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HAND STENCILS WITH AND WITHOUT NARROWED FINGERS AT TWO NEW ROCK ART SITES IN SULAWESI, INDONESIA

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Abstract. The rock art at Gua Andomo and Gua Lampetia, two newly described sites in the Indonesian island of Sulawesi, is dominated by hand stencils. The Gua Andomo stencils include a variant focused on Sulawesi which involves narrowed fingers. This variant has been documented for many of the hand stencils of south-west Sulawesi, including an example dated to the Late Pleistocene. The extent of the variant's distribution hundreds of kilometres to the east is demonstrated by the location of Gua Andomo towards the centre of Sulawesi, and other narrow-fingered hand stencils recently documented from the Matarombeo Massif and Muna Island. The widespread occurrence of these stencils suggests the expression of a shared cultural heritage with hunter-gatherer origins across a large swathe of Sulawesi.

Introduction

This contribution presents an analysis of the hand stencils from Gua Andomo and Gua Lampetia, two recently documented art sites on the Indonesian island of Sulawesi (Fig. 1). Both sites lie near Lake Towuti, Sulawesi's largest freshwater lake, and were recorded as part of 'The Archaeology of Sulawesi: A Strategic Island for Understanding Modern Human Colonization and Interactions across our Region' project (2011–13). In this contribution, we draw upon our unpublished reports presented to Indonesia's National Research Centre for Archaeology in providing background to the analysis of the Gua Andomo and Lampetia rock art. We also note the broadened per-spectives on the Towuti rock art provided by the recently obtained Late Pleistocene dates, between c. 18 000 and 40 000 years ago, on cave paintings in the south-west peninsula (Aubert et al. 2014).

The Indo-Malaysian Archipelago has numerous painted rock art sites distributed from Sumatra and peninsular Malaysia in the west to Timor, the Kai Islands and coastal West Papua in the east. One particularly important, recent discovery involves a rich body of cave paintings from East Kalimantan in Indonesian Borneo. The Archipelago's overall repertoire includes figurative motifs (notably, anthropomorphs, zoomorphs and 'boats'), pigment-spray outlines including stencils of hands, feet and implements, and abstract motifs such as 'sun' emblems and geometric designs. The predominant colours are red and black, with rarer colours including brown, yellow, white and green (Van Heekeren 1972; Setiawan 2000, 2010; O'Connor 2003, 2015; Arifin and Delanghe 2004; O'Connor and Oliveira 2007; Fage and Chazine 2009; Taçon et al. 2014; Tan 2014; O'Connor et al. 2015). To our knowledge, chemical analysis of the pigments has not been pursued but a number of potential colourants have been proposed in the literature (Table 1).

Documentation of the rock paintings of Sulawesi,

Colour	Potential pigment	Reference
Red	Haematite (ochre)	Glover 1978, 1981; Arifin and Delanghe 2004
Yellow	Faded haematite (ochre)	O'Connor 2003; Arifin and Delanghe 2004
Brown	Clay	Kosasih 1985
White	Lime paste	Arifin and Delanghe 2004
Green	Copper ores	O'Connor 2003
Black	Charcoal, discoloured haematite	Fage 2009a, 2014; this paper (Gua Lampetia)

Table 1. *Colours recorded for Indo-Malaysian Archipelago rock art and potential pigments.*

which lies towards the centre of the Indo-Malaysian Archipelago, began in 1950 with the recording of hand stencils and zoomorphs in the limestone karsts of Maros in Sulawesi Selatan (Van Heekeren 1952). The Maros karsts remained a focus of excavation and survey in Sulawesi, resulting in the documentation of numerous additional cave paintings (Glover 1978; Makkulasse 1986). A subsequent focus of new finds was Pangkajene to the north of Maros, particularly with the discovery of Sumpang Bita and the complex of painted caves and rockshelters in the Belae karsts (Suprapta 1996). Archaeological outreach in Sulawesi also led to the discovery of red figurative and geometric paintings in caves and rockshelters on Muna Island, off the south-east tip of Sulawesi (Kosasih 1985). Following the turn of the millennium, rock paintings have been recorded more widely across the southern half of Sulawesi. Documented sites (Fig. 1) include: Batu Ejaya and Panganreang Tudea on the south-west coast, and to their north, Gua Batti and Gua Uhallie (Appendix A); unpublished sites in the Tomori Bay area in between Sulawesi's two eastern arms; four sites along the Matarombeo Massif (Fage 2014; Hakim 2015); and Gua Andomo and Gua Lampetia near Lake Towuti (this paper).

***Figure 1**. Some major painted art sites in Malaysia and Indonesia (top) and locations of Sulawesi painted caves referred to in the text (bottom). (Sulawesi provinces separated by dashed lines.)*

Late Pleistocene origins for Indo-Malaysian Archipelago rock paintings have been demonstrated with uranium-series dates between circa 40 000 BP and 18 000 BP on 'popcorn' coralloid speleothems at seven rockshelters in Sulawesi (Aubert et al. 2014). The dated speleothems cover hand stencils, a *Babirusa* 'pig deer' and a probable suid, either *Babirusa* or the Sulawesi boar *Sus celebensis* (Table 2). The recovery of red pigment on a piece of rock fall from Lene Hara Cave in East Timor, bracketed by layers of calcite dating to around 30 000 BP, suggests a similar antiquity for at least some of its red pigment art (Aubert et al. 2007). The hand stencils and zoomorphs at Leang Sakapao 1 (Pangkajene) may date to 30–20 000 BP, the only period with evidence of occupation (O'Connor and Bulbeck 2013). A Pleistocene origin is also likely for the Kalimantan rock art, to go by Gua Ilas Kenceng with its panel of hand stencils. Charcoal from the deposit has yielded four Late Pleistocene radiocarbon dates between 12 487±160 BP and 27 309±209 BP (Fage 2009b), and a stalactite flow covering one of the hand stencils is dated to circa 9900

Site	Minimum direct dates (with two standard error ranges)
Leang Barugayya 2	Probable suid 44 000+9100/–8300 BP (no hand stencils)
Leang Timpuseng	Hand stencil, normal fingers 40 700+870/–840 BP; babirusa 36 900 +1600/–1500 BP
Leang Jarie	Hand stencils, normal fingers 39 670±320 BP and 34 980±410 BP
Leang Sampeang	Hand stencil, normal fingers 32 600±760 BP
Gua Jing	Hand stencils, normal fingers 30 900+1700/–1800 BP and 24 000±1100 BP
Leang Barugayya 1	Hand stencils, normal fingers 29 100+3200/–3100 BP, 24 900+3100/–3000 BP and 19 700±1000 BP
Leang (Tapuang) Lompoa	Hand stencils, normal fingers 29 300+1200/–1100 BP, narrow fingers 17 770±420 BP

***Table 2.** Sites in Leang-Leang, Maros karsts, with directly dated rock art (Aubert et al. 2014).*

Region	Non-APT art only	Mainly non-APT art	Mainly APT art	APT art only
Maros karsts[a]	15	8	2	–
Pangkajene karsts	12[b]	5[b]	2[b]	4[c]
Sulawesi Selatan south coast/inland	3[b]	1[b]	–	–
Towuti	2[b]	–	–	–
Matarombeo	1[b]	–	–	3[d]
Muna Island	1[b]	–	1[b]	9[e]

(a) Table 2 and Appendix A. (b) Appendix A. (c) Leang Bulu Ribba, Leang Caddia, Leang Sapiria (Suprapta 1996), Leang Ujung (Sumantri 1996). (d) Gua Komapowulo, Gua Tempat Babi (Fage 2014), Gua Pondoa (Hakim 2015). (e) Gua Kobori, Gua La Kolumbu, Ceruk Idamalangi, Ceruk Lasabo, Ceruk La Nsarofa, Ceruk Tanggara, Gua Toko, Gua Wa Bose (Kosasih 1985), Liang Sugipatani (Marschall and Wäfler 2012).

***Table 3**. Documented sites with non-APT and APT rock art in Sulawesi.*

BP (Plagnes et al. 2003).

