MOUND SITES ON THE ADELAIDE RIVER COASTAL PLAINS

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ABSTRACT

Earth mound sites are a common archaeological feature in the 'Top End' of the Northern Territory, frequently located adjacent to the floodplains of major rivers. This paper draws special attention to earth mound sites in the Adelaide River area. Investigation of these sites should resolve issues such as the origins of the mounds and their role in Aboriginal settlement strategies.

INTRODUCTION

This paper discusses the results of a preliminary field season investigating earth mounds located adjacent to the floodplains of the Adelaide River, 60 km south-east of Darwin, northern Australia (Figure 1). As yet no excavation has been undertaken and only information regarding site location and mound features is presented below. The research potential of earth mound investigations to solve other problems in Australian archaeology is also discussed.

CLIMATE AND GEOMORPHOLOGY

The study area lies on the coastal plains of northern Australia, 12 degrees south of the equator in a sub-humid savanna environment (Harris 1980: 8). The climate is markedly seasonal with a long dry season lasting from April to November, and a shorter wet season from December to March (Christian and Stewart 1953: 29).

During the post-Pleistocene sea level rise the river valleys on the coastal plains of northern Australia were flooded. When the sea level stabilized, mangroves rapidly invaded leading to what has been described as the 'Big Swamp Phase' from 7000 to 4000 years BP (Woodroffe et al. 1985). Following siltation and coastal progradation the tidal influence was cut off and the mangroves retreated. Saline mud flats were common on the coastal plains during this period. In the last 2000-1500 years BP large productive freshwater wetlands formed on the floodplains of the major rivers of the north. This sequence has been dated for the South Alligator River and the timing is thought to be similar for the Adelaide River (Chappell 1988).

EARTH MOUNDS IN NORTHERN AUSTRALIA

Mounds, both of earth and shell, are common archaeological features on the coastal plains of northern Australia and have been recorded by a number of researchers in the north, including Baker (1981) who worked in the Point Stuart area around the mouth of the Mary River; Cribb (1986) in Aurukun on Cape York; Meehan (1988, 1991) in the Blyth River region; and Peterson (1973) in the Arafura Swamp area. Both the latter are located in central Arnhem Land. In 1983 I also investigated some earth mounds located adjacent to the floodplains of the South Alligator River in Kakadu National Park (Brockwell 1989).

Earth mound sites in northern Australia are characterized by several features but, as their name implies, they are composed mostly of earth. They occur singly and in groups of between two and 20 and are often found at the conjunction of a number of ecological zones usually close to swamps. They range in size from 4.5 m to 60 m in diameter and between 0.5 m and two metres high. The ones that have been dated are recent in origin. Earth mounds at Balpildja Swamp on the Blyth River have been dated to 1500 years BP (Meehan 1988: 2). Others in Kakadu have been dated to c. 300 years BP (Jones and Johnson 1985: 41; Russell-Smith 1985: 242).

