

EXCAVATIONS AT NURSERY SWAMP 2, GUDGENBY NATURE RESERVE,  
AUSTRALIAN CAPITAL TERRITORY

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# INTRODUCTION

There have been rumours since the 1880s of a prehistoric painting site in the vicinity of Nursery Swamp, Australian Capital Territory (ACT). A report of the paintings in the nearby rockshelters at Rendezvous Creek and Yankee Hat appeared in print in 1933 (Daley), and drawings of these were later published by Flood (1973, 1980). However, rumour persisted that more paintings had been identified by Charles Henry McKeahnie who, in the middle late 19th century was a major landholder in what is now southern ACT. He was master of three extensive montane valleys, Gudgenby, Orroral and Booroomba, and the intervening high country. McKeahnie had a substantial homestead in each valley, and his route between them (primarily for stock) can still be identified. At one point the route skirts the northern fringe of Nursery Swamp.

McKeahnie has left no known records of any painting site on his property; but his experience entered the oral tradition of the region, and a painted site was eventually discovered in the Nursery Swamp valley (Winston-Gregson 1978). It was only the fifth painted site recorded in the southern uplands. The paintings comprise a small group of deeply weathered amorphous red ochre shapes on the underside of a low overhang. The site is in the relatively inaccessible southern end of Nursery Swamp (Nursery Swamp 1). At the time of discovery this site was thought to be that containing McKeahnie's paintings. However, the discovery of a new site close to McKeahnie's stock route in the northern end of the valley suggests otherwise. This second site is a much larger rockshelter (Nursery Swamp 2, Nat. Grid reference 771505). It was discovered by Patrick Hookey during a bushwalk in July 1981 and was subsequently recorded and partially excavated in December 1981. The paintings in this site are almost certainly the ones rumoured to be known to McKeahnie.

The narrow Nursery Swamp valley is isolated from the wider Orroral and Rendezvous Creek valleys to the east and west. The name derives from its historical use as a calving and lambing ground. Access is most readily gained from the north where the parallel ridges dip almost to the valley floor before rising sharply to become the shoulders of Mt Orroral (1608 m). The saddle thus formed is a natural route across country and far easier to travel than the line of the modern road which more or less follows the

Gudgenby River around the south of Nursery Swamp. The valley is shaped like a 'Y' slanted northwest to southeast. It is about 7 km long and some 1500 m wide at the midpoint. There is a shelf of open to dense sclerophyll woodland and undulating grassland up to 700 m wide along the western side of the valley. The broadest section of the valley floor is occupied by the swamp itself which is bisected by the course of Nursery Creek. The creek both supplies the swamp waters (together with slope run-off) and drains the swamp. The main branch of the creek rises high on Mt Orroral and drops to the start of the valley by a waterfall. From this point southeast for about 1 km to the head of the swamp the valley is narrow and forested. The excavated painting site, Nursery Swamp 2, lies in this neck (Fig.1).

During an earlier survey of a wider area of the montane valleys of southern ACT, 18 Aboriginal sites had been recorded in the Orroral, Nursery Swamp and Gudgenby valleys (Winston-Gregson 1978). This relatively large number of sites was surprising in view of the then prevailing view of only recent sporadic Aboriginal occupation of the region. During the excavation of Nursery Swamp 2 in December 1981, the neck of Nursery Creek and 3 km of grassland downstream were surveyed for Aboriginal sites by a team of three.

