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Introduction: investigating the archaeology of the southern Curtis Coast

Introduction

Southeast Queensland is one of the most intensively studied archaeological provinces in Australia, incorporating some 73 dated Aboriginal sites (Ulm and Reid 2000, 2004). Over the last 15 years, general syntheses of regional archaeological patterns have emerged which emphasise significant increases in site numbers and use since the mid-Holocene, especially on the coast (e.g. Hall 2000; Hall and Hiscock 1988; McNiven 1999; Morwood 1987; Walters 1989; Ulm and Hall 1996). Many of these studies emphasise the primary role of marine resources in the elaboration of social complexity in the region.

The research presented in this monograph assembles a regional archaeology for the southern Curtis Coast, at the northern extremity of southeast Queensland, based on theoretical and methodological issues emerging out of studies in southeast Queensland and throughout Australia. The structure of late Holocene Aboriginal settlement and subsistence systems is investigated through documentation of the distribution, composition and chronology of sites in the region. These findings constitute the first new large-scale regional archaeological investigation conducted in southeast Queensland since McNiven's (1984, 1985, 1988, 1989, 1990a, 1990b) study of the Cooloola region in the 1980s. It provides detailed understanding of the archaeological resources of the area to explain patterns of regional interaction. It thus helps to integrate the archaeology of the study area with that of the wider southeast Queensland region and other adjacent regions and ultimately contributes to a broad understanding of continent-wide patterns.

The continental narrative

Taken together ... [the] evidence does indeed seem to suggest that "something happened" in Australia about 2000 BC. But when each piece of evidence is examined individually, the apparent pattern becomes blurred (White 1994:225).

Ethnohistoric accounts and oral histories represent recent Aboriginal societies as a complex mosaic of localised land-using groups, actualised in the landscape by prescribed physical and social boundaries, mediated by complex patterns of intergroup alliance, cosmology, marriage and exchange. It is estimated that this pattern emerged in the mid-to-late Holocene and is associated with fundamental structural changes in the archaeological record, including increases in the rates of site establishment and use, evidenced by increases in discard of cultural materials, particularly stone artefacts; changes in stone artefact technologies, rock art styles and fishing technologies; the increased use of some marginal landscapes, such as offshore islands and the arid zone; changes in resource use, including the intensive utilisation of new foods such as cycads, cereals and some marine resources; evidence for long-distance exchange networks; an increase in the establishment of bounded cemeteries; and increased external contact, evidenced by the introduction of the dingo, fishhooks and some forms of watercraft (e.g. Beaton 1982; Bowdler 1981; David 2002; Flood 1980, 1999; Flood et al. 1987; Godwin 1997; Hiscock 1994; Lourandos 1980a, 1983, 1985, 1988, 1993, 1997; Lourandos and Ross 1994; Mulvaney 1969; Smith 1986; White and O'Connell 1982).

These changes have been variously explained by one or a combination of five main arguments:

- as an artefact of site preservation factors, including differential destruction and visibility (e.g. Bird 1992; Fanning and Holdaway 2001; Godfrey 1989; Head 1983; O'Connor and Sullivan 1994a, 1994b; Rowland 1983, 1989);
- as a product of environmental factors, particularly resource productivity and availability (e.g. Bailey 1983; Beaton 1985; Morwood 1987; Rowland 1983, 1989, 1999; Walters 1989);
- as a consequence of population growth and changes in demographic structure (e.g. Beaton 1985, 1990; Hall and Hiscock 1988; Hughes and Lampert 1982; Lampert and Hughes 1974);
- as related to the introduction and/or development of new technologies (e.g. Beaton 1985; Sullivan 1987; Vanderwal 1978); and
- as associated with changes in social structure, especially trends towards socio-economic intensification (e.g. Barker 1996, 2004; David 2002; Lourandos 1997).

