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**‘Kimberley Stout figures’: a new rock art style for Kimberley rock art, north-western Australia.**

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## Abstract

The rock art of Western Australia's Kimberley region has been the subject of special attention by archaeologists and rock art enthusiasts since George Grey's publication of the first illustration of it (Grey 1841). Since then, researchers have tried to date and classify the Kimberley's many rock art styles. To date, eight widespread and highly recognisable styles have been identified, but many motif types in a range of styles remain undescribed and lie outside the formally recognised art styles. While undertaking archaeological work at Borologa, a highly decorated rock shelter in the Balanggarra lands of the north-east Kimberley, we documented a distinctive set of anthropomorphic figures that stood out for their characteristic formal and decorative attributes. Here termed 'Kimberley Stout figures', we propose this as a distinct motif type undertaken in a hitherto undescribed style within the Kimberley rock art corpus, describing its attributes in depth and discussing its positioning within the Kimberley rock art sequence.

## Introduction

In 2017, while recording the art at Borologa, a quartzite rockshelter on the banks of the Drysdale River in north-east Kimberley, a repeated form of anthropomorph that did not visually conform with the characteristics of previously publicised art styles was documented (Figures 1 and 2). This paper describes these figures at Borologa, which in the absence of Aboriginal nomenclature are here called 'Kimberley Stout figures'. These observations are presented to allow recognition of this art style at other sites so the broader distribution and the full range of variation of the motif type within the style can be recognised.

The Kimberley Stout figures contrast with other motif conventions in Kimberley rock art, the thin, sinuous graceful and elaborately costumed Ngunuru (Tasselled) and Yowna (Sash) Gwion figures, and the splayed and static Dalal Gwion (also known as Static Polychrome) figures. In contrast to these widely described figures (Figure 2; e.g. Travers and Ross 2016; Walsh 2000), the Kimberley Stout figures have a stocky body with striped infill, short stocky legs and a broad rayed headdress. However, in common with Gwion figures, Kimberley Stout figures wear elaborate paraphernalia and carry boomerangs. The Kimberley Stout figures also differ from the usually large and bold Wanjina figures, being generally smaller, more linear, and without prepared backgrounds or extensive use of white pigment. Similarities with Wanjina figures can be seen through the occasional striped infill and radial feather headdresses of some early Wanjina. The Kimberley Stout figures contrast with paintings of the Painted Hand style through being painted with finer brush application and the presence of more detailed paraphernalia.

To date, only three other sites which appear to have Kimberley Stout figures have been published (Welch 2015: 291-293; Donaldson 2007:18). Their high frequency of occurrence at Borologa (n=34), often in superimposition with motif types from other commonly recognised styles, allows for their chronological positioning relative to other established styles. Welch (2015:291-293) saw them as a type under the heading of 'Human figures with arcuate and round headdresses'. He mentions that similar figures occur throughout the Kimberley (presumably on the basis of personal experience) and described them as

Human-like figures...some of their headdresses have a central protrusion, representing a central feather or decoration. One has a distinct facial gap that may once have held white pigment. Their infills include parallel lines and cross-hatching producing grid-like patterns (Welch 2015:293).

Welch (2015:291) considered the figures to have the rayed headdresses of Wanjina, but also features consistent with his earlier Painted Hand style, and consequently concluded they were painted as transitory figures between his Painted Hand and Wandjina styles. It should be noted however that Ross et al. 2016 consider the two styles to be chronologically overlapping if not contemporaneous (see below). Welch (2015:232) also discusses a pair of female figures that are superimposed by his Strait Part (Dalal Gwion) figures and Painted Hand images. These ‘female figures’ are Kimberley Stout figures by our definition (see below). In contrast, at another site some 10km upstream from Borologa, a similar figure is reported to overlie a Dalal Gwion figure (PH’s personal examination of the late Grahame Walsh’s unpublished Takarakka database, site 0300).

As others have noted, defining an art style in any media can be a contentious issue if the questions asked of, and purposes put to, that style transgress the particular conditions of its description and the extent that it can be appropriated from one context to another (e.g. D’Alleva 2005; Franklin 2004; Gunn et al. 2013; Plog 1983; Schaafsma 1985; Wiessner 1984, 1985). Here we identify a set of motifs with an unusual set of key shared conventions, and their variability, as belonging to a Kimberley Stout figures style. Our primary approach is to isolate the defining features of the motif type, thus characterising and allowing the recognition of variable attributes within the parameters of the particular style in which they were painted. In archaeology, the term ‘motif’ is used in two different ways: to identify individual images (all the motifs on a panel) or, as shared by the Art History sense, of a particular group or type of different figures, repeated with variation but always with recognisable visual cues (such as Wanjina, or their companion animals). Once a motif type (including its stylistic attributes) is established, the question of its duration and antiquity then becomes a matter of empirical investigation.

North-west Australia’s Kimberley region (Figure 3) is well-known for both the quantity and variety of its rock art (e.g. Crawford 1968, 1977; Donaldson and Kenneally 2007; Elkin 1930; Lommel and Lommel 1955; Love 1930; Mowaljarlai and Malnic 1993; Schulz 1956; Walsh 1997a, 1997b; Welch 1993). In particular, two art styles have received a great deal of attention: the first and more recent art is that of the Wanjina (also ‘Wandjina’), which appear during a period that is thought to cover the past 4000 years (Morwood et al. 2010). This Wanjina period has been the subject of extensive ethnographic study that documents immutable relationships between rock art, ritual, place and kinship affiliation (e.g. Akerman 2016; Blundell and Woolagoodja 2005; Capell 1972; Crawford 1968; Doring 2000; Elkin 1930; Mowaljarlai and Malnic 1993).

The second, older period, of Gwion rock art (previously often termed ‘Bradshaw’ paintings), initially received little attention as local Aboriginal Traditional Owners visiting sites with researchers ‘were hesitant in acknowledging what they saw’ (Lommel and Lommel 1955:17; see also Walsh 2000:425-433). During the 1990s, however, Aboriginal Elders revealed that Gwion art did indeed have its own place in contemporary cosmologies, and that Gwion figures portrayed special and at times secret aspects of local and regional Aboriginal Law (Doring 2000).

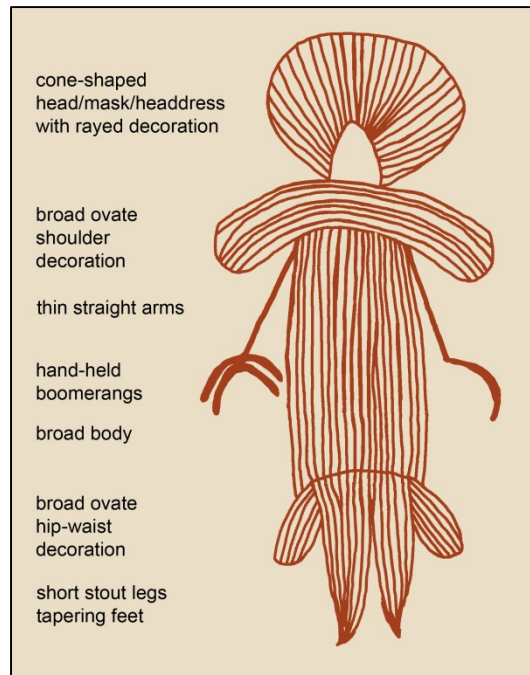


Figure 1: Schematic representation of the Borologa Kimberley Stout figure showing principle attributes.

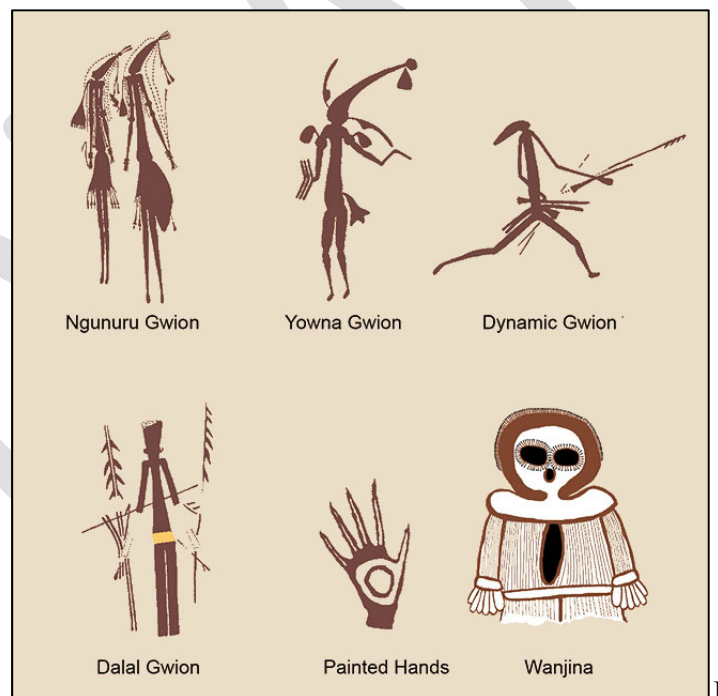


Figure 2: Commonly recognised anthropomorph types in Kimberley rock art (modified from Donaldson 2012b:13).

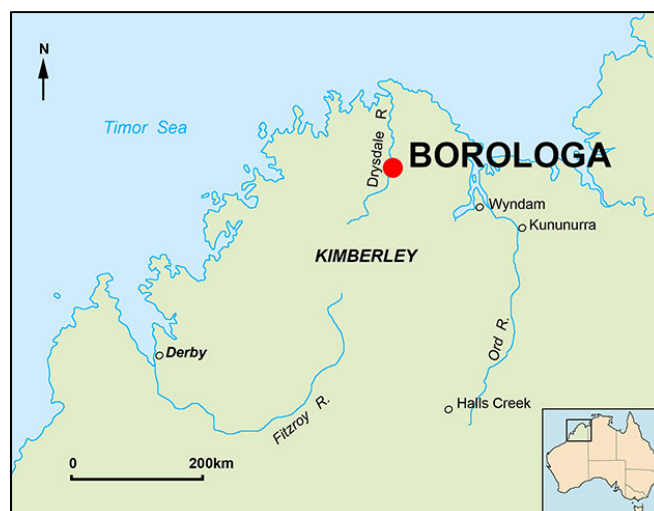


Figure 3. Location of Boroloka.