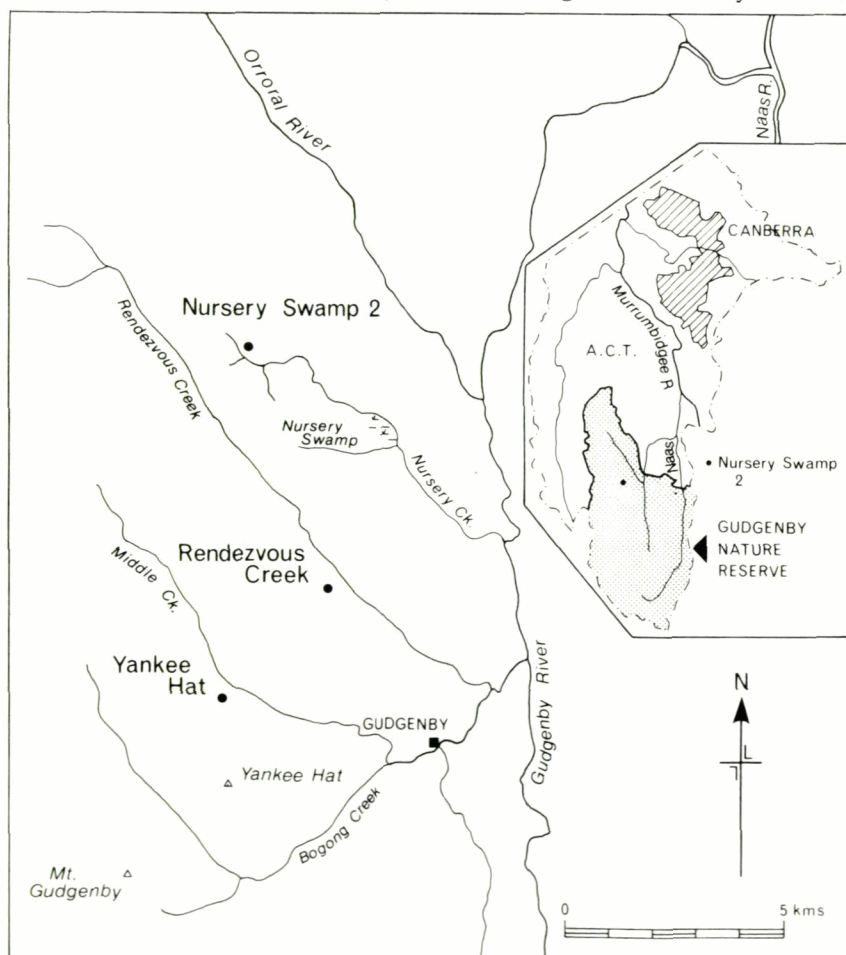


Figure 1. Map showing the location of sites in the Nursery Swamp valley and adjacent areas

A further nine artefact scatters were recorded, three of these in rock-shelters, thus increasing known Aboriginal sites of the region by some 50%. This result has stimulated more intensive research in the area, as the subject of current postgraduate work in the Department of Prehistory and Anthropology, ANU. Any evaluation of the significance of this relatively high site density must await the conclusion of that research.

#### THE ROCKSHELTER

The rockshelter is formed within the western, downslope face of a large granite outcrop. The shelter is wide and roomy, about 14 m long, up to 4.5 m deep with the back wall rising steeply and curving into a domed overhang up to about 2 m above present ground level (Fig.2). It offers an extensive area which is protected from precipitation and direct sun ( $\sim 40 \text{ m}^2$ ). A narrow cleft in the left (northwestern) part of the rock causes a cold draught into the rockshelter, so that in clear, cool weather (as during the excavation in December 1981) conditions are considerably colder inside the shelter than outside. Campfires may have compensated for this. On both sides of the shelter the granite outcrop forms near vertical cliffs with minimal overhang, creating zones which are sheltered from wind and some rain but which benefit from direct and reflected heat in clear weather. During cooler spells, even in summer, these zones could offer warm sheltered areas for daytime activities on a well-drained sandy soil with little vegetation cover. Two test pits of 50 x 50 cm, one on each side of the shelter, were excavated but neither yielded any archaeological evidence. The deposit in these test pits is a yellowish-buff silt and sand, with corroded granitic debris. A few flecks or pieces of charcoal occurred, presumably from natural fires.

