

# 11

## Eurimbula Creek 2

### Introduction

This brief chapter describes archaeological investigations at a small shell midden, Eurimbula Creek 2, on the north bank of Eurimbula Creek just southeast of the site of Eurimbula Creek 1 reported in Chapter 10. As noted in the previous chapter, small stratified middens are rare in the region. Investigations at Eurimbula Creek 2 were undertaken to explore the nature and chronology of these smaller assemblages. Excavations and analyses indicate that the site represents a single ephemeral occupation event in the recent past, probably pre-dating European invasion of the area. The limited range of remains suggest that the site was a temporary camp created during foraging activities, not a residential site.

### Site description and setting

Eurimbula Creek 2 is located 600m southeast of Eurimbula Creek 1 and comprises a sparse scatter of shell spread over a 10m<sup>2</sup> area of mainly disturbed ground on the top of a low dune on the north bank of Eurimbula Creek (Latitude: 24°10'04"S; Longitude: 151°49'22"E) (Fig. 10.1). The site is located 3m above current tidal range and 39.5m north-northeast of the base of the dune abutting the fringing beach separating the frontal dune from the thick mangrove margin (Fig. 11.1). The surface expression of Eurimbula Creek 2 is discrete, with the majority of shell visible in a low ovular depression c.110cm long and c.75cm wide created by unidentified burrowing animals. Active smooth-handed ghost crab (*Ocypode cordimanus*) burrows are visible in the base of the depression although it is improbable that they are responsible for the entire disturbance, which covers a broader area than usually impacted by these crustaceans. The surface shell scatter is composed almost entirely of rock oyster lids and lid fragments (*Saccostrea glomerata*), with some common nerite (*Nerita balteata*) and the base of a telescope mud whelk (*Telescopium telescopium*). The latter is significant because although it abounds in the upper tidal reaches of mangrove

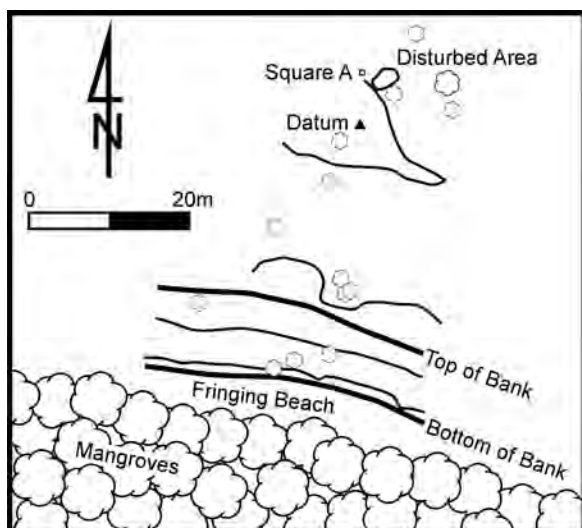


Figure 11.1 Site plan of Eurimbula Creek 2 area. Contours are in 0.5m intervals. Only major trees in the immediate area of the excavation are shown.



Figure 11.2 General view of location of Square A, showing disturbance zone to the northeast (rear left) of the excavation. Facing east.



Figure 11.3 General view of completed excavation, Square A, showing a large root protruding from the east section. Facing north.

estuaries today (Shanco and Timmins 1975; Fig. 2.6), this taxon has not been observed on the surface of other shell middens recorded in the region nor recovered from excavations. Also, the apparent absence of mud ark (*Anadara trapezia*) is of note as it is the most common taxon in other sites recorded in the area. The surface exhibits a maximum shell density of 25 shell fragments/m<sup>2</sup>. Despite intensive ground survey and good visibility, virtually no shell was located on the ground surface or in the erosion bank away from the identified exposure. Cattle activity in the site area is evidenced by a deeply worn track (c.30cm wide) along the top of the frontal dune.

The shell exposure is situated in a small clearing surrounded by dry vineforest thicket dominated by burdekin plums (*Pleiogynium timorensis*) with occasional large eucalypts including an unusually large (264cm in circumference) tree located c.8m east of the site. The site is situated c.400m southwest of the open beach and c.100m west of a distinct thinning of the mangrove fringe, facilitating easier access to the extensive intertidal flats of Eurimbula Creek (Fig. 10.1). Refer to Chapter 10 for further details of vegetation, non-Indigenous impact and other recorded archaeological sites in the immediate area of Eurimbula Creek 2.