The Holocene production of rock paintings in the Indo-Malaysian Archipelago is perhaps most convincingly represented by paintings and drawings in the so-called Austronesian Painting Tradition (APT), which is dated to the last 4000 years (Ballard 1992). Found between Borneo and south-eastern Indonesia, the APT is dominated by a variety of black and red pictures including anthropomorphs, represented individually or in groups, as well as a variety of boats, birds, land and water animals, abstract designs and widely employed symbols. Many of the depictions employ an outline style, and individual designs as well as group scenes can often be complex compositions (O'Connor 2003, 2015; Fage 2009a). APT motifs dating to no earlier than the second millennium BP include a socketed axe from Timor Leste (O'Connor and Oliveira 2007) and horse riders (see Bulbeck 2001) on Muna Island (Marschall and Wäfler 2012) and in Timor Leste (O'Connor 2003). A specialty of the APT art in south-eastern Indonesia is the frequent occurrence of stencils, mainly of hands but also of feet, weapons, combs, fish and lizards (Arifin and Delanghe 2004). As a distinct art style, the APT may have originated in south-eastern Indonesia but its Austronesian ideological inspiration may lie to the north, perhaps as far north as Taiwan (O'Connor 2015; O'Connor et al. 2015).

On Sulawesi, APT rock art (Table 3) can be distinguished by lacking the hand stencils, and large paintings of endemic mammals, of the Late Pleistocene works (Aubert et al. 2014), but this need not imply a Late Pleistocene dating for all of Sulawesi's non-APT art. For instance, occupation at Leang Jarie (Table 2) continued to the middle to late Holocene, as documented by its surface collection of a Maros point, bone points, worked shell, and sherds of earthenware and imported pottery (Bulbeck et al. 2000), pointing to a wide possible age range for the still undated major portion of the rock art at the site.

The youngest of the minimum ages obtained by Aubert et al. (2014), a circa 17 800 BP date from Leang Lompoa, relates to a hand stencil with the fingers narrowed through the application of secondary brushwork (see Fig. 2). A second, as yet undated method to create narrow fingers involved a second spray with the hand

***Figure 2.** Five hand stencils from Leang Sassang (Pangkajene karsts), all except the central one showing some additional haematite application, resulting in narrowed fingers in two cases (far left and far right).*

***Figure 3.** Two narrow-fingered hand stencils from Leang Sampeang (Maros karsts), the left example clearly showing use of the offset double-spray technique to sharpen the fingers.*

rotated in position, leaving shadows of the fingers from both sprays (Fig. 3). However, there also appear to be narrow-fingered stencils where the visual evidence for hand rotation is now obliterated, because the finger shadows were subsequently painted over with secondary brushwork, to resemble hand stencils with a thick application of secondary brushwork but no hand rotation. That is, the distinction between the two techniques for producing hand stencils with narrowed fingers is clearest for the less well finished cases (Fig. 4).

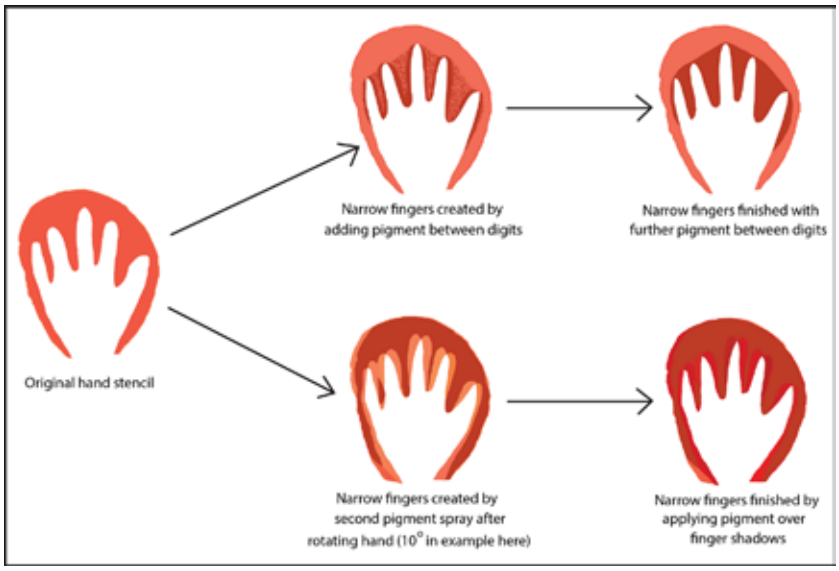


***Figure 4**. Two recorded methods of narrowing hand stencil fingers, by secondary addition of pigment (above) and second pigment spray after hand rotation (below).*

The production of narrow-fingered hand stencils in Sulawesi was observed (if not understood) from the outset, as we can read in Van Heekeren (1972: 118): 'All [of the stencils from Leang Pattae, Maros karsts] were stencils of left hands, with slender fingers probably belonging to women'. Permana (2013) drew attention to this phenomenon as a systematic feature of many of the hand stencils of the south-west Sulawesi peninsula. However, Fage (2010) has noted the occurrence of several narrow-fingered hand stencils at Gua Tamrin in East Kalimantan, so the motif is just a predominantly and not an exclusively Sulawesi specialty. For their part, the East Kalimantan hand stencils are renowned for their frequent inclusion of abstract motifs within the stencil outline (e.g. Fage and Chazine 2009), a special effect that has not been documented for Sulawesi.

In this contribution, we note the occurrence of hand stencils, including examples with narrowed fingers, at locations in Sulawesi to the east of its south-west peninsula. While most of these occurrences have been documented in a merely preliminary form, our contribution presents a detailed description of the hand stencils at Gua Andomo and Gua Lampetia, at the north of Sulawesi's south-east arm. Our contribution also notes these sites' inclusion of black hand stencils, which to our knowledge have not been documented elsewhere in Sulawesi. We also compile an overview of Sulawesi sites in terms of those with either 'normal' or narrow-fingered or both forms of hand stencils, treating this information as categorical (since precise counts of the two forms are not always available). Finally, we discuss the evidence for relating Sulawesi's hand stencils to its period of forager occupation and some possible motivations for forager creation of hand stencils including narrow-fingered examples.

Methodology for recording rock art

The study of rock art in the Indo-Malaysian Archipelago has advanced with the development of digital recording methods and application of software such as DStretch (Harman 2008, 2009) which has allowed the recognition of motifs which were not readily visible to the unaided eye. The method of rock art recording at both Gua Andomo and Gua Lampetia included determining the orientation, identification and placement of the paintings. The heights of individual motifs on the cave walls (height above floor) were measured using laser distance meter and all motifs were photographed using a 10-MP digital camera with and without IFRAO scale. The photographs were processed using ImageJ application with plug-in DStretch. The next steps include storing of processed file in folders per panel, and database compilation with Microsoft Excel 2010.

Measurements of the hand stencils were not taken because of insufficient available time (one day at each site), particularly in view of the poor condition of most of the stencils that would make their measurement imprecise and a lengthy endeavour. In addition, the frequent absence or sharpening of the middle finger would compromise the measurements of Gunn (2006) that rely on lengths taken from the middle fingertip, and in any case, according to Gunn, inferences on age and sex can be confidently made only for very small stencils (attributable to children) and very large stencils (attributable to male adults).

The rock art database contains information on the site's name and the panel within the site, the depicted objects, painting technique, colour, photograph numbers, height from cave floor (where measurable), position (wall or ceiling), condition of the painting, and additional information on the hand stencils. This additional information includes which part of the hand is depicted, whether right or left, how many fingers are shown, and whether the fingers are narrowed or sharpened and how the effect was achieved. The main information is presented here in tabular form below

Figure 5. *Gua Andomo viewed from the south.*

while the full database is available from the first author on request.

The Gua Andomo stencils were originally noted by Bulbeck and Hakim during initial project survey in 2011 and recorded by O'Connor, along with noting stencil presence at Gua Lampetia, during the excavation season in September 2012. The detailed recording of the rock art which forms the basis of this paper was led by Adhi Agus Oktaviana and assisted by Suryatman, Unggul Prasetyo Wibowo and Emma St Pierre, in September 2013.