To put these arguments into perspective, it must be remembered that an Australian 'deep past' has only been widely accepted since the 1960s, on the basis of pioneering excavations conducted by Mulvaney in the Central Queensland Highlands (Mulvaney and Joyce 1965). In fact, much of the enduring framework of Australian archaeology was mapped out by the early 1970s (e.g. Mulvaney 1969; Mulvaney and Golson 1971). A significant archaeological database accumulated during the 1970s, but it was the early 1980s that signalled a major turning point in the development of Australian archaeology. Heated debate during this period, labelled by Lourandos and Ross (1994) as the 'Intensification Debate', focussed critical attention on issues of change, particularly during the late Holocene. Although major recent change was recognised from the earliest excavations undertaken in Australia (e.g. Hale and Tindale 1930), serious consideration of the late Holocene archaeological record is often treated as synonymous with the work of Lourandos (e.g. 1980a, 1980b, 1983, 1985, 1988, 1997). Issues of change in Aboriginal societies were discussed by others (e.g. Hallam 1977; Hughes and Lampert 1982; Jones 1977; Lampert and Hughes 1974; Mulvaney 1969; White 1971), but it was Lourandos' major works that had the most significant impact on the acknowledgement of dynamism and were seminal in stimulating new research directions. Employing a socially-oriented approach, Lourandos pointed to a wide range of changes in the archaeological record of the last 5,000 years and linked these to continent-wide processes of socio-economic intensification which resulted in trajectories towards more intensive production and productivity in Aboriginal societies (see also Barker 2004; David 2002; Williams 1988).

Lourandos' contribution was valuable in exploring alternative explanatory paradigms and helping to focus attention on the mid-to-late Holocene, and away from a preoccupation with initial colonisation and early sites. Since the early 1980s, socio-economic intensification arguments, both

explicit and implicit, have increasingly been incorporated into normative accounts of Australian archaeology (Lourandos and Ross 1994). However, by emphasising supraregional trajectories of change, some advocates of intensification devalued the importance of local and subregional trajectories as a primary locus of change, instead amalgamating diverse sequences from widely separated regions to define overarching patterns. Lourandos' (especially 1997) schema in effect homogenised distinct local and regional trajectories into generic patterns which fail to adequately contextualise sequences within local frameworks. Instead, trajectories are modelled on gross characteristics of the archaeological record, which tend to homogenise significant regional variability, emphasising widespread cultural continuities within changing structures. Lourandos clearly sees 'distinct regional and local signatures' as firmly embedded in 'patterns on a general continental scale' (1997:306). The problem is that such higher-order archaeological syntheses are necessarily selective and emphasise similarities rather than differences, resulting in 'the distortion of an archaeological record of variation in adaptive responses into a record of homogeneous response' (Claassen 1991:249). As Frankel (1995:654) has argued, individual 'sites and regions each have a particular, and not necessarily related, history of environmentally and historically contingent developments'. Regional cultural trajectories need to be disarticulated from the 'continental narrative' (Frankel 1993:31) to enable independent characterisation of local behavioural variability. In effect, the limits of archaeological variability, or at least their interpretation, have been predetermined by expectations deriving from the continental narrative. A corollary of this is that regional sample inadequacy has often been transcended by invoking the continental narrative: the region is not seen as separate from the whole and so can be explained in terms of the whole rather than the part.

At the heart of this problem is our inability to recognise and account for the diversity of cultural and historical trajectories evident in the archaeological record. For example, in synthesising evidence for distinctly different Holocene trajectories for nine major regions across northern Australia, Lourandos (1997:166) concluded that:

Evidence for more significant socio-cultural and demographic changes appears during the late Holocene, from around 4,000 or so years ago, increasing after about 3,000 years, and particularly in the last 1,500 years or so.

It is difficult to reconcile this abstract statement with the detailed information presented for each of the regions in previous pages (Lourandos 1997:126–65). For example, the site of Mickey Springs 34 in the upper Flinders River region, demonstrates increases in the rate of stone artefact deposition after 8,000 BP and most intensive occupation after 3,400 BP (Lourandos 1997:132). On the Keppel Islands off the central Queensland coast, seven of the eight excavated sites were only occupied after 1,200 BP, with greatest intensity of occupation after 700 BP (Lourandos 1997:138–9). For the Alligator Rivers region of Arnhem Land, Lourandos goes to some lengths to argue that 'fairly steady socio-cultural and demographic changes (including possible increases in population) took place from around 6,000 BP and continued more or less up to the historical period' (1997:152). In the Central Queensland Highlands Lourandos (1997:169) concedes 'a notable alteration in pattern' where 'late Holocene cultural changes are followed by apparent reversals in site use after about 2,000 years ago'. In such generalised chronologies asynchronicity of several millennia in the timing of regional changes become insignificant. By (re)moving to this very abstract synthetic level, unique regional patterns and trajectories are made insignificant by the continental narrative.