This site was recorded by the author on 2 October 1996 during Gooreng Gooreng Cultural Heritage Project (GGCHP) pedestrian transect surveys of the Eurimbula Creek northern bank (see Ulm and Lilley 1999). The



Figure 11.4 General view of completed excavation, showing disturbance zone to the east (right) of the excavation. Facing north.

site was originally designated as GGCHP Site Number CC38 and subsequently registered on the EPA's Indigenous Sites Database as KE:B20. It is registered as Queensland Museum Scientific Collection Number S232. The basic objective of excavation was to determine the presence and integrity of any subsurface deposits at the site. A higher-order objective was to sample the deposits to help develop an understanding of activities undertaken at smaller sites and how these relate to the larger sites which dominate the archaeology of the region.

## Excavation methods

Owing to the small size of the site, a single 50cm x 50cm pit (Square A) was placed c.25cm from the western margin of the disturbed depression to assess the excavation potential of the site (Fig. 11.2). The test pit was located as close as practicable to the observable shell exposure, with the site datum established 670.5cm due south of the southwest corner of Square A (Fig. 11.1). As the excavation was situated on a dune ridge, bedrock was not reached, but excavation continued for 20cm below the last observed cultural material. Excavations were conducted between 22 March–1 April 1999.

Excavation proceeded in shallow, arbitrary excavation units averaging 3.1cm in depth and 11.2kg in weight. Excavation ceased at a maximum depth of 45.7cm below ground surface after several units of culturally-sterile sediments had been removed (Figs 11.3–11.4). A total of 167.2kg of sediment was excavated in 15 XUs. Excavated sediments were gently dry-sieved through 3mm screens onto a plastic tarpaulin located 5m southwest of the excavation. Three-dimensional plotting was undertaken for a single concentration of charcoal fragments (0.5g) encountered *in situ* during excavation of XU4. A layer of plastic sample bags was placed over the base of the completed excavation and then backfilled with sediments from the sieving station and with sands from the beach fringing Eurimbula Creek (see Chapter 3 for a detailed discussion of the standard excavation methods employed at all sites).

## Cultural deposit and stratigraphy

Excavation reflected the low density and limited range of shellfish remains observed on the surface of the deposit. Only very sparse shell and scattered charcoal were recovered from the excavation (Table 11.1). The marine shell component comprises only two taxa, rock oyster (*S. glomerata*) and nerite (*N. balteata*), with two taxa of terrestrial gastropod the only other shell recovered (see below). Shell is concentrated between XU2–9 in the top 25cm of the deposit. Below this level only minute fragments of oyster shell were recovered and the abundance of charcoal falls off dramatically. The excavated sediments can be divided into three distinctive stratigraphic units (SUs) on the basis of colour and texture, with a third subunit across part of the surface (Table 11.2, Fig. 11.5). SUIa is thought to be spoil deriving from adjacent disturbance. Its sediments are consistent with those observed around the margins of the depression and the unit contains occasional shell and humic material. SUI appears to be the pre-disturbance surface and is partially overlain by SUIa along the eastern margin of the excavation. SUII contains the majority of shell and charcoal recovered in the excavation. This unit appears to be the source of all shell at the site. SUII grades into SUIII with depth, with a darkening of sediment and increased roundedness of particles. Shell fragments recovered from this unit are thought to derive from SUII. The shallow and limited distribution of cultural materials suggests that all material is likely to be roughly contemporaneous. The pH values are slightly acidic throughout (6.0–6.5).

Table 11.1 Eurimbula Creek 2, Square A: summary excavation data and dominant materials.

SQUARE	XUs (#)	DEPTH (cm)	WEIGHT (kg)	SHELL (g)	CHARCOAL (g)	STONE (g)	ORGANIC (g)
A	15	45.68	167.20	201.29	20.91	10.50	1252.69

Table 11.2 Stratigraphic Unit descriptions, Eurimbula Creek 2, Square A.