Red ochre paintings occur in a restricted zone on the near vertical section of the shelter wall, in the right, southeastern half of the shelter. Their preservation and visibility ranges from moderately clear to very faint. Below about 1 m above ground level the rock wall is extensively damaged by exfoliation. No paintings occur on this weathered surface or on the domed roof of the shelter.

The floor deposits had been dug out by a wombat up to a depth of about 40-50 cm in the southeastern part of the shelter, presumably leading to a burrow more or less under the centre of the rockshelter. A shallow depression of the surface in this area was thought possibly to result from incipient collapse of the deposits over the burrow. The section exposed by the wombat disturbance showed clear evidence of a darkened level with charcoal and artefacts below the surface deposits of fresh leaf litter and wombat turds. The evidence from this exposure suggested that good dating material could be obtained for archaeological data. In view of the difficulties in obtaining charcoal sufficient for dating and associated with artefacts, experienced in previously excavated sites in the region (Flood 1980:333, 334), this site was considered likely to be significant for the archaeology of the region. Since deposits appeared to be threatened with further animal disturbance and possible collapse it was decided that a small excavation should be carried out.

#### THE EXCAVATION

A rectangle, 1 x 2 m, was marked out from the dripline towards the painted rock wall, and about 40-50 cm away from the wall of the wombat excavation. Four 50 x 50 cm squares were excavated within this area, as shown in Figure 2. These were selected in order to maximise both areal and

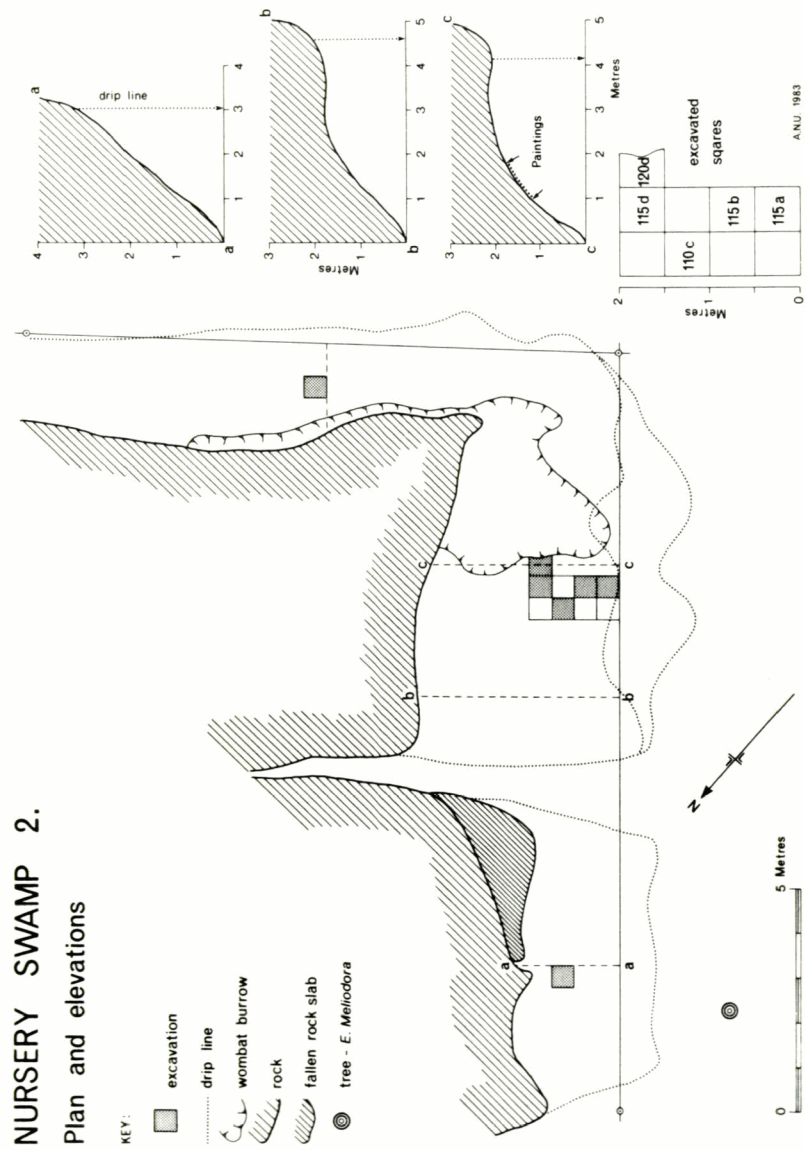


Figure 2. Plan and sections of Nursery Swamp 2 rockshelter, showing the location of excavation areas