Gua Andomo

Gua Andomo (Fig. 5) is a limestone cave located in Towuti District, Luwu Timur (East Luwu) Regency, South Sulawesi Province, about 420 m above sea level. It has two chambers, both of which have southward facing openings, connected by a sloping tunnel. Both chambers are well lit and accessible, but the upper chamber is more roomy and habitable (Table 4). As documented by the surface contents and the finds from test pits in both chambers, Gua Andomo was used for the secondary disposal of mortuary remains in wooden coffins and ceramic jars between circa 1500 and 1900 CE. We refer to this as the ethnohistorical use of the cave as the remains match the mortuary practices observed by Grubauer (1913) near Lake Towuti in the early twentieth century.

The excavated deposit at Gua Andomo was shallow but this reflects the loss of older deposits. At several locations there are blocks of cemented carbonate deposit protruding from the cave walls above the current floor, containing stone artefacts, subsistence debris and, in one case, a semi-complete human skeleton. The skeleton has been dated to 1000±25 BP (801–964 cal bp at two sigma) based on an AMS determination on an extracted sample of bone (SANU 34619; Bulbeck et al. in prep.). It is interpreted as an extended burial that was cemented in situ by flowstone to the wall of the cave and thus stayed in place when the surrounding deposit was washed out through the southward opening of the upper chamber.

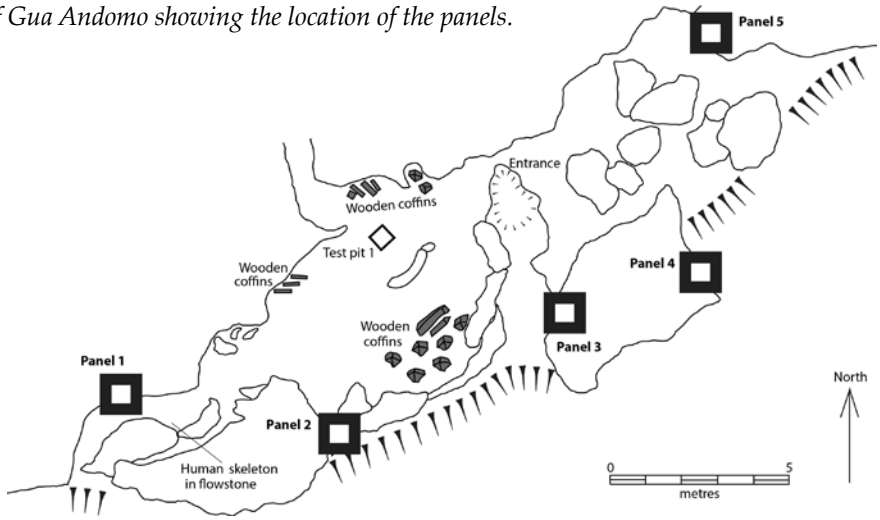
The upper chamber of Gua Andomo (Fig. 6) contains five panels with rock paintings and a total of 55 identified motifs, as itemised below. The identifiable motifs are dominated by 46 red-sprayed hand stencils but there are also a black hand stencil and at least one red foot stencil. The poor condition of the cave wall surface suggests that there may have been more hand stencils in the past, either completely lost through exfoliation or extant just as unrecognisable patches of red spray. Of the 42 red stencils with identifiable finger shape, 16 (38%) show narrowed fingers, distributed across all three panels with identifiable hand stencils. They are indistinguishable from the other hand stencils in terms of their range of heights (1.2–1.5 m, compared with 1.1–1.5 m) and their number of digits (between three and five, compared with one to five).

Cave/chamber	Accessibility	Light conditions	Approximate surface area	Floor conditions
Gua Andomo upper chamber[a,b]	Good (sits on valley floor)	Well lit	100 m^2	Gentle slope
Gua Andomo lower chamber[b]	Good (sits on valley floor)	Well lit	35 m^2	Uneven
Gua Lampetia west overhang[a,b]	Good (near stream)	Well lit	230 m^2	Flattish
Gua Lampetia east overhangs[b]	Good (near stream)	Dim	150 m^2	Gentle slope
Gua Polihe[b]	Moderate (on hill slope)	Dark	250 m^2	Strong slope
Gua Parusapia 1[b]	Moderate (on hill slope)	Dim	500 m^2	Strong slope
Gua Parusapia 2	Moderate (on hill slope)	Well lit	50 m^2	Gentle slope
Gua Parusapia 4	Poor (high on hill side)	Well lit	150 m^2	Gentle slope
Gua Loko 1	Poor (on steep slope)	Dark	200 m^2	Strong slope
Gua Loko 2	Good (abuts stream)	Well lit	20 m^2	Flat
Gua Loko 3	Good (abuts stream)	Well lit	15 m^2	Flat
Gua Puhuahau 2	Moderate (on hill slope)	Well lit	70 m^2	Flat
Gua Pambaladopy	Poor (on steep slope)	Well lit	100 m^2	Strong slope
Gua Kelelewar	Moderate (on hill slope)	Dark	300 m^2	Strong slope

(a) Parietal art present. (b) Used for ethnohistorical mortuary disposals.

Table 4*. Field survey observations made in 2011 on Gua Andomo, Gua Lampetia and other caves in their vicinity.*

Figure 6. *Plan of the upper chamber of Gua Andomo showing the location of the panels.*



Panel 1

Panel 1 includes 42 of the 55 motifs at Gua Andomo, most depicted on the wall but with two on the ceiling (Tables 5 and 6). There are 38 identifiable hand stencils, 23 of which include the palm (one with the fingers exfoliated) and 15 of which display only the fingers. In the 35 cases where the number of digits could be counted, only two depict the thumb, and otherwise between two and four fingers were

Excel No.	Hand part	Orientation	Colour	Height (m)	Condition	Other information
7	Left hand fingers	Upward	Black	1.098	Unclear; cave wall exfoliated at stencil	4 normal fingers
6	Fingers	Rightward	Red	1.1	Unclear; cave ceiling exfoliated at stencil	4 normal fingers
14	Fingers	Unclear	Red		Unclear; cave wall exfoliated at stencil	4 normal fingers
42	Fingers	Leftward	Red		Unclear; cave wall exfoliated at stencil	3 normal fingers
30	Fingers	Upward	Red		Unclear; cave wall exfoliated at stencil	2 normal fingers
41	Fingers	Rightward	Red		Unclear; cave wall exfoliated at stencil	2 normal fingers
37	Fingers	Rightward	Red		Unclear; cave wall exfoliated at stencil	2 normal fingers
12	Fingers	Rightward	Red		Unclear; cave wall exfoliated at stencil	2 normal fingers
20	Fingers	Downward	Red		Unclear; cave wall exfoliated at stencil	–
5	Fingers	?	Red	1.112	Unclear	–
39	Fingers	Upward	Red		Superposition sharpening on wall	3 narrowed fingers
22	Fingers	Upward	Red		Superposition sharpening on wall	3 narrowed fingers
23	Fingers	Downward	Red		Cave wall slightly exfoliated at stencil	3 narrowed fingers
24	Fingers	Downward	Red		Cave wall slightly exfoliated at stencil	3 narrowed fingers
25	Fingers	Rightward	Red		Cave wall slightly exfoliated at stencil	3 narrowed fingers
1	Left palm & fingers	Leftward	Red	1.324	Clear on cave wall	5 narrowed fingers
27	Palm & fingers	Leftward	Red	1.48	Cave wall slightly exfoliated at stencil	4 narrowed fingers
13	Palm & fingers	Rightward	Red		Cave wall slightly exfoliated at stencil	4 narrowed fingers
31	Palm & fingers	Upward	Red		Cave wall slightly exfoliated at stencil	4 narrowed fingers
19	Palm & fingers	Rightward	Red		Cave wall slightly exfoliated at stencil	3 narrowed fingers
38	Palm & fingers	Rightward	Red		Cave wall sharp under fingers	3 narrowed fingers
3	Palm & fingers	Leftward	Red	1.208	Ceiling slightly exfoliated at stencil	3 narrowed, sharpened at tip
32	Palm & fingers	Rightward	Red		Wall slightly exfoliated at stencil	3 narrowed, sharpened at tip
28	Left hand palm & fingers	Upward	Red	1.40	Wall slightly exfoliated at stencil	3 narrowed, sharpened to palm
15	Right palm & fingers	Leftward	Red		Unclear; cave wall exfoliated at stencil	5 normal fingers
33	Left palm & fingers	Upward	Red		Unclear; cave wall exfoliated at stencil	4 normal fingers
34	Palm and fingers	Upward	Red		Unclear; cave wall exfoliated at stencil	4 normal fingers
17	Palm & fingers	Leftward	Red		Unclear; cave wall exfoliated at stencil	4 normal fingers
11	Palm & fingers	Leftward	Red	1.48	Unclear; cave wall exfoliated at stencil	3 normal fingers
2	Palm & fingers	Leftward	Red		Unclear; cave wall exfoliated at stencil	3 normal fingers
16	Palm & fingers	Rightward	Red		Unclear; cave wall exfoliated at stencil	3 normal fingers
18	Palm & fingers	Leftward	Red		Unclear; cave wall exfoliated at stencil	3 normal fingers
21	Palm & fingers	Downward	Red		Unclear; cave wall exfoliated at stencil	3 normal fingers
35	Palm & fingers	Rightward	Red		Unclear; cave wall exfoliated at stencil	3 normal fingers
4	Palm & fingers	Downward	Red		Unclear; cave wall exfoliated at stencil	2 normal fingers
36	Palm & fingers	Rightward	Red		Unclear; cave wall exfoliated at stencil	2 normal fingers
40	Palm & fingers	Downward	Red		Unclear; cave wall exfoliated at stencil	4 normal fingers (child?)
29	Palm	Upward	Red		Fingers exfoliated at wall	Only palm visible