SU	DESCRIPTION
I	Extends across the entire square. This unit is exposed at the surface in the northwest corner and underlies SU1a along the eastern margin and southeast corner of the square. It has a maximum thickness of 7cm and a maximum depth of 14cm below the surface. Sediments are matted by humic material and comprise dark greyish brown (10YR-4/2), poorly-sorted, medium, subangular particles. Rock oyster and charcoal fragments are common. pH values are slightly acidic (6.0).
Ia	This unit overlies SU1 along the eastern margin of the pit and is derived from the burrowing spoil from the surface of the adjacent disturbance zone. It has a maximum depth of 10cm below the surface. Sediments are matted by numerous fibrous roots. Sediments are brown (10YR-4/3). Rock oyster and charcoal are present. pH values are slightly acidic (6.0).
II	Extends across the entire trench with a maximum thickness of 20cm and a maximum depth of 27cm below the surface. Sediments are moist and loosely consolidated. Occasional large roots are present. Sediments are well-sorted, fine and subrounded to rounded and dark yellowish brown (10YR-4/4). Most shell and charcoal recovered derives from this unit. pH values are slightly acidic (6.5).
III	Unit extends across the entire square with a maximum thickness of 24cm and a maximum depth of at least 47cm below the surface. The base of this unit was not reached. Subsequent testing with a sand auger and observation of the nearby erosion bank profile indicates that this unit extends for several metres. It comprises well-sorted, fine, rounded sediments which are dark yellowish brown (10YR-4/6). Sediments are moist and loosely consolidated. Roots are less numerous and generally smaller in diameter. Minute shell fragments recovered from this unit are thought to derive from higher in the profile. pH values are slightly acidic (6.5).

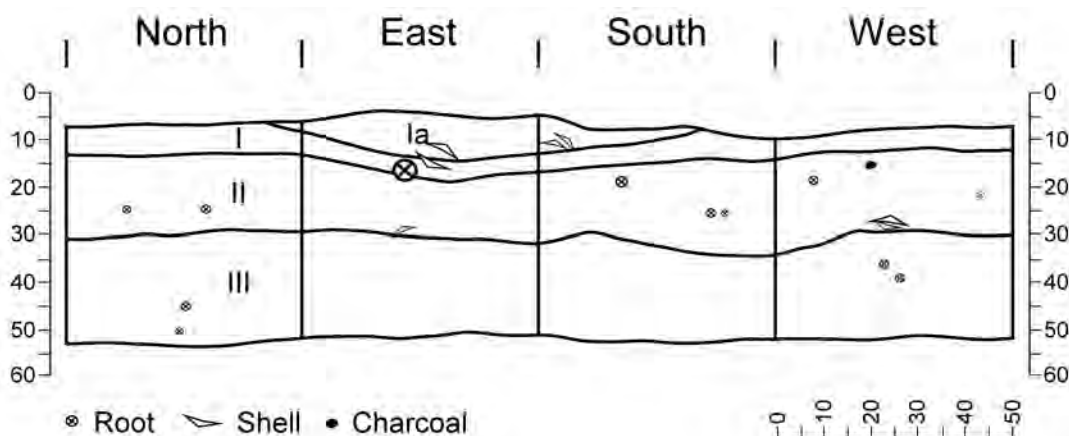


Figure 11.5 Stratigraphic section, Eurimbula Creek 2, Square A.

## Radiocarbon dating and chronology

A conventional radiocarbon date was obtained for the site on a large blocky charcoal sample weighing 2.8g from XU6 (Table 11.3). The sample returned a value of  $97.9 \pm 0.8\%$  modern, which indicates an age of less than 200 years. Finite ages are problematic in this area of the calibration curve owing to high levels of variability in radiocarbon activity in the atmosphere caused by the onset of the industrial revolution and atmospheric testing of thermonuclear devices. Radiocarbon ages between 0 and 200 years could give calendar ages anywhere from AD 1750 to AD 1950 (Alan Hogg, Waikato Radiocarbon Dating Laboratory, pers. comm., 1999). The lack of post-contact material culture lends support to an argument for a pre-European origin for Eurimbula Creek 2. The near-surface context of the material and limited vertical distribution indicate that the cultural deposits are very recent, probably being deposited sometime between AD 1750–AD 1900.

Table 11.3 Radiocarbon dates from Eurimbula Creek 2 (see Appendix 1 for full radiometric data).