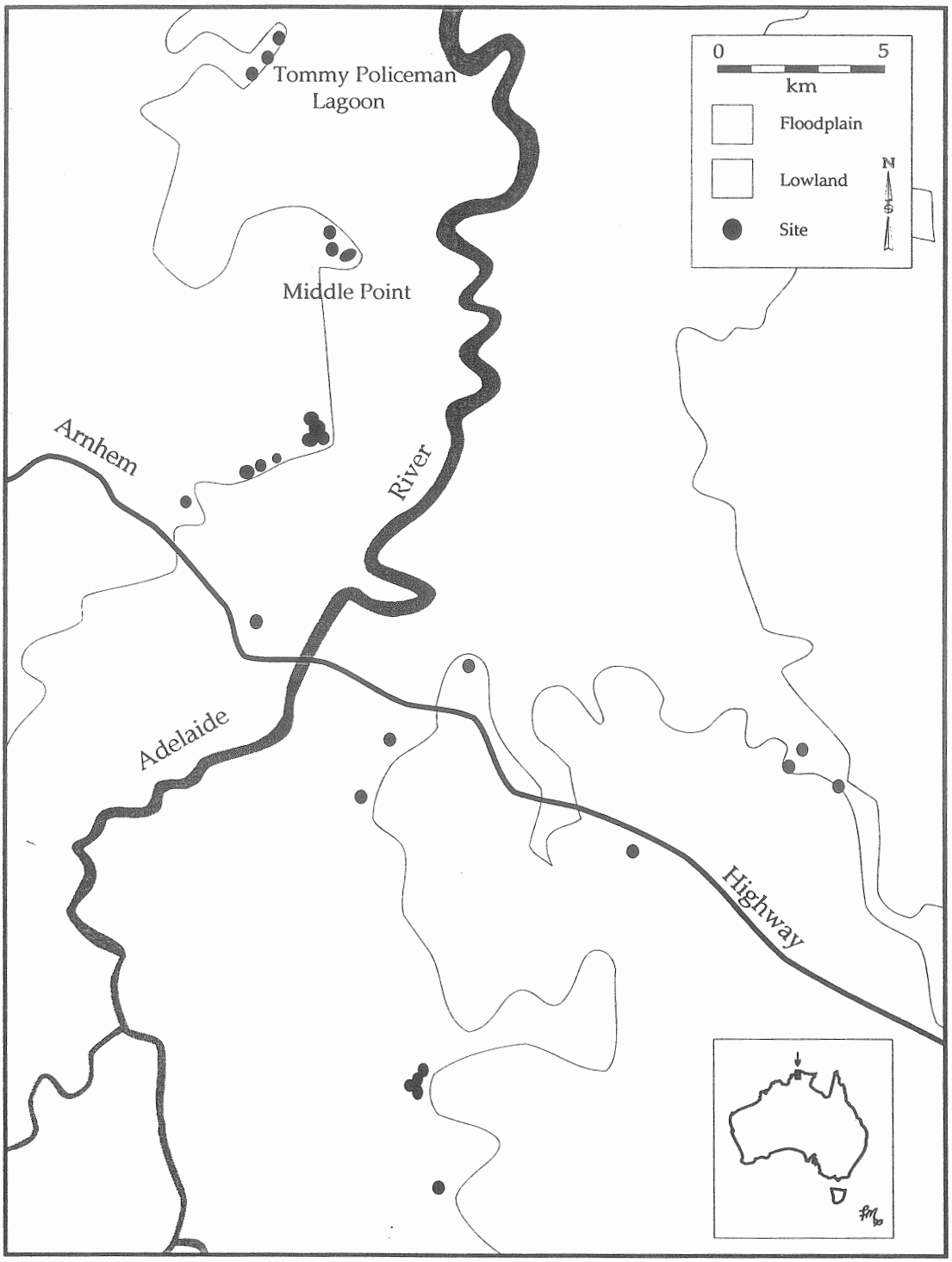

Figure 1: The distribution of earth mounds on the margins of the floodplain of the Adelaide River, Northern Territory, Australia.

Adelaide River Earth Mounds

On the Adelaide River a variety of open sites are located along the floodplain margins of the river including stone artefact scatters, stratified open sites, earth mounds and pounding hollows (Schrire 1968; Smith 1980; Smith and Brockwell 1994). The earth mounds tend to be located in the pandanus fringes which line the edges of the floodplains. So far 23 earth mound sites have been recorded in the area. They are mostly located on two peninsulas, Middle Point and Tommy Policeman Lagoon, which jut into the floodplains. The mounds measured so far have been between 20 m and 60 m in diameter and between 20 cm and 1.5 m in height. They occur singly and in groups of up to three mounds.

One such mound, 50 m across by 1.45 m high at Middle Point, was excavated by Schrire (1968) in the late 1960s. Like the other mounds in this area it was located in a patch of pandanus scrub adjacent to the freshwater floodplains of the Adelaide River. The excavation yielded stone artefacts, faunal remains, bone tools and shell. Interestingly, the top layers contained freshwater mussel shell (*Velesunio* sp.) and the bottom layers were dominated by the mangrove/mudflat species *Geloina* sp., suggesting that the mound may have been originally occupied as long ago as 4000 years ago when estuarine conditions were extant on the floodplains, and that it has continued in use into the more recent freshwater period. However, geomorphological work is needed to determine the exact nature and timing of floodplain evolution on the Adelaide River. Likewise, dating of the mounds is needed to see if the events are linked.

The Adelaide River earth mound sites have the potential to address several questions raised by previous research into mounds. These questions concern the origin, function, seasonality and role of earth mounds in regional settlement strategies. Such research may also attempt to answer broader questions regarding population size and the degree of mobility versus sedentism.