Recent detailed studies across Australia have emphasised the variability of behavioural responses in terms of magnitude, chronology and nature at the regional level, for example, in southeast Cape York Peninsula (David and Chant 1995; Morwood and Hobbs 1995), Torres Strait (Carter 2002; McNiven 2003), the islands off the central Queensland coast (Barker 2004; Rowland 1996), the arid zone (Smith 1993; Veth 1993), the Kimberley region (O'Connor 1999; Veitch 1996),

southwest Tasmania (Allen 1996; Cosgrove 1995) and southeast Queensland (McNiven 1999; Ulm and Hall 1996) (Fig. 1.1). New understandings of regional patterns have also emerged through the critical synthesis and evaluation of existing archaeological datasets, particularly gross patterns of radiocarbon dates and rates of site establishment and use (e.g. Bird and Frankel 1991a, 1991b; David and Lourandos 1997; Holdaway and Porch 1995). These studies demonstrate a more complex view of the human past than had been allowed by the conventional continental narrative — different sites, places, landscapes and regions were found to have been used differentially through time.

Fundamental elements of our understanding of the mid-to-late Holocene have been challenged in recent years as well. The eel trapping systems and swamp management facilities in southwest Victoria, central to Lourandos' original arguments (1980b, 1983) may date to the early Holocene rather than the late Holocene, as was originally thought (Heather Built, Monash University, pers. comm., 2003). Backed stone implements, once thought to be exclusively a post-4,500 BP innovation across the southern two-thirds of the continent (e.g. Bowdler and O'Connor 1991; White and O'Connell 1982) have been identified in early Holocene deposits in the upper Mangrove Creek region (Hiscock and Attenbrow 1998). Grindstones implicated in widespread (re)occupation of the arid zone during the late Holocene have been recovered from deposits dating to the late Pleistocene (Fullagar and Field 1997; cf. David 2002; Smith 1986). Complex food processing techniques for toxic plants, once exclusively associated with the late Holocene (Beaton 1982), have been discovered in terminal Pleistocene deposits in southeast Western Australia (Smith 1996). In central Australia the Pleistocene occupation of desert areas has challenged the status of these environments as marginal landscapes, only occupied during the late Holocene (Smith 1993; Veth 1993). Central Australian engravings, once thought to relate to early low intensity open alliance networks, now appear to overlap, both stylistically and chronologically, with highly regionalised recent painted art, challenging the conventional temporal distinction of these types and their associated behaviours (Ross 2002; see also David 2002:181–5). Simple linear increases posited for marine fish deposition rates in southeast Queensland (Walters 1989) are now considered to be unsustainable (Ulm 2002a). Patterns of decreasing stone artefact discard at some sites after c.1,000 BP have also been identified in the upper Mangrove Creek region (Attenbrow 1987, 2003, 2004) and in the Hunter Valley to the north of Mangrove Creek (Hiscock 1986a). The recognition of such regional diversity shifts our focus from simply attempting to place these changes in the mid-to-late Holocene, to establishing an understanding of them.

Regional findings which appear at odds with the continental narrative have prompted archaeologists to (re)turn to detailed local level chronology-building and to examine basic assumptions underlying abstract synthetic studies at the continental level (e.g. Bird and Frankel 1991a; Fanning and Holdaway 2001; Hiscock and Attenbrow 1998; Holdaway et al. 1998; Holdaway et al. 2002; Ulm and Hall 1996). This shift to a conceptual emphasis on local and regional historical archaeological and environmental histories has not, however, been matched by an equivalent shift to the finer-grained methodologies needed to provide resolution of these issues. Three fundamental concerns are particularly important in this regard: chronological control, sampling and taphonomy. Control of time is, of course, critical to the validity of our constructions of the past and, at a very basic level, accurate site chronologies are required to provide the framework within which the study of culture change can begin. A second set of concerns can be subsumed under the heading of sampling. Despite the routine investigation of a wide range of site types in Australia (e.g. shell middens, stone artefact scatters, rock art sites etc), understanding is largely based on narratives developed from a handful of deeply stratified rockshelter deposits. The third issue of taphonomy revolves around processes of differential preservation and post-depositional modification of archaeological materials, particularly with those processes impacting site integrity. Methodological advances to address all three issues are critical to the continuing development of our understanding of Holocene Australia.