stratigraphic information, while minimising disturbance of deposits. A further partial 50 cm square was added from the trench towards the wombat hole in order to relate the excavated section with that exposed in the burrow and to facilitate deeper excavation in square 115d (see Fig.2) where charcoal and ash lenses attained their maximum thickness. Excavation proceeded in 5 cm spits and dry sieving through 2 mm mesh.

The deposits consist of a gritty granitic sand and silt with varying admixture of cultural material; artefacts, faunal debris, ash and charcoal; and leaf litter etc. on the surface. The charcoal and ash lenses fade out near the dripline, indicating that activities associated with fires and clearing of hearths took place within the shelter of the overhang. Below the distinct ashy horizons the deposits are coloured a greyish yellow and gradually grade into the buff-yellow gritty material that characterises the archaeologically sterile deposits outside the shelter zone. Charcoal still occurs in this lower zone as occasional and dispersed fragments. Sufficient charcoal could be collected for dating purposes within a 5 cm spit, but lenses suggestive of localised fires were not found in these lower levels. The absence of identifiable hearth material in the lower deposits may reflect a different use of the site or merely a different lateral location of camp-fires. Faunal material in these lower deposits consisted only of calcined bone and appeared more fragmented than in the ashy zones. The alkaline pH of wood ash may account for the marginally better preservation of bone in the upper levels.

The section (Fig.3) shows clearly that the depression first thought to be due to incipient collapse is in fact merely a superficial disturbance

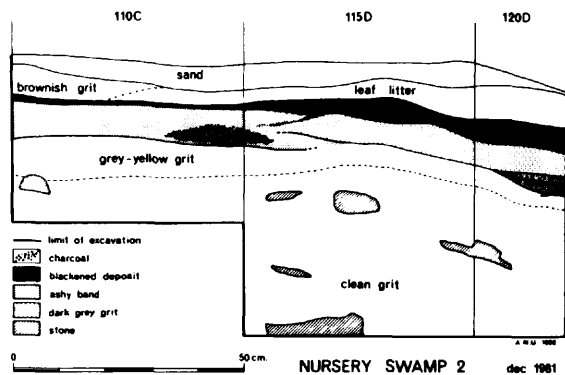
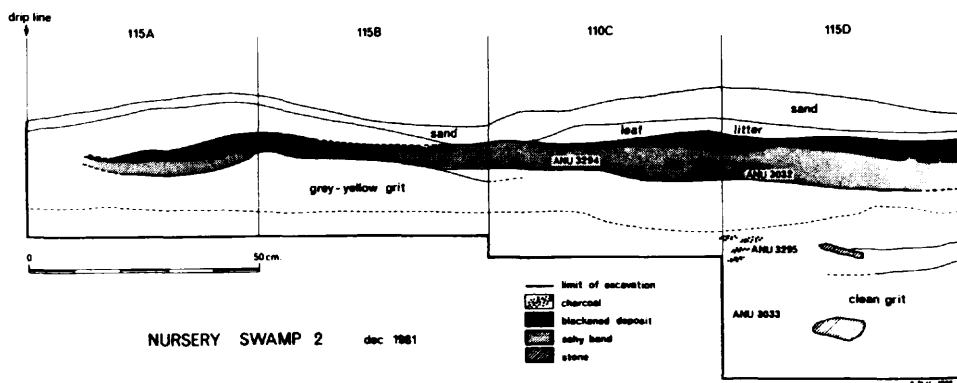


Figure 3.