Kimberley rock art has been the subject of two substantial studies devoted to the determination of the region's stylistic sequence(s): Welch (1993) and Walsh (2000) (see also Veth et al. 2018) (Table 1). Such rock art sequences have been argued to extend from the Pleistocene (possibly including some or all Gwion conventions) into the recent historical past (including some Wanjina and European-contact paintings) (e.g. David et al. 2019; Morwood et al. 2010; O'Connor et al. 2013; Roberts 2000; Ross et al. 2016; Veth et al. 2018; Walsh 2000). All researchers agree that paintings of Gwion figures (in a number of Gwion styles) precede those of the Wanjina, with the position of other styles in the sequence being variably debated. For example, there is a widespread but not universal agreement that the Gwion may have been preceded by earlier recognised art styles and motifs, including pecked cupules and possibly abraded grooves, faunal depictions of a so-called 'Irregular Infill Animal' phase, and that the Gwion and Wanjina phases may have been separated by a 'Painted Hand' phase of anthropomorphic and zoomorphic figures, and claw-like hand motifs. Other than these general characterisations of sequence, however, few secure absolute ages have yet been obtained for any of these major 'style periods' (see Aubert 2012), with Ross et al. (2016) suggesting that there may in fact be considerable overlap between neighbouring styles of the proposed sequence(s). The Kimberley Dating Project of the University of Melbourne is currently dating large numbers of mineral accretions, rock falls and mud-wasp nests in association with Kimberley rock art in order to obtain absolute ages for style phases (Green et al. 2017a, 2017b). In addition to this chronometric work, it is necessary to review the relative sequence of the so-called styles themselves, paying particular attention to potential chronological overlaps. It is important to note that many observed motifs, and styles, do not feature at all in the modelled style sequences, with only the most iconic, stylistically distinctive motifs having been allocated a style and relative chronological positioning (Table 1). Additionally, different authors have used different names for given art styles; this paper uses the local Aboriginal terminology as presented by Donaldson (2012b; see Table 1 and David et al. 2019 for a review and comparison of terminologies from the literature).

Table 1. Published rock art sequences: nomenclature and characteristics.

SEQUENCE	PERIOD			Veth et al. 2018	SUMMARY CHARACTERISTICS
	Welch 1993	Walsh 2000	Donaldson 2012		
Earliest >50ka	ARCHAIC	ARCHAIC IRREGULAR INFILL ANIMAL	- IRREGULAR INFILL ANIMAL	Pecked cupule <50ka I I A <20ka	Pecked Cupules and Abraded Grooves  Hand and boomerang stencils, hand prints, large outline fauna and anthropomorphs with stippled irregular infill
Most recent	TASSELLED FIGURE	BRADSHAW GROUP Tasselled- Bradshaw	NGUNURU GWION	GWION ≤ 18ka	Graceful, finely painted, slim bodied anthropomorphic figures with tassel ornamentation, elongated headdresses and sometimes holding boomerangs or wear dillybags. Small animals associated
	BENT KNEE FIGURE	Sash-Bradshaw	YOWNA GWION		Elongated anthropomorphs with very tall headdresses, sash-like aprons and with knees flexed (dancing?)
	KIMBERLEY DYNAMIC	Elegant Action Figures	DYNAMIC GWION		Elongated anthropomorphs with little body ornamentation and mostly depicted in active poses (e.g. running)
	STRAIGHT PART FIGURE	CLOTHES PEG FIGURE	DALAL GWION	STATIC POLYCHROME ≤ 12-10ka	Anthropomorphs in static frontal pose and with conical headdress. Often bichrome (although the more fugitive colour may be lost). Barbed spears, hooked spear-throwers and boomerangs
	PAINTED HANDS	CLAWED HAND	PAINTED HANDS	P H >5ka	Broad-brush outline representations with segmented or grid infill. Outlined hands with tapering fingers as individual representations
	WANJINA	WANJINA	WANJINA	WANJINA ≤5ka	Monochrome and polychrome Wanjina (heads, heads+body, or headdress alone)
	CONTACT		CONTACT		Human figures and items reflecting a European or Macassan origin

## Borologa

Borologa lies in Balangarra Country, which is owned and managed by the Balangarra Aboriginal Corporation Registered Native Title Body Corporate on behalf of the Balangarra (Kwini and Miwa) Traditional Owners. Also known as ‘Wanjina Rock’ (Welch 2015:69-71), the site is located on the banks of the Drysdale River (Figure 4) and is a prolific art and occupation rock shelter beneath a large remnant sandstone stack, 11 m long × 9 m wide × 6 m high. The rock stack has been anthropogenically undercut to form alcoves around three of its four sides (for a detailed presentation of the site, see David et al. 2019; Delannoy et al. in press) (Figure 5). An initial count located 446 individual images on 40 separate art panels on its overhanging ceiling and vertical walls, including in the alcoves. The individual art panels range in area from 0.2 m<sup>2</sup> to 13 m<sup>2</sup>, and contain from one to 111 motifs, although there is only a weak trend for motif numbers to be related to panel size.



Figure 4. Location of Borologa above the Drysdale River (photograph Robert Gunn).

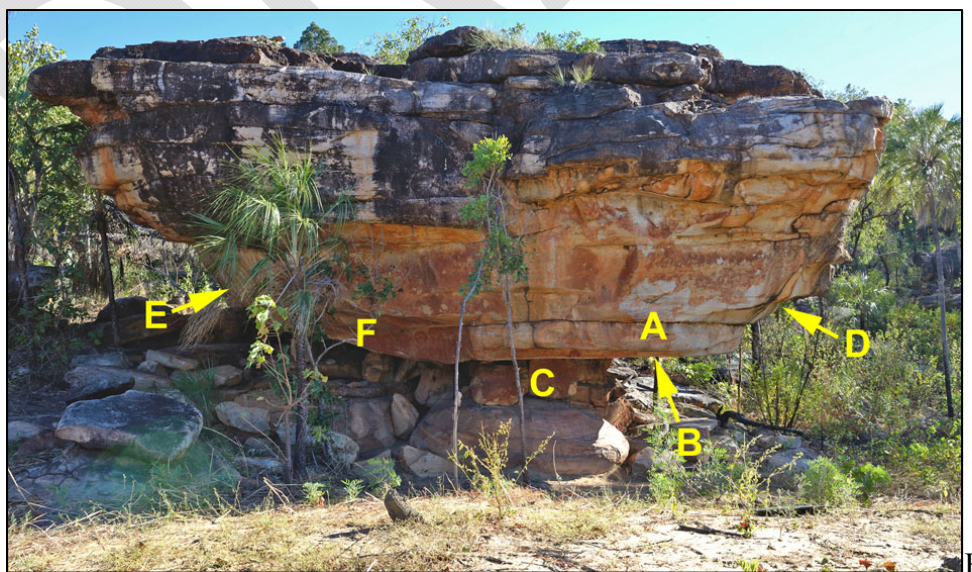


Figure 5. Borologa from the south, with the location of the Art Panels groups (photograph: Leigh Douglas)



Of the eight previously recognised Kimberley rock painting styles, only two do not occur at Borologa, Yowna Gwion, the ‘Bent Knee Figures’ of Welch 1993 and ‘Sash Bradshaws’ of Walsh 2000, and ‘Contact’ motifs (Balme and O’Connor 2015; Donaldson 2012b; Welch 1993). Of those six styles that are represented, the Dalal Gwion and Wanjina motifs are the more visually dominant: the Dalal Gwion at the western end of the shelter and Wanjina focused at the eastern end. In contrast, the Kimberley Stout figures are scattered throughout but are concentrated (n=10) with Wanjina images on Panel B1 at the south-eastern end of the shelter.

In 2016-2017, archaeological excavations were undertaken beneath and just beyond the overhang on the south-eastern side of the site (see David *et al.* 2019 for details). The basal excavated deposits consist of massive roof-fall, with overlying culturally-rich sediments beginning between 3,070-3,230 cal BP in the outer square F5 (beyond the overhang), and sometime between 2,270-3,000 cal BP in the inner squares (under the overhang). Bayesian modelling of the radiocarbon dates indicates that this part of the site then saw a series of occupational events dated to sometime between 2,110-2,370 cal BP, 1,160-2,080 cal BP, 760-1,110 cal BP, 500-630 cal BP, and 120-480 cal BP. Each of these occupational phases was separated by a hiatus variably lasting between 110 and 660 years. The past 500-630 years saw much shorter spacing between cultural levels, within an archaeological timescale at times giving the appearance of near-continuous occupation. These cultural levels include four distinct pigment horizons where the by-products of red ochre and white pigment processing and application are evident in the form of an ochre grinding stone, tiny ochre fragments, fallen spalls with traces of pigment, and paint drops in the deposit. The four pigment horizons comprise a lower horizon dated to 1,160-2,080 cal BP, followed by a second horizon dated to between 760-1,110 cal BP, a third horizon dated to within 340-630 cal BP, and an upper horizon dated to sometime after 450 cal BP. These phases of pigment preparation, and by association painting activity, have been interpreted as relating to an extensive panel of Wanjina paintings adjacent to and immediately above the excavated squares (Art Panel B1). We emphasise that the base of cultural deposits – and the earliest phases of human activity – are unlikely to have been reached by the excavations, which could not penetrate the massive layer of roof fall. Whether lower levels remain intact or have been eroded below the roof fall remains to be determined.

### **The Kimberley Stout figures**

The initial features of Borologa’s Kimberley Stout figures that led us to identify them as of a distinct style are as follows: an anthropomorph with striped infill that has an upright, frontal and static stance, tapering legs without feet, straight linear arms with hand-held boomerangs, a rayed headdress, bag-like ovate ornamentation attached to the waist, and either tendril or bag-like ornamentation coming from above the shoulders (Figure 6). With the observation and recording of a further 32 such figures across the site, a range of variations of these characteristics was noticed, all in a single style (such as different headdresses, e.g. Figures 7-10).

These 34 examples of Kimberley Stout figures were identified on 11 art panels at Borologa (Table 2). They occur primarily as red monochrome paintings, but two are in yellow and three in red with yellow infill. The two yellow and two of the red+yellow figures are on Art Panel B1 (motifs B5, B18, B70, B100), while the other red+yellow figure is on Art Panel E4 (motif F18).