Refining mid-to-late Holocene chronologies

Establishing secure regional chronologies remains a fundamental key to building meaningful accounts of intra- and inter-regional sequences in Australia. In the absence of unambiguous time-marking artefacts (e.g. metals, ceramics etc), radiocarbon dates are almost universally employed in Australia as the basis for periodising site components and defining regional chronologies. Previously employed relative chronologies based on assumed changes in stone artefact technologies (e.g. Ross 1981) have been shown to be erroneous or dubious at best (Hiscock and Attenbrow 1998). Large sequences of radiocarbon dates are now routinely used to compare cultural chronologies at the local, regional and continental scales (e.g. Bird and Frankel 1991a; Holdaway and Porch 1995; Lourandos and David 1998; Ulm and Hall 1996). Assessment of the validity of individual dates and suites of dates has therefore become increasingly important as cultural chronologies are progressively refined and higher resolution understandings sought for particular archaeological questions. However, most studies have assumed, rather than demonstrated, direct comparability between individual radiocarbon determinations.

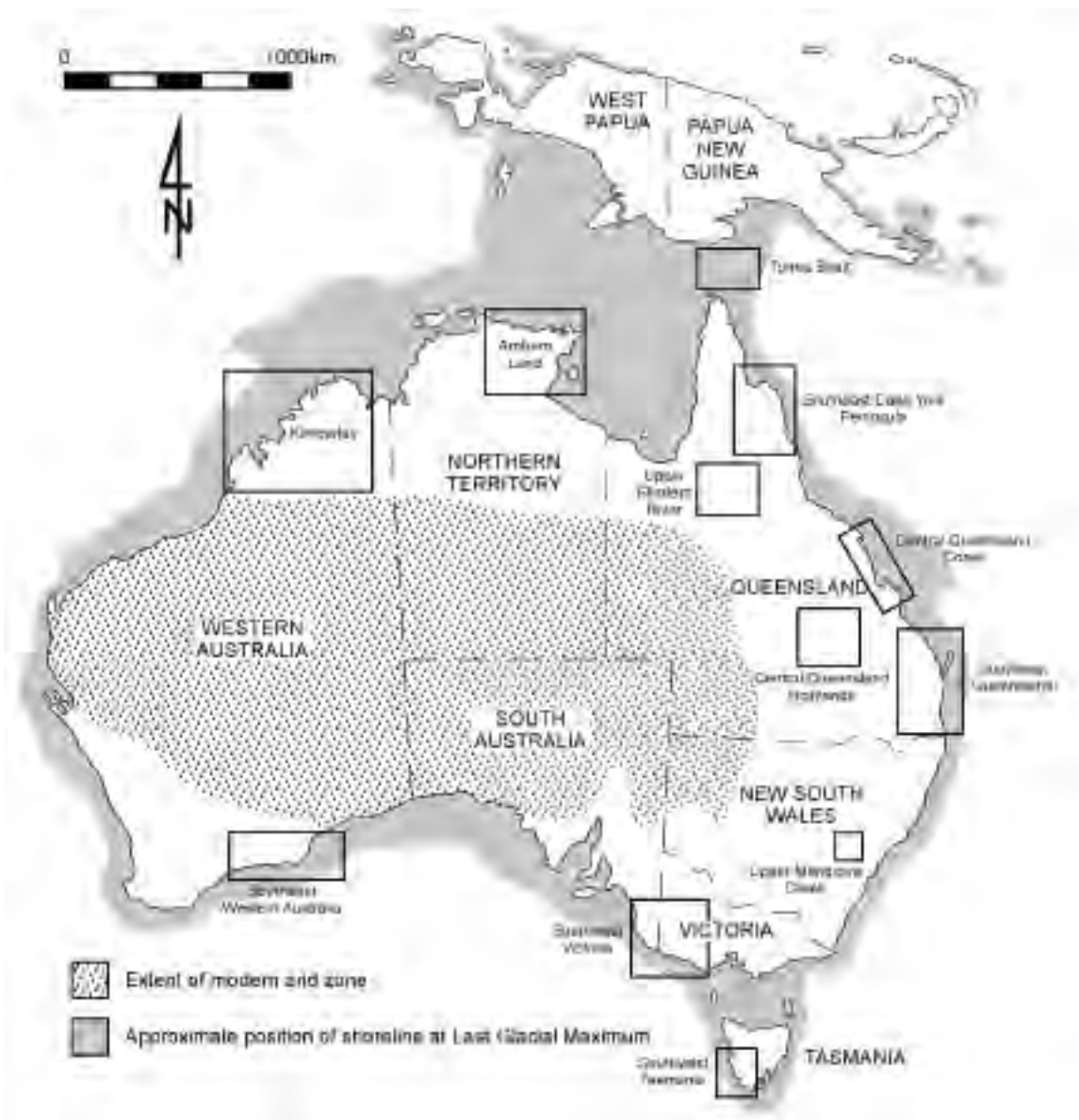


Figure 1.1 The Australian region, showing places mentioned in the text (after Allen and O'Connell 1995:vi).

At least two key problems impact on the use of radiocarbon results in Australian archaeology. First, radiocarbon sampling regimes frequently target only basal deposits, inhibiting our understanding of the chronology of other parts of occupational sequences, especially hiatuses and terminations (David 2002:37; Smith and Sharp 1993; Ulm and Hall 1996). In fact, in the widespread absence of termination dates it is common practice to assume that sites are continuously occupied until truncation by European invasion. The small number of dates available also tends to encourage views of occupational continuity rather than discontinuities in sequences. If sites prove to be of Pleistocene antiquity they tend to be subject to more extensive dating than mid-to-late