Nursery Swamp 2: section of excavations



which has resulted in a small area of inverse stratigraphy of surface dust and leaf litter over squares c and d. Artefacts found on the surface of these squares (including a backed blade) cannot, therefore, be assumed to be 'very recent' or post-depositional.

Artefacts and faunal debris occur throughout the excavated deposits. If the artefacts in the lower, charcoal-free deposits had resulted from trampling and post-depositional movement through the unconsolidated sands, a gradual decrease in frequency and size would be expected. A preliminary analysis of frequency of stone artefacts through the deposits in the deepest part of the excavation, squares 115d and 120d, shows no pattern of decrease with depth (Table 1). In particular there is no significant change in artefact density between the ash and charcoal levels (spits 1-4) and the underlying levels which have no evidence for camp fires. A size distribution analysis in three size groups (<5 mm, 5-9 mm, >9 mm) also shows no significant pattern of change with depth. The frequency distribution of faunal remains through the deposits shows a very similar pattern (Table 2). Therefore, on present evidence, it seems probable that by and large artefacts are *in situ* within the limits of the site's stratigraphic integrity. The relatively high weights of stone artefacts recorded at the base of the excavation are only partly explained by the occurrence of a fairly large prismatic core. The frequency of faunal debris (Table 2) shows a similarly high percentage in the lower spits. Whether the slight dip in artefact frequency in spit 6, and of faunal debris in spits 7 and 8 reflect a separation between two distinct phases of site use cannot be resolved with the small extent of excavation carried out so far. A preliminary analysis of the artefacts does not indicate any observable changes in technology with depth. It is most probable that the base of the cultural deposits was not reached within the time available for this exploratory excavation of the shelter.

#### THE STONE ARTEFACTS

A range of raw materials occurred throughout the deposits. Quartz predominates in all except the surface spits. The commonest type used is a dense opaque white vein quartz which tends to shatter, but which includes some flakes with clear conchoidal features. A grey to purplish-grey quartz with pearly lustre also occurs throughout in smaller quantities, and fragments of a massive tabular quartz were also used. Cherts include a few small chips of the dense black chert known as 'Tidbinbilla chert'. Grey and brownish buff cherts are somewhat more common and one flake is of a dark red, jasper-like chert. Other rocks will require closer identification when materials from other sites are available to form a comprehensive inventory of the raw materials used in the valley. They consist of fine-grained dark rocks, probably basaltic rocks, some quartzite, and a fine-grained whitish igneous rock, probably aplite. Two chips of silcrete have been identified, both from the lower levels. One small chip of clear glass occurred in the surface deposits, but no inference about its relationship to flaked stone can be made.

Artefacts which show formal characteristics are few. Ten backed blades were distributed throughout, except in the two lowest spits. In view of the small overall numbers, and the reduced area excavated at the base, their absence there cannot be taken as significant. Only three small flakes with 'scraper' edges were identified, and a small number of quartz artefacts have similar edge chipping. Blades and/or prismatic cores occur throughout, and quartz artefacts show the use of both lamellar and bipolar techniques of flaking. Two small flakes of a fine-grained dark rock show evidence of grinding on the dorsal surface and are probably fragments of ground stone artefacts. One roughly rectangular whetstone, 17 x 7 cm, was found in spit 3, close to the source of charcoal for date ANU-3294 of about 700 BP.

Table 1. Squares 115d and 120d: distribution of artefacts (gm) with depth (5 cm spits)

Spit	Quartz	Chert	Other	All		All	Total weight
	> 9 mm	>9 mm	>9 mm	<9 mm	>5 mm	<5 mm	
1	9.4	14.5	8.5	0.4	-	-	32.8
2	77.4	6.4	213.7	2.6	-	-	86.4
3	31.4	3.5	1.1	8.4	1.6	260.7	
4	89.6	13.2	-	9.7	3.5	116.1	
5	110.0	30.6	-	15.7	2.8	159.1	
6	48.4	18.3	3.4	5.4	-	76.2	
7	145.4	7.4	-	2.9	-	155.7	
8	102.5	13.9	-	6.5	-	122.9	
9	96.6	5.0	38.5	7.4	-	117.5	
10*	86.6	13.3	115.2	5.8	0.6	221.5	
11*	115.6	15.7	8.1	22.6	0.2	163.2	