Table 5*. Gua Andomo Panel 1 sprayed hand stencils.*

Excel No.	Motif	Colour/ technique	Height (m)	Condition	Other information
26	Foot stencil	Red sprayed		Unclear; cave wall exfoliated at stencil	Upward oriented foot stencil
8	Unidentifiable	Red sprayed	1.343	Unclear; cave wall exfoliated	Traces
9	Unidentifiable	Red sprayed		Unclear; cave wall exfoliated	Traces
10	Unidentifiable	Red sprayed		Unclear; cave wall exfoliated	Traces

***Table 6**. Gua Andomo Panel 1 other motifs.*

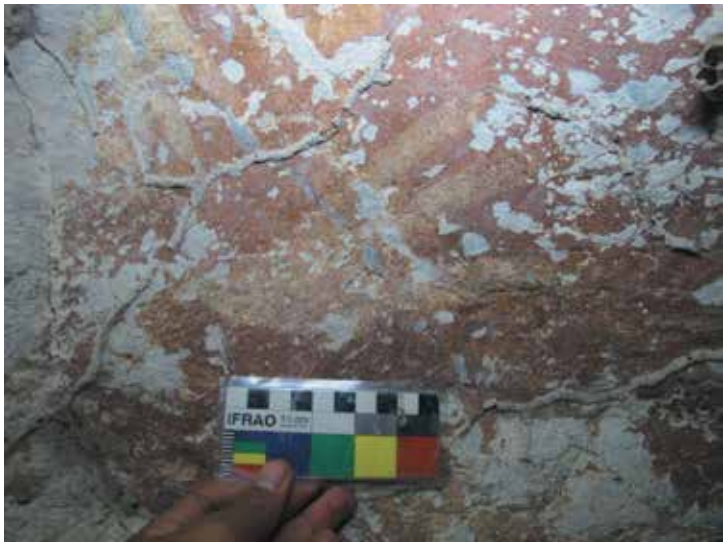


***Figure 7.** Gua Andomo panel 1 hand stencil, oriented leftward, three 'normal' fingers.*

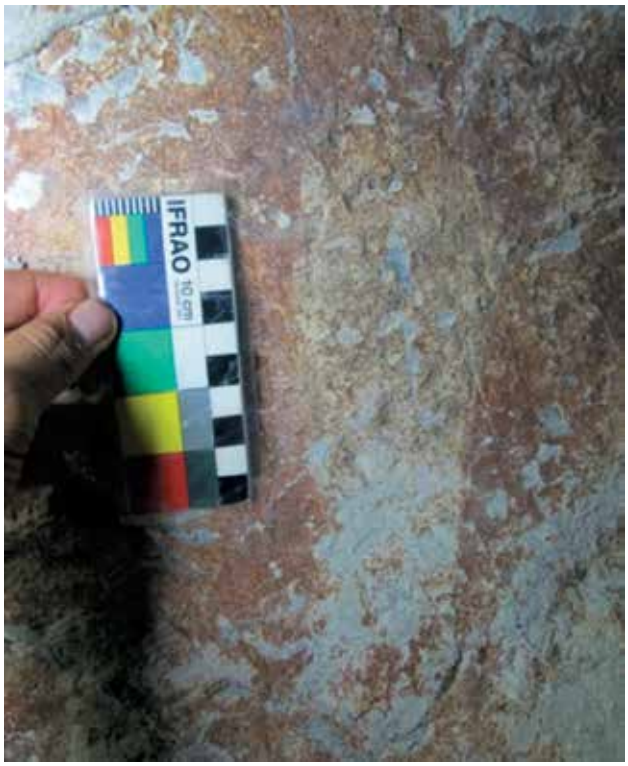


***Figure 8.** Gua Andomo panel 1 foot stencil, oriented upward.*

identified (Fig. 7). Narrowing of the fingers was recorded for 14 stencils, both those with and without the palm (nine and five, respectively). The hand stencils vary in their orientation to the left (n=9), to the right (n=12), upward (n=9) and downward (n=6), with all orientations observed for the stencils both with and without narrowed fingers. The hand stencils include one attributed to a child based on its small size. The only other identifiable motif is an upward-oriented foot stencil (Fig. 8). All of the motifs were sprayed red, apart from a black-sprayed hand with four 'normal' (non-narrowed) fingers.

In two cases, the effect of narrowing the fingers was visibly achieved by spraying the same hand twice, with the fingers shifted sidewards on the second spray. As a result, only

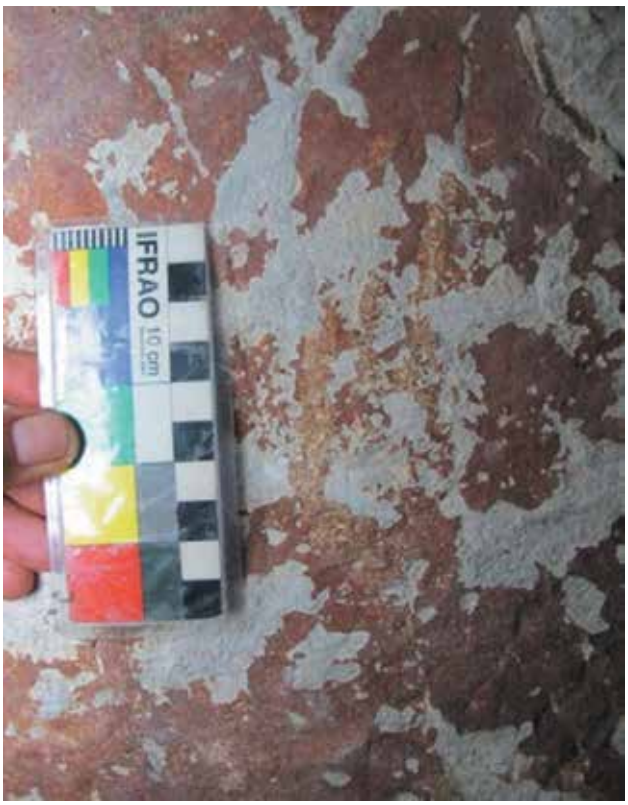


***Figure 9.** Gua Andomo panel 1 hand stencil, oriented upward, three fingers narrowed through double spraying with the fingers offset.*

Figure 10. *Gua Andomo panel 1 hand stencil, oriented downward, three fingers sharpened through double spraying with the fingers offset.*

Figure 11. *Gua Andomo panel 5 hand stencil, oriented downward, three fingers narrowed through addition of haematite between the digits.*

a narrow splinter of the cave wall was shielded from both sprays, leading to the impression of sharpened fingers (Figs 9 and 10). In some other cases, haematite appears to have been applied between the fingers to produce a similar effect.