Holocene sites. There is also a distinct bias in dating rockshelters over open archaeological deposits. These biases are evident in the Queensland radiocarbon dataset, the only large-scale synthesis of dates available for Australia (Ulm and Reid 2000). Overall, dated archaeological sites in Queensland have an average of 3.3 dates/site. Sites dating to the Pleistocene, however, have an average of 12.8 dates/site versus Holocene sites which average 2.4 dates/site. Rockshelters are preferentially dated, with an average of 4.6 dates/site. When these biases are combined rockshelters dating to the Pleistocene have an average of 12.8 dates/site whereas open sites dating to the Holocene have an average of 2.2 dates/site (see Ulm 2004a) (Table 1.1). The basic structure of the Queensland dated site dataset also exhibits a strong geographical bias towards the east coast, particularly the southeast corner (Fig. 1.2). A related problem is that the chronology of many critical sequences remain poorly understood. In particular, few assemblages are dated to the early to mid-Holocene (10,000–5,000 BP). In fact, out of the 834 radiocarbon dates available for Queensland, only 77 (9.2%) dates from 36 (14.1%) sites fall into this interval. If we are to develop an understanding of the changes evident in the mid-to-late Holocene we must first address the early Holocene period as a critical interval to assess the distinctiveness or otherwise of these later Holocene changes.

In some areas and for some time periods this situation is changing, with a small number of researchers recognising the limitations imposed on our understanding of Holocene sequences by low resolution chronologies. David (2002), for example, has attempted to address this situation in southeast Cape York Peninsula by obtaining large sequences of radiocarbon dates, especially accelerator mass spectrometry determinations, based on charcoal samples. He has also implemented a thorough sampling program to date terminal occupation deposits. As a result of this approach he was able to demonstrate regional abandonment of the Ngarrabullgan area around 600 BP (David and Wilson 1999).