\* square 120d only

Table 2. Size distribution of bone, in number of fragments with depth, in 5 cm spits (percentages refer to size category within each spit)

Spit	3-5 mm		6-10 mm		11-15 mm		16-20 mm		21-25 mm		>26 mm		Total no.
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	
1	99	48.5	94	47.0	10	5.0	-	-	-	-	1	0.6	204
2	8	11.4	26	37.1	16	22.8	9	12.9	5	7.1	6	8.7	70
3	20	11.9	105	62.8	28	16.8	9	5.4	1	0.6	4	2.5	167
4	28	9.2	179	58.7	73	23.9	15	4.9	7	2.3	3	1.0	305
5	15	7.5	102	51.0	56	28.0	19	19.0	5	2.5	3	1.5	200
6	10	9.9	54	53.4	27	26.7	7	6.9	1	0.9	2	2.2	101
7	8	14.3	25	44.6	14	25.0	4	7.1	2	3.6	3	5.4	56
8	10	18.5	32	59.3	11	15.8	1	0.8	-	-	-	-	54
9	33	23.7	83	59.7	22	15.8	1	0.8	-	-	-	-	139
10*	44	29.9	85	57.8	16	10.9	2	1.4	-	-	-	-	147

\* square 120d only

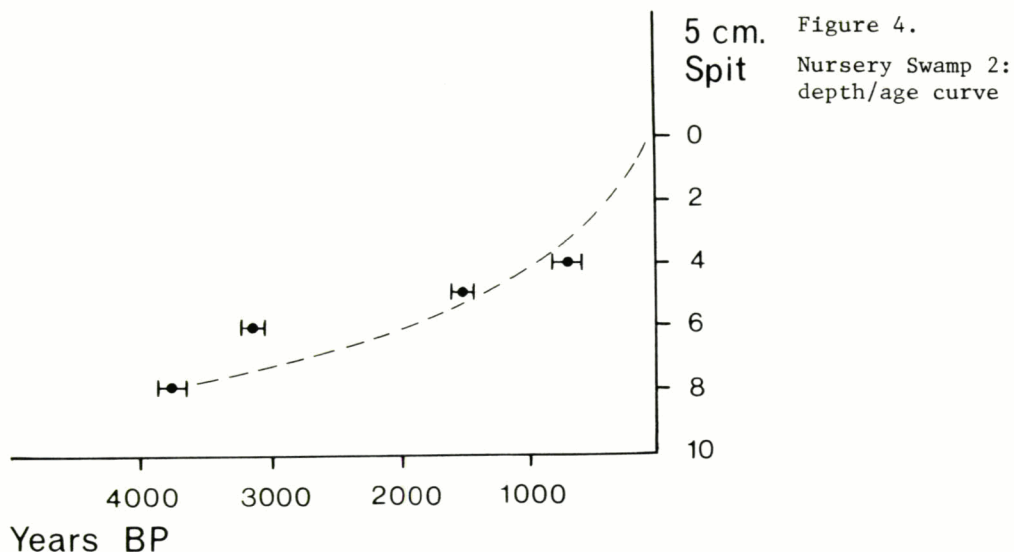
## RADIOCARBON DATES

Four radiocarbon age determinations have been obtained on charcoal:

Square 110c, spit 4: 700  $\pm$  120 BP (ANU-3294)Square 120d, spit 5: 1500  $\pm$  70 BP (ANU-3032)Square 115d, spit 6: 3150  $\pm$  90 BP (ANU-3295)Square 120d, spit 8: 3700  $\pm$  110 BP (ANU-3033)

