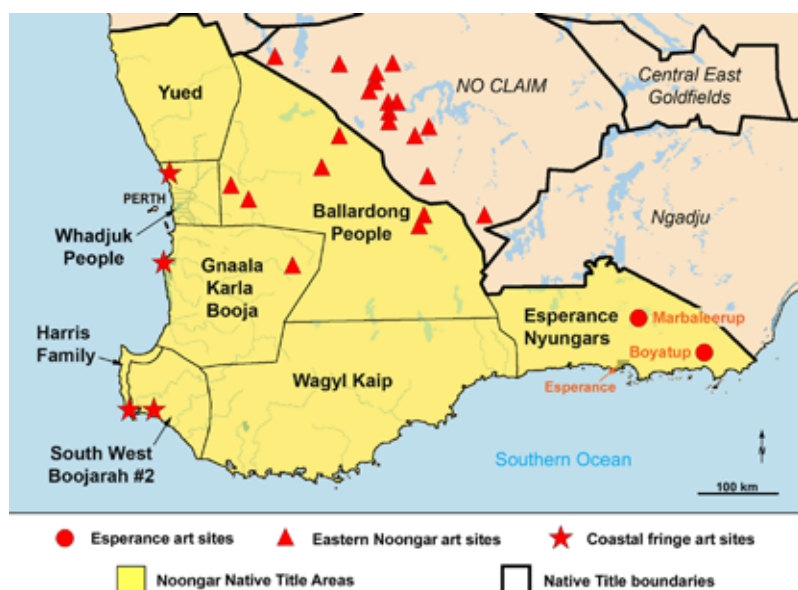


Figure 3. Location of Marbaleerup and Boyatup relative to current native title boundaries across southern Western Australia.

sites east of the Darling Range is then described, using both published and unpublished data. The Esperance Nyungar and Noongar assemblages are then compared and contrasted. Five rock art sites on the western side of the Darling Range, in the limestone belt along the south-west coast, are also discussed.

At Marbaleerup, each motif or fragment was sketched, numbered and its attributes described (see Gunn 2008 for details). Due to variation within the pigment hue across individual motifs, simple colour enhancement (cf. David et al. 2001) did not produce acceptable records and, for this project, further colour enhancements of rock art photographs at all sites was undertaken using various DStretch filters (Gunn et al. 2010, 2014). The eight 'art' panels at Boyatup were recorded similarly.

The majority of Noongar rock art sites were recorded in 2003–2005 for the South West Aboriginal Land and Sea Council (Webb and Gunn 2004). No overall report was commissioned, however, and no overview of the art region was assembled. The survey was not a systematic survey of Noongar Country, but undertook methodical recording of rock art sites entered on the DAA Register from references in published accounts (Davidson 1952; Serventy 1952; Hallam 1971, 1972, 1979; Bednarik 1987–88) and spot surveys of likely places reported by landowners or observed in transit. At least 10 registered sites either could not be found despite careful searches or the 'artwork' they were said to house appeared to have formed naturally. As part of the initial survey, the three reported petroglyph sites listed on the DAA site register at Metro Road (DAA 3497, 3498), Bolgart (DAA 3342) and Harmony (DAA 15126) were

assessed. These all occur in the granites of the Darling Range and it was concluded that all were the product of natural erosional processes. Consequently, these sites are excluded from this study. In total, 22 site complexes with 38 rock art sites were recorded (Fig. 4). The recordings entailed photographic coverage and freehand sketches of all of the visible 'artwork' at each shelter, and the preparation of motif lists (including technique, colour, form, type, size and condition).

Following the initial survey, detailed recordings, including photo-tracings and mapped shelter plans, were undertaken at Mulka's Cave (Gunn 2006a), Kybra (Dortch et al. 2006, Gunn et al. 2011), Marbaleerup (Gunn 2008) and Boyatup. The combined data sets from all projects (50 sites in 24 complexes) form the basis of the present study. Terminology is largely based on the pioneering work of Maynard (1976, 1977) but with modifications where appropriate.

To derive the formal properties of the rock art assemblages, tallies were made of their attributes, the most numerous of which were then taken as the principal quantitative attributes. The prime qualitative attribute, however, was based on visually prominent motifs or compositions (based largely on motif size, colour and panel placement) and was regarded as a separate set that provided a key to defining the character of the assemblages.

### Esperance Nyungar rock art

#### *The rock art at Marbaleerup*

Marbaleerup (Mt Ridley) is a low granite dome (or inselberg), 297 m above sea level and a mere 100 m above the surrounding plain, with its peak providing a broad 360° view to the distant horizon (Fig. 1).



Figure 4. Location of recorded rock art complexes in south-west Western Australia and average annual rainfall isohyets.



| Site code | Shelter length (m) | Depth | Height | Orient. | Motif Nos |
|-----------|--------------------|-------|--------|---------|-----------|
| MR-01     | 6.5                | 5.5   | 2.5    | 90      | 79        |
| MR-02a    | 8                  | 5     | 4      | 158     | 46        |
| MR-02b    | 2.5                | 9     | 1.5    | 103     | 5         |
| MR-03     | 7                  | 8     | 5      | 40      | 12        |
| MR-04     | 5                  | 2.5   | 3      | 220     | 43        |
| MR-05     | 3                  | 2     | 2.5    | 145     | 1         |
| MR-06     | 4.5                | 3.3   | 1.6    | 220     | 3         |
| MR-07     | 6                  | 3     | 3      | 70      | 6         |
| MR-08     | 5                  | 2.5   | 2      | 20      | 4         |
| MR-09     | 4                  | 2     | 1.5    | 35      | 5         |
| MR-10     | 2                  | 2.5   | 2      | 40      | 4         |
| MR-11     | 3                  | 1.5   | 2.5    | 65      | 5         |

Table 1. Marbaleerup rock art sites recorded.



Figure 5. Marbaleerup shelter MR-01 from the north.

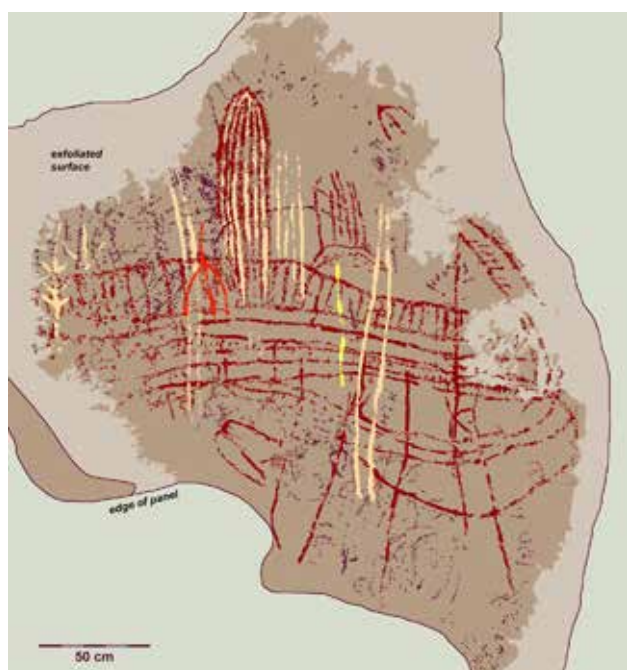


Figure 6. Photo-tracing of the main rock art panel at MR-01 showing superimpositioning and the complex design and line set motifs.

The granite is composed of coarse, even-grained to porphyritic, pink lath feldspar rock (Geological Survey of Western Australia 1972a). Like other inselbergs in south-west Western Australia (Bourne and Twidale 2002; Twidale and Bourne 2004), the outcrop forms a prominent visual feature in the otherwise flat regional landscape. Atop the dome sit a number of large granite tors and boulders, many of which have eroded out to form rockshelters and sculptured forms. The surrounding landscape is largely dominated by dry salt lakes within an area with a low annual average rainfall of 351 mm (BOM 2013). The geology and ecology of Marbaleerup create, therefore, a significant ecological node that is seasonally well-provisioned with resources suitable for Aboriginal occupation, including potable water, plant and animal foods, and quartz suitable for knapping (cf. Bindon 1997).

The Marbaleerup site complex was recorded in detail in 2008 for the Esperance Nyungar traditional owners (Gunn 2008; Thorn 2008). It contains 11 rock art sites on the western side of the dome, an extensive surface scatter of stone artefacts around the base, and two widely separated gnammas. The rock art sites form a localised cluster, with a major central site (MR-01) and a suite of adjacent smaller satellite sites. The rock art is mainly concentrated within two large shelters, MR-01 and MR-02, which together contain 60% of all the motifs recorded (Table 1).

#### Site MR-01

The main rock art site, MR-01, a hollowed tor on the mid-slope of the dome (Fig. 5), contains 79 motifs on 12 panels. Prominent amongst these are a number of large graphic designs, both simple and complex in form, covering the full extent of their respective panels and positioned to be visually conspicuous (Fig. 6).

The motifs were produced using three different techniques (Table 2): painting (73%), stencilling and printing. The technique of 12 motifs could not be determined due to their poor preservation.

Red (pale to deep red ochres) is the most common pigment colour (91%), accounting for 88% of paintings. It is the only colour used for stencilling, printing, and in the unknown class (Table 2). The central red+cream striped design appears to have been originally painted in red and then, at some later time, touched up with a cream (distinctly yellowish off-white) pigment con-

|        | TECHNIQUE |        |       |         | No. | %  |
|--------|-----------|--------|-------|---------|-----|----|
| COLOUR | Painting  | Stenc. | Print | Unknown |     |    |
| MR-01  |           |        |       |         |     |    |
| Red    | 51        | 7      | 2     | 12      | 72  | 91 |
| Cream  | 6         |        |       |         | 6   | 8  |
| Yellow | 1         |        |       |         | 1   | 1  |
| MR-02  |           |        |       |         |     |    |
| Red    | 9         | 20     | 2     | 14      | 45  | 98 |
| White  | 1         |        |       |         | 1   | 2  |

Table 2. MR-01 and MR-02 colour by technique.

current with the painting of the other cream motifs on the panel (Fig. 7).

The 48 motifs whose form could be classified comprise four basic types: linear, outline, hand stencil and hand print, along with two combination forms: 'outline+infill' and 'linear+outline+infill' (Table 3). The motif types are dominated by simple designs (40%), along with lines and groups of lines, hand stencils and 'bird tracks' (Table 4). Amongst the hand stencils and prints, left and right hands are equally represented. Only two of the hand stencils could be measured: middle finger lengths of 8 cm and 9 cm respectively (most likely adult male; cf. Gunn 2006a), while the two hand prints both had middle fingers 7 cm in length (most likely adult female or adolescent male). The 27 measured motifs ranged from 5 cm to 340 cm in length (mean 113 cm, median 75 cm). Eight motifs were less than 50 cm long and four were over 200 cm. While the superimposition sequence could not be determined for many motifs due to poor condition, it was clear that two red layers preceded the cream motifs, which were then followed by the red 'bird track'. The relationship between that motif and the yellow line is unclear but, on the basis of differences in pigment preservation, the 'bird track' was probably the most recent addition to the panel.

The age of the rock art has not been determined. A Harris matrix analysis of the 28 motifs on the main panel, however, reveals six layers of superimposition and suggests at least three phases of painting (Table 5, Fig. 8; see Harris 1989; Russell 2000).