Origins of Earth Mounds

Recently there has been much debate about the origins of both earth and shell mounds in northern Australia, including whether they are entirely the result of human activities or were modified by the nesting behaviour of the orange-footed scrub fowl *Megapodius reinwardt* (Bailey 1991; Cribb 1991; Stone 1989, 1991, 1992). This megapode resides exclusively in monsoon rainforest which occurs in pockets on the coastal plains of northern Australia. It constructs large mounds in which it incubates its eggs. Stone (1989: 61) argued that all mounds, whether of earth or shell, are the result of megapode nesting behaviour. He explains the presence of any associated artefactual remains as the result of the megapode incorporating such material from where it lies on the surrounding ground, or from serendipitous occupation by passing groups of hunter-gatherers. According to Stone (1989: 61), human occupation would not have contributed significantly to mound formation.

In Kakadu, earth mounds are a common feature on the high ground adjacent to the floodplains of the South Alligator River. In the early 1980s I recorded several of these mounds (Brockwell 1989: 158-62; Meehan *et al.* 1985: 126-8). They occur in groups of between three and six mounds and range in size from 10 m to 40 m across and from 25 cm to one metre in height. These particular mounds were identified as disused and eroded jungle fowl mounds (J. Russell-Smith pers. comm.). One group of these mounds was still located within the confines of a monsoon rainforest adjacent to an active scrub fowl mound. The others were located in open woodland. However their presence indicates that they were once contained within a monsoon rainforest which has since retreated. Research into this subject on nearby sites and dating of old scrub fowl mounds has associated the retreat of the forest with the impact of feral buffalo, post-dating European settlement in northern Australia in 1849, and modern late dry season fire regimes (Russell-Smith 1985: 242). However, I would argue that the mounds containing artefactual material are not solely the result of scrub fowl activity, but are also the result of deliberate site settlement strategies.

It should be reasonably easy to determine origins and distinguish between megapode and humanly constructed mounds. Bailey (1991), Mitchell (1993) and Cribb (1991) have argued that mound composition and internal structure are two factors to be considered in resolving the question. Constant reworking of active megapode mounds means that the stratigraphic context is likely to be featureless. Moreover, researchers who have investigated both earth and shell mounds in northern Australia have reported that not only do the mounds under consideration contain distinct stratigraphic features (Bailey 1977; Beaton 1985), but they have also been deliberately built up by their human occupants through use as ovens (Meehan 1988: 2; Peterson 1973: 177). Thus it should be possible to determine the origins of earth mounds through excavation and comparison between soil analyses of the contents of earth mounds, the surrounding ground and samples from active scrub fowl mounds.

Settlement Strategies

Research into earth mounds both in northern Australia and elsewhere has raised questions concerning their role in Aboriginal settlement strategies. In northern Australia a range of interpretations has been offered by different researchers. These interpretations often include wet season occupation based on considerations of the location of mounds, their elevation, restricted economic focus and the fact that wet season resources, for example fruiting trees, are often found nearby (Baker 1981; Cribb 1986; Meehan 1988, 1991; Peterson 1973). Length of occupation is a more difficult issue to determine as it is uncertain whether mound sites are the remains of base camps, overnight camps, or sites for temporary subsistence, processing and consumption activities (Cribb 1986: 148).

Baker (1981: 80-2) recorded a number of earth mounds located on the top of beach ridges at Point Stuart, 100 km north west of the Alligator Rivers region. Although these mounds are adjacent to the coast they are also close to the freshwater wetlands of the lower Mary River (Sampan Creek). Baker (1981: 77) concludes that these sites were inhabited in the wet season, based on the fact that the mounds tend to occur on the landward side of the beach ridge where freshwater is available as well as protection from the northwest monsoons. These mounds lack a wide range or dense distribution of stone tools, which Baker (1981: 81) suggests was the result of a narrow economic focus based on fish, shellfish and wet season fruits from the beach ridge trees. He argues that dry season occupation was focused on inland freshwater lagoons and creeks (*ibid.* 82).

Further inland, Baker (*ibid.* 74-5) recorded several shell mounds on the coastal plains themselves. They are located in close proximity to a variety of ecological zones, including coastline, monsoon forest, pandanus scrub, freshwater and estuarine areas. The largest mound is 60 m in diameter and 1.25 m high. Baker considers the height of most mound sites to be inadequate for habitation in the peak wet season, though sufficient for occupation in the early and late wet season. Additionally, the mounds are well placed for the exploitation of dry season resources. For one of the mound sites Baker hypothesizes that the density and diversity of stone artefacts indicated year-round occupation (*ibid.* 25).