The second key problem for chronology-building concerns environmental factors which impact directly on the samples selected for radiocarbon dating. For charcoal samples, important considerations include whether the sample is from a long-lived or short-lived plant and how the sample is related to changes in the production and distribution of ^{14}C in the biosphere. Various studies have shown that ^{14}C activity in the southern hemisphere is consistently lower than that in the northern hemisphere, at least for the recent past (e.g. Hogg et al. 2002; McCormac et al. 1998). Moreover, detailed regional studies in the northern hemisphere have demonstrated distinct regional differences which can impact on the accuracy of radiocarbon determinations measured on charcoal. Marine samples (e.g. shell) are also affected by regional differences in the availability of ^{14}C . Variation in ^{14}C activity in marine environments, although related to changes in atmospheric activity, depend greatly on local and regional factors, such as hinterland geology, tidal flushing and terrestrial water input. Such factors are highly variable and can introduce uncertainties of up to several hundred years into dates obtained on marine samples in some parts of the world (Reimer and Reimer 2001). These issues have received much attention in Pacific archaeology where determinations on marine samples are routinely scrutinised (e.g. Anderson 1991; Spriggs and Anderson 1993) and major resources have been devoted to resolving regional correction factors (e.g. Dye 1994; Phelan 1999). In Australia, however, only very limited investigations have been

conducted despite routine dating of marine and estuarine shell material (e.g. Bowman 1985a, 1985b; Bowman and Harvey 1983; Gillespie 1977). For other areas of the world regional offsets of up to 1,000 years have been documented (Reimer and Reimer 2001), highlighting a key problem in a country where marine shell from open coastal sites is routinely dated.

The limitations of Australian chronologies are thrown into sharp relief against those available for the island Pacific. Here passionate argument hinges on periods of less than a century, and it is common for very precise radiocarbon chronologies to be cited and compared (Anderson 1991; Spriggs and Anderson 1993). The continuing investigation of such issues has considerable ramifications for normative models of social and economic change in Aboriginal societies in the late Holocene, where demonstrated contemporaneity between sites and regions is critical to the validity of abstract regional- and continental-scale models. Accurate site chronologies are therefore critical for situating sites within long-term patterns of land-use.

Table 1.1 Average number of dates/site for various subsets of the radiocarbon dates available for archaeological sites in Queensland (Ulm and Reid 2000).

SAMPLE	DATES (n)	SITES (n)	AVERAGE DATES/SITE
All sites	834	255	3.27
Pleistocene sites	269	21	12.81
Holocene sites	565	234	2.41
Rockshelter sites	449	97	4.63
Open sites	385	158	2.44
Pleistocene rockshelter sites	231	18	12.83
Holocene open sites	347	155	2.24

Rockshelters versus open sites: some sampling issues

Archaeology in Australia, as elsewhere, has been dominated by excavations of deeply stratified rockshelter deposits which have provided the chronological framework for our understanding of the continent's human past. Even in coastal Australia, where the recent archaeological record is dominated by shell middens, accounts remain based on rockshelter sequences (e.g. Barker 2004; David 2002; Hall 1999; Hiscock 1988; Lourandos 1997; Mulvaney and Kamminga 1999).

This general focus on limited numbers of intensively investigated sites and a limited range of site types inhibits our ability to develop sophisticated understandings of temporal and spatial variability in past Aboriginal lifeways. Some analyses have completely excluded the consideration of open sites. Lourandos and David (1998:109), for example, discounted open sites from a broad consideration of regional trends across several regions of northern Australia. In a related study, David (2002:117) only used rockshelter data to investigate regional occupation trends in north Queensland, while acknowledging that 'other kinds of sites should also be considered if we wish to address overall regional occupational trends'. Similarly, accounts of the regional archaeology of the Whitsunday Islands on the central Queensland coast, are based almost entirely on evidence from small excavations conducted in rockshelters (Barker 1996, 2004), despite open sites featuring in the ethnohistoric and archaeological records (Rowland 1986). Other examples abound in the Australian archaeological literature.