- Phase I: the earliest phase of red paintings containing at least four layers of similar red



Figure 7. The cream paintings at MR-01 (photo-tracing).

| Technique    | Form type             | MR-01     |            | MR-02     |            |
|--------------|-----------------------|-----------|------------|-----------|------------|
|              |                       | No.       | %          | No.       | %          |
| Paintings    | Linear                | 29        | 37         | 9         | 30         |
|              | Outline+infill        | 5         | 6          |           |            |
|              | Linear+outline+infill | 4         | 5          |           |            |
|              | Outline               | 1         | 1          |           |            |
| Stencils     | Hand stencil          | 7         | 9          | 19        | 63         |
| Prints       | Hand print            | 2         | 3          | 2         | 7          |
| <b>Total</b> |                       | <b>79</b> | <b>100</b> | <b>30</b> | <b>100</b> |
|              | Fragments             | <b>31</b> | <b>39</b>  | <b>16</b> | <b>35</b>  |

Table 3. MR-01 and MR-02 form frequencies.

| Technique    | Motif type       | MR-01 n=45 |           | MR-02 n=30 |           |
|--------------|------------------|------------|-----------|------------|-----------|
|              |                  | No.        | %         | No.        | %         |
| Paintings    | Simple design    | 18         | 40        |            |           |
|              | Line             | 5          | 11        | 1          | 3         |
|              | Line pair        | 3          | 7         | 1          | 3         |
|              | Line set         | 2          | 4         | 1          | 3         |
|              | Other bird track | 3          | 7         | 1          | 3         |
|              | Emu track        | 2          | 4         | 5          | 17        |
|              | Complex designs  | 1          | 2         |            |           |
|              | Bar              | 1          | 2         |            |           |
|              | Oval             | 1          | 2         |            |           |
| Stencils     | Left hand        | 4          | 9         | 7          | 23        |
|              | Right hand       | 3          | 7         | 6          | 20        |
|              | ? hand           | 0          |           | 6          | 20        |
| Prints       | Left hand        | 1          | 2         |            |           |
|              | Right hand       | 1          | 2         | 1          | 3         |
|              | ? hand           |            |           | 1          | 3         |
| <b>Total</b> |                  | <b>45</b>  | <b>99</b> | <b>30</b>  | <b>98</b> |
|              | Fragments        | <b>32</b>  |           | <b>16</b>  |           |

Table 4. MR-01 and MR-02 motif type numbers by technique.

pigment. The chronological relationship between the motifs of layer 1 is unknown and, hence, they

| Motif No. | Underlying motif Nos       |
|-----------|----------------------------|
| 22        | 24, 55                     |
| 23        | 24,                        |
| 25        | 55, 32, 24, 63             |
| 26a       | 24, 57, 58, 61             |
| 26b       | 26a, 55, 57, 58, 61, 24    |
| 27        | 55, 61                     |
| 28        | 61                         |
| 29        | 28, 55, 32, 59, 61         |
| 30        | 59                         |
| 31        | 24, 55, 25                 |
| 32        | 67, 68, 60, 63, 64, 65, 62 |
| 33        | 28, 55, 32                 |
| 55        | 24, 60, 62, 28, 26a        |
| 56        | 63, 64                     |

Table 5. MR-01 main panel motif superimpositions.

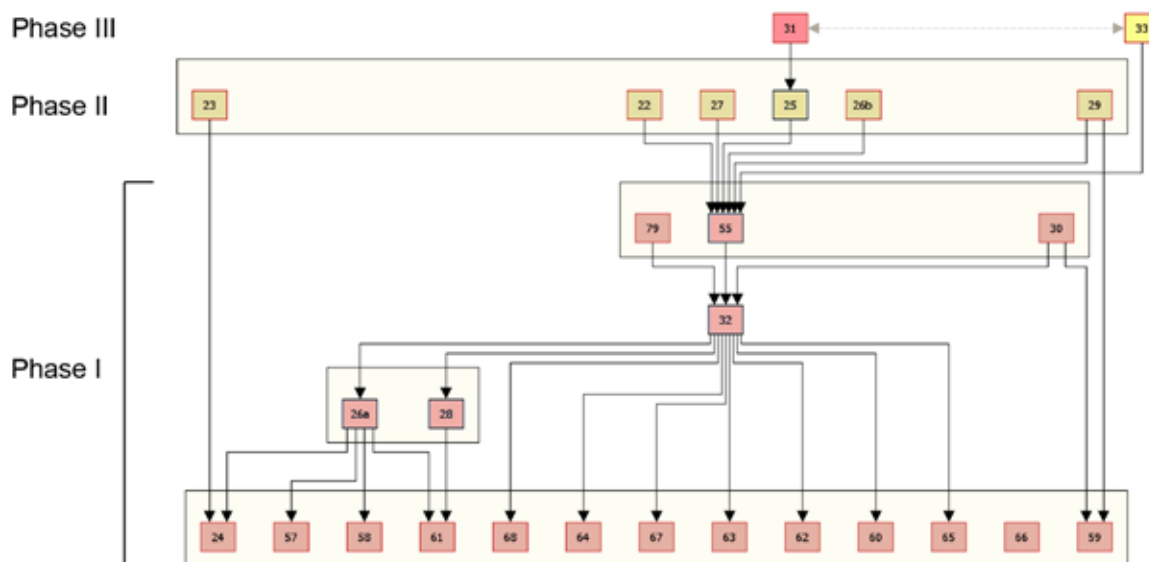


Figure 8. Interpreted Harris matrix for the main panel at MR-01 (motif numbers and colour shown on the matrix).

should not be read as necessarily representing a single temporal layer.

- Phase II: a later phase of cream paintings, followed by
- Phase III: two later individual motifs in red and yellow that are the most recent in the shelter. The temporal relationship of each to the other is unknown. The red 'bird track' (#31) is stronger than, and of a different hue to, the red used in Phase I. Similarly, the yellow of line (#33) is considerably stronger than that of the Phase II cream colour.

These six, and possibly more, superimposed layers of painting attest to the significance of MR-01 as a rock art site and suggest the site has been a focus for rock art production for a considerable, but as yet undated, period.

'Doc' Reynolds, a widely-respected Noongar elder, recounted an ethnographic interpretation of the motifs in Marbaleerup 1 told to him by the late Tom

Bullen, a well-known Esperance Nyungar knowledge elder. There are two interpretations specific to the red painted art of Phase 1. The first refers to the visually prominent motif that fills most of the panel. This is understood to be the body of a breaching whale, with its flipper sticking straight up in the air. In the same phase, the red lines in the bottom right-hand corner of the panel, are said to represent the hull of a boat, with mast sticking straight up and sails arching around the right edge of the panel. The second interprets the panel more broadly, as a method by which the coastal Esperance Nyungar informed the inland people of what was happening at the coast. Whether or not this related to local mythology is unknown.

#### Site MR-02

The nearby MR-02 site consists of two alcoves within adjacent boulders. The larger of the alcoves, MR-02a (8 × 6 × 3 m), has several access points of which two are

easy entrances for people. Of note here is a design of red and white vertical stripes on a large panel on the back wall (Fig. 9). The white line set is longer and overlies the original set of red lines, although at some time after the white was painted, the red stripes were repainted, thus making them the more outstanding. The only type represented more than once are five 'emu tracks' (Table 4); the only visually outstanding motif is the white 'line set' mentioned above, which is also the largest single motif in the shelter (80 cm tall).

The motifs in MR-02a were produced using the same three



Figure 9. MR-02a main 'art' panel.



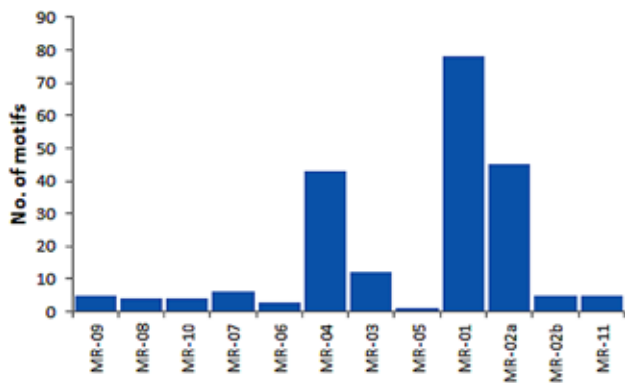


Figure 10. Marbaleerup motif numbers per shelter. Shelters arranged from north to south.

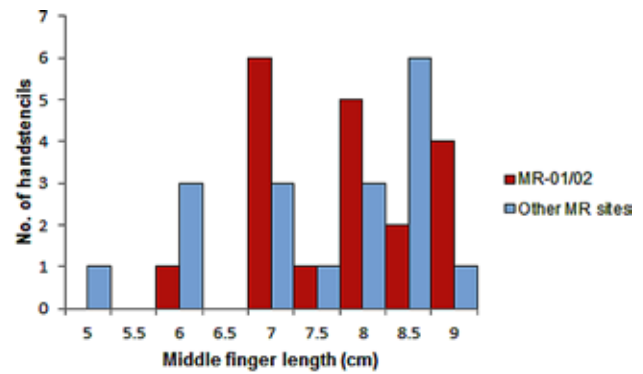


Figure 11. Marbaleerup handstencil middle-finger lengths.

techniques as at MR-01: painting, stencilling and printing; all but one are in red (Table 2). An adjacent smaller and more confined alcove, MR-02b, contains three hand stencils (left, right and indeterminate) and two small linear paintings (simple design and bar). Overall, the motifs in the two alcoves consist of hand stencils, linear designs and hand prints (Table 3).

#### Other MR 'art' sites

Nine other rock art sites were recorded at Marbaleerup (MR 03-11), all in cavernous shelters within boulders. All had fewer motif numbers than MR-01 or 02, although they range in size from larger to much smaller than MR-01 (Table 1). The number of motifs in these satellite sites ranges from 1 to 43 (Fig. 10). The most prolific of these, MR-04 with 43 motifs, is exceptional; unlike MR-01 and MR-02, its repertoire is dominated by hand stencils and contains only two small paintings. The artwork within the other satellite shelters is similarly dominated by red hand stencils with low numbers of small paintings. The size of the middle-finger lengths of the stencilled hands ranges from 5 cm to 9 cm but, as with MR-01 and MR-02, most are 7 cm or greater (Fig. 11). The measurements indicate that all age groups are represented, from young children (5 cm) to adult males (>8.5 cm) (Gunn 2006b). The few painted motifs within these shelters are all simple geometric motifs (Table 6).

#### The rock art at Boyatup

As noted above, Boyatup (Fig. 2) is a low granite dome, situated 13 km north of the coast. The dome is an isolated outcrop of Middle Proterozoic biotite granite (Geological Survey of Western Australia 1972b). Stone artefacts are concentrated on the flat granite terraces on the southern

side of the hill but, except for the bare granite surfaces, ground visibility is mostly obscured by thick vegetation. On the eastern side of the dome there is a small, easterly-facing rockshelter, 2.8 × 2.3 × 2.6 m, whose entrance is almost blocked by a large boulder. Inside, there are a series of 21 motifs across eight panels, consisting of 13 hand stencils, seven partial hand stencils, and, on a separate panel, a single painted small simple design (Fig. 12). All are in red pigment. Digital enhancement of the photographs using DStretch suggests further stencils may have been placed here but they now exist only as remnants due to heavy exfoliation of the granite surface. A total of nine intact middle finger measurements were taken, with a mean length of 7 cm and range of 6 to 8 cm (Fig. 13). The finger lengths suggest that the people whose hands were stencilled include infants, young children, adolescents or adult women and adult men (cf. Gunn 2006b: 110).

#### Summary

From these examples, Esperance Nyungar rock art can be seen to consist of a widespread background of red hand stencils overlain, in a small number of well-decorated shelters, by a limited number of paintings. The latter consist of large linear designs,

| Col/tech         | Motif type    | SITE  |       |       |       |       |       |       |       |       | Total | %  |
|------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
|                  |               | MR-03 | MR-04 | MR-05 | MR-06 | MR-07 | MR-08 | MR-09 | MR-10 | MR-11 |       |    |
| Red hand stencil | Left hand     |       | 17    |       |       |       |       |       |       |       | 18    | 22 |
|                  | Right hand    |       | 1     |       | 1     |       | 1     |       |       |       | 2     | 2  |
|                  | ? hand        | 2     | 19    |       | 1     | 3     |       | 4     | 1     |       | 30    | 37 |
| Cream paint      | Line          |       |       |       |       |       |       |       | 1     |       | 1     | 1  |
| Red paint        | Line          |       | 2     | 1     |       |       | 1     |       | 1     |       | 5     | 6  |
|                  | Simple design |       |       |       |       |       | 1     |       |       |       | 1     | 1  |
| Pink paint       | Simple design |       |       |       |       |       | 1     |       |       |       | 1     | 1  |
| Red fragments    | unknown       | 10    | 3     |       | 1     | 3     |       | 1     | 1     | 5     | 24    | 29 |
| Total            |               | 12    | 42    | 1     | 3     | 6     | 4     | 5     | 4     | 5     | 82    | 99 |

Table 6. Marbaleerup sites MR-03 to MR-11: number of motif types by colour, technique and site.