Samples ANU-3032 and ANU-3294 are on charcoal within the dark ashy zone and date these bands to a period of about one millennium between about 600 and nearly 1600 BP. The interdigitating lenticular structure of this zone indicates alternate building up and clearing of 'hearths' which most probably explains the disparity between the ages of charcoal within adjacent spits,

but from separate squares. The great difference in age between samples ANU-3032 and ANU-3295 is more difficult to explain. It could result from a break in sedimentation or erosional discontinuity, but no change in the nature of the deposits was observed during excavation. The depth/age curve (Fig.4), suggests that the age determination for ANU-3295 may be too old.



#### THE ROCK PAINTINGS

The paintings are in solid red ochre (Fig.5). They are in parts very faint, and weathering has damaged the original outline of the designs to a variable extent. There are three different motif types, one of which is repeated six times. There are also small irregular patches of paint which seem to be 'splashes' of paint rather than controlled designs. The repeated pattern consists of an ovoid with narrow short projections arranged like the legs of an animal splayed out. Several of these figures have an irregular projection on the upper narrow side of the ovoid with a single narrow line from this. By analogy with the conventions for animal designs elsewhere in southern Australia, these could be images of echidna, seen from on top. Similar designs at Yankee Hat and at Rendezvous Creek were identified as echidna by Flood (1980:130, 134).

The representational intent of the remaining two designs is more difficult to ascertain. The generalised and poorly preserved outline makes it difficult to determine the precise form of the original designs. One has a fairly rough similarity to the large macropod figure 'F' from Yankee Hat (Flood 1980:Fig. 15b), except that the head if it existed has been lost, as has one of the back legs. The other design partly merges with one of the echidna designs and cannot be identified as representational. There is also a faint unidentifiable trace of red ochre about 75 cm below, and to the right of the lowest of this group of figures.

The paintings at Nursery Swamp 2 are fewer and generally less well preserved than at Yankee Hat and Rendezvous Creek. There is a much smaller range of motifs than at either of these sites, and only one colour has been used, or preserved. The Nursery Swamp 2 paintings do, however, fall within the range of motif, technique and style exhibited at these other two sites.



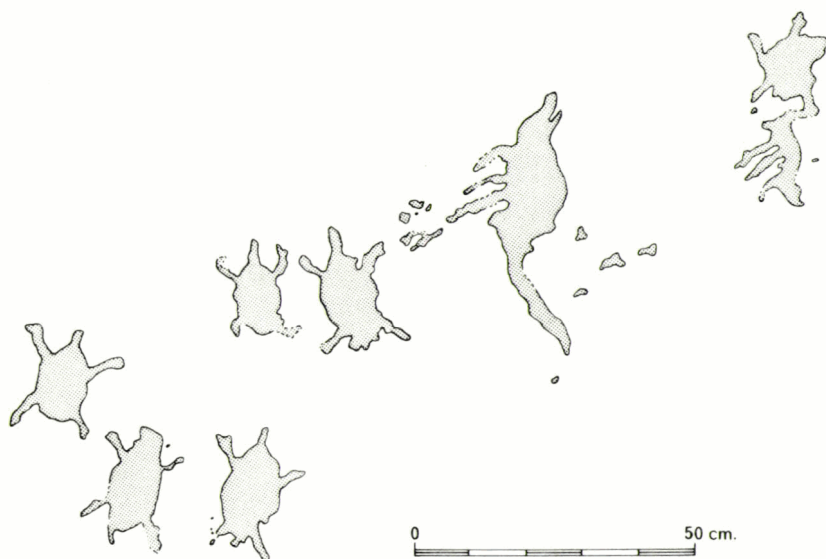


Figure 5. Nursery Swamp 2: drawing of the red ochre paintings

#### FAUNAL REPORT ON NURSERY SWAMP 2

The excavation yielded a relatively large quantity of bones, from the surface down to the lowest excavated spits. A few of the largest pieces were recorded *in situ*, but the majority of the bone remains were recovered from sieves. A few very small fragments were recovered from soil samples.