The attributes of each of the recorded Kimberley Stout figures are given in Table 3, indicating that their most common features are as follows.

- Striped infill body;
- Short stout tapering legs;
- An open or enclosed rayed headdress (all figures have a headdress of some form).
- Ovate appendages across the shoulder and attached at the hips;
- A blank ‘conical’ space within the headdress at the position of the face suggestive of a mask or other covering (what Welch 2015:293 termed a ‘facial gap’).
- Stick-like arms;
- Hand-held boomerangs (where visible, most figures hold boomerangs in both hands) (Table 4).

All but four are painted in a monochrome red, the exceptions being three red+yellow bichrome figures and a single yellow figure.

However, as many are incomplete due to poor preservation or later superimposed motifs, the full attributes of many of these figures is incomplete. The most representative figures of the type (those with the greatest number of attributes) are highlighted in Table 3 and notably include two of the bichrome figures (B05 and B18) and the single yellow figure (B100).

The 19 figures that could be reliably measured range in height from 14 cm to 153 cm, with a mean of 45 cm and a median of 37 cm, with 79 per cent of figures between 14 cm and 57 cm (Figure 11). Three are between 69 cm and 91 cm tall; at 153 cm tall, the largest figure is of exceptional height. From a review of Walsh’s copiously illustrated discussion of pre-Wanjina rock art, rayed headdresses are rarely depicted, and his discussion of headdress types (in a range of styles) does not mention any rayed forms (Walsh 1994, 2000). This suggests that rayed headdresses are uncommon across the large areas of the Kimberley in which he worked. More recent, unpublished surveys by the authors and their teams, however, suggest that Kimberley Stout figures, and rayed headdresses generally, may be a local feature of Gwion rock art, at least across the north and east Kimberley. Given the incomplete state of knowledge, we cannot assume that all anthropomorphs with rayed headdresses necessarily relate to a single chronological trajectory in the sequencing of Kimberley rock art, as more than one stylistic phenomenon may be represented.

Table 2. Kimberley Stout figures at Borologa.

Art Panel	Panel Motif Nos	Kimberley Stout Figure Motif #	Motif Variation	Motif Colour	Height (cm)	Comments		
A2	13	A13	variant	red	24	Indistinct, shoulder pads missing		
		A14	variant	red		Beehive headdress, feather shoulder pads, no arms		
		A18	variant	red	45	Beehive headdress, feather shoulder pads, arms with boomerangs, cross-hatched body and legs		
A4	13	A19	variant	red	15	Beehive headdress, no other adornment		
		A24	variant	red	23	Yam-like shoulder adornment, cross-hatched body, claw-like hands		
A5	21	A25	variant	red	32	Yam-like shoulder adornment, cross-hatched body, arms with boomerangs		
B1	111	A57	variant	red	43	Yam-like shoulder adornment, arms with boomerangs		
		B05	variant	red+yellow	41	Red linework over solid yellow torso+head		
		B15	unknown	red		Remnant; head only; body hidden beneath white Wanjina background		
		B18	variant	red+yellow	69	Repainted yellow body over red head, arms and legs		
		B69	standard	red	80	Enclosed headdress, but lacking arms		
		B70	variant	yellow	91	Broad body, toes present, utilising head and arms of underlying Kimberley Stout figure B69		
		B77	unknown	red	37	Remnant; only head, parts of body and legs visible		
		B100	standard	yellow	35	Close parallel line work, open rayed headdress, arms with boomerangs		
		B103	standard	red	55	Enclosed headdress, body indistinct due to superimpositioning of Motif B105; interpretation difficult		
		B105	standard	red	50	Open headdress, arms with boomerangs, legs indistinct; interpretation difficult		
		B109	standard	red	153	Open headdress with additional cap, arms with boomerangs and unknown object		
		C7	6	C21	unknown	red		Remnant; figure with vague body and leg shape
				C22	unknown	red		Only lower portion clear but remnant striped infill body survives
				C23	standard	red	18	Lower section very clear: striped infill, no apparent body, area of head beneath overlying motif
		E2	3	E09	unknown	red		Very poorly preserved, striped body sections
E10	unknown			red		Very poorly preserved, striped body sections		
E4	45	E36	standard	red	36	Well preserved figure, enclosed headdress, arms with boomerangs, feet		
E6	3	E40	standard	red	48	Open headdress, arms with boomerangs, radiant cone headdress		
		E41	unknown	red		Remnant striped body parallel and similar size as E42		
		E42	unknown	red	24	Open cone headdress, striped body, legs indistinct,		
E8	12	E57	standard	red		Upper portion eroded, with boomerang pair in left hand		
F3	3	F02	variant	red	57	Solid body and solid headdress, unpainted head		
F4	18	F16	standard	red	21	Striped body, radiating cone headdress, otherwise indistinct		
		F18	standard	red+yellow	24	Red with solid yellow torso+head, open rayed headdress with fan-feathers		
		F21	standard	red		Remnant; striped body section and open rayed headdress only		
		F22	variant	red	14	Open rayed headdress with fan-feathers, dashed body, arm with object, lower portion indistinct		
		F23	unknown	red		Remnant; striped body and lower section only		
F24	unknown	red		Remnant; striped body and lower section only				
Total	248	n=34						

Table 3. Kimberley Stout figure attributes.

Motif #	Body striped	Tapering legs	Rayed Headdress	Ovate waist	Ovate shoulders	Blank mask	Stick arms	Red	Boomerangs	Body solid	Bichrome	Body cross-hatched	Body dashed	Yellow	TOTAL
B70		1		1									1		3
B77		1	1			1	1		1						5
A24		1	1	1			1					1			6
A25		1	1	1			1		1			1			6
B05		1	1	1	1	1	1		1	1	1				9
B18		1	1	1	1	1	1		1	1	1				9
B100	1	1	1	1	1	1	1		1					1	9
B109	1	1	1	1	1	1	1	1	1						9
B103	1	1	1	1	1	1	1	1	1						8
A13	1	1	1	1		1	1	1							7
E36	1	1	1	1	1	1	1	1							8
B69	1	1	1	1	1	1	1	1							7
B105	1	1	1	1	1	1	1	1							7
E40	1	1	1	1	1	1	1	1							7
F22	1	1	1	1	1	1	1	1							6
A57	1	1	1	1			1	1	1						7
F16	1	1	1	1											4
F02	1	1			1	1	1	1	1						7
A18	1	1					1	1	1						5
A14	1	1					1	1							4
A19	1	1			1			1							4
C21	1	1		1											3
C22	1	1		1											3
C23	1	1		1											3
E57	1	1		1											3
F21	1		1												2
F23	1		1												2
F24	1		1												2
E41	1				1										2
E10	1														1
E09	1														1
F18			1	1	1	1			1	1	1				7
B15			1		1	1									3
E42					1										1
<b>n=34</b>	<b>25</b>	<b>25</b>	<b>21</b>	<b>19</b>	<b>16</b>	<b>15</b>	<b>15</b>	<b>13</b>	<b>12</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	

**Table 4.** Accoutrements on Kimberley Stout figures at Borologa.

Accoutrements	Type	Kimberley Stout figure Motif #	Number of motifs
Headdress	Rayed open	A24, A25, A57, B15, B77, B100, B105, B109, E40, F2, F16	11
	Rayed closed	A13, B5, B18, B69, B103, E36	6
	Rayed + fan feather	F18, F22	2
	Beehive	A14, A18, A19	3
Shoulder	Ovate	B05, B18, B69, B103, B105, B109, E36, E40, F2, F16, F18, F22	12
	Fan-feather	A14, A18	2
	Tendril	A13, A24, A25, A57	4
Waist	Ovate	A13, A24, A25, A57, B5, B18, B69, B70, B100, B109, C22, C23, E36, E40, E57, F2, F16, F18, F22	19
Boomerangs		A18, A25, A57, B5, B18, B103, B100, B109, E36, E40, E57, F2	12

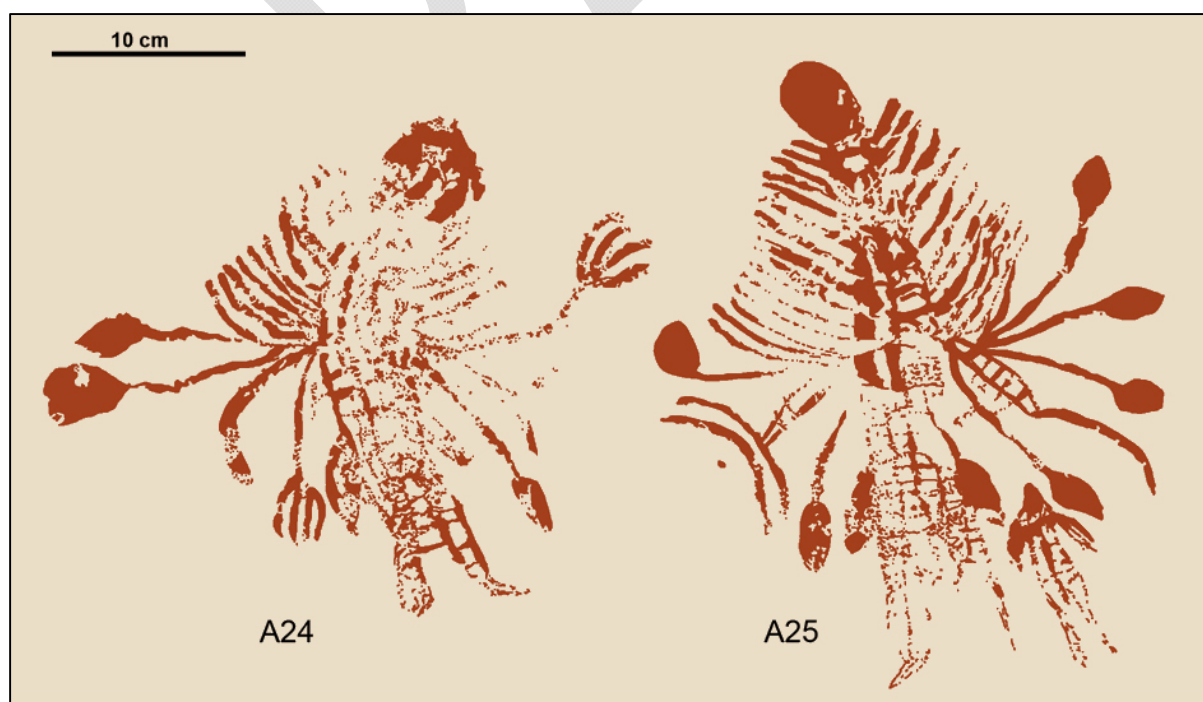


Figure 6. Two ‘tendril’ Kimberley Stout figure variations on Art Panel A2, Borologa.