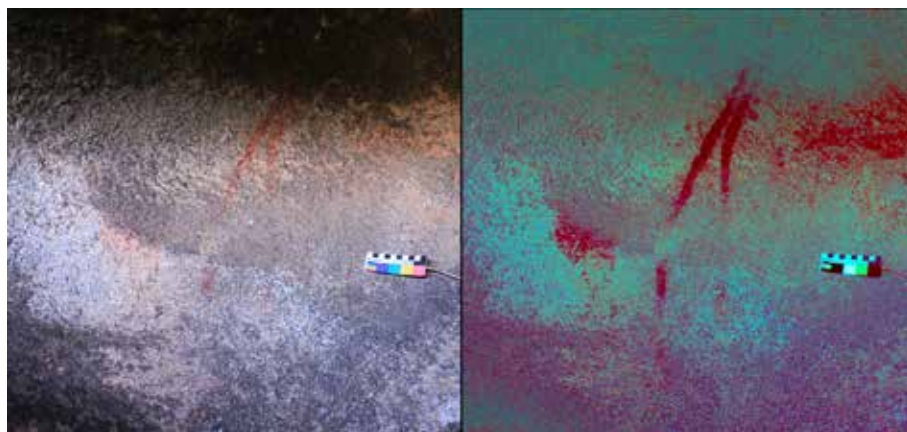


Figure 12. Painting at Boyatup.

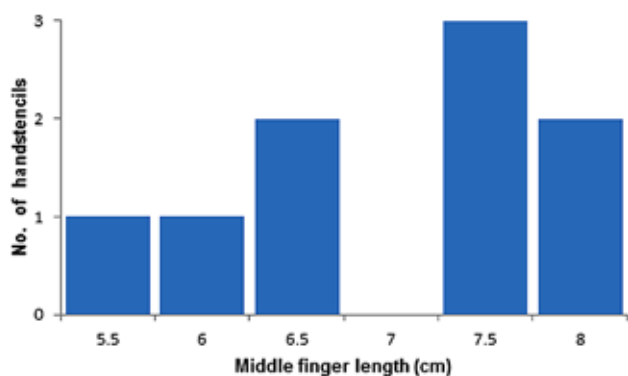


Figure 13. Boyatup handstencil middle-finger lengths.

smaller geometric elements and emu tracks, painted mostly in red but occasionally in yellow, cream and pink (Tables 7 and 8). The smaller shelters contain just hand stencils, or hand stencils plus a small number of geometric motifs (elements or designs) all utilising the same range of colours. All rockshelters known in the Esperance region are niches within granite boulders or flared slopes.

| Site complex | Geom. elem | Small design | All 'bird tracks' | Large design | Hand stencils | Hand prints | Other | Total |
|--------------|------------|--------------|-------------------|--------------|---------------|-------------|-------|-------|
| Marbaleerup  | 21         | 18           | 11                | 3            | 76            | 4           |       | 133   |
| Boyatup      | 1          |              |                   |              | 18            |             | 1     | 20    |
| TOTAL %      | 14         | 12           | 7                 | 2            | 61            | 3           | <1    | 99%   |

\*excluding fragments

Table 7. Esperance Nyungar motif types per site complex (Nos).

| Site complex | Red | White | Purple | Cream | Yellow | Orange | Pink | Bichrome | Total motifs |
|--------------|-----|-------|--------|-------|--------|--------|------|----------|--------------|
| Marbaleerup  | 199 |       |        | 8     | 1      |        | 1    |          | 209          |
| Boyatup      | 20  |       |        |       |        |        |      |          | 20           |
| TOTAL %      | 96  |       |        | 3     | <1     |        | <1   |          | 99%          |

The red and white striped designs at Marbaleerup MR-01 and 02 mentioned above are seen as the superimposition of a second design over an earlier red design and hence are not considered a bichrome painting in this sense.

Table 8. Esperance Nyungar colours by site complex (Nos).

## Noongar rock art

Geologically the greater part of Noongar country is underlain by the southern region of the Yilgarn Craton (Fig. 14), a massive emplacement of Late Archaean shield rocks, principally granites (Whitaker 2001; Anand and Paine 2002). Various, these granites are exposed in places as either mountain ranges or inselbergs. The granite ranges of the Darling Range in the west and the southern hills, including the up-

lifted sediments of the Stirling Range, parallel the >400 mm rainfall isobar (Fig. 4). Within eastern Noongar country, the granites are exposed as residual domical inselbergs, or bornhardts, which rise conspicuously from a partial etchplain (Anand and Paine 2002; Twidale and Bourne 2004; Twidale and Campbell 2005). A belt of Quaternary limestone abuts the western and southern edges of the craton, paralleling the coast line (Geological Survey of Western Australia 1980).

The rock art sites east of the Darling Fault (Mokine, Gwambygine and Nyamutin; Fig. 4) now lie in various bioregions (South-East Coastal, Avon Wheat Belt and Western Australian Mallee; Australian Natural Resources Atlas 2002a, 2002b) and lie within the 400–600 mm rainfall zone; the sites located farther east now receive an average annual rainfall of 300–400 mm (BOM 2014). The former shelters are on mid-slope granite outcrops, the latter are primarily on isolated granite domes. All these shelters are, however, niches that developed in granite boulders by cavernous weathering (Dragovich 1969, 1981; Turkington and Phillips 2004; Viles 2005). In contrast, the rock art sites known further north, for example around Cue (Gunn and Webb 2000, 2003), comprise predominantly breakaway shelters that have formed in the pallid zone (saprolite) beneath duricrust, also by cavernous weathering. Only two breakaway shelters are known in



the south-west: Lake Hillman and Halfway Rocks.

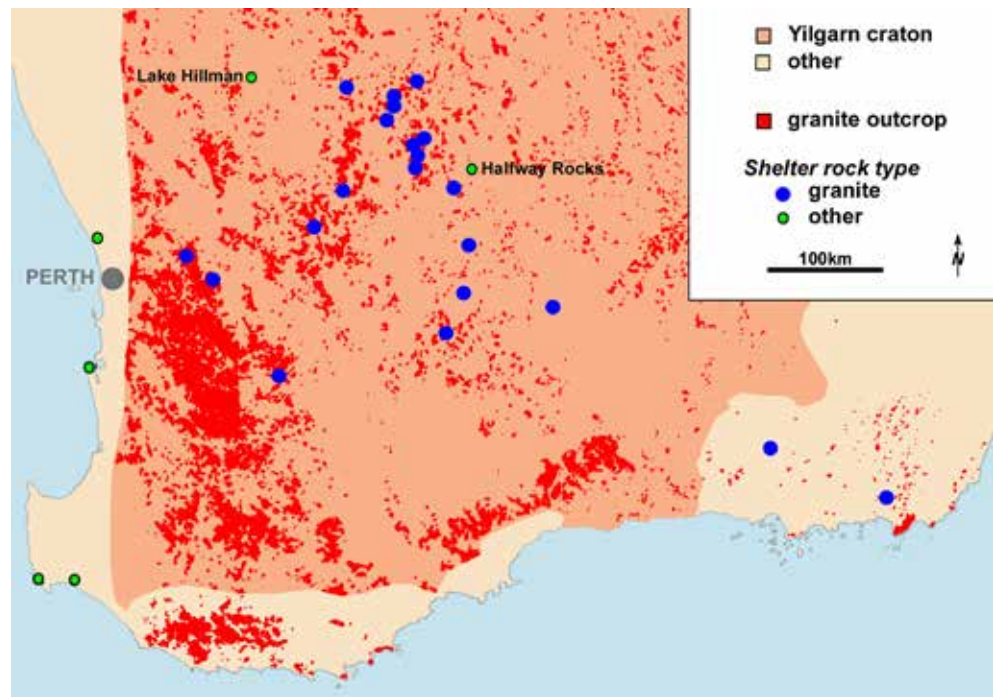
Five rock art sites have been recorded within the limestone belt in the west of the study area: four in subterranean caves (Hallam 1971; Morse 1984; Bednarik 1987-88), and one on an open pavement (Gunn et al. 2011). The limestone belt, dominated by the Leeuwin-Naturaliste ridge that contains the four cave sites, has an average annual rainfall ranging between 600 mm and 1200 mm. The character of this region is, therefore, considerably wetter and more forested than that in the drier regions to the east.

#### *Previous ethnographic investigations*

The first rock art site reported in the Southwest, in 1830, was the site now known, inappropriately, as Dale's Cave (DAA site 3846), near Gwambygine (Dale 1833: 57; Smyth 1878: 222; Serventy 1952; Hallam 1979: 86). The Noongar myth associated with the site describes it as being where the Moon lived prior to

ascending into the sky (Serventy 1952; Hallam 1979). Smyth described the 'art' (Fig.15) as consisting mostly of hand marks [stencils] and a 'circular figure, drawn with the same red substance [as the hand stencils], about 15 inches in diameter, and filled up with lines and crossbars' (Smyth 1878: 222).

The only other rock art shelter with recorded mythological associations is Mulka's Cave (DAA site 5842), near Hyden. Here the hand stencils are seen



**Figure 14.** Location of the underlying Yilgarn Craton, surface granites and rock art site complexes.



**Figure 15.** Dale's Cave showing unique circular design, 2005.



Figure 16. Handstencils at Mulka's Cave, said to be of the hands of Mulka.

to be those of Mulka, a cross-eyed giant, who lived in the cave (Fig. 16). Mulka, an excellent but very anti-social hunter, took to stealing young children from their camps and eating them, and also to killing other warriors at night as they slept. He was finally pursued by a large party of warriors, coming from groups throughout the region, who tracked him to a waterhole near Dumblebung, 150 km to the south-west of the cave, where they killed him after a long battle (Acre 1941).

The Kybra site, in the south-west corner of Noongar country (Fig. 17), was the home of 'Kybra, a big white flying bird, [who] lived in the area, but then left and flew westward over the horizon and well out to sea' (Traditional Owner Wayne Webb, pers. comm. 2005; quoted in Dortch et al. 2006: 13). The petroglyphs at the site, which are dominated by 'bird track' motifs, are closely associated with the Kybra Dreaming (Fig. 18).

Hammond (1933: 64–65; quoted in Hallam 1979: 88–89) recounts a myth given to him by an old Aboriginal man from Kellerberrin. The myth describes the destruction of a very large tree at Kellerberrin that

was the nesting place for eagles who took Aboriginal babies to feed their nestlings. It was eventually burnt down by a large number of people using all the surrounding timber and leaving the place barren of vegetation. Although the location of where the tree stood is unknown, the occurrence of the major Kellerberrin rock art complex in the same general locality is unlikely to be coincidental.

These accounts indicate that at least some of the rock art site complexes were culturally significant places for the Noongar. Given the evidence from elsewhere in Australia, which suggests major rock art sites were/are mostly linked to culturally significant places (e.g. Massola 1957; Arndt 1962;

McCarthy and Macintosh 1962; Mountford 1965; Maddock 1970; Mowaljarlai and Malnic 1993; Gunn 1997; Gunn et al. 1997), it is highly likely that the other Noongar rock art complexes were of high cultural significance to the various Aboriginal people (Noongar and their neighbours) living in the broader region.

#### *Previous archaeological investigations*

In 1938–39, D.S. Davidson (1952:77) visited many of the then known rock art sites throughout Western Australia and attempted a synthesis of the State's rock art, placing the present study area within his Southern Area. He recorded eight pictogram ('pictograph') sites, although one of these, reportedly near Gwambygine, has not been found by subsequent researchers. From his sample, he proposed the 'art' of his Southern Area consisted predominantly of red hand stencils, with a minor component of red linear designs (1952: 112–113). Subsequent published studies concentrated on the five 'anomalous' rock art sites along the coastal limestone belt (decorated cave and open petroglyph sites: see below), an area for which no records existed during Davidson's time (Hallam 1971, 1972; Clarke 1983; Morse 1984; Bednarik 1987–88; Franklin 2007; Gunn et al. 2011).