SQUARE	XU	DEPTH (cm)	LAB. NO.	SAMPLE	$\delta^{13}\text{C}$ (‰)	% MODERN	CALIBRATED AGE/S
A	6	13.1-16.3	Wk-7689	charcoal	-25.7±0.2	97.9±0.8	modern (see text)

## Stratigraphic integrity and disturbance

The Eurimbula Creek 2 deposits exhibit generally poor integrity. Burrowing near the excavation has dispersed subsurface shell material across a large area. The disturbance may have been caused by the brush-turkey (*Alectura lathami*) which are common in the area, although there are no mounds in the immediate vicinity of the site. Feral pigs (*Sus scrofa*) have also been recorded in adjacent areas. SUII is thought to be the source unit for all of the shell present at the site. This unit, at least in the area of excavation, does not show signs of significant disturbance (e.g. infilled burrows), although tree root penetration may well be responsible for some movement of shell material in the deposit. The similarity of shell diversity and density observed in the surface scatter with that encountered during excavation lends further support to the idea that the SUII deposits are *in situ*, with the scattered surface material originally deriving from a relatively small, discrete deposit. Unlike the deposits at the nearby Eurimbula Creek 1, the deposits at this site have not been impacted by water erosion, with the creek located some distance from the deposit and at a significantly lower elevation.

Although virtually all shell was recovered in the top 25cm of the deposit, occasional minute fragments were recovered to the base of excavations in SUII. These latter are considered unlikely to be in primary depositional context and have probably been displaced from the shell zone by crab burrowing and root penetration. Although no voids or unambiguous evidence for burrowing were encountered during excavation, ghost crab (*O. cordimanus*) burrows were observed in the base of the adjacent disturbed depression.

## Laboratory methods

Laboratory methods followed the standard procedures employed at all sites (see Chapter 3). In the sections below, the results are summarised, although only selected data are illustrated in Figures 11.6–11.9. Further summary results are available in Appendix 4.

## Cultural materials

### Invertebrate remains

Four taxa of shellfish weighing 201.3g were recovered, consisting of one marine bivalve, one marine gastropod and two terrestrial gastropods (Table 11.4). The assemblage consists almost entirely of rock oyster (*S. glomerata*), comprising 96.8% of the shell assemblage by weight (Fig. 11.6), followed by common nerite (*N. balteata*) (3%) and the land snails *Trachiopsis mucosa* (<0.1%) and *Eremopeas tuckeri* (<0.1%). The assemblage exhibits very low diversity with a calculated Shannon-Weaver Function ( $H'$ ) of 0.173 and Simpson's Index of Diversity (1-D) of 0.08. This assemblage, together with the telescope mud whelk (*T. telescopium*) observed on the surface, are consistent with foraging strategies focussed on the mangroves fringing the estuary. The presence of the telescope mud whelk, which is absent from other midden assemblages but which dominates modern estuarine shellfish biomass, may point to a very recent origin for the proliferation of this species in the area, just pre-dating permanent European settlement in the area.

### Other remains

Scattered fragments of charcoal, totalling 20.9g, were recovered from every excavation unit, with general abundance coincident with the distribution of shell (Figs 11.6–11.7). Small quantities of pumice, totalling 9.8g, occur throughout the bank deposits (Fig. 11.8). The small nodules of pumice recovered were most likely wind-transported from the tidal strand line of the nearby creek bank. Organic material decreases markedly below the leaf litter and humic-rich units at the surface of the deposit (Fig. 11.9).

Table 11.4 Presence/absence of shellfish identified in Eurimbula Creek 2, Square A.

XU	<i>S. GLOMERATA</i>		<i>N. BALTEATA</i>		<i>T. MUCOSA</i>		<i>E. TUCKERI</i>	
	(g)	(MNI)	(g)	(MNI)	(g)	(MNI)	(g)	(MNI)
1	4.66	1	0	0	0	0	0	0
2	38.60	6	6.12	1	0	0	0	0
3	12.00	1	0	0	0.09	2	0.08	2
4	28.10	2	0	0	0.07	2	0	0
5	33.40	5	0	0	0	0	0	0
6	31.50	2	0	0	0	0	0	0
7	3.91	1	0	0	0	0	0	0
8	17.40	1	0	0	0	0	0	0
9	18.00	3	0	0	0	0	0	0
10	1.91	1	0	0	0	0	0	0
11	1.16	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
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14	0	0	0	0	0	0	0	0
15	4.29	0	0	0	0	0	0	0