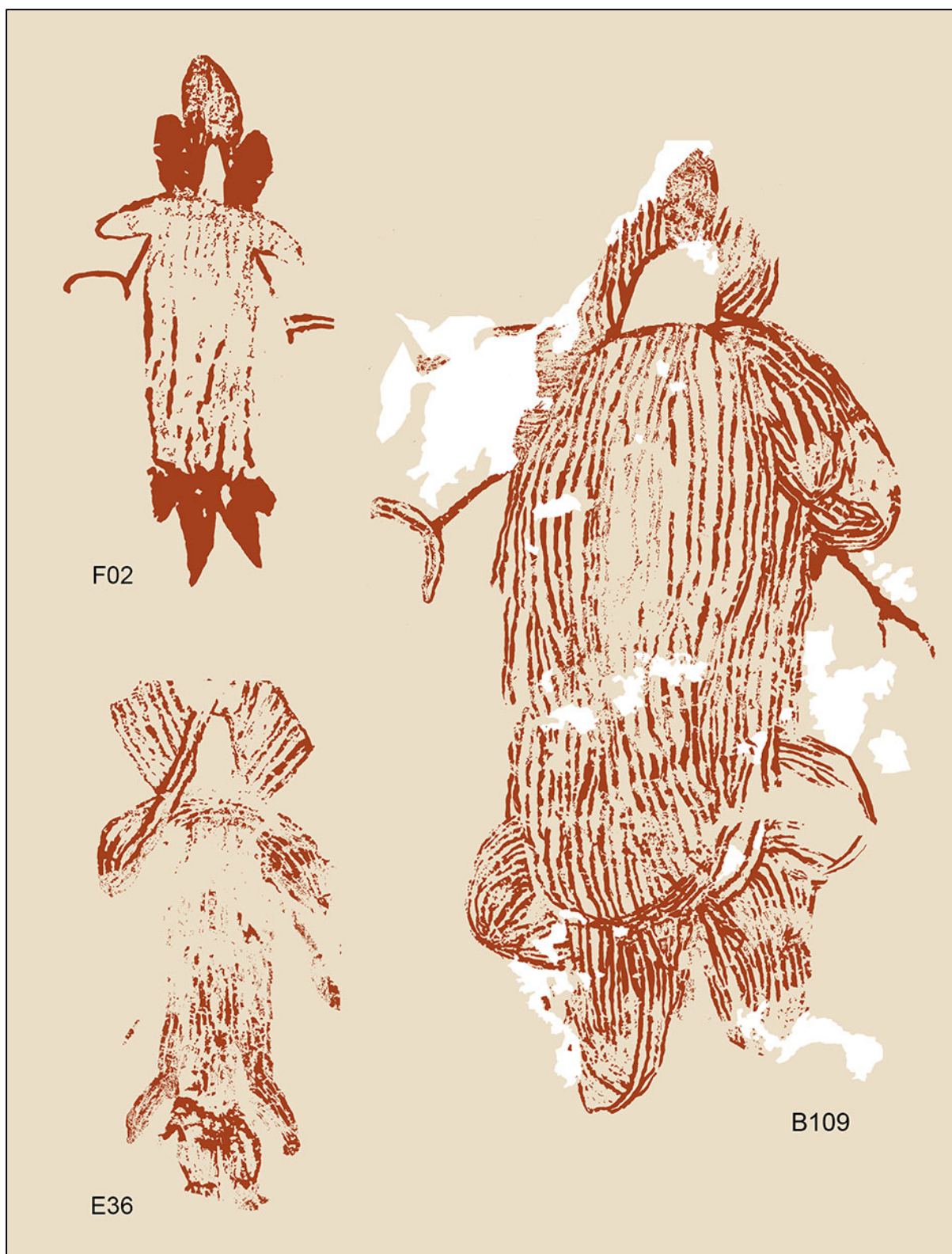


Figure 7. Examples of 'standard' Kimberley Stout figures at Borologa. Motif B109 is the largest of the Kimberley Stout figures recorded.

(White = exfoliated areas; scales variable to highlight motif form and characteristics).

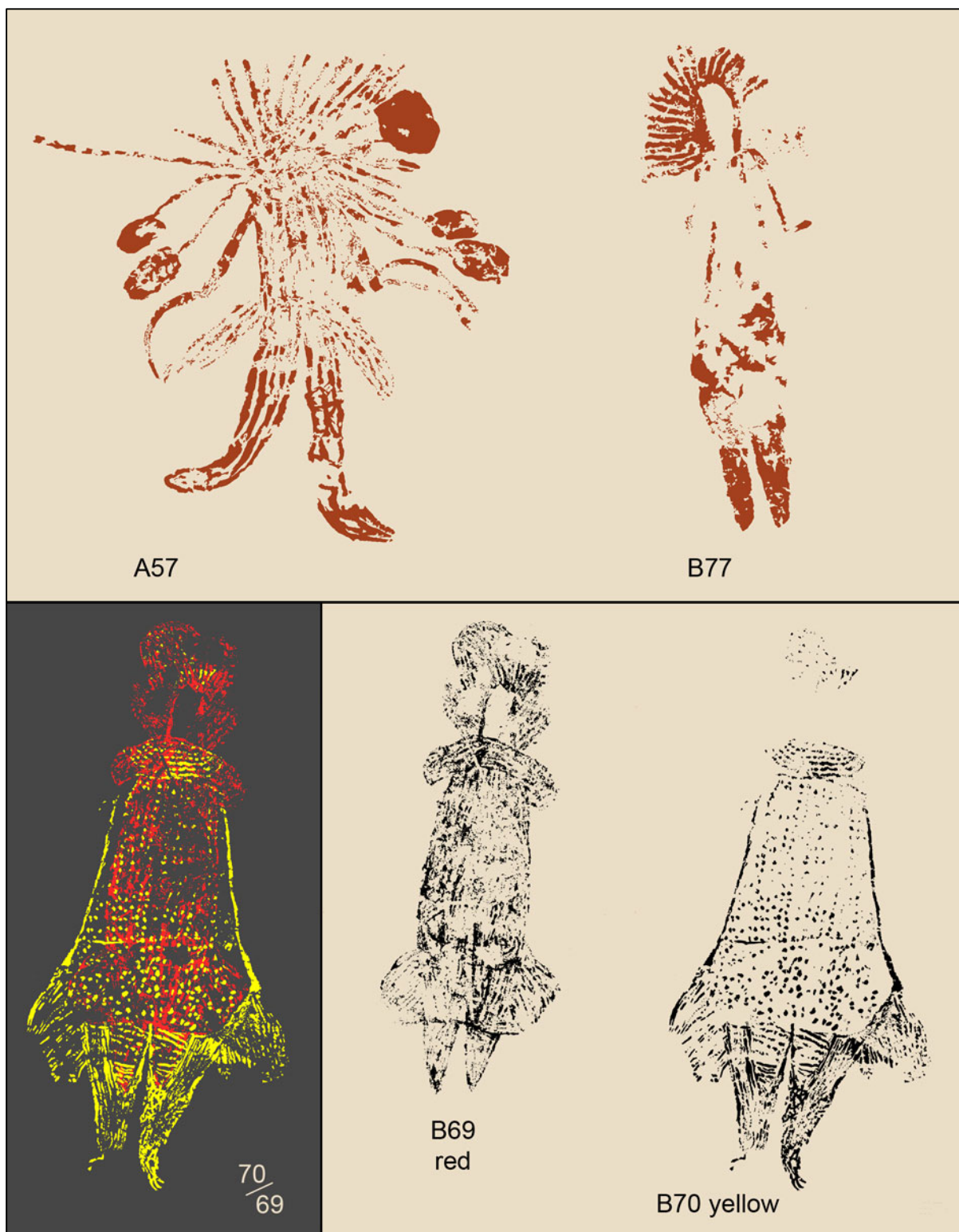


Figure 8. Examples of Kimberley Stout figures at Borologa. Motif A5 has tassel shoulder decoration, Motif B77 is unadorned, and Motif B69-70 has superimposed coloured versions. (Scales variable to highlight motif form and characteristics).

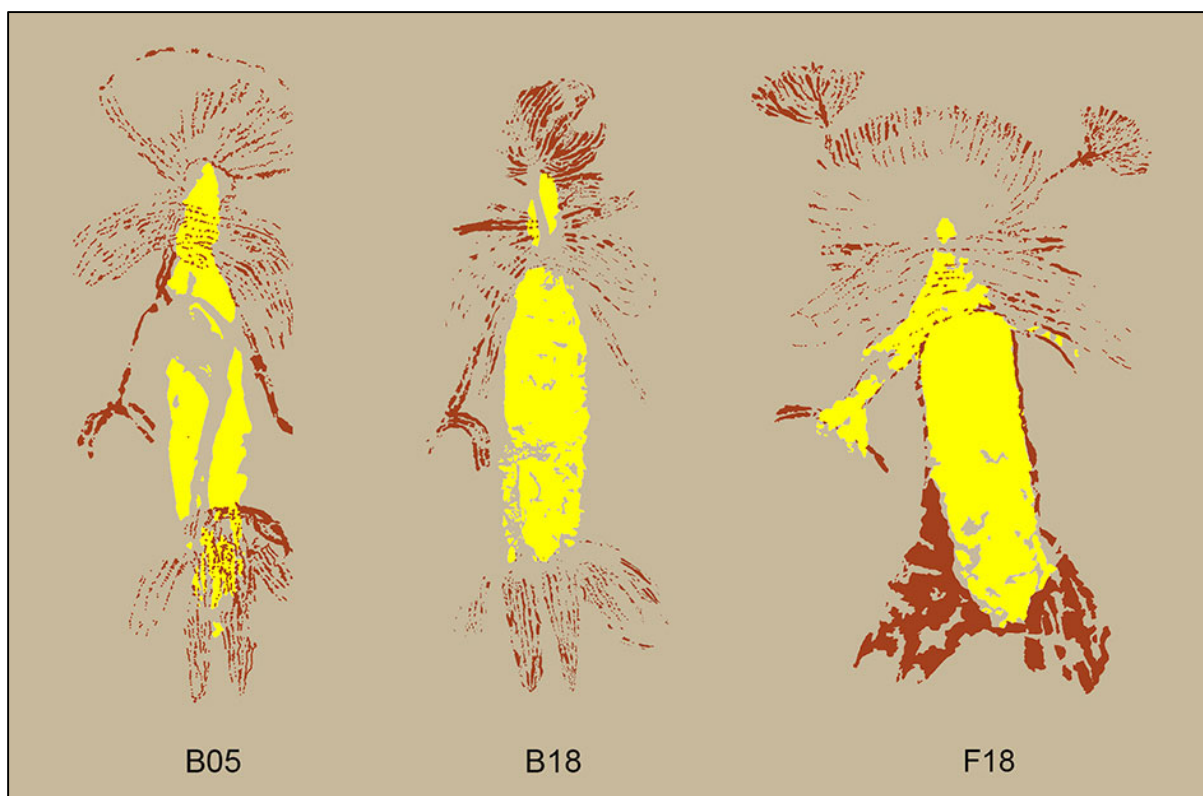


Figure 9. The three bichrome Kimberley Stout figures from Borologa. (Scales variable to highlight motif form and characteristics.