Research at Mulka's Cave (DAA site 5842) (Bowdler et al. 1989; Rossi 2014) found that the cave was being used around 8000 years ago and the open camping area, 150 m in front of the cave, around 5000 years ago. Bowdler et al. (1989) did not mention either the presence or absence of ochre, but notes that heavy visitation to the



Figure 17. The Kybra petroglyph site at Milyeannup, 2006 (horizontal arrow indicates the extent of the petroglyph panels).





*Figure 18. Detail of pavement with dominant array of pecked 'bird tracks', Kybra site, 2006.*

site since the 1980s had eroded the cave sediments by almost a metre (Webb and Rossi 2008). This would have also removed any ochre discarded from a more recent period of rock art production. Consequently, the age of the rock art at Mulka's Cave remains unknown, although Gunn (2006a) suggested, on the basis of the poor condition of the surviving pigments, that a recent age was unlikely.

The occupation of Frieze Cave (DAA site 3350) has continued for the past 3000 years, where red ochre was found in the lowest layers of the excavation but, despite the conclusion that red colouring had been used for at least 3000 years, no mention is made of ochre in the upper levels (Hallam 1971: 95).

#### *Five anomalous Noongar rock art sites*

The five sites within the coastal limestone belt are very different from those on the Yilgarn Craton. Orchestra Shell Cave (DAA site 4404; Fig. 4) and the adjacent alcove Orchestra Shell West contain a large number of finger flutings and scratchings in the twilight zone of the cave and its side passage (Hallam 1971; Bednarik 1987–88). Excavation of the floor deposits of the larger alcove by Hallam (1971: 102) revealed occupation between 6600 BP to 1650 BP, although she rejected the older age as stratigraphically incoherent, concluding that the site was first occupied about 4000 BP (Hallam 1974). The finger-flutings here, however, are masked by 'an extensive growth of speleothems' of unknown age (Bednarik 1987–88: 3), so could be older than the dated archaeological deposits. Bednarik noted that the cave floor subsided about 2 m before the excavated sediments accumulated, and the finger fluting pre-dates the subsidence event. He also briefly

describes a second cave in this system, 150 m south of Orchestra Shell Cave, which also contains finger fluting within reach of daylight (1987–88: 14).

Morfitt's Cave (DAA site 3277; Fig. 19; also known as Mandurah Cave) also has finger fluting and scratchings in the twilight zone of the cave chamber. These markings are also partially overlain by a natural precipitate (carbonate speleothem) that postdates their production (Bednarik 1987–88: 13). Again, no age for the precipitation is known or proposed but, on the proposed ages for similar precipitation events elsewhere in Australia (Bednarik 1998: 413; 2010), an early or pre-Holocene age is likely.

Kudardup Cave (DAA site 4803; Fig. 20) contains three red hand stencils just inside the entrance to a deep cave system. Morse (1984) only reported two stencils. Following excavation of the floor deposits, she argued that the cave was probably occupied in the mid-Holocene because the artefacts she found included fossiliferous chert, the sources for which were drowned around 6000 years ago by post-glacial sea level rise (Glover 1979, 1984; Glover and Lee 1984). The possibility of the discard here of re-used older artefacts from other sites was not discussed nor was the percentage of such artefacts given. The shunning of deep caves by Aboriginal people in southern Australia during recent times, however, usually on the basis of avoidance myths (Howitt 1904; Bates 1938; Bednarik 1986: 3), suggests that such caves have been avoided for the past 3500 years at least (cf. David 2002: 210).

The Kybra site contains a suite of 267 pecked motifs on an open pavement of heavily eroding limestone within a swampy environment (Fig. 18). The motifs are dominated by 'bird tracks' (48%), macropod tracks





Figure 19. The entrance to Morphitt's Cave, 2005.



Figure 20. Kudardup Cave at the location of the handstencils, 2005.

(15%) and simple geometric elements (31%). No age for these petroglyphs has been determined but as the pavement into which they were pecked is mid to late-Holocene in age, they cannot be older than this (Dortch et al. 2006).

The age of the finger flutings in the two Orchestra Shell Caves and Morfitt's Cave is unknown, but the speleothem growth over the markings in Orchestra Shell Cave suggests an older rather than a younger age. Bednarik (1990: 66) has argued that the finger flutings in Orchestra Shell Cave were reproduced prior to the development of the 4000-year-old occupation deposits. The similarity of these finger flutings to those in Koonalda Cave on the Nullarbor Plain, 1600 km to the east, and other cave sites across southern Australia (Bednarik 1986; 1990) suggests an extremely wide-ranging tradition (Flood 1997: 39–50) or, alternatively, an unlikely coincidental occurrence of independent invention. The finger flutings in Koonalda Cave have been associated with charcoal dated to around 20000 BP (Wright 1971), and those at Malan-

gine Cave and many other caves in south-eastern South Australia date mostly to the Pleistocene, Prungkart Cave being a notable exception (Bednarik 1990: 66; 1998). Together, this slim evidence is pointing to at least the mid to early-Holocene age.

In contrast, although still undated, circumstantial evidence suggests a late Holocene age for the Noongar painted rock art on the Yilgarn Craton (cf. Dortch 1979; Webb 1996; Turney et al. 2001; Rossi 2014). Further, given that granite surfaces disintegrate when exposed to air, it is unlikely that these rock art surfaces have survived for more than a few thousand years (cf. Twidale and Campbell 2005: 132).

Consequently, as the petroglyphs of the limestone caves are distinctly different in type and context, techniques and motif types, and most probably age, from the pigment rock art on the craton, they will not be included in the comparative assessment of the Eastern Noongar 'art' corpus. The Kybra petroglyph site is excluded for similar reasons, as the site, its context and contents are regionally unique.

While hand stencils like those at Kudardup Cave are found in many of the craton sites, Kudardup is a limestone cave that was probably occupied before 6000 BP (Morse 1984: 197), suggesting its use has a greater affinity with Orchestra Shell and Morfitt's Caves than with the stencils in the granite boulder sites on the craton. Hand stencils, also in the twilight regions of limestone caves and possibly of similar pre-mid Holocene age to those in Kudardup Cave, have been reported from the Nullarbor Plain (Lane and Richards 1966) and Tasmania (Cosgrove and Jones 1989). This suggests that Kudardup Cave is likely to be part of another extremely wide-ranging early rock art practice that pre-dates that of the existing granite shelter art, and possibly parallels the age of other

southern Australian parietal art. Consequently, Kudardup Cave is also excluded from the following assessment. The content and context of these caves with hand stencil and finger fluting, however, are recognised as a particular aspect of rock art within Noongar country, although possibly pre-dating the present Noongar land affiliations.

*Nyungar rock art sites on the Yilgarn Craton*

Excluding the Esperance Nyungar sites discussed above, 38 rock art sites have been recorded from 23 site complexes in Noongar country on the Yilgarn Craton (Table 9, Fig. 14). The rock art sites occur either as isolated shelters or as small, localised clusters. In most cases, the names given to the sites in Table 9 are those on the DAA Site Register, except where the recorded name is geographically misleading (as at Bococoopin and Dajoing Hill) and/or the original reporter asked to be acknowledged (Le Moignan). Hence, the DAA site numbers (ID) have been added for clarity.

A systematic survey of all areas of Noongar country has yet to be undertaken, but the present data are considered to be representative of the region as a whole, as they derive from all of the currently known rock art sites.

The decorated shelters on the Yilgarn Craton occur in one of three situations: hillsides (slopes), tors or breakaways (Fig. 21). Hillside and tor situations, which account for 21 (91%) of the complexes, are within granite outcrops; while the two breakaway complexes are in saprolite beneath duricrust. The granite varies in

composition across the study area, ranging from fine- to coarse-grained, and various mineral compositions (Geological Survey of Western Australia 1:125 000 geological maps). The geological survey maps show the two site complexes within the saprolite exposures

| Site complex   | Site name      | DAA site ID | Shelter    |       |        |         | Motif Nos |
|----------------|----------------|-------------|------------|-------|--------|---------|-----------|
|                |                |             | length (m) | depth | height | orient. |           |
| Gwambygine     | Dale's Cave    | 3846        | 15         | 2.5   | 6      | 80      | 43        |
|                | Frieze Cave    | 3350        | 15         | 6     | 4      | 230     | 72        |
|                | Joanna's Cave  | 3847        | 6          | 7     | 2      | 45      | 4         |
| Mokine Group   | Boondine 1     | 3845        | 2.8        | 2.2   | 1.6    | 290     | 12        |
|                | Boondine 2     | 3845        | 2.6        | 2.5   | 1.3    | 110     | 3         |
|                | Corolin Ck 1   | 502         | 3          | 1     | 1.8    | 175     | 7         |
|                | Corolin Ck 1   |             | 2.8        | 2.3   | 2.5    | 255     | 10        |
| Nyamutin       | Nyamutin 1     | 4646        | 15         | 3     | 2.5    | 350     | 32        |
|                | Nyamutin 2     |             | 7          | 3     | 4      | 340     | 16        |
|                | Nyamutin 3     |             | 10         | 4     | 2.5    | 315     | 11        |
| Kellerberrin A | Whale Mouth 1  | 5069        | 6.5        | 4.4   | 2.2    | 255     | 24        |
|                | Whale Mouth 2  |             | 4.5        | 0.8   | 1.1    | na      | 2         |
| Kellerberrin B | Jureen 1       | 5071        | 7.5        | 4.6   | 1.8    | 70      | 118       |
|                | Shark Mouth    | 15140       | 3.5        | 2.4   | 1.7    | 360     | 3         |
|                | Jureen 3       |             | 2.8        | 2.3   | 1.9    | 360     | 2         |
|                | Jureen 4       |             | 2          | 1.8   | 1.7    | 30      | 3         |
| Ogilvie Caves  | Ogilvie Cave 1 | 5686        | 6          | 8     | 4      | 80      | 14        |
|                | Ogilvie Cave 2 | 5665        | 4          | 4     | 2.5    | 295     | 10        |
| Warren Double  | Warren DC 1    | 5899        | 10         | 6     | 3      | 285     | 69        |
| Cunyan         | Warren DC 2    |             | 7          | 6     | 1.7    | 275     | 58        |
| Nulla Nulla    | Nulla Nulla 1  | 4694        | 6.5        | 3     | 2      | 45      | 19        |
|                | Nulla Nulla 2  |             | 4          | 2.5   | 1.5    | 90      | 7         |
| Hyden Rock     | Hyden Rock 1   | 5840        | 2.2        | 2.5   | 1.8    | 25      | 11        |
|                | Hyden Rock 2   | 5840        | 2          | 0.9   | 1.5    | 45      | 9         |
|                | Hippo's Yawn*  | 4661        | 7          | 10    | 7      | 355     | ?         |
| Single sites   | Bald Rock      | 5845        | 7          | 3     | 3      | 40      | 6         |
|                | Beringbooding  | 5062        | 3.3        | 7     | 2      | 110     | 38        |
|                | Bococoopin     | 5886        | 4          | 2     | 2      | 325     | 13        |
|                | Burran Rock    | 4608        | 2.5        | 1.8   | 2.8    | 165     | 6         |
|                | Chiddacooping  | 5512        | 10         | 3.5   | 2.5    | 125     | 43        |
|                | Dajoing Hill   | 5059        | 13         | 2     | 1.5    | 275     | 19        |
|                | De-eranning    | 5664        | 8          | 7     | 2.4    | 270     | 92        |
|                | Halfway Rocks  |             | 5          | 3     | 2      | 45      | 4         |
|                | Lake Hillman   | 5058        | 25         | 4     | 5      | 120     | 10        |
|                | Le Moignan     | 5063        | 5          | 8     | 2      | 335     | 25        |
|                | Mt Hampton     | 4468        | 7.5        | 5     | 1.4    | 40      | 44        |
|                | Mulka's Cave   | 5842        | 15         | 9     | 2.5    | 60      | 452       |
|                | Warrachupin    | 5900        | 10         | 9     | 3      | 240     | 20        |