Panels 2 to 5 (Table 7)

Panel 2 contains just two motifs, one unrecognisable, and the second tentatively identified as the stencil of three toes from an upward-oriented foot. Similarly, panel 4 constitutes a single unrecognisable motif.

Panel 3 contains four hand stencils, one situated about 1.15 m above the floor, and a fifth unrecognisable motif. Two of the stencils include the palm and fingers,

Excel No.	Panel	Motif	Orientation	Condition	Other information
43	2	Foot stencil?	Upward	Unclear; cave wall exfoliated at stencil	3 toes
44	2	Unidentifiable		Unclear; cave wall exfoliated at stencil	Traces
47	3	Left hand stencil	Rightward	Unclear; cave wall exfoliated at stencil	Palm, 2 normal fingers; 1.15 m height
48	3	Hand stencil	Leftward	Cave wall slightly exfoliated at stencil	Palm, 5 sharpened fingers
46	3	Hand stencil	Upward	Unclear; cave wall exfoliated at stencil	2 normal fingers
45	3	Left hand stencil	Leftward	Insect nest covering fingers	Only wrist visible
49	3	Unidentifiable		Unclear; cave wall exfoliated at stencil	Traces
50	4	Unidentifiable		Unclear; cave wall exfoliated at stencil	Traces
51	5	Hand stencil	Upward	Unclear; cave wall exfoliated at stencil	1 normal finger
52	5	Hand stencil	Downward	Unclear; cave wall exfoliated at stencil	Palm, 3 normal fingers
53	5	Hand stencil	Upward	Unclear; cave wall exfoliated at stencil	2 normal fingers
54	5	Hand stencil	Upward	Unclear; cave wall exfoliated at stencil	2 normal fingers
55	5	Hand stencil	Downward	Cave wall slightly exfoliated at stencil	Palm, 3 sharpened fingers

Table 7*. Motifs (all red sprayed) recorded at Gua Andomo panels 2 to 5.*

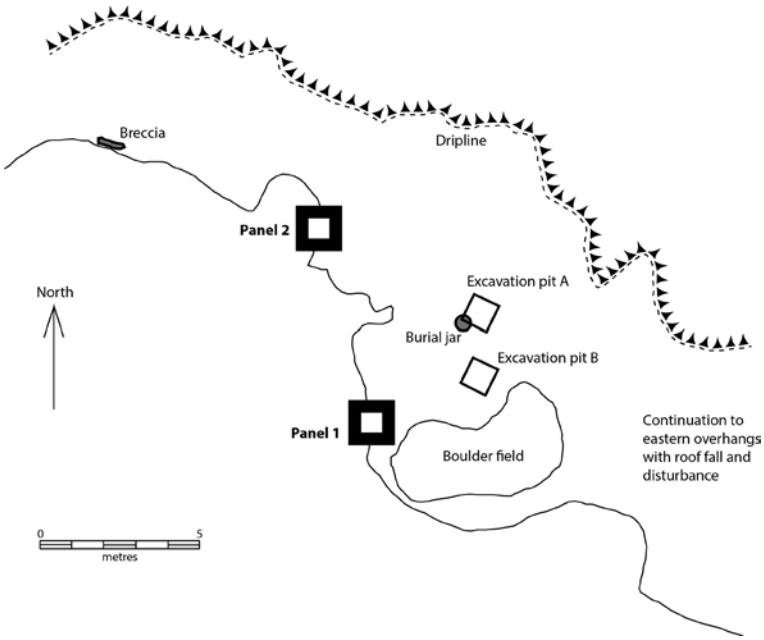


Figure 12. *Western chamber of Gua Lampetia showing the location of the two excavation pits and hand stencils.*

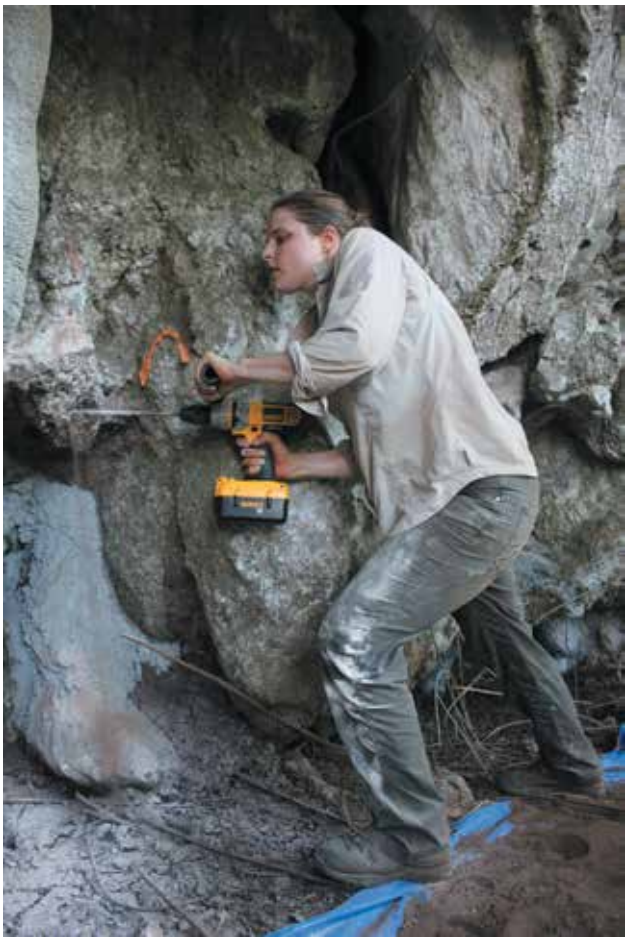


Figure 13. *Sampling of the breccia at the western chamber of Gua Lampetia by co-author Emma St Pierre.*

narrowed in one case. A third stencil has the fingers covered by an insect nest, and the fourth stencil is represented by just two fingers (perhaps originally more).

Panel 5 contains five hand stencils with between one and three fingers. The three examples oriented upward show just the fingers while the two downward-oriented stencils also include the palm. One of these shows narrowed fingers from application of additional haematite between the digits (Fig. 11).

Gua Lampetia

Gua Lampetia is located near the village of Tirawonua, Routa District, Konawe Regency, South-east Sulawesi Province, at about 300 m above sea level. This limestone cave consists of a series of interconnected overhangs of which the one at the west was selected for excavation (Fig. 12) on the basis of its more attractive prospects for occupation (Table 4). The overhangs to the east contain an abundance of human remains, imported ceramics, and associated grave goods (mainly glass, metal and pottery) left at the site when it was looted in the 1990s. The upper spits in the two excavation pits also yielded a quantity of remains related to this ethnohistorical (Grubauer 1913) use of the cave for mortuary disposals dating to c. 1500 to 1900 CE.

Gua Lampetia was also used during pre-Historic times, as demonstrated by the following observations. Excavation pit A yielded a large, earthenware burial jar, provisionally dated to 950±100 BP (UW2870), which contained commingled human remains and ornaments of polished shell and drilled bone. Interment of this jar dislocated the skull of an older extended burial not clearly associated with any burial goods (Bulbeck et al. in prep.). Excavation pit B produced evidence of habitation perhaps also dating to the first millennium CE, based on a small quantity of pottery and fauna 40 cm beneath the deepest pottery associated with the ethnohistorical burials. Even earlier habitation is indicated by a small bloc of breccia (Fig. 13), some 70 cm above the cave floor, with stone artefacts and traces of fauna but no pottery. This lack of pottery combined with the presence of flaked stone artefacts points to habitation prior to the Neolithic which, in Sulawesi, has a maximum time depth of around 3500 BP (Bellwood 1997). Glover (1979) drew attention to wall breccia in Sulawesi caves as a marker of originally higher deposits that had since slumped through 'erosion' from beneath, citing a date of 4050±90 BP for a breccia block containing flaked stone artefacts but no pottery from Ulu Leang 1 in the Maros karsts. Accordingly, the three hand stencils at Gua Lampetia could relate to use of the site millennia before its ethnohistorical period.