Individual heights - B05 41cm, B18: 69cm, F18: 24cm).

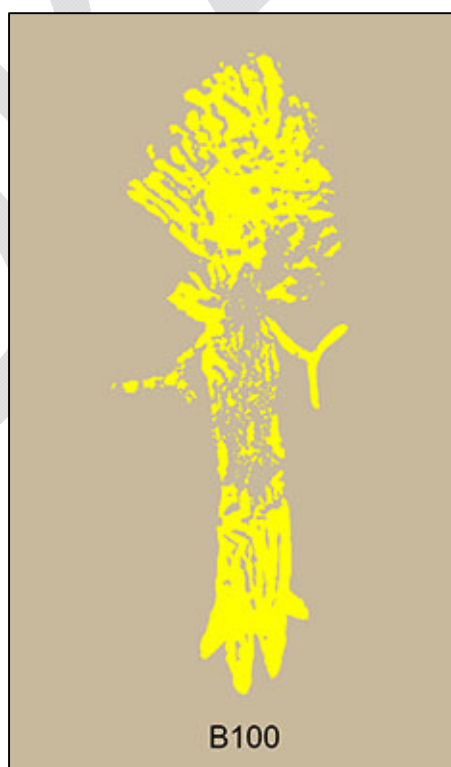


Figure 10. Monochrome yellow Kimberley Stout figure (Height of Motif B100: 35 cm).





Figure 11. Heights of individual Kimberley Stout figures from Borologa (excluding the outlier at 153 cm).

The condition of the pigment among the Kimberley Stout figures varies considerably from very faint to distinct. The figures retain little if any surface pigment, as they now exist primarily as stains in the rock face. In some cases where the pigment is very faint, the pattern of the linework remains clear. As mentioned above, many are now incomplete due to later superimposed motifs or poor preservation.

The basic template for the Kimberley Stout figures, the ‘standard’ form, is thus a monochrome red painting of static, frontal anthropomorphic figure in outline with an infill of closely-spaced parallel vertical stripes. The figures are typically less than 60 cm tall and wear a radial headdress, ovate adornments across the shoulders and attached to the waist. The arms are straight, thin lines and hold boomerang(s), while the legs, either solid or, more commonly, outlined and infilled with stripes that continue down from the torso, curve outwardly and taper to a blunt point. The ‘face’ is a blank area within the headdress.

While there are both subtle and more obvious differences in the range of attributes of individual figures present, to be classed as a Kimberley Stout figure each must conform to the motif type’s key attributes, depending on visibility (Table 3). Variations, however, can include:

- Various forms of rayed headdresses: short and straight, or long and wavy that can be either open or enclosed;
- An absence of arms;
- An absence of associated implements;
- The presence of feet/toes;
- The use of yellow for the whole figure, or as a solid yellow body to an otherwise red figure.

Art Panel A2, on the outer wall of the shelter, contains two distinct variations: one, with three examples, has tendril-like adornments attached to the shoulders (Figure 5). The other, also with three examples, has an enclosed beehive-shape headdress and ‘feather’ adornments hanging from the shoulders (Figure 12). Each of these variant types are clustered together, but with the two sets spatially separated, suggesting a clear distinction between the two sub-types within the style. Neither of these sub-types occurs elsewhere at Borologa. An earlier standard Kimberley Stout figure (A13) occurs on the same panel as the ‘beehive + feather’ variants.



Figure 12. The three ‘beehive headdress’ Kimberley Stout figure variations on Art Panel A2, Borologa.

### *Sequence*

Table 5 lists all superimpositions involving Kimberley Stout figures at Borologa. There are nine examples of Wanjina figures overlying Kimberley Stout figures (e.g. Figure 13), three of Painted Hand motifs overlying Kimberley Stout figures (e.g. Figure 14), and three of Kimberley Stout figures overlying other Kimberley Stout figures (e.g. Figures 7 and 15). Other large, elongated striped snake-like motifs both superimpose and are superimposed by Kimberley Stout figures on Art Panel B1 (Figure 16), and on Art Panel F4 Kimberley Stout figures occur both over and under another large, elongated striped motif (Figure 13). Kimberley Stout figures and the Dalal Gwion figures occur together only on Art Panel E4 (Figure 17), but their superimposition is unclear.

The instances of Kimberley Stout figures overlying other Kimberley Stout figures (B70/B69, B105/B103, F18/F16, F18/F24) suggest a recognition of the earlier motif and a deliberate placement of the later motif, as follows.

- The figures in the pair B105/B103 are both in red and of similar size, form and state of poor preservation and, as one is placed inverted over the other, it is possible that this composition is a contemporaneous painting event (Figure 15).
- The B70/B69 set is a yellow Kimberley Stout figure carefully placed over an earlier red Kimberley Stout figure.
- The F18/F16 and F18/F24 examples consist of a red+yellow Kimberley Stout figure (F18) overlying two earlier (and much more indistinct) Kimberley Stout figures in red. The body and head of Kimberley Stout figure F18 were repainted in yellow at some time after the original red linework (Figure 13). This suggests that the incorporation of yellow in this Kimberley Stout figure represents a more recent painting event than the monochrome red linear versions.

The yellow+red Kimberley Stout figure F18 is superimposed by a Wanjina head. Consequently, even this later yellow repainting event must also predate the Wanjina painting. As mentioned above, the recordings of Welch, and Walsh's unpublished database (PH, personal observation) at other sites in the area suggest that the Kimberley Stout figures both pre- and post-date the Dalal Gwions. This aspect clearly requires further investigation.

#### ***Distribution within the shelter***

Kimberley Stout figures occur on 11 art panels within each of the three alcoves around the boulder. The number of Kimberley Stout figures per art panel appears to be unrelated to either the size of the panels or the total number of motifs each panel contains (Table 6). Altogether, panels with Kimberley Stout figures contain examples of all other formally recognised Kimberley art styles represented within the shelter (Table 7), although Dalal Gwion and Wanjina figures do not occur on the same panel together and they are present in different sections of the shelter, Dalal Gwion on the edge of the western alcove (Art Panel E4) and Wanjina in the southern and south-eastern alcoves (Art Panels B1 and F4). Even on the same panel, there is rarely a clustering of Kimberley Stout figures into sets, with most occurring as isolated individuals (e.g. Figure 18). The exceptions are on Art Panels A2, B1 and F4. On Art Panel A2, two variant Kimberley Stout figures with tendril adornments occur side-by-side (Figure 11). On Art Panel B1, a Kimberley Stout figure has been placed directly over an earlier one, but in an inverted position (head to foot; Figure 15; see above), and on Art Panel F4, three remnant standard Kimberley Stout figures are placed in a row (Figure 13).