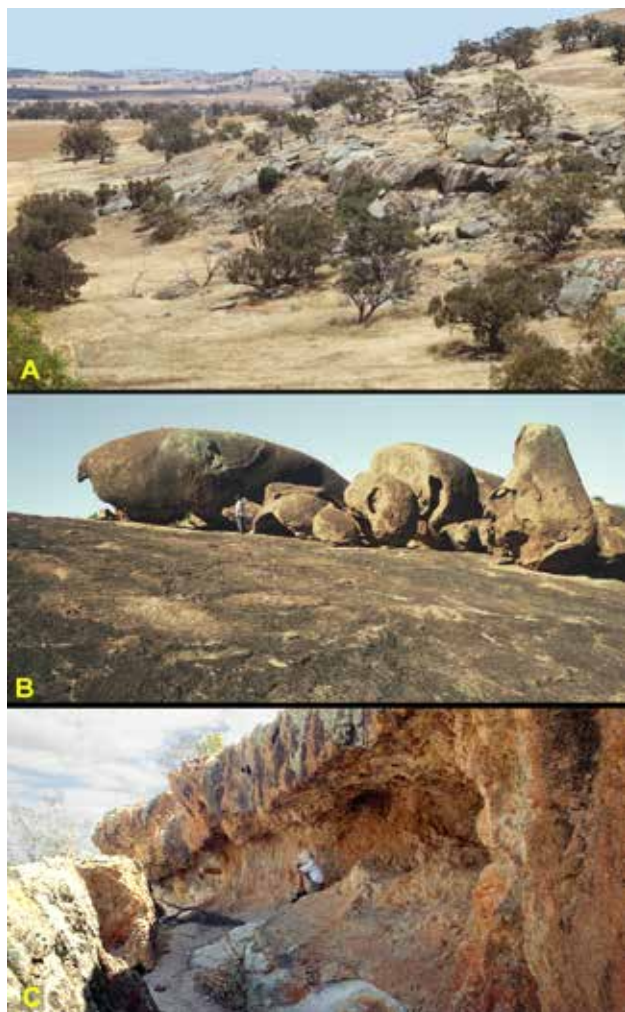
The Mt Hampton and Halfway Rocks shelters have formed in saprolite. All others are in granite rocks.

\* Rock art destroyed.

**Table 9.** Eastern Noongar rock art sites recorded.

are located within sedimentary deposits; field inspection, however, found them to be within outcrops of saprolite — heavily degraded rock with a clay matrix and hardened exterior (cf. Ollier 1991; Bourne and Twidale 2002: 83–85). Both these breakaway site





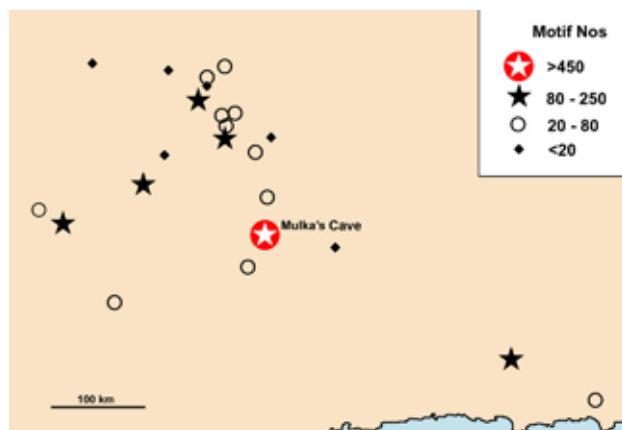
**Figure 21.** Rockshelter forms. A: Mid-slope granite outcrop (Dales Cave); B: Granite inselberg tors (Ogilvie Rocks); C: Undercut niche in saprolite breakaway (Lake Hillman).

complexes contain a single rock art shelter with small numbers of red hand stencils. No other archaeological sites or features were found at these locations.

All the decorated shelters recorded have flat floors suitable for occupation, but surface artefacts and signs of potential archaeological deposit were uncommon. While most shelters have concave rear wall-ceilings



**Figure 22.** Mulka's Cave showing low entrance, 2005.



**Figure 23.** Distribution of motif numbers per complex.

that can readily accommodate a standing person, a few have very low ceilings, <1 m high. Others have low entrances that require hands-and-knees access but then open out into sizable interior recesses (Fig. 22).

The 38 rock art sites recorded contain 1560 motifs, but 452 (29%) of these motifs occur at Mulka's Cave (Gunn 2006a). The number of motifs in the other sites varies from two to 118, with median of 11 (Table 9). Unfortunately, graffiti removal at the Hippo's Yawn (DAA site 4661), possibly in the early 1980s, also removed most traces of its Aboriginal rock art (Robert Reynolds, Dept Indigenous Affairs, DIA, pers. comm. 2004).

Mulka's Cave, the site with the greatest number of motifs, is central to the region (Fig. 23). Secondary category sites (80–250 motifs) tend to occur as local foci across the area, but there is no apparent pattern in the distribution of complexes with lesser motif numbers.

The size of a shelter can influence the amount of rock art present through the size of the available wall area suitable for rock art production. Sites in Noongar country, however, show little correlation between motif numbers and shelter length, with length generally being a measure of overall shelter size (Fig. 24). Shelters with more than 20 motifs range from 3.3 m to 15 m in length. The exceptional sites are Lake Hillman, 25 m long with only 10 motifs, and Kellerberrin site KBB-01, 118 motifs at just 7.5 m long. Mulka's Cave, with 452 motifs within a shelter 15 m long, is one of four shelters that form the group of second-largest shelters. The other three shelters of similar length, however, contain only 32, 43 and 74 motifs respectively.

### The attributes of eastern Noongar rock art Techniques

Four rock art production techniques were recognised: stencilling, painting, printing and dry-pigment drawing (Table 10). Overall, no relationship is evident between the number of motifs present and the range of techniques used. Where multiple techniques occur, one will generally dominate and, in most cases,



with more than the sum of the lesser techniques.

Stencilling and painting, although not present in every shelter, are present in all complexes. Hand prints, while more restricted in number, are also widespread. Drawings occur in small numbers and are mostly limited to those complexes and groups along the eastern slopes of the Darling scarp: Mokine, Gwambygine and Nyamutin (Fig. 4); three drawings were also recorded at Mulka's Cave.

Comparison of those complexes in which the numbers of a particular technique are relatively high (Table 11) indicates that no complex contains major representation of all techniques. Furthermore, no one technique is dominant at all of the site complexes, nor do the major techniques cluster in localised regions.

#### Colours

Red is the dominant colour throughout (63%), with white the only other colour well represented (Table 12). Red is predominant in 17 complexes and white in four (Dajoin, Le Moignan, Nulla Nulla and Ogilvie Caves); each of the latter complexes have only low motif numbers and all are widely separated. Other colours represented are cream, yellow, purple, orange and pink. Thirty-six bichrome motifs were recorded, 35 from Mulka's Cave (hand stencils on a pre-coloured surface; Gunn 2006a:30) and a set of small, red+white concentric arcs at Le Moignan.

White tends to be concentrated in the north-central complexes, north-east of Kellerberrin, as is orange, which only occurs in sites with high numbers of white motifs. Yellow is not found in any sites north of Kellerberrin, and only occurs in any notable number at Mulka's Cave (19 motifs). In general, the range of colours represented is greatest in those complexes with higher motif numbers (Table 12).

#### Motif types: preform motifs (stencils and prints)

The form of preform motifs is predetermined by their technique (cf. Maynard 1977: 393; 'mechanical figures'). The most common preform motif in Australia is the hand stencil. Here, hand stencils occur in 36 shelters (73%). The number of stencils per individual site ranges from one to 314, with a median of eight. If Mulka's Cave is excluded, the range drops to from one to 63. The site complexes, again excluding Mulka's Cave, contained from one to 85 stencils with a median of 16 (Table 13). Three complexes stand out for their high numbers of stencils: Mulka's Cave, Kellerberrin and Warren Double Cunyan. Four complexes do not contain any hand stencils: Bald Rock, Burran Rock, Dajoin Hill and Mt Hampton, each consisting of one rock art site and six, six, 19 and 44 motifs respectively.

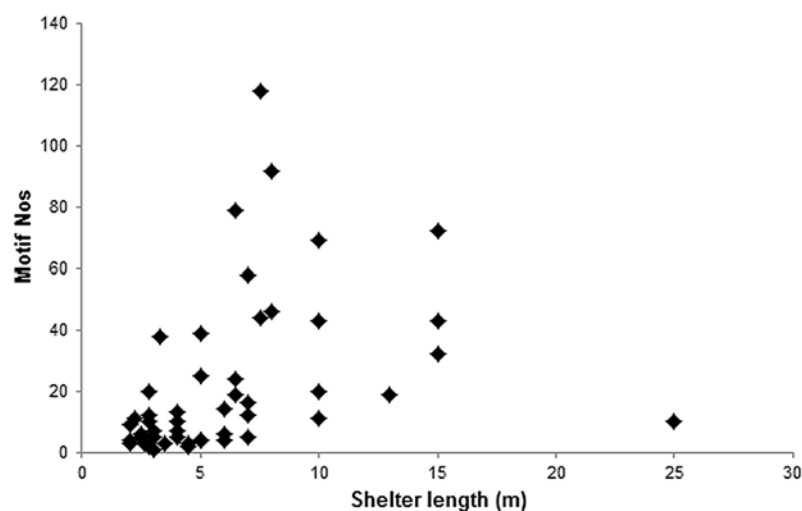


Figure 24. Noongar rock art motif numbers by shelter lengths. Excluding Mulka's Cave with its exceptionally high motif numbers (452) and a shelter length of 15 m.

| Technique    | No. of motifs | % motifs   | No. of sites | % sites  |
|--------------|---------------|------------|--------------|----------|
| Stencil      | 753           | 61         | 35           | 71       |
| Painting     | 373           | 30         | 31           | 63       |
| Printing     | 78            | 6          | 6            | 12       |
| Drawing      | 31            | 3          | 6            | 12       |
| <b>TOTAL</b> | <b>1235</b>   | <b>100</b> | <b>49</b>    | <b>-</b> |
| Fragments    | 325           |            | 32           | 65       |

Table 10. Technique frequencies in Noongar rock art.

| COMPLEX      | Paint | Stencil | Print | Draw. | Motif Nos |
|--------------|-------|---------|-------|-------|-----------|
| Gwambygine   | X     |         |       |       | 119       |
| Kellerberrin | X     | X       |       |       | 152       |
| Mulka's Cave |       | X       | X     |       | 452       |
| Warren DC    |       | X       |       |       | 127       |
| De-eranning  |       |         | X     |       | 92        |
| Nyamutin     |       |         |       | X     | 59        |

Table 11. Prominent techniques at the major Noongar rock art complexes.

All four sites occur in the north-east of the region and were not too far distant from complexes with high hand stencil numbers.