The hand stencils all have 'normal' digits. Although the spray that outlines them is currently blackish-green, the mouldy appearance of the rock beneath the spray allows the possibility that the spray could have

originally been haematite, but has become discoloured due to lichen or bacterial growth. Panel 1 includes one stencil with the palm and four fingers located about 2 m above the present cave floor (Fig. 14). Panel 2 has two stencils, also oriented upwards, one of which retains three fingers while the other retains the palm and all five digits (Fig. 15). Exfoliation of the cave wall has damaged these stencils and (if extensive enough) may have destroyed others. Depending on whether they are contemporary with or postdate the higher level of the cave floor marked by the block of breccia, they would have been somewhere between head height and the height of the arms stretched up.

Figure 14. *Panel 1 hand stencil at Gua Lampetia.*

Figure 15. *Panel 2 hand stencils at Gua Lampetia.*

Discussion

The south-west third of Sulawesi Selatan achieved archaeological renown for two main discoveries. One was the presence of a typologically distinctive 'Toalean' industry marked by geometric microliths dating between the early and the late Holocene, overlapping with the appearance of pottery at around 3500 BP, and serrated points with hollowed bases ('Maros points') restricted to the mid-Holocene (Bulbeck et al. 2000). The second was a rich body of rock art focused on hand stencils and paintings of large endemic mammals (the babirusa, Sulawesi boar, and anoa or pygmy water buffalo). The geographic overlap of these two archaeological phenomena nurtured the traditional approach to treat the rock art of the Maros and Pangkajene karsts as a predominantly 'Mesolithic' development (Van Heekeren 1972; Glover 1981; Suprapta 1996; Bellwood 1997: 196; Bulbeck 2004).

More recent research demonstrates a Late Pleistocene origin for the tradition but also allows for its continuation into the Holocene. Only a minority of Sulawesi's hand stencils and paintings of endemic mammals are overlain with the 'popcorn' skin used in generating the dates in Table 2, and so the circa 18–40 000 BP age range of these dates should be treated as a maximum estimate for the age range of Sulawesi non-APT rock art as a whole. If a chronological relationship could be assumed between a cave's rock art and its habitation evidence, this would relate Sulawesi's hand stencils more strongly to the Mesolithic than to earlier or later times (Table 8). However, the overt problems with such an assumption are evident from the 65% of hand stencil sites that lack dated habitation deposit (Table 8) and, conversely, the cave sites with rich Mesolithic habitation deposits but no preserved rock art, such as Ulu Leang 1 in Maros (Glover 1978). In summary, we know that the tradition of hand stencils persisted for at least 20 000 years until c. 18 000 BP in the Maros karsts, but how long the tradition survived thereafter is unknown.

The available compilation of hand-stencil sites suggests a focus on Maros (46%) and a decreasing

Region	Pleistocene only	Mesolithic phase included	Neolithic and later only	Undocumented/ unclear	Total
Maros karsts	1	4[(a)]	0	19[(b)]	24
Pangkajene karsts	1	5	3	10	19
Sulawesi Selatan south coast/ inland	0	3	0	1	4
Matarombeo/Towuti	0	1[(c)]	0	2	3
Muna Island	0	0	0	2	2
Total	2	13	3	34	52

(a) Includes Leang Jarie (see text). (b) Includes five Table 1 sites. (c) Gua Anawai.

Table 8*. Sulawesi hand stencil sites in terms of dated habitation deposit, if any (Appendix A).*

Site	Description	Habitation period	Dating for pottery-associated site use	Ethnohistorical mortuary disposals
Gua Talimbue entrance[a]	Large, well lit, flattish	Circa 19 000–500 BP	Extended burial directly dated to 1710±20 BP (SANU 40418), 1694–1557 cal bp at two sigma	No
Gua Mo'o hono overhang[a]	Large, well lit, flat	>6500–0 BP[b]	Domestic pottery dating from circa 2000 BP	No
Gua Sambangowala[a]	Large, well lit, gentle slope	>5500–0 BP[b]	Unclear (sparse assemblage confined to uppermost spits)	Yes
Gua Balia[c]	Medium-sized, well lit, sloping	Unexcavated	Unknown	Yes
Gua Lingato[c]	Large, sloping	Unexcavated	Ethnohistorical	Yes
Gua Leperi[c]	Small	Unexcavated	Unknown	No

(a) Aplin et al. in press; Bulbeck et al. in prep. (b) Excavation terminated at about 2.5 m depth due to lack of time. (c) Unpublished project report.

***Table 9**. Summary of Walandawe sites, Sulawesi Tenggara.*

representation with distance from Maros: 37% in Pangkajene, 8% southeast of Maros, 6% in Matarombeo/Towuti and 4% on Muna Island. This pattern cannot be attributed entirely to research coverage because there are nine caves on Muna Island and three along the Matarombeo Massif recorded as containing only APT art (Table 3). Also, the stretches of southern Sulawesi without recorded rock art (Fig. 1) have been investigated archaeologically, as represented by eight excavated caves in the Sulawesi Selatan peninsula north-eastward of Gua Batti (Bulbeck 2004) and six caves in the Walandawe District south of Lake Towuti (Table 9). However, in the locations where hand stencils have been recorded, both the narrow- and normal-fingered variants are in evidence (Table 10). True, the sites in Sulawesi's far south-west are sufficiently close to each other for their occupants to have maintained fairly continuous interaction back and forth, but the dispersed occurrences of hand stencils at Matarombeo/Towuti and Muna Island may be localised practices stemming from a single transmission event. In that case, south-west Sulawesi Selatan would be a likely source in view of the rich body of rock art with Pleistocene dates in the Maros karsts, and the transmission event would date to a time when the tradition included both of the techniques for producing narrowed fingers illustrated in Fig. 4.

Region	Narrow fingers only	Narrow & normal fingers	Normal fingers only	Un-known	Total
Maros karsts	6	11	5	2	24
Pangkajene karsts	0	10	4	5	19
Sulawesi Selatan south coast/inland	1	3	0	0	4
Matarombeo/ Towuti	0	2	1	0	3
Muna Island	0	1	1	0	2
Total	7	27	11	7	52

***Table 10**. Sulawesi hand stencil sites aggregated in terms of the status of the fingers (Appendix A).*

An important symbolic role is suggested for the narrow-fingered stencils based on their spatial extent, whatever the time period of their production. Fage (2010, 2014) suggests that the instances of sharpened fingers observed in Kalimantan, south-west Sulawesi Selatan and Gua Anawai may represent animal claws, as part of a shamanistic transformation to commune with the natural world. However, the fingers themselves (without the palm) also resemble combs and multi-pronged fishing spears, to the degree that the stencils of these objects, as identified, may have derived from hand stencils (Appendix A). Accordingly, it may have been material culture that provided some or all of the inspiration for the practice of narrowing fingers. It is also possible that the narrowed fingers marked clairvoyants, tribal leaders or other individuals of particular importance to society, or were created for aesthetic reasons. Unfortunately, the complete lack (to our knowledge) of ethnographic or ethnohistorical documentation of rock art creation in Sulawesi makes any attempt to interpret the narrow-fingered hand stencils a matter of speculation.

The closest account to a relevant ethnographic parallel that we know of involves hand prints which, indeed, have been recorded at Gua Tempat Babi, Matarombeo Massif, in association with APT motifs (Fage 2014). The Bugis rice farmers of Soppeng, Bone and Barru in Sulawesi Selatan include the production of hand prints as part of their *Mabedda Bola* house-

warming ritual performed when a stilt house has been newly built or will be occupied for the first time. The members of the family that owns the house print their hands on the wall before praying that Allah always protect their house (Nur 2011). As for Sulawesi's hand stencils, now known to date back to the Pleistocene, a more relevant parallel may be the well-documented phenomenon in Aboriginal Australia of adults and children having their hands stencilled in caves to mark their association or belonging within their clan estate (Blundell and Woolagoodja 2005; Gunn 2006). Accordingly, the inspiration for the creation of Sulawesi's hand stencils, certainly the normal-fingered variety, may have been to commemorate the occupants' links to the site and to country.