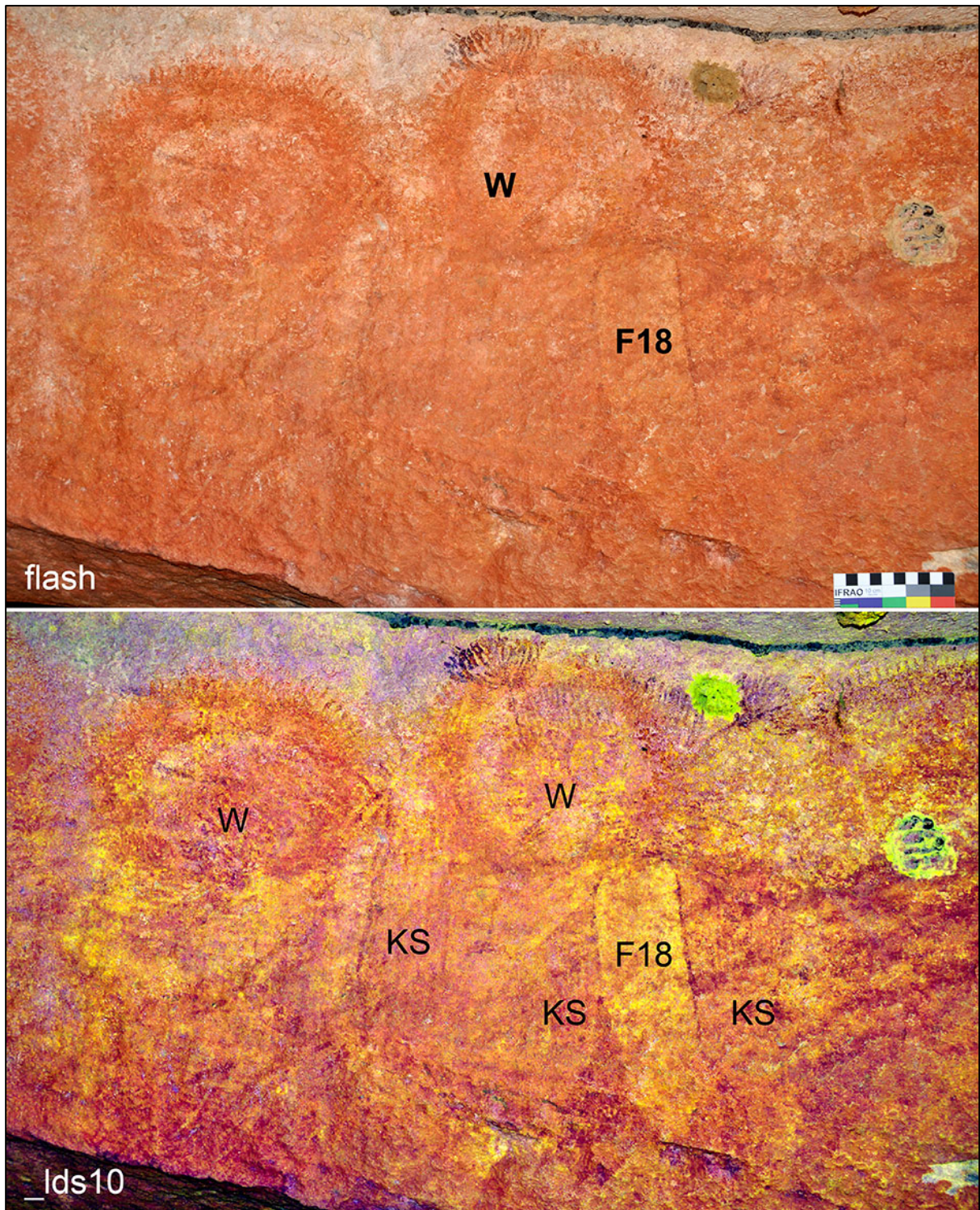


Figure 13. Bichrome Kimberley Stout figure Motif F18 on Art Panel F4 underlying Wanjina heads (W) and overlying earlier monochrome Kimberley Stout figures (KS). Flash-photo above; DStretch\_Ids10 below (photograph: Robert Gunn).

**Table 5.** Kimberley Stout figure superimposition sequences.

Superimposition Motifs overlying #	Kimberley Stout figure #	Superimposition Motifs underlying #
-	A13	-
-	A14	-
-	A18	-
-	A19	-
-	A24	-
-	A25	-
-	A57	On Panel A5: large longitudinally striped animal-like fragment On Panel B1: long cross-striped snake-like motif
White outline Argula figure (B6)	B5	-
Wanjina face (B46)	B15	-
Wanjina face (B10) / yellow oblong (B12)/ red design (B17)	B18	-
yellow outline+dot KS (B70)	B69	-
-	B70	Red standard Kimberley Stout figure (#B69)
Wanjina figure (B74)	B77	-
red smear (B101)	B100	-
standard Kimberley Stout figure (B105)	B103	-
-	B105	Standard Kimberley Stout figure (B103)
Wanjina arcs (B108, B110)	B109	-
'Painted Hand' period motif	C21	-
'Painted Hand' period motif	C22	-
'Painted Hand' period motif	C23	-
-	E9	-
-	E10	-
orange fine-line design/ red stick figure	E36	Unclear [red Dalal/yellow Dalal]
red drawn anthropomorph	E40	-
-	E41	-
-	E42	-
yellow line set	E57	Yellow anthropomorph
Wanjina Period snake/vertical column of bars	F2	-
Wanjina heads (F15, F17)	F16	Horizontal red striped design (F20)
Wanjina head (F17)	F18	Horizontal red striped design (F20)/ vertical red striped Kimberley Stout figures (F23, F24)
Horizontal red striped design (F20)	F21	-
-	F22	-
Wanjina head (#F18)/ r+y Kimberley Stout figure (F18)/horizontal red striped design (F20)	F23	-
Wanjina head (F18)/ r+y Kimberley Stout figure (F18)/horizontal red striped design (F20)	F24	-

x/y = motif 'x' overlies motif 'y'



Figure 14. Art Panel C7. Flash-photo above, and photo-tracing from enhanced DStretch\_lds10 image illustrating superimposition of Kimberley Stout figures (C21-C23) by larger 'Painted Hand' period figure (C20) (photograph: Robert Gunn).

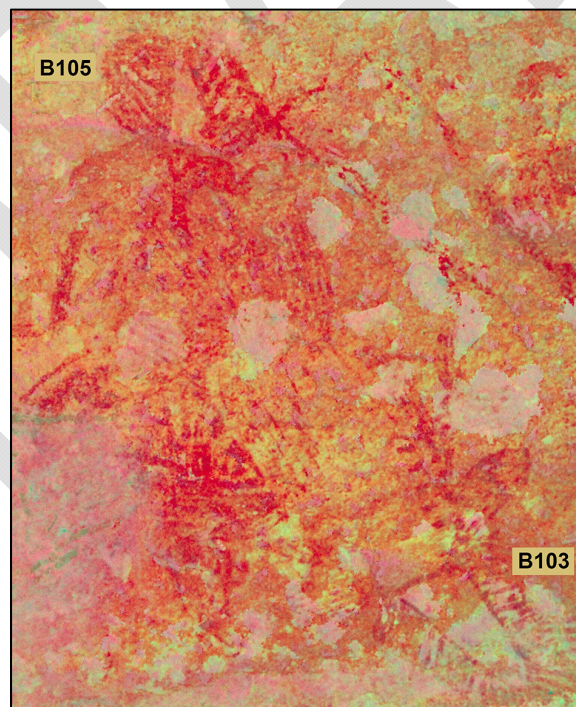


Figure 15. Superimposition of two Kimberley Stout figures (B105 and B103) on Art Panel B1. DStretch\_lre10 enhancement. Although recognisable, it is not possible to disentangle these two images into discrete figures (photograph: Robert Gunn).

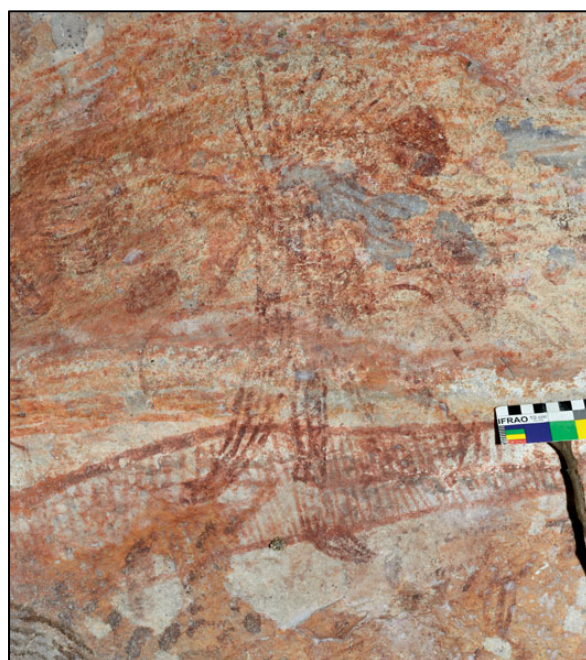


Figure 16. Kimberley Stout figure Motif A57 on Art Panel A5, showing context and superimposition (photograph: Robert Gunn)

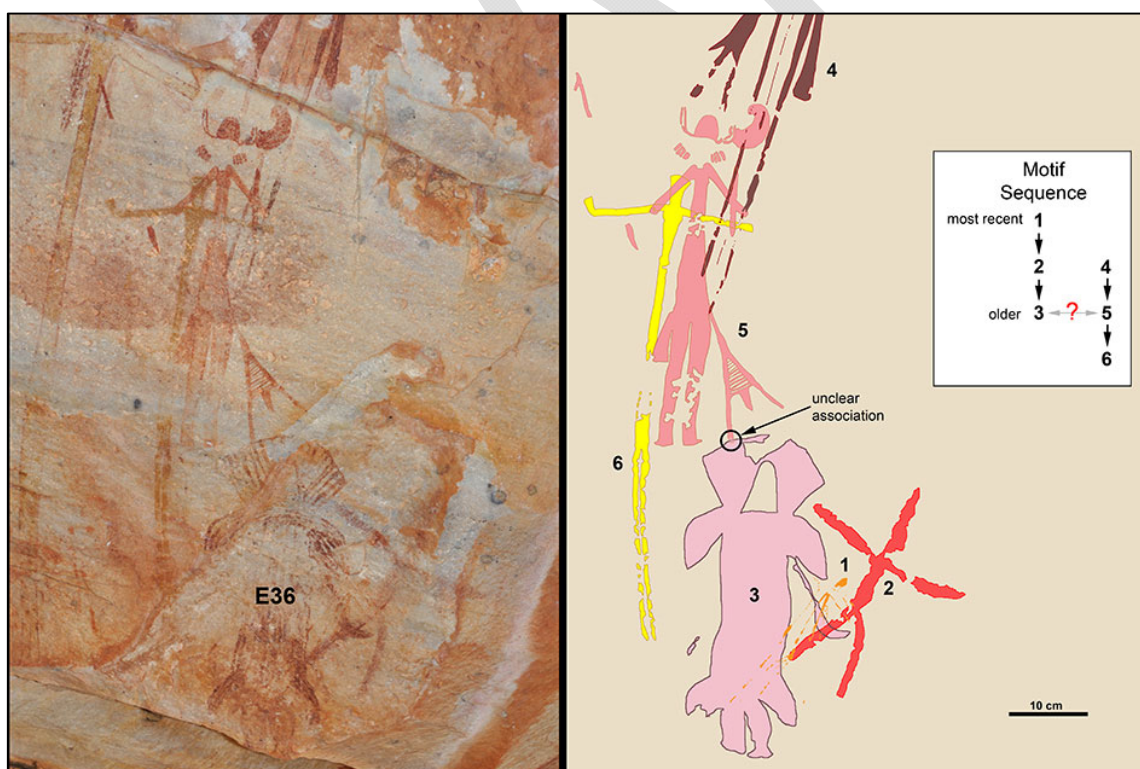


Figure 17. Superimposition sequence involving the single Kimberley Stout figure (#3) on Art Panel E4, Borologa (photograph: L. Douglas).