Hand prints occur in six sites; however, 98% are in just two sites: Mulka's Cave and De-eranning. The other four sites have only one or two examples. While all hand prints occur within shelters with hand stencils, the majority of sites with hand stencils do not have hand prints. As is common throughout Australia (Gunn 2007), left hands are more frequently stencilled than right hands (2.7:1), while right hands are more often printed than left (2.6:1) (Table 13). This trend holds here for sites with both large and small numbers

| Site complex   | Red        | White      | Purple    | Cream     | Yellow    | Orange    | Pink     | Bichrome  | Total motifs | No. of colours |
|----------------|------------|------------|-----------|-----------|-----------|-----------|----------|-----------|--------------|----------------|
| Mulka's Cave   | 276        | 111        |           | 7         | 19        | 4         |          | 35        | 452          | 6              |
| Kellerberrin   | 59         | 50         | 33        | 7         | 1         | 2         |          |           | 152          | 6              |
| Warren DC      | 68         | 50         | 3         | 3         |           | 3         |          |           | 127          | 5              |
| Gwambygine     | 103        | 11         | 4         | 1         |           |           |          |           | 119          | 4              |
| De-eranning    | 53         | 36         |           |           |           |           | 3        |           | 92           | 3              |
| Nyamutin       | 54         |            |           |           | 5         |           |          |           | 59           | 2              |
| Mt Hampton     | 44         |            |           |           |           |           |          |           | 44           | 1              |
| Chiddarcooping | 43         |            |           |           |           |           |          |           | 43           | 1              |
| Beringbooding  | 22         | 13         |           |           |           | 3         |          |           | 38           | 3              |
| Mokine         | 28         |            |           |           |           |           | 4        |           | 32           | 2              |
| Le Moignan     | 2          | 22         |           |           |           |           |          | 1         | 25           | 3              |
| Ogilvies Caves | 2          | 20         |           | 2         |           |           |          |           | 24           | 3              |
| Nulla Nulla    | 6          | 20         |           |           |           |           |          |           | 26           | 2              |
| Hyden Rock     | 20         |            |           |           |           |           |          |           | 20           | 1              |
| Warrachupin    | 18         | 2          |           |           |           |           |          |           | 20           | 2              |
| Dajoing Hill   | 6          | 13         |           |           |           |           |          |           | 19           | 2              |
| Bococoopin     | 4          | 5          |           | 4         |           |           |          |           | 13           | 3              |
| Lake Hillman   | 10         |            |           |           |           |           |          |           | 10           | 1              |
| Bald Rock      | 6          |            |           |           |           |           |          |           | 6            | 1              |
| Burran Rock    | 4          | 2          |           |           |           |           |          |           | 6            | 2              |
| Halfway Rocks  | 4          |            |           |           |           |           |          |           | 4            | 1              |
| <b>TOTAL</b>   | <b>852</b> | <b>355</b> | <b>40</b> | <b>24</b> | <b>25</b> | <b>12</b> | <b>7</b> | <b>36</b> | <b>1351</b>  |                |
| %              | 63         | 26         | 3         | 2         | 2         | <1        | <1       | 3         | 100          |                |

Table 12. Noongar colours by site complex (Nos).

| Site complex   | STENCILS   |            |            |                | Total      | PRINTS    |            |           |          | Total     |
|----------------|------------|------------|------------|----------------|------------|-----------|------------|-----------|----------|-----------|
|                | Left hand  | Right hand | ? hand     | Variant/object | stencils   | Left hand | Right hand | ? hand    | Variant  | prints    |
| Mulka's Cave   | 103        | 62         | 99         | 11             | 273        | 4         | 10         | 14        | 9        | 37        |
| Kellerberrin   | 45         | 9          | 27         | 4              | 85         |           |            |           |          |           |
| Warren DC      | 37         | 7          | 28         | 1              | 73         |           |            |           |          |           |
| Gwambygine     | 16         | 1          | 7          |                | 24         |           |            |           |          |           |
| Chiddarcooping | 12         | 2          | 9          | 1              | 24         |           |            |           |          |           |
| Beringbooding  | 9          | 2          | 8          |                | 19         |           |            |           |          |           |
| Hyden Rock     | 9          | 5          | 5          |                | 19         |           |            |           |          |           |
| Warrachupin    | 4          | 1          | 14         |                | 19         |           |            |           |          |           |
| Mokine         | 9          |            | 2          |                | 11         |           |            |           |          |           |
| Bococoopin     | 7          | 3          | 1          |                | 11         |           | 1          | 1         |          | 2         |
| Ogilvies Caves | 2          | 5          | 1          | 2              | 10         |           |            |           |          |           |
| Lake Hillman   | 9          | 1          |            |                | 10         |           |            |           |          |           |
| Nulla Nulla    | 4          | 2          | 2          |                | 8          |           |            |           |          |           |
| Nyamutin       | 5          |            |            |                | 5          |           | 1          |           |          | 1         |
| Halfway Rocks  | 3          |            | 1          |                | 4          |           |            |           |          |           |
| De-eranning    |            |            | 2          |                | 2          | 3         | 6          | 24        |          | 33        |
| Le Moignan     |            | 1          |            |                | 1          |           |            |           |          |           |
| Mt Hampton     |            |            |            |                | 0          |           |            |           |          | 0         |
| Dajoing Hill   |            |            |            |                | 0          |           |            |           |          | 0         |
| Bald Rock      |            |            |            |                | 0          |           |            |           |          | 0         |
| Burran Rock    |            |            |            |                | 0          |           |            |           |          | 0         |
| <b>TOTAL</b>   | <b>274</b> | <b>101</b> | <b>206</b> | <b>19</b>      | <b>600</b> | <b>7</b>  | <b>18</b>  | <b>39</b> | <b>9</b> | <b>73</b> |

Table 13. Handedness by technique from all Noongar site complexes.

| Site complex   | Geo el     | Small SD  | All bird tracks | Large design | Bar set   | Arc set   | 'Roo track' | Oval     | Fauna    | 'Track' trail | Small CD | Total      | No. of types |
|----------------|------------|-----------|-----------------|--------------|-----------|-----------|-------------|----------|----------|---------------|----------|------------|--------------|
| Gwambygine     | 30         | 13        |                 | 7            |           |           |             |          |          |               |          | 50         | 3            |
| Kellerberrin   | 14         | 5         | 14              | 1            | 4         | 2         |             |          |          | 1             |          | 41         | 6            |
| Mt Hampton     | 23         | 10        |                 | 2            |           |           |             |          |          |               |          | 35         | 3            |
| Warren DC      | 7          | 4         | 15              | 1            | 3         |           | 2           |          | 1        |               |          | 33         | 7            |
| De-eranning    | 10         | 7         | 3               | 3            |           | 4         | 3           |          | 1        | 1             |          | 32         | 7            |
| Le Moignan     | 4          | 4         | 8               |              | 1         | 5         |             |          |          |               |          | 22         | 5            |
| Mulka's Cave   | 14         |           |                 | 2            | 5         |           |             |          |          |               |          | 21         | 3            |
| Dajoing Hill   | 7          | 7         | 5               |              |           |           |             |          |          |               |          | 19         | 4            |
| Beringbooding  | 3          | 1         |                 | 4            | 1         |           | 4           |          |          |               | 1        | 14         | 6            |
| Ogilvies Caves | 8          | 3         |                 | 2            |           |           |             |          |          |               |          | 13         | 3            |
| Mokine         | 4          | 1         |                 | 1            | 1         |           |             | 4        |          |               |          | 11         | 5            |
| Nulla Nulla    | 1          |           | 7               | 1            | 1         |           |             |          |          |               |          | 10         | 4            |
| Nyamutin       | 3          | 3         |                 | 1            |           |           |             |          |          |               |          | 7          | 3            |
| Burran Rock    |            | 1         |                 | 2            |           | 2         |             |          |          |               |          | 5          | 3            |
| Bald Rock      |            | 2         |                 | 1            |           |           |             |          |          |               |          | 3          | 2            |
| <b>TOTAL</b>   | <b>128</b> | <b>61</b> | <b>52</b>       | <b>28</b>    | <b>16</b> | <b>13</b> | <b>9</b>    | <b>4</b> | <b>2</b> | <b>2</b>      | <b>1</b> | <b>316</b> |              |
| %              | 41         | 19        | 16              | 9            | 5         | 4         | 2           | 1        | <1       | <1            | <1       | 100        |              |

Key to motif types:

geo el = geometric elements (such as single bars, lines, crosses, U-shapes, etc.)

small SD = small simple designs (<50 cm)

bird track = 'bird track' (three and four toed tracks)

large des = large designs (both simple or complex >50 cm)

bar set = groups of parallel bars

arc set = concentric arc set

'roo track' = macropod tracks

oval = outline oval or circular shape

fauna = shape that suggests a faunal species (here lizard-goanna)

small CD = small complex designs

**Table 14.** Noongar painted motif types per site complex (Nos).

of motifs.

Other than hands, stencilled objects are uncommon, with eight noted in complexes in the central north region. Objects stencilled in red include two feet at Kellerberrin (left: ball width 9 cm, and another that could not be measured); a right fist; and two unknown, but different, objects at Kellerberrin and Chiddacooping. Objects stencilled in white comprise two small right foot stencils (ball width 5 cm) at Ogilvie Cave 1, and a boomerang (45 × 4 cm, curve 6 cm) at Warren DC 1.

#### *Motif types: freeform motifs (paintings)*

In contrast to preform motifs, freeform motifs are those whose form is not dependent on the technique other than the motifs are essentially produced free-hand: painting, drawing, pecking etc. (cf. Maynard 1977: 393; 'delineated figures').

Of the 23 complexes studied, 74% contained paintings, while the other 26% contained only stencils (Table 14). In total, 372 paintings were recorded from 31 shelters; numbers per shelter ranging from 3 to 42 (median 5). Eight sites each had more than 20 painted motifs.

The paintings were sub-divided into 10 motif classes on the basis of shape (Table 14). Geometric

elements were the most common motif type (41%) and the most frequent type in seven complexes. A wide range of elements are depicted, however, with the most notable being straight, curved and undulating lines; paired lines; apex designs (elongated tridents, star-shapes etc.); single bars; and arcs. Unusual geometric elements recorded were a concentric circle at Beringbooding and four oval shapes at Corolin Creek 1 and 2.

The small simple designs were mostly elaborations on or of geometric elements (Fig. 25). They include sets of either multiple and parallel short bars or longer lines in horizontal rows of vertical elements (Fig. 26). The number of elements (lines or bars) varied considerably, sometimes extending in length to overlap with the large design category (see below). The other common simple design forms were those based on an infilled outlined shape. The single small complex design recorded (Fig. 27) consists of three simple design elements (concentric arc set, bar set and barred oval) combined into a single unit.

'Bird tracks' were the third most common freeform motifs (16%), and occur in seven of the 17 complexes with paintings. The 'Bird track' motif consisted of three-toed (emu) tracks and four-toed (other bird) tracks. In most complexes emu tracks outnumber





Figure 25. Simple design motifs from Burran Rocks (photo-tracing).



Figure 26. Set of vertical lines (Nulla Nulla 2005).

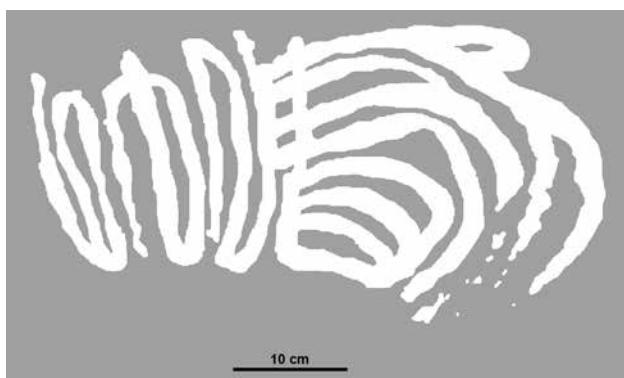


Figure 27. Complex design motif (Berringbooding) (photo-tracing).

other bird tracks, but the relative ratios vary across the region. Only Warren DC 2 has more other bird than emu tracks (9:2).

Macropod (kangaroo) tracks, account for 2% of the painted motifs and occur in only four shelters; Beringbooding, De-eranning and Warren DC 1 and 2; the latter two also have 'bird tracks'. Apart from Marbaleerup, all other complexes with track motifs occur in the central north of the study area.