On the Blyth River in north-central Arnhem Land at Balpildja Swamp, Meehan reports a series of earth mounds which lie between woodland and the swamp (1988: 6,12). They are about 20 m long, 10 m wide and two metres high. They are composed of nodules of termite nest and artefactual debris such as bones, shell, stone and charcoal. These mounds have been dated to 1500 years BP, at which time they were located near to a former coastline now several kilometres further north (Meehan 1988: 2).

Peterson (1973) reported earth mounds in the vicinity of the Arafura Swamp. They occured in clusters of two to 20 or more, ranged from 4.5 m to 13 m in diameter and from 0.5 m to one metre in height, and were composed of earth. These mounds were located in a sandy fan delta complex, adjacent to the foot of a nearby escarpment, near monsoon and open forest and close to permanent waterholes (Peterson 1973: 186).

Cribb (1986: 151) reported earth mounds to the north and west of the Aurukun settlement on western Cape York as being similar to those described by Peterson (1973). The mounds were described as 'slightly raised clay platform[s] or flattened dome[s] about 0.5 m high which may or may not contain an overlay of shell midden' (Cribb 1986: 151). The geographical location of these mounds was not clear from Cribb's description. However, this area, although located much closer to the sea and associated vegetation zones than the South Alligator River sites, shares a similar climate and landforms with broad black soil floodplains, open savanna and patches of monsoon forest. Cribb has interpreted these mounds as probable wet season sites (*ibid.* 148).

For the Alligator Rivers region I proposed that the earth mound sites located there represent wet season occupation (Brockwell 1989). The argument is based on the presence of the nearby large open sites which could have been occupied only in the dry season because of wet season flooding. In contrast, the mound sites are elevated and situated on higher ground away from the floodplain edge. This situation and the fact that artefact distribution is limited to the surface of the mounds and does not occur around them suggests that already-existing mounds were selected as desirable positions where wet season flooding could be avoided. Additionally, the situation of mounds in open woodland within or close to monsoon rainforests and the lack of wetland resources during the wet season suggest that, if the mounds were occupied during the wet season, the subsistence base must have been different from that of the large open sites.

The organic remains recovered from the excavation of one of the earth mounds at the Adelaide River (Schrire 1968) suggest that the occupants were exploiting the products of both the floodplains (fish and turtles) and the open savanna (goannas, wallabies and bandicoots). The shells were mainly *Geloina* sp., a mangrove/mudflat species. Of the stone tools, bifacial points and adze scrapers were the predominant types. The bone tools featured both bipoints and unipoints. The evidence from

the Adelaide River mounds could be interpreted as indicating wet season habitation (land-based indicators - savanna animals, stone points) with some early or late wet season occupation when freshwater floodplain resources were also exploited.

In southern Australia, Williams (1988) has investigated earth mound sites in southwestern Victoria in similar topographic circumstances to those in northern Australia. She has defined four classes of mounds: 1) mounds used as the basis for shelters; 2) mounds used as ovens; 3) mounds used as general living areas; and 4) combinations of all three as integrated settlements and/or base camps. She concludes that mound-building was not only an environmental adaptation associated with exploitation of swampy areas but was also linked to changes in social networks which led to increases in production and allowed more sedentary occupation of sites and a consequent increase in population (Williams 1988: 220-1).

CONCLUSIONS

Some of the issues raised above should be resolved by excavating the Adelaide River mound sites. If they are dated their formation could be correlated with the available environmental data concerning floodplains evolution on the coastal plains of northern Australia in the mid to late Holocene. If mounds within a cluster prove to have been occupied concurrently there are demographic implications. If such is the case environmental evidence such as the seasonal abundance of resources on the adjacent floodplains will have to be considered as well as explanations of 'intensification' (Jones 1985: 294).

Faunal and plant remains should provide further clues as to seasonality and along with an analysis of the stone assemblages will give some idea of what activities were undertaken at the sites. Access to workable stone, the extent of reduction and/or changes in raw material acquisition may also have implication for questions of mobility and sedentism.

Data on the size and shape of the mounds, the nature of the surface collections and samples from the mounds could elucidate questions of contemparaneity, function, seasonality and origin. Comparative soil samples collected from active scrub fowl mounds may also solve questions of origins.

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