A major limitation of this approach is that rockshelter deposits are heavily biased in favour of the limited range of behaviours likely to have taken place in rockshelter contexts. Ethnographic and ethnoarchaeological studies have demonstrated the limited functionality of rockshelter sites (e.g. Binford 1978; Gorecki 1991; Nicholson and Cane 1991; Parkington and Mills 1991). Walthall's (1998:226) wide-ranging review concluded that 'habitation of rockshelters by mobile hunter-

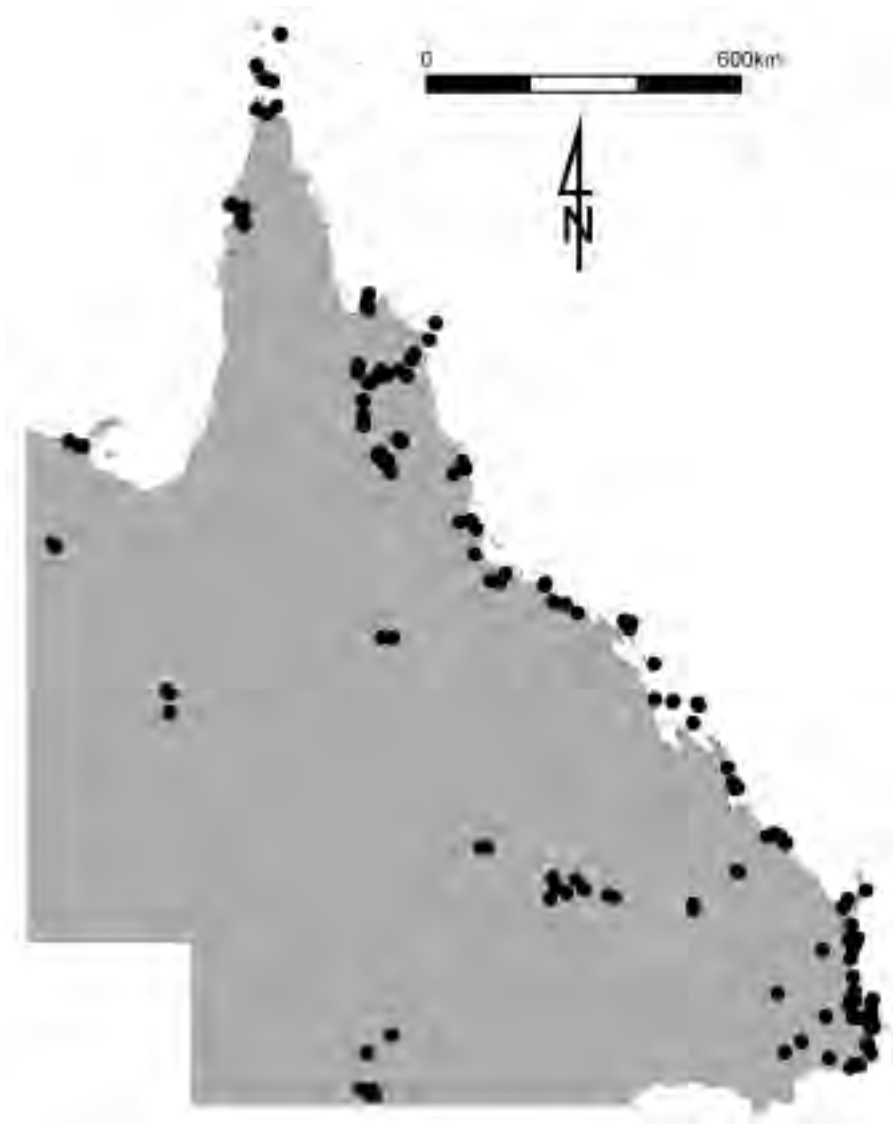


Figure 1.2 Distribution of dated archaeological sites in Queensland with a Holocene component (Ulm and Reid 2000:3).

gatherers was structured and that the activities conducted within them were highly standardized. Use of these shelters was normally confined to periods of inclement weather, either cold and/or wet seasons. The residential use of such sites was generally of brief duration and confined to occupations by either male hunters or family-based foraging groups'. Therefore, rockshelter assemblages are likely to overrepresent activities of males and small groups.

Of course, research is always constrained by resource imperatives, but our confidence in the accuracy and replicability of regional cultural sequences must be reduced when only very limited numbers of sites, or site types, and very limited sampling of archaeological materials, provide the basis for constructions of regional (pre)histories.