A separate category of large design was assigned as it was clear, after visiting several complexes, that this motif type made the greatest visual impression on the onlooker (Fig. 28). The category includes designs that are both simple and complex in form. They range in length from 0.7 m to 9.9 m (see discussion on motif sizes below). The category, however, does not include long single lines, which reach up to 3.4 m. Lines of all lengths are classed as geometric elements as, being narrow, they have little visual impact. The large designs are extremely varied in their forms, ranging from long rows of short bars up to 9.9 m (Fig. 29), a row of small circles (1.6 m) and simple apex

designs (1.2 m), to extensive complex designs (3.7 × 3.4 m; Fig. 30). Of the 17 complexes with paintings, 13 contain large design motifs. Large designs occur in both red and white pigment; some are very weathered and appear to be of greater age, while others are better preserved and appear to be younger. The greatest number of large designs occurs in the Gwambygine Complex. The distribution of large designs by colour (Fig. 31) shows that red designs occur throughout the area, while those in white tend to be concentrated in the northern complexes. Given their visual dominance, it is expected that the sites housing these large

designs had considerable cultural significance in the past and were the most important within their respective complexes.

The only figurative motifs recorded were two possible lizards, at De-eranning and Warren DC 1. As both are simplified static forms, constructed with a vertical line with two cross bars, their identification as lizards is questionable.

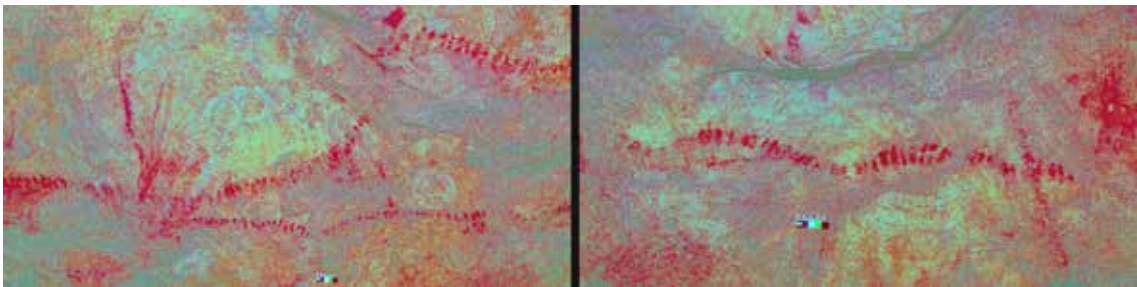
Overall, there is no correlation between the number of freeform and preform motifs within the complexes (Fig. 32).

#### *Motif types: freeform motifs (drawings)*

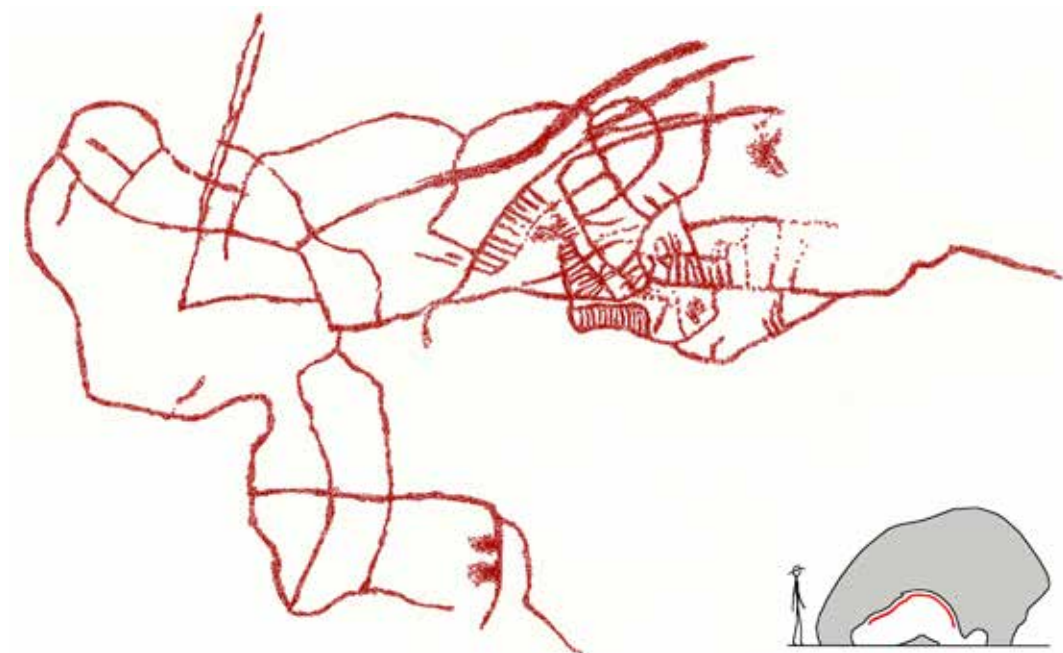
Of the 31 dry-pigment drawings recorded, only 20 could be reliably classified according to motif type



*Figure 28. Typical large design motifs here superimposed over hand stencils (Mulka's Cave, 2005).*



*Figure 29. Colour-enhanced sections of the 9.9 m long simple large design (row of bar motifs) (Frieze Cave, 2005) (DStretch\_lre10).*



*Figure 30. Complex large design motif  $3.7 \times 3.4$  m (Bald Rock) (freehand sketch; no photomosaic could be achieved due to the undulating low ceiling).*



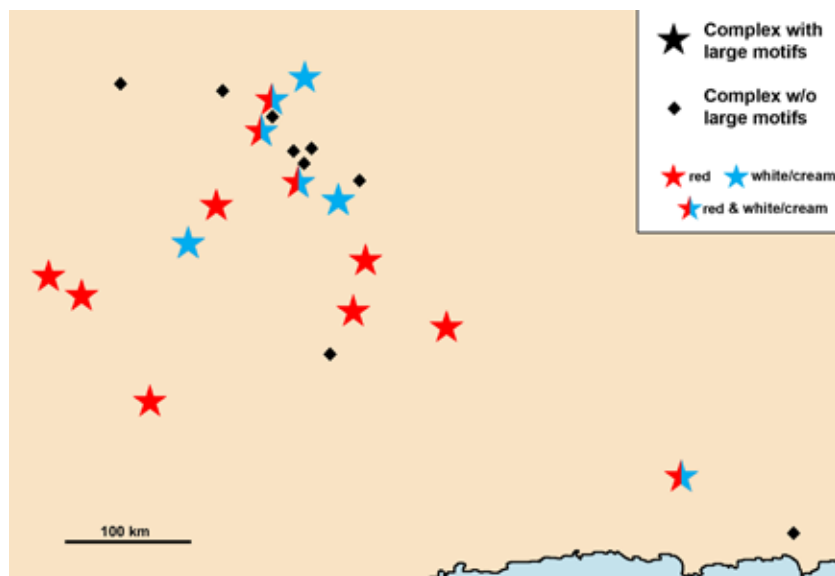


Figure 31. Distribution of large (>70cm) motifs by colour.

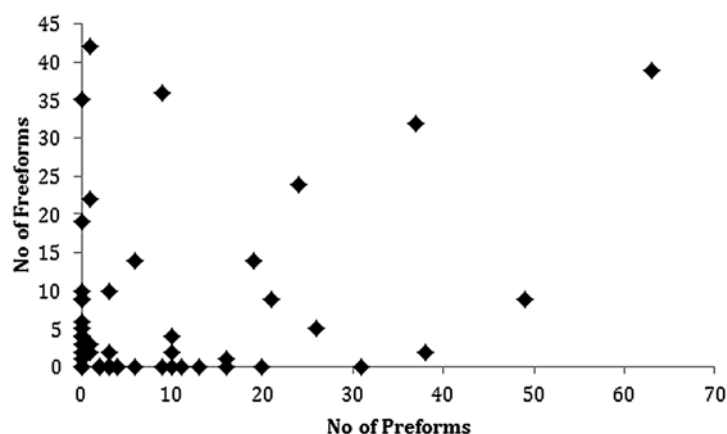


Figure 32. Number of freeforms by preforms per site.



Figure 33. Dry-pigment drawing (simple design) Nyamutin (unenhanced photograph and photo-tracing).

(Table 15), with the remainder being relegated to a class of fragments. These are limited to small simple designs (Fig. 33), Geometric elements and four large designs. The absence of 'bird tracks' is notable. The two largest of the designs are a complex encircled bar arrangement,  $1.25 \times 0.80$  m and a simple horizontal line with loop,  $1.2 \times 0.2$  m, both in the one shelter at Nyamutin. None of the drawings are visually

dominant due to their fine linear construction and generally poor preservation.

#### Motif size

The 271 freeform motifs that could be measured ranged from 2 cm to 990 cm in length, with a median of 21 cm. The most frequent class of sizes was <10 cm (Fig. 34), with a regular decline in numbers per class as size increases. In individual rock art shelters, the largest motifs range from 7 cm to 990 cm. The sizes of the largest motifs, however, are unrelated to the overall number of motifs on the panel (Fig. 35) or to shelter size (Fig. 36).

At the time of recording, knuckle width was measured for all hand stencils and handprints. Subsequently, middle finger length was shown to

| Name         | Geo el | Small SD | Large des. | Fragm. | TOTAL |
|--------------|--------|----------|------------|--------|-------|
| Nyamutin     | 2      | 11       | 3          | 10     | 26    |
| Mulka's Cave | 3      |          |            | 0      | 3     |
| Mokine       |        |          | 1          | 0      | 1     |
| Gwambygine   |        |          |            | 1      | 1     |
| TOTAL        | 5      | 11       | 4          | 11     | 31    |

Key as per Table 13

Table 15. Drawn motif types per Noongar site complex (Nos).

be a more reliable measurement than knuckle width (Gunn 2006b). In lieu of middle finger measurements for these stencils and prints, knuckle width can be seen to give a rough indication of the class of people whose hands were stencilled. The knuckle widths of the stencilled hands were all  $\geq 7$  cm, suggesting that most were made by adolescents, adult women or adult men. At Mulka's Cave there are only two hand stencils likely to be of infants, while there is an apparent absence of children's hands (Gunn 2006a: 31).

#### Superimposition and sequence

Instances of motif superimposition are uncommon, most likely due to the low overall motif numbers on individual panels and the presence of adjacent unused panel space. The sequence of 52 examples of superimposition, listed in Table 16, indicates white overlying red six times more than red overlies white (Table 17). This supports the subjective impression that the use of red pigments largely pre-dates that of the existing white pigments.

The sequences for cream paint and red drawing are inconclusive, but, from their relative states of preservation, it appears that both colours are represented amongst the most recent 'artwork' in their respective shelters.

These sequences suggest that there are two overlapping phases present in Noongar rock art. Initially, the 'artwork' was dominated by the production of red hand stencils and red paintings. At some later time a phase dominated by painting was added, but it did not totally replace the stencilling tradition. While white paintings may have been produced along with the earlier red hand stencils, no recognised examples have survived. In contrast, few red motifs overlies white motifs and few others, not present in superimpositioning, are as well preserved as the white motifs, testifying to a significant reduction in the uses of red pigment in rock art during this recent phase.

### The character of eastern Noongar rock art

Using the above data and the concepts of 'character' (Maynard 1976: 107-109) and personality (Clegg 1978: 54-55), the general character of eastern Noongar rock art can be derived by selecting the most numerous and widespread attributes, idiosyncratic features, and common patterns, if any, in location or sequence in the rock art described above.

Hence, overall Noongar rock art can be characterised as consisting of:

1. A predominant use of red pigment, with a lesser use of white. In most cases, white pigment overlies, and hence is more recent than, red. Other colours, such as pink and orange, are uncommon and appear to be contemporary with the more recent use of white. Only one bichrome painting was recorded although, at Mulka's Cave, 35 hand stencils were placed over a surface initially prepared with a complementary colour.
2. An underlying and numerically dominant suite of red hand stencils. While many stencils predate painted motifs, at a few sites, stencilling continued to be practised along with paintings.
3. Hand stencils are primarily those of adolescents, adult women or adult men (knuckle width mostly >7 cm), with few infants or small children.
4. Paintings are essentially linear in form (linear, outline or outline with linear infill). The paintings here are broadly executed and lack the finesse associated with fine brush painting (such as occurs in the Kimberley and elsewhere in northern Australia; e.g. Walsh 2000).
5. A small number of large design motifs

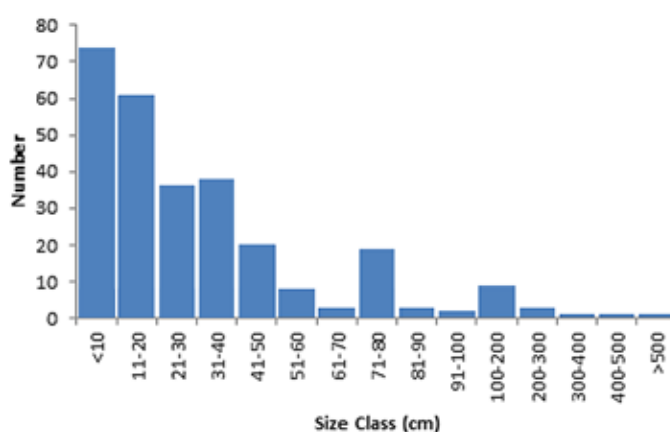


Figure 34. Noongar rock art motif lengths.