Why, then, should the preserved hand stencils at Lake Towuti be restricted to the Gua Andomo upper chamber and Gua Lampetia west chamber? The important characteristics may include their accessibility, sunlit aspect and ample space to contain an extended family or even a festive gathering. These two chambers also share another common feature — ethnohistorical mortuary disposals — but so do four other nearby chambers which, however, lack one or more of the three previously listed characteristics (Table 4). It is true that Walandawe, a short distance to the south, has three large, well lit, accessible caves with metres of excavated habitation deposit, but whose walls lack any traces of rock art (Table 9). However, the inconsistency in their site usage pattern makes it difficult to assess the implications of their lack of rock art. Pleistocene habitation has been demonstrated only for one site, Gua Talimbue. At the other end of the time scale, late Holocene divergence is indicated by the extended burial associated with ornate pottery dating to around 1500 BP at Gua Talimbue, domestic pottery dating from about 2000 BP at Gua Mo'o hono, and the restriction of ethnohistorical mortuary disposals to Gua Sambangowala.

A distinctive feature of the Lake Towuti sites is the presence of black hand stencils, with some dark reddish-grey hand stencils at Leang Saluka in Pangkajene (Table A.1), being the only other Sulawesi comparison of which we are aware. The single black hand stencil from Gua Andomo and three examples from Gua Lampetia all lack narrowed fingers, but this would provide little basis for a distinction from Sulawesi's tradition of red hand stencils, especially as black zoomorphs of apparently non-APT association have been recorded at Leang Sakapao 1 in Pangkajene and Gua Anawai in the Matarombeo Massif (Table A.1).

Another peculiarity of the Lake Towuti rock art sites is their lack of accompanying figurative paintings and abstract 'art'. Distance from the south-west Sulawesi rock art sites could not explain this idiosyncrasy because Gua Anawai has a zoomorph and stencilled object as well as its hand stencils (Table A.1). Also, while the 47 hand stencils at Gua Andomo indicate a specific focus on this motif, this number is exceeded by the 88 hand stencils at the Maros site of Leang Jarie (Oktaviana, field notes 6/7/2013), unaccompanied by other identified rock art (Table A.1). However, the lack of APT 'art' at the Towuti sites contrasts with its widespread occurrence elsewhere in southern Sulawesi, including the Matarombeo Massif where extensive galleries have been noted at Gua Komapowulo (Fage 2014) and Gua Pondoa (Hakim 2015). The APT tradition appears not to have taken root in the Lake Towuti region, which may be related to the late arrival of pottery if the Walandawe material cultural sequence also applies to Lake Towuti.

All things considered, and noting the apparent child's hand stencil at Gua Andomo, we infer that Gua Andomo and Lampetia were marked with hand stencils by family groups to commemorate their association with the landscape. The people concerned were probably foragers who preceded the dispersal of Malayo-Polynesian (Austronesian) languages across Sulawesi, in association with the APT rock art tradition found widely across southern Sulawesi (but not Lake Towuti) and south-eastern Indonesia generally.

Importantly, the Gua Andomo stencils include examples with narrowed fingers produced by at least two techniques (offset double spray and haematite infill between the fingers), suggestive of an intention to arrive at a deliberate effect. Hand stencils with narrowed fingers have not been documented as a systematic production outside of Sulawesi, yet within Sulawesi they were systematically produced at locations hundreds of kilometres apart (Table 10; Fig. 1). This cannot be attributed to a widespread presence of the Toalean because, as proposed by Bulbeck et al. (2000) and confirmed by our Walandawe excavations, the Toalean was evidently restricted to the south-west third of the Sulawesi Selatan peninsula. Instead, the Late Pleistocene datings available for both normal- and narrow-fingered hand stencils at Maros allow for the possibility of a Pleistocene, pre-Toalean antiquity for when the tradition of hand-stencil production commenced in the south-east Sulawesi peninsula.

Conclusions

The documented cave paintings at two sites near Lake Towuti in Sulawesi are dominated by hand stencils, lacking the figurative and abstract designs recorded at most Sulawesi rock art sites. The great majority (46, 92%) are red stencils, but there is also a small component of black hand stencils (one at Gua Andomo and three at Gua Lampetia). About one third (38%) of the red stencils display narrowed fingers, created either through the application of additional pigment between the digits or double-spraying the hand with the digits offset on the second spray. Systematic narrowing of the fingers has also been documented at numerous other sites in southern Sulawesi, in clusters separated by up to hundreds of kilometres, as part of what appears to be a predominantly Sulawesi artistic tradition. The tradition of hand stencils, dated to the

Late Pleistocene in the south-west peninsula, may have reached Lake Towuti in pre-Holocene times, where the local foragers continued the tradition for an unknown period of time.

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Appendix A. Summary observations of Sulawesi sites with hand stencils

Site	Description of hand stencils	Other rock art at site	Dated habitation deposit/ other observations	Sources
Leang Timpuseng, Leang-Leang, Maros[(a)]	Red, normal & narrow fingers	Red 'babirusa', black APT anthropomorph	Surface collection of late Holocene local and imported pottery	Oktaviana field notes; Glover 1978
Leang Jarie, Leang-Leang, Maros[(a)]	Red, normal & narrow fingers	Red, no longer recognisable	Surface collection of mid to late Holocene artefacts (see text)	Van Heekeren 1972; Bulbeck et al. 2000
Leang Sampeang, Leang-Leang, Maros[(a)]	Red, normal & narrow fingers	Red mammal, black APT anthropomorphs	Nil habitation remains documented	Oktaviana field notes
Gua Jing, Leang-Leang, Maros[(a)]	Red, normal & narrow fingers	Red foot stencil, red mammals, red APT anthropomorph	Nil habitation remains documented	Bulbeck field notes 29/11/2014
Leang Barugayya 1, Leang-Leang, Maros [(a)]	Red, normal & narrow fingers	Nil	Nil habitation remains documented	Bulbeck field notes 29/11/2014
Leang (Tapuang) Lompoa, Leang-Leang, Maros[(a)]	Red, normal & narrow fingers	Red suid painting, red APT geometric	Nil habitation remains documented	Makkulasse 1986; Bulbeck, field notes 29/11/2014
Leang Pattae, Leang-Leang, Maros	Red, narrow & normal fingers	Red pig painting	Toalean, early to mid-Holocene[(b)]	Van Heekeren 1972; Bulbeck 2004
Leang Burung 1, Leang-Leang, Maros	Red, narrow fingers	Nil	Toalean and later, mid to late Holocene[(c)]	Makkulasse 1986; Bulbeck et al. 2000
Leang Bulu Bettue, Leang-Leang, Maros	Red, normal & narrow fingers[(d)]	Red comb[(e)], black APT figurative and abstract art	Excavated remains under analysis	Aubert et al. 2014; Hakim, field notes November 2014
Leang Pette Kere, Leang-Leang, Maros	Red, normal & narrow fingers	Red mammals including suids	Toalean and later, mid to late Holocene[(b)]	Glover 1978; Bulbeck, field notes 29/11/2014
Leang Lambattorang, Leang-Leang, Maros	Red, narrow fingers	Red 'babirusa'	Occupation deposit lost	Van Heekeren 1972; Glover 1978
Leang Buluk Batu, Leang-Leang, Maros	Red, normal & narrow fingers	Red mammals, black APT anthropomorphs	Surface finds include chert flakes, pottery, shellfish	Glover 1978; Makkulasse 1986
Leang Ellepusae (Ulu Wae), Leang-Leang, Maros	Red, narrow fingers	Nil	Salvage collection from removed, originally deep deposit includes stone flakes, pottery, animal bones	Glover 1978; Makkulasse 1986
Leang Balang (Bata-Batae), Leang-Leang, Maros	Red, normal & narrow fingers	Red 'anoa', red (APT) anthropomorph	Surface finds include old pottery and shellfish	Glover 1978; Makkulasse 1986
Leang Benbe, Leang-Leang, Maros	Red, narrow fingers	Nil	Surface finds include shellfish	Makkulasse 1986
Gua Pa'ttebakang II, northern Maros karsts	Red, narrow fingers	APT geometric motifs	Surface finds include shellfish	Darmawan et al. 1991
Gua Sammanggi, Maros karsts	Red, narrow fingers	None mentioned	Habitation remains not documented	Fage 2010
Leang Sakapao 1, Belae, Pangkajene	Red, normal & narrow fingers	Red pig paintings, 1 black 'anoa'	c. 20–30 000 BP[(c)]	Suprapta 1996; Taçon et al. 2014
Leang Camming Kanang, Belae, Pang-kajene	Red, narrow & normal fingers	'Spiked fishing spearheads'[(e)], 'turtle'	Mid to late Holocene (Maros and other points, pottery)[(b)]	Sumantri 1996; Suprapta 1996; Fage 2010
Leang Batanglamara, Belae, Pangkajene	Red, normal & narrow fingers	Black APT 'fish' & 'boat'	Surface pottery	Sumantri 1996; Bulbeck, field notes 6/12/2014
Leang Buto, Belae, Pangkajene	Red, normal & narrow fingers	Nil	Surface pottery	Sumantri 1996; Bulbeck, field notes 6/12/2014
Leang Sassang, Belae, Pangkajene	Red, normal & narrow fingers	Nil	Nil surface remains	Bulbeck, field notes 6/12/2014