The state of preservation of the bone is good, with most of it being calcined to some extent. Calcined bone occurred in every spit from every square. Below the level of the yellow-grey grit all bone was calcined, and pieces from these units were generally small with no prominent osseous features that could aid identification. In the upper half of the deposit there was a very small amount of non-calcined bone.

All of the bone was brushed clean and then identified by comparison with reference samples or illustrations in the literature (Bishop 1967; Ride 1970; Merrilees 1979). The fragmentary nature of the bone has restricted the number of positive identifications. Identification to species level has not been attempted because of the nature of the remains. Table 3 lists the most definite identifications, and Table 4 some probable identifications.

Table 3. Identification of faunal elements from Nursery Swamp 2

Species	Anatomical element	Stratigraphic unit
<i>Pseudocheirus peregrinus</i>	L. humerus	110b/5
	R. mandible P <sub>4</sub> M <sub>1-4</sub>	120d/2
	L. mandible M <sub>2-4</sub>	120d/3
<i>Euastacus</i> sp.	Gastroliths (4)	110c/3 Grey Ash
		110c/4
	Chelae (5)	110c/3
		110d/4
<i>Velesunio</i> sp.		115b/1-2 & 120d/2

Table 4. Other remains from Nursery Swamp 2

	Stratigraphic unit
Phalangeroid lower incisor (?genus/sp.)	110c/3
Worn molar in alveolus (?genus/sp.)	110c/3
Edentulous mandibular fragment	110c/5
Edentulous mandibular fragment (? <i>Notomys</i> / <i>Pseudomys</i> )	115 & 120d/5
Bird bone	115 & 120d/5
Nacreous shell	120d/9
Large macropod long bone	120d/2

As can be seen, most of the identifiable remains occurred within spit 5 or above this level in the deposit. The only remarkable fragment below this level is a tiny (3 mm square) piece of nacreous shell occurring in 120d/9.

It was decided to analyse the size distribution of the bone fragments between spits, in an attempt to determine differences either in cultural processing of bone or of varying post-depositional influences on bone within the clean grit unit and the ash and charcoal units above it.

The bone fragments were measured on 1 mm graph paper, and the frequencies for size classes compiled. The results for squares 115d and 120d are summarised in Table 2. No significant pattern of change is observable. The relatively high numbers for bone fragments in the lower spits are noteworthy, particularly since in spit 10 only square 120d was excavated. However, the bone is also more fragmented in the lower spits. Quantification by weight was not attempted, since corrections for degree of calcination and for density of different parts of the body could not be reliably estimated on this material.

## CONCLUSIONS

The industries at Nursery Swamp 2 with backed blades and both lamellar and bipolar working techniques for quartz are broadly similar to those described by Flood (1980) for the nearby site of Yankee Hat 1 and 2. Given the relatively smaller scale of the present excavation, quantitative comparisons have not been attempted. Flood was also able to identify a greater range of formal artefact types (1980:237). The change from an assemblage with backed blades to one in which quartz flakes predominate, which Flood (1980:239) dates to  $770 \pm 140$  BP (ANU-1015) at Yankee Hat, has not been identified at Nursery Swamp 2. This may be because the shelter was no longer in use during this more recent phase. However, at Hanging Rock in the Tidbinbilla Nature Reserve this transition is much less clearly documented, and is dated to  $370 \pm 60$  BP (ANU-1074) and it is undated at the Caddigat Shelter on the Monaro (Flood 1980:282).

Dates obtained for the ash and charcoal levels of Nursery Swamp 2 are somewhat earlier than for other dated sites in its immediate vicinity and compare with the lower levels of Caddigat Shelter,  $1600 \pm 60$  BP (ANU-1049). The dates for the lower levels of Nursery Swamp 2 occupation are, however, considerably earlier than other dated sites in the southern uplands, and extend human penetration of this ecological zone back to at least some 3700 years BP.

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