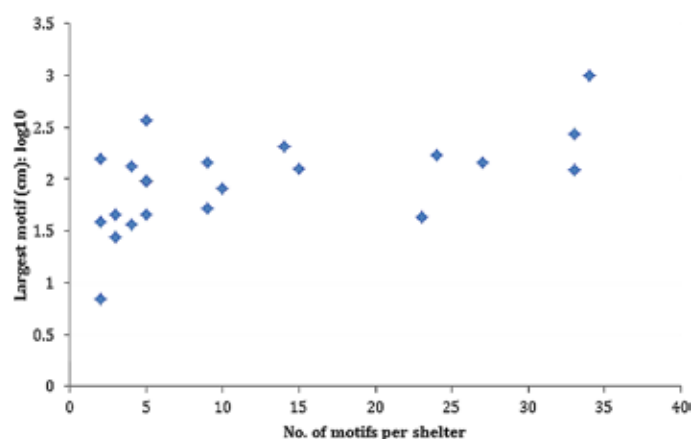


Figure 35. Largest motif size by shelter motifs numbers.

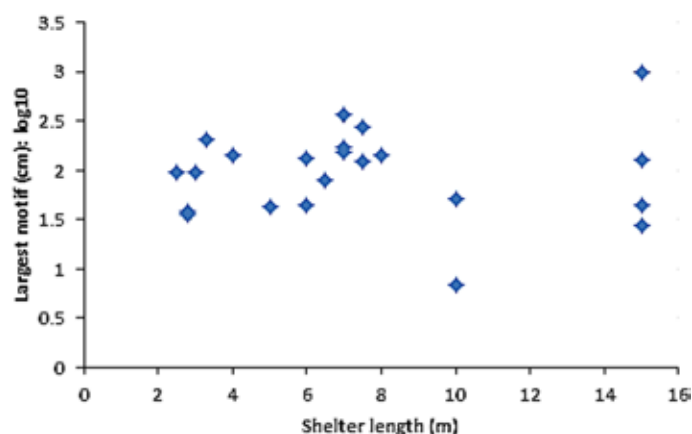


Figure 36. Largest motif size by shelter length.

|                    | OVER             |           |             |                |             |          |
|--------------------|------------------|-----------|-------------|----------------|-------------|----------|
|                    | Red hand stencil | Red paint | White paint | White hand st. | Cream paint | Red draw |
| Red hand stencil   | 3                | 3         | 6           | 4              |             |          |
| Red paint          |                  | 4         | 8           |                | 1           | 1        |
| Red hand print     |                  | 1         | 5           |                |             |          |
| Red frags          |                  | 1         | 4           |                |             |          |
| White paint        |                  | 4         |             |                |             |          |
| White hand stencil |                  |           | 2           | 4              |             |          |
| Cream paint        |                  |           | 1           |                |             |          |

Table 16. Noongar superimposition frequencies (Nos).



|       | OVER |       |
|-------|------|-------|
| UNDER | Red  | White |
| Red   | 12   | 23    |
| White | 4    | 8     |

**Table 17.** *Noongar superimposition summary for red and white wet pigments (Nos).*

(>70 cm), either simple or complex, and placed prominently to form visually impressive images in the major rock art site of each complex.

6. A small numbers of paintings of less visually impactful geometric elements, small simple designs, 'bird tracks' and large designs, that occur within shelters with and without large designs.
7. A total absence of anthropomorphous and naturalistic fauna motifs.

### A comparison of Esperance Nyungar and the eastern Noongar rock art

The assemblage of Esperance Nyungar and eastern Noongar rock art share seven common characteristics:

1. Red pigments predominate; other colours mostly overlie the red. In eastern Noongar rock art most of the more recent motifs are in white, while within Esperance Nyungar rock art only cream is present. This difference is not considered significant, however, as white and cream pigments appear to be relatively contemporaneous and the presence of cream may simply reflect a lack of white pigment in the region. Note that all eastern Noongar sites with cream also contain greater numbers of white motifs. Bichrome motifs are very unusual.
2. Red hand stencils are widely distributed as the underlying (oldest) 'art' form, but stencilling in other colours continues to be practised along with painting.
3. Hand stencils were predominantly made by adolescents and adult men and women.
4. Paintings are essentially linear or outline in form and appear to be painted with the fingers.
5. Major rock art sites contain small numbers of visually impressive large designs measuring more than 0.7 m, but large designs are not present in all complexes.
6. Other painted or drawn motifs comprise less visually impressive geometric elements, small simple designs, 'bird tracks', and large designs.
7. There are no anthropomorphous motifs.

### Discussion

The above comparison revealed distinct commonalities of form between the rock art of the Esperance Nyungar and that of the eastern Noongar. Seven characteristics of form have been identified here that were numerically dominant within the rock art assemblages of the two Esperance rock art sites. The same seven

characteristics were identified in eastern Noongar rock art. Consequently, it is proposed that:

1. There exists an eastern Noongar rock art tradition (cf. Bednarik et al. 2010: 17) that, on the basis of common characteristics of form and character, incorporates all the known rock art sites in Noongar country east of the Darling Range.
2. The rock art at Marbaleerup and Boyatup is part of the eastern Noongar rock art tradition, on the basis of closely similar formal and qualitative characteristics.
3. The eastern Noongar rock art tradition also incorporates sites beyond the current boundary of Noongar country but which lie close to the boundary on currently unclaimed lands.

The eastern Noongar rock art tradition is distributed over a wide area of south-western Western Australia. The distance from Lake Hillman, in the north, to Boyatup, in the south-east, is over 650 km. The sites, however, are all within broadly similar environments, being toward the northern or eastern fringes of the Southwest Australian Floristic Region, in areas where the annual rainfall is 300–400 mm (Fig. 4). Only the sites at Gwambygine, Mokine and Nyamutin occur on the slightly better watered and better vegetated eastern slopes of the Darling Range. Boyatup stands apart from the other eastern sites as it is the only site close to the coast, 13 km to the south, and within a coastal environment. The majority of the sites are all located in the drier region of the Yilgarn Craton. So while the sites are spatially separated and have minor environmental differences, they are linked throughout the Southwest Floristic Province, whose boundaries are unlikely to have changed much since sea level stabilised about 6000 BP (Pickett et al. 2004). These environmental and geological conditions form a cohesive geographic context for the 'art' tradition proposed here. The distribution of the eastern sites forms a belt along the eastern edge of Noongar country with most of the sites clustering near to the periphery. Again the Gwambygine, Nyamutin and Mokine Group sites are anomalous in this regard being further westward and deeper into Noongar country.

Whether all of the rock art was made by Noongar people, and whether it is exclusively 'Noongar' in its origin or associations, is unknown. The clustering of many of the 'art' sites close to the periphery of Noongar country invites the question of what influence non-Noongar people may have had on the rock art assemblages. As most of the sites fall within, and include sites central to current Noongar lands, the tradition is referred to here as Noongar.

Eastern Noongar rock art can be related to that of the Wadjari (non-Noongar) rock art some 300 km to the north, around Cue. Both assemblages are dominated by red hand stencils and incorporate small numbers of geometric elements (Gunn and Webb 2000, 2003). A principal difference between the two regions is the dominance of the more friable saprolite rockshelters

around Cue, with a much higher proportion of red motifs, a lack of 'striped' designs, and the notable presence of petroglyphs; the latter occur both within shelters and on open granite surfaces. Also, Noongar rock art has no comparable site to the outstanding and unique site at Walga Rock with its high density of rock art and use of Western Desert type motifs (Davidson 1952; Gunn et al. 1997).

The relationship between Noongar rock art and that of their neighbours to the east in the Western Desert is unclear, as any information about the latter area remains largely unpublished (cf. Davidson 1952). From a sample of six locations Davidson notes petroglyphs of human footprints and the presence of pictograms of 'stencilled hands; anthropomorphic figures with head ornaments' (Davidson 1952: 445). On the basis of published accounts of Western Desert 'art' further to the east that is dominated by anthropomorphic figures, animal tracks, concentric circles and maze designs (e.g. Mountford 1937, 1965; Munn 1973), there appears little similarity with the Noongar rock art recorded here. The only eastern Noongar motifs that would fit into a Western Desert assemblage are the concentric arc sets at Le Moignan (Fig. 37); the concentric arc sets in conjunction with 'macropod' or 'bird tracks' at Kellerberrin, Le Moignan and De-eranning (Fig. 38); and the cream coloured 'tree' design at Marbaleerup (Fig. 7A), which is amongst the most recent motifs in that shelter. The 'tree' or 'path' design, consisting of a central straight or curved line crossed by regularly placed arcs (Mountford 1965: Fig. 36 CC), is unknown elsewhere in eastern Noongar rock art but is a distinctive motif of Western Desert rock art. In contrast, the emu track and line set motifs of the same layer as the tree design (Fig. 7) are common motifs in eastern Noongar rock art. As the three groups of motifs at Marbaleerup appear to have been undertaken at the same time, it would appear that either they were all done by an artist familiar with both traditions or, given their relative positions on the panel, by artists from both traditions sharing the one panel. Future research may derive dates for the different phases of superimposition at Marbaleerup that may, in turn, be correlated with other lines of archaeological enquiry to understand more about the significance of these motifs and any possible relationship they may have with Western Desert rock art.



Figure 37. Concentric arc design (Le Moignan, 2004).

## Conclusion

This paper has quantified the occurrence of common formal characteristics in the rock art assemblages at two sites in Esperance Nyungar country and in the 38 other sites covered by the Noongar Native Title claim. This is designated as the 'eastern Noongar rock art tradition', which includes the rock art, and hence the sites, of Marbaleerup and Boyatup. The five art sites in the coastal limestone belt to the west of the Darling Range are clearly anomalous in form and context from the eastern corpus, and are thus considered a separate corpus distinct from the eastern Noongar rock art tradition. While the focus of this paper has been on the eastern Noongar rock art corpus, it is acknowledged that these five western coastal sites also represent an important aspect of the rock art of south-western Western Australia.

With respect to rock art and territorial boundaries, the eastern Noongar rock art tradition clearly does not reflect the entirety of current Noongar lands, as it excludes the western coastal sites and includes sites to the east beyond the present Noongar border (such as those of the Esperance Nyungar and others to the north currently within unclaimed Native Title lands).

The approach to the quantitative and qualitative analysis presented here serves as a preliminary characterisation of Noongar rock art and has justified the simple methods used. The use of more complex methods in future may elucidate further, more subtle trends in the 'art' and its spatial patterning. Further research into dating the rock art is required to refine the temporal parameters of these interpretations. Additionally the social dynamics that underpin this rock art tradition, which clusters around the 'boundary' or 'meeting area' at the edge of Nyungar country, is a subject that has yet to be studied.

The recent recording of the rock art sites within the





*Figure 38. Rock art panel showing central line set with concentric arcs and animal tracks (De-eranning, 2003).*

coastal limestone belt, the Marbaleerup complex, and the small site of Boyatup, has enabled a long overdue revision of Davidson's (1952: 77) assessment of the rock art of south-western Western Australia and the definition of the eastern Noongar rock art tradition.

#### *Acknowledgments*

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