Site	Description of hand stencils	Other rock art at site	Dated habitation deposit/ other observations	Sources
Leang Cumi Lantang, north of Belae, Pangkajene	Red, normal & narrow fingers	Nil	Holocene stone artefacts including points; plain pottery; faunal refuse[b]	Suprapta 1996
Leang Garunggung, north of Belae, Pangkajene	Red, normal & narrow fingers	Nil	Late Holocene stone points and other artefacts, pottery[b]	Kosasih 2000; Bulbeck et al. 2000
Sumpang Bita, north of Belae, Pangkajene	Red, normal & narrow fingers	Red foot stencil, boat, anoa and pig	Late Holocene surface to sub-surface pottery, stone axe & human remains[b]	Arifin and Delanghe 2004: Pls 1–4; Suprapta 1996
Leang Saluka, north of Belae, Pangkajene	Red, normal & narrow fingers[f]	Red animal (pig?) and red-sprayed combs[e]	No habitation evidence despite excavation to bedrock	Suprapta 1996; Bulbeck, field notes 6/12/2014
Leang Bujung Daree, north of Belae, Pangkajene	Red, normal & narrow fingers	Nil	Nil habitation remains documented	Bulbeck, field notes 6/12/2014
Panganreang Tudea, Bantaeng (south coast)	Red, narrow fingers	Nil (isolated stencil)	Toalean (early to mid-Holocene)[b]	Hakim and Suryatman unpublished; Bulbeck 2004
Batu Ejaya, Bantaeng (south coast)	Red, narrow & normal fingers	Nil (isolated stencils)	Mid to late Holocene[c]	Hakim and Suryatman unpublished, 2013; Bulbeck 2004
Gua Batti, Bone (Sulawesi Selatan inland peninsula)	Red, normal & narrow fingers	Red 'anoa', black APT anthropomorphs	2928±26 (Wk-30264) in pre-pottery layers[c]	Taçon et al. 2014; O'Connor unpubl.
Gua Uhallie, Bone (Sulawesi Selatan inland peninsula)	Red, normal & narrow fingers	Not documented	Excavated stone artefacts & pottery	Hakim unpubl.; Oktaviana unpubl.
Gua Mentandano, Muna Island	Red, normal & narrow fingers, faded	Red abstract and figurative APT art, fresh	Habitation remains not documented	Marschall and Wäfler 2012; Oktaviana 2015
Gua Anawai, Matarombeo Massif	Red, normal & narrow fingers	Black headless mammal and stencil of spindly object	Excavated remains under analysis[g]	Fage 2014; Hakim 2015
Gua Andomo, Lake Towuti	Red, normal & narrow fingers; 1 black, normal fingers	Foot stencil	Pre-pottery (?) stone artefacts	This paper

(a) Directly dated Late Pleistocene rock art (Table 2). (b) Dating of artefacts based on chronology of typological sequence for south-west Sulawesi in Bulbeck et al. (2000). (c) Dating of habitation deposit based on carbon-14 dates; error ranges expressed as a single standard deviation where presented. (d) Include an example of a narrow-fingered stencil superimposed on a normal-fingered stencil. (e) Although recorded as a separate motif, these could be narrowed finger stencils with particularly pointy fingers. (f) Bulbeck's field notes record a dark reddish-grey discoloration for some of the normal- and narrow-fingered stencils. (g) With dating back to about 10 000 BP (Mohammad Nur pers. comm. 2011)

Table A.1. *Sulawesi sites with narrow-fingered hand stencils.*

Site	Normal-fingered hand stencils	Other rock art at site	Dated habitation deposit/other observations	Sources
Leang Burung 2, Leang-Leang, Maros	Red, some faded	Nil	c. 20–30 000 BP[a]	Van Heekeren 1972; O'Connor & Bulbeck 2013
Leang Lambarugae, Leang-Leang, Maros	Red	Red mammal	Surface finds include pottery and shellfish	Makkulasse 1986
Leang Samalae, Leang-Leang, Maros	Red	Nil identified	Habitation remains not documented	Oktaviana unpublished
Gua Pannampue I, northern Maros karsts	Red	Red suid	Surface finds include shellfish	Darmawan et al. 1991

Site	Normal-fingered hand stencils	Other rock art at site	Dated habitation deposit/other observations	Sources
Gua Pa'ttebakang I, northern Maros karsts	Red	APT 'boats' & anthropomorphs	Surface finds include shellfish	Darmawan et al. 1991
Leang Kajuara, Belae, Pangkajene	Red	Black APT fish, boat & anthropomorphs	Mid to late Holocene surface finds (Maros point, pottery)[b]	Suprapta 1996; Sumantri 1996
Leang Pattenung, Belae, Pangkajene	Red	Red foot stencil, red 'fishing spearheads'[c] & red APT anthropomorph	'Mesolithic' flaked stone artefacts including projectile points and faunal remains[b]	Suprapta 1996; Sumantri 1996
Leang Lompoa, Belae, Pangkajene	Red	Black APT anthropomorphs, black 'pig' and 'spear'	Surface pottery; stone artefacts including stone points from excavation	Suprapta 1996; Sumantri 1996
Leang Kassi, Belae, Pangkajene	Red	Black APT abstract motifs & anthropomorphs	Late Holocene sub-surface stone artefacts and pottery[b]	Suprapta 1996
Gua Pominsa, Muna Island	Red	Nil documented	Habitation remains not documented	Direktorat 2015
Gua Lampetia, Lake Towuti	Black, normal fingers	Nil	Pre-pottery and pottery habitation	This paper

(a) Dating of habitation deposit based on carbon-14 dates. (b) Dating of habitation deposit based on chronology of typological sequence for south-west Sulawesi in Bulbeck et al. (2000). (c) Although recorded as a separate motif, these could include narrowed finger stencils with particularly pointy fingers.

Table A.2. *Sulawesi sites with just normal-fingered hand stencils.*

Site	Hand stencils	Other rock art at site	Other observations	Sources
Leang Pacce-Pacce, Leang-Leang, Maros	Red, fingers status unclear	Nil	Surface finds include pottery	Glover 1978; Bulbeck, field notes 29/11/2014
Leang Batu Karope, Leang-Leang, Maros	Red, fingers status unclear	Nil	Surface finds include shellfish	Makkulasse 1986; Bulbeck, field notes 29/11/2014
Leang Tinggiaa, Belae, Pangkajene	Colour & fingers status unstated	Nil	Surface stone artefacts and faunal debris	Sumantri 1996
Leang Carawalia, Belae, Pangkajene	Colour & fingers status unstated	Nil	Surface faunal debris	Sumantri 1996
Leang Sapiria, Belae, Pangkajene	Colour & fingers status unstated	Black APT 'boat', abstract motifs & anthropomorphs	Surface pottery; stone artefacts & faunal refuse from excavation	Sumantri 1996; Suprapta 1996
Leang Bulu Sumi, north of Belae, Pangkajene	Colour & fingers status unstated	Nil	Mid to late Holocene Maros points & other habitation debris, pottery[a]	Sumantri 1996; Suprapta 1996
Leang Bulu Sipong II, north of Belae, Pangkajene	Red, fingers status unstated	Nil	Nil habitation remains documented	Suprapta 1996

(a) Dating of artefacts based on chronology of typological sequence for south-west Sulawesi in Bulbeck et al. (2000).

Table A.3. *Sulawesi sites with hand stencils with fingers' status undocumented.*