**Table 6.** Number of Kimberley Stout figures per Art Panel.

Art Panel	Area of Art Panel (m <sup>2</sup> )	Number of Motifs on Art Panel	Number of Kimberley Stout figures
B1	10.9	111	10
E4	3.8	45	1
A5	1.4	21	1
F4	2.1	18	6
A2	2.5	13	4
A4	1.5	13	2
E8	1.2	12	1
C7	0.6	5	2
E6	0.8	3	3
F3	1.7	3	1
E2	1.1	2	2
<i>Total</i>	<i>27.6</i>	<i>239</i>	<i>33</i>

**Table 7.** Associations of art style/period for Kimberley Stout figures.

Panel	Hand stencil	Irreg. Infill Animal	Ngunuru Gwion	Dalal Gwion	Painted Hand	Wanjina	drawing	other
E8	x			x			x	x
E4		x		x				
A5		x				x		
A4			x				x	
B1						x		x
C7					x			
F3						x		
F4						x		
A2								x
E2								nil
E6								nil



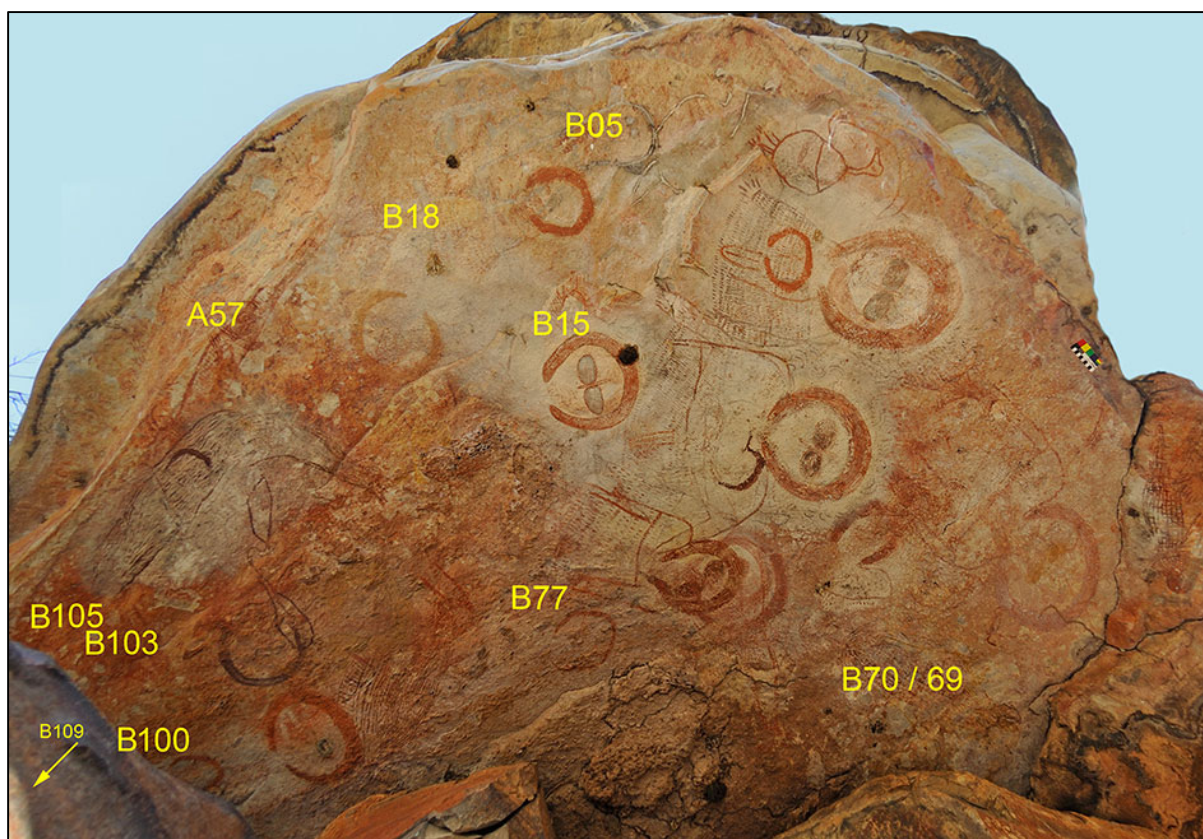


Figure 18. Distribution of Kimberley Stout figures across Art Panel B1. The location of each Kimberley Stout figure is indicated by its Motif Number. Motif A57 was painted on Art Panel A5, but has its legs extending around onto Art Panel B1 (photograph: Robert Gunn).

### ***Dating the Kimberley Stout figures***

When occurring in superimposition, the Kimberley Stout figures at Borologa always occur beneath Wanjina and Painted Hand paintings, and are therefore older. If we take this to mean that Kimberley Stout figures predate each of these two overlying art styles, their minimum antiquity can be worked out by determining the age of the Wanjina and/or Painted Hand paintings. Although the standard Kimberley Stout figures predate both the Wanjina and Painted Hand styles, neither of these latter two styles has been firmly dated, so no precise age can yet be proposed for the period of the Kimberley Stout figures and its style. Nevertheless, some absolute ages have been produced for Wanjina art: a simple Wanjina head in beeswax appliqué has been dated to 3,981-4,404 cal BP at 95.4 per cent probability ( $3,780 \pm 60$  BP), with a median age of 4,161 cal BP (Morwood et al. 2010:4-5); and the earliest dated ‘classic’ Wanjina painting is 799-1,379 cal BP ( $1,210 \pm 140$  BP), with a median age of 1,126 cal BP (Morwood et al. 2010:5), with other dates obtained by a number of researchers being more recent (e.g. David et al. 2019; Morwood et al. 2010; Roberts et al. 1997; Ross et al. 2016). An echidna motif, provisionally attributed to the Painted Hand style, was found to be less than 900 years old (Ross et al. 2016:26), suggesting a chronological overlap of the Wanjina and Painted Hand styles. At Borologa itself, David et al. (2019) concluded from their excavations beneath Art Panel B1– excavation deposits rich in evidence of pigment processing and application, beneath a rock ceiling densely covered with Wanjina motifs – that white backgrounds beneath Wanjina motifs first appeared in this part of the site by 1,160 cal BP,

and possibly as early as 2,080 cal BP (the age uncertainty relates to the probability range of the Bayesian modelling based on 38 AMS radiocarbon dates on individual pieces of charcoal).

Ross *et al.* (2016) also dated beeswax resin overlying what they term a Dalal (Wararrajai) Gwion figure to around 700 years ago (Ross *et al.* 2016:16, figure 5E; calibrated radiocarbon ages of 687-884 cal BP and 666-771 cal BP), indicating that the underlying figure must be older (the Wararrajai Gwion is the western Kimberley term for Dalal Gwion; Donaldson 2012a:13). Adjacent to this Dalal Gwion figure and underlying the same beeswax resin is a second motif that they considered to be paired with the Dalal Gwion. However, this second figure has some of the attributes of the Kimberley Stout figures as presented here (frontal, static, waist adornment, rayed headdress), although it also has differences such as the lack of shoulder adornments and underarm dillybags. From their photograph, the second figure appears better preserved than the more classic Wararrajai (Dalal) Gwion figure to its right, akin to the relationship between Kimberley Stout figure E4 at Borologa and its associated Dalal Gwion figure (Figure 17). Ross *et al.*'s (2016) dating of the Dalal Gwion figure to >650 cal BP (and potentially much older), must therefore be extended to their second motif also and, if a regional association can be determined for the Kimberley Stout figures across the western and north-western Kimberley, then such a minimum age can be assumed for the Kimberley Stout figures at Borologa.

Although the chronological relationship between Dalal Gwion and Kimberley Stout figures is not clarified at Borologa, in an unpublished 2011 entry of the Takarakka database (PH, personal observation), the recorders mention that two [Dalal Gwion] at site 0300 (15 km to the south-west of Borologa) 'are superimposed by two unidentified anthropomorphs in orange hue', emphasising that those two orange anthropomorphs are in 'clear superimposition here OVER classic [Dalal Gwion]'. The 'orange anthropomorphs' were likened in the database to Mantis Bradshaw variants at adjacent site 0297, but are variants of Kimberley Stout figures as defined in this paper (see discussion below).

As noted above, given that Morwood dated a Wanjina image to c. 4,161 cal BP (median age), and the earliest 'classic' Wanjina to c. 1,126 cal BP, and that excavations at Borologa show that the painting of Wanjina images began on Panel B1 by 1,160 cal BP, and possibly as early as 2,080 cal BP (David *et al.*, 2019), Kimberley Stout figures are here interpreted to be older than 1,200 years old, and possibly older than 2,000 years; exactly how much older remains unknown.

In a study of north-west Kimberley rock art, 100 km to the west of Borologa, a Wararrajai (Dalal) Gwion was dated from a beeswax overlay as being >660 cal BP (Ross *et al.* 2016). From an overlying mudwasp nest, Ross *et al.* (2016) also dated a second Wararrajai (Dalal) Gwion figure to >900 cal BP, with the same nest giving a maximum age for a Painted Hand motif. In the same region, Travers and Ross (2017) found that there was a change in associated implements through time, from boomerangs to multi-barbed spears and spearthrowers in their Wararrajai (Dalal) Gwion paintings. As most of the Kimberley Stout figures carry boomerangs (with none having spears or spearthrowers), this would suggest that the Kimberley Stout figures precede the Dalal Gwion. However, if the choice of weapons depicted is dependent on the anthropomorphic motif type within a given period of painting activity (Dalal Gwion versus Kimberley Stout figures), the associated weapons would not necessarily indicate sequential art periods.

### **Associations**

Kimberley Stout figures have no known close counterpart in Kimberley rock art. Nevertheless, a few of their attributes can be recognised in other styles. For example, the large shoulder adornments on Kimberley Stout figures have a parallel in the smaller ‘yoke’ on Wanjina, as in both styles the arms come from below the adornment or yoke, indicating the latter’s positioning above the shoulders (e.g. Walsh 1997b:60-61). In a similar manner, the large waist adornments of Kimberley Stout figures have parallels with the waist ‘pom-poms’ and ‘dancing balloons’ in Walsh’s (2000: 289-291) Sash Bradshaws, although the decorations on the latter are only depicted on one side of the body. The closest parallels, however, are displayed in examples of Walsh’s (2000:156-159, 373) Mantis Bradshaws of his later Bradshaw Period. Walsh’s database includes an example of a painting with Kimberley Stout figure attributes but with the tapering cigar-shaped body of a Mantis Bradshaw. Mantis Bradshaws can display a number of features in common with Kimberley Stout figures:

- Rayed headdresses that encompass a small, pointed head;
- Feather adornments on arms or attached to shoulders;
- A large waist adornment;
- The carrying of single or sets of boomerangs.