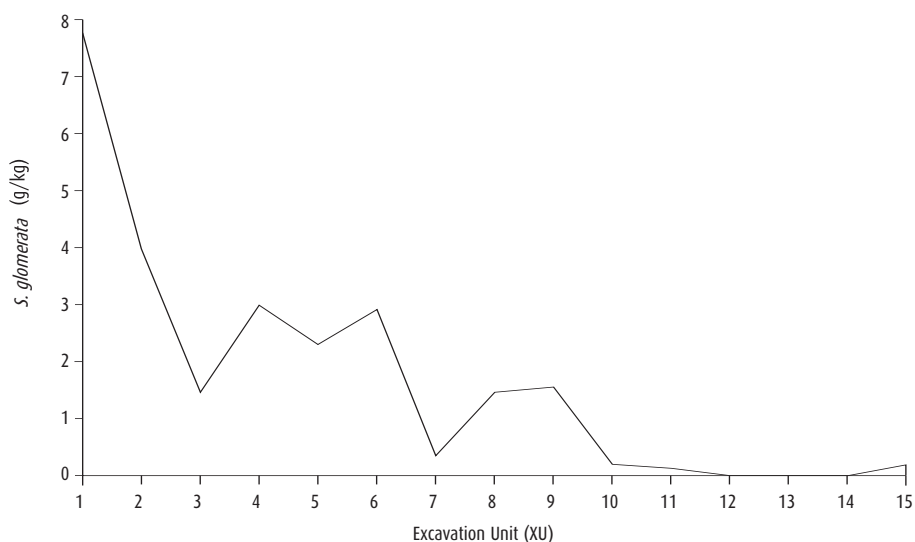


Figure 11.6 Abundance of oyster (*S. glomerata*).

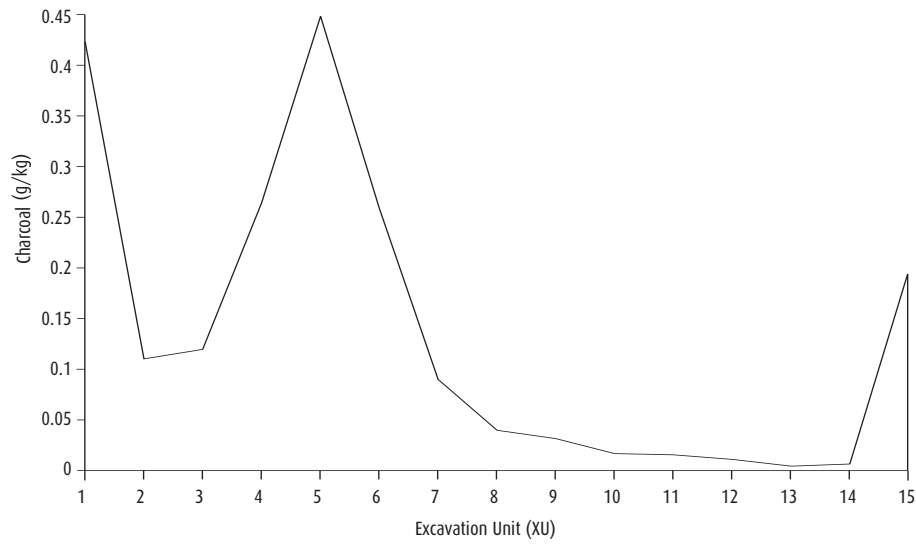


Figure 11.7 Abundance of charcoal.