Although positioned mostly as single figures, Walsh’s Mantis Bradshaws (Mantis Gwions) also occur in linear groups of similarly sized figures, such as with the row of Kimberley Stout figures on Art Panel F4 at Boroloka. These associations indicate that Kimberley Stout figures did not develop as an unrelated art form in the Kimberley, as they display common threads with other rock art styles of the region. The stout bodies of Kimberley Stout figures clearly differentiate them from the thin elongated bodies of Mantis Bradshaw. However, whether Kimberley Stout figures can be classed as a sub-type of Walsh’s Mantis Bradshaws remains to be determined.

### **Conclusion**

To date, the categorisation of Kimberley rock art has concentrated on the more obvious, and spectacular, Gwion and Wanjina figures, giving considerable attention to the form of figures and the range of associated attributes (e.g. Travers 2015; Travers and Ross 2016, 2017; Walsh 1997a, 1997b, 2000; Welch 1993, 2016). Likewise, the dating programmes undertaken have largely focused on the better recognised, and more spectacular, styles, again especially the various forms of Gwion figures and Wanjina paintings.

The Kimberley Stout figures at Boroloka were identified during a detailed recording of the art at that site. The figures all retain a distinctive set of characteristics, while also showing some degree of variability. While other examples exist within 10 km of Boroloka (Mike Donaldson, pers. comm. 2018; and see Figure 19), the full extent of their distribution, sequence, and range of characteristics remain to be determined. Also, whether they represent a distinctive *chronological* style separate from all the others in the Kimberley has yet to be determined.

The identification of Kimberley Stout figures as a distinct category of rock art not previously recognised in the Kimberley suggests that other significant but yet unrecognised motif types and styles (whether local or regional in extent) are also likely to exist. This, in turn, suggests that a more refined recording and appreciation of the Kimberley’s rock art is required for a fuller understanding of its content, character, and spatial and temporal patterning.



Figure 19. Kimberley Stout Figures at another site some 10 km upstream from Borologa (photograph: Michael Donaldson).

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### References

- Akerman, K. 2016 *Wanjina: notes on some iconic Ancestral Beings of the Northern Kimberley*. Victoria Park (WA): Hesperian Press.
- Aubert, M. 2012 A review of rock art dating in the Kimberley, Western Australia. *Journal of Archaeological Science* 39(3):573-577.
- Balme, J. and S. O'Connor 2015 A 'port scene', identity and rock art of the inland southern Kimberley, Western Australia. *Rock Art Research* 32(1):75-83.
- Blundell, V. and D. Woolagoodja 2005 *Keeping the Wandjinas fresh*. Fremantle: Fremantle Arts Centre Press.
- Capell, A. 1972 *Cave painting myths: Northern Kimberley*. Oceania and Linguistic Monographs 18. Sydney: University of Sydney.
- Crawford, I.M. 1968 *The art of the Wandjina*. Melbourne: Oxford University Press.
- Crawford, I.M. 1977 The relationship of Bradshaw and Wanjina art in north-west Kimberley. In P.J. Ucko (ed.), *Form in Indigenous Art*, pp. 357-369. Canberra: Australian Institute of Aboriginal Studies.
- D'Alleva, A. 2005 *Methods and theories of art history*. London: Laurence King.

- David, B., J.-J. Delannoy, F. Petchey, R.G. Gunn, J. Huntley, P. Veth, K. Genuite, R.J. Skelly, J. Mialanes, S. Harper, S. Ouzman, Balangarra Aboriginal Corporation, P. Heaney, A. Coster and V. Wong 2019 Dating painting events through by-products of ochre processing: Borologa, Kimberley, Australia. *Australian Archaeology* 85(1): 52-94.
- Donaldson, M. 2007 Overview of Kimberley rock art. In M. Donaldson and K. Kenneally (eds) *Rock art of the Kimberley*, pp. 1-24. Perth: Kimberley Society.
- Donaldson, M. and K. Kenneally (eds) 2007 *Rock art of the Kimberley*. Perth: Kimberley Society.
- Donaldson, M. 2012a *Kimberley Rock Art – Volume One: Mitchell Plateau area*. Perth: Wildrocks Publications.
- Donaldson, M. 2012b *Kimberley Rock Art – Volume Two: North Kimberley*. Perth: Wildrocks Publications.
- Doring, J. (ed.) 2000 *Gwion Gwion: secret and sacred pathways of the Ngarinyin people of Australia*. Koln: Könemann.
- Elkin, A.P. 1930 Rock paintings in north-west Australia. *Oceania* 1(3): 257-279.
- Franklin, N.R. 2004 *Explorations of variability in Australian prehistoric engravings*. BAR International Series 1318. Oxford: British Archaeological Reports.
- Green, H., A. Gleadow and D. Finch 2017a Characterisation of mineral deposition systems associated with rock art in the Kimberley region of northwest Australia. *Data in Brief* 14:813-835.
- Green, H., A. Gleadow, D. Finch, J. Hergt and S. Ouzman 2017b Mineral deposition systems at rock art sites, Kimberley, Northern Australia – field observations. *Journal of Archaeological Science: Reports* 14:340-352.
- Grey, G. 1841. *Journal of two expeditions of discovery in North-West and Western Australia during the years 1837, 38 and 39*. Volume 1. London: Boone.
- Gunn, R.G., L.C. Douglas and R.L. Whear 2013 The ‘Ngar-mimi’ motif from the Arnhem Land Plateau. *Rock Art Research* 30(2):217-234.
- Lommel, K and A. Lommel 1955 *Rock painting sites in the Kimberley region: descriptions and copies of the paintings*. Geneva: Bradshaw Foundation.
- Love, J.B.R. 1930 Rock paintings of the Worrora and their mythical interpretation. *Journal of the Royal Society of Western Australia* 16:1-24.
- Morwood, M.J., G.L. Walsh and A.L. Watchman 2010 AMS radiocarbon ages for beeswax and charcoal pigments in north Kimberley rock art. *Rock Art Research* 27(1):3-8.
- Mowaljarlai, D. and J. Malnic 1993 *Yorro Yorro: spirit of the Kimberley*. Broome: Magabala Books.
- O’Connor, S., J. Balme, J. Fyfe, J. Oscar, M. Oscar, J. Davis, H. Malo, R. Nuggett and D. Surprise 2013 Marking resistance? Change and continuity in the recent rock art of the southern Kimberley, Australia. *Antiquity* 87(336):539-554.
- Plog, S. 1983 Analysis of style in artefacts. *Annual Review of Anthropology* 12:125-142.
- Roberts, R.G. 2000 Luminescence dating of Kimberley rock art. In G.L. Walsh (ed.), *Bradshaw Art of the Kimberley*, pp.46-49. Toowong: Takarakka Nowan Kas Publications.
- Roberts, R.G., G. Walsh, A. Murray, J. Olley, R. Jones, M. Morwood and C. Tuniz 1997 Luminescence dating of rock art and past environments using mud-wasp nests in northern Australia. *Nature* 387(6634):696-699.
- Ross, J., K. Westerway, M. Travers, M.J. Morwood, J. Hayward 2016 Into the past: a step towards a robust Kimberley rock art chronology. *PLoS ONE* 11(8): e0161726. doi:10.1371/journal.pone.0161726.
- Schaafsma, P. 1985 Form, content and function: theory and method in North American rock art studies. In M.B. Schiffer (ed.), *Advances in Archaeological method and theory* 8, pp.

- 237-277. New York: Academic Press.
- Schulz, A.S. 1956 North-west Australian rock paintings. *Memoirs of the National Museum of Victoria* 20:7-43.
- Travers, M. 2015 Continuity and change: exploring stylistic transitions in the anthropomorphic figures of the northwest Kimberley rock art assemblage and the varying contexts of rock art production. Unpublished PhD thesis, University of New England, Armidale.
- Travers, M. and J. Ross 2016 Continuity and change in the anthropomorphic figures of Australia's northwest Kimberley. *Australian Archaeology* 82(2):148-167.
- Travers, M. and J. Ross 2017 The shifting function of artefacts in Australia's north-west Kimberley rock art assemblages. *The Artefact* 38:8-26.
- Veth, P., C. Myers, P. Heaney, S. Ouzman 2018 Plants before farming: the deep history of plant-use and representation in the rock art of Australia's Kimberley region. *Quaternary International* 489:26-45.
- Walsh, G.L. 1994 *Bradshaws: ancient rock paintings of north-western Australia*. Carouge-Geneva: Edition Limitee.
- Walsh, G.L. 1997a Ancient rock art of the Kimberley. In K.F. Kenneally, M.R. Lewis, M. Donaldson and C. Clement (eds), *Aboriginal rock art of the Kimberley*, pp. 25-38. Kimberley Society Occasional Paper No.1. Perth: Kimberley Society.
- Walsh, G.L. 1997b Wandjinas and recent rock art of the Kimberley. In K. F. Kenneally, M. R. Lewis, M. Donaldson and C. Clement (eds), *Aboriginal rock art of the Kimberley*, pp. 53-64. Kimberley Society Occasional Paper No.1. Perth: Kimberley Society.
- Walsh, G.L. 2000. *Bradshaw art of the Kimberley*. Brisbane: Takarakka Nowan Kas Publications.
- Welch, D.M. 1993 The early rock art of the Kimberley, Australia: developing a chronology. In J. Steinbring, A. Watchman, P. Faulstich, and P. S. C. Taçon (eds), *Time and space: dating and spatial considerations in rock-art research*, pp. 13-21. Occasional Australian Rock Art Research Association Publication 8. Melbourne: Australian Rock Art Research Association.
- Welch, D. 2015 *Aboriginal paintings of Drysdale River National Park, Kimberley, Western Australia*. Coolalinga: David M. Welch.
- Welch, D. 2016 *From Bradshaw to Wandjina: Aboriginal paintings of the Kimberley Region, Western Australia*. Coolalinga: David M. Welch.
- Wiessner, P. 1984 Reconsidering the behavioural basis for style: a case study among the Kalahari San. *Journal of Anthropological Archaeology* 3:190-234.
- Wiessner, P. 1985 Style or isochrestic variation? A reply to Sackett. *American Antiquity* 50:160-166.