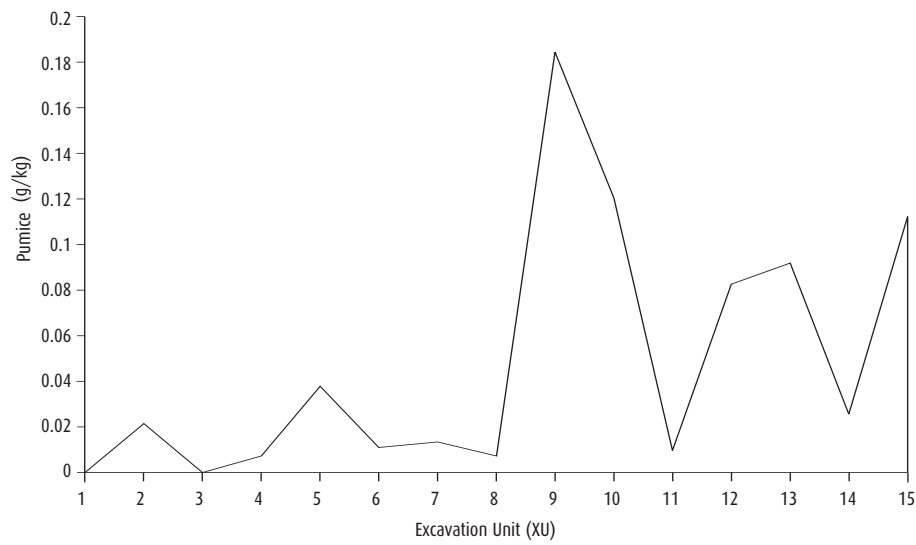


Figure 11.8 Abundance of pumice.

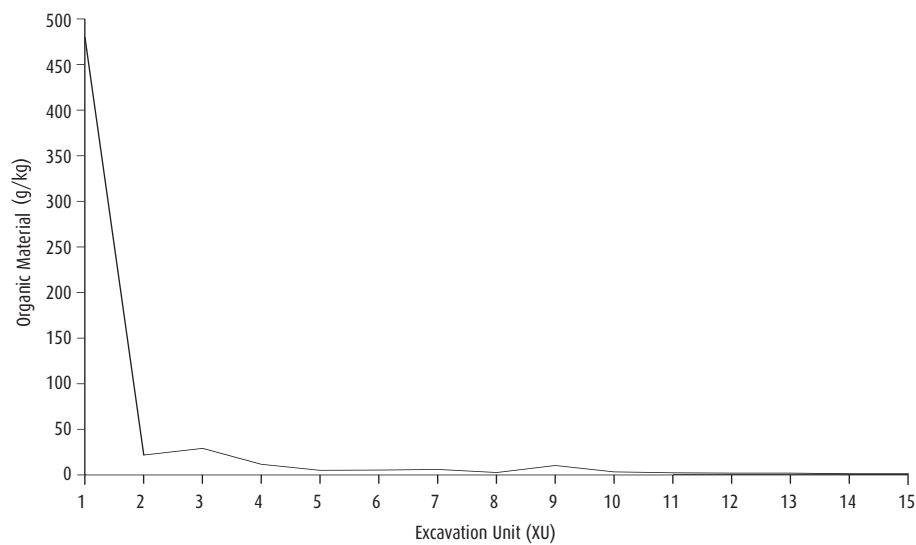


Figure 11.9 Abundance of organic material.

## Discussion

Investigations at Eurimbula Creek 2 revealed a low density sequence of shell material located close to the surface. The density and diversity of the excavated shellfish assemblage is consistent with the material observed on the surface. Although the site exhibits poor integrity, all of the cultural material appears to derive from a shallow subsurface unit which dates to the last 200 years. The limited extent and composition of the assemblage suggest a general contemporaneity which is consistent with the creation of a temporary camp during foraging activities focussed on the adjacent upper intertidal zone. As at Eurimbula Creek 1, I suggest that the small-scale shellfishing and fishing represented by this assemblage are consistent with a site function as a dinner-time camp (*sensu* Meehan 1982:26) (see Chapter 10 for further discussion).

The recovery of a single telescope mud whelk base (*T. telescopium*) dating to the last 200 years may relate to local palaeoenvironmental changes and/or colonisation leading to the proliferation of this taxon observed in estuaries today. The presence of the telescope mud whelk late in the pre-European sequence and a general decline in the abundance of mud ark (*A. trapezia*) over the last 2,000 years is consistent with a model of small areas of mangroves being supplanted by dense fringing mangrove forests which characterise estuarine vegetation of the landscape today (see Chapter 2 for further discussion).

## Summary

Eurimbula Creek 2 represents small-scale activities operating over a relatively short time-scale. Together with evidence from Eurimbula Creek 1, these investigations suggest a recent logistical pattern of land-use involving extraction and at least partial consumption of resources from estuaries located some distance from major archaeological sites identified as residential base camps. The age of this deposit is synchronous with the most intense period of occupation identified in the region and suggests that by this time complex patterns of localised settlement and subsistence strategies were in place.