Rockshelters versus open sites: some taphonomic issues

The rationale for the bias towards rockshelters in regions dominated by open sites is rarely made explicit. When it is acknowledged at all, anecdotal claims are frequently cited, concerning the lack of

integrity perceived to be inherent in open sites. Indeed, Lourandos (1996:18) has argued that rockshelter deposits provide a 'sounder' dataset as they 'are not subject to the same degree of post-depositional modification as open sites'. Frankel (1993:26) has similarly argued that only 'caves or shelters have the potential for showing continuity or discontinuity of use'. Implicit in this argument is the notion that rockshelter deposits are somehow exempt from post-depositional modification, such as that documented for open deposits, particularly those located in coastal landforms (e.g. Lourandos 1996, 1997). As Hofman (1992:5) has argued, however, virtually 'all archaeological collections were once surface deposits, and any argument or assumption that buried assemblages are more suitable or reliable for behavioral analyses must be demonstrated'. Walthall (1998:225) and others (e.g. Collins 1991) have also pointed out that rockshelter deposits may, in fact, be *prone* to post-depositional modification because the 'restricted space within a rockshelter, combined with frequently long and intense periods of use, means that such sites are subject to postdepositional disturbance'.

Several studies have demonstrated that a high degree of post-depositional movement of cultural material between stratigraphic units can occur without damaging the physical appearance of strata or strata boundaries (e.g. Hofman 1986, 1992; Villa 1982). In Australia, conjoin analyses undertaken on stone artefact assemblages from well-stratified sandstone rockshelters in the Central Queensland Highlands by Stern (1980) and Richardson (1992, 1996) found significant vertical and horizontal movement of conjoining artefacts, despite apparently well-defined stratigraphic sequences. These findings call into question basic assumptions about the integrity of the rockshelter deposits which form the basis of our understanding of the archaeology of Australia.

Another continuing problem is that interpretations based on evidence collected from open, especially coastal, sites have been heavily criticised over the last two decades, owing to presumed uncertainties in site preservation related largely to erosional processes (e.g. Bird 1992, 1995; Godfrey 1989; Head 1983, 1986, 1987; O'Connor and Sullivan 1994b; Rowland 1983). Geomorphological processes, especially the possible impact of sea-level change and erosion on the representation of archaeological materials, have featured prominently in discussions of many regions, such as Arnhem Land, southeast Queensland and southwest Victoria. The problem is particularly acute in areas without major rock formations, close to the coast, and with a dominance of sandy sediments. Such factors have obvious implications for the representation of coastal archaeological sites pre-dating the end of major sea-level change in the mid-Holocene: the archaeological record will be truncated and biased towards the last 5,000 years or so. Yet over the last 4,000 years the dominant coastal landscape processes in southern Queensland appear to have been toward progradation of the shoreline rather than recession. Clearly, it is essential in this context to have control of landscape formation processes in any area where open sites are to be discovered and interpreted. Recent landscape approaches, employing a wide range of archaeological and environmental data, have begun to explicitly redress some of these problems, particularly in arid areas. For example, Holdaway and Fanning (Fanning and Holdaway 2001; Holdaway et al. 1998; Holdaway et al. 2002) adopted a conjunctive approach employing detailed archaeological recording with modelling of geomorphic landscape dynamics in arid western New South Wales. They found major discontinuities in the regional sedimentary record indicating erosion and general instability of land surfaces prior to 2,000 years ago (see also Robins 1999). The clear implication is that any archaeological record of Aboriginal occupation of this area prior to this time has been destroyed.

The major task for advancing our knowledge of mid-to-late Holocene Australia therefore remains a basic archaeological one: to construct and compare detailed individual sequences from a range of site types, at the local and regional level, to establish the existence of trends independent of site-specific taphonomic and/or environmental factors. As Frankel (1993:31) suggested a decade ago, '[p]erhaps we should work outward to the broad picture from accumulated data and concepts developed in detailed local sequences ... [rather than] [s]hort-term, or broad-scale research projects [that] can only lead to large-scale narrative'. It is hard to escape Holdaway et al.'s (2002:352)

conclusion that 'detailed records from a number of well-studied locations will be needed before general explanations can be put forward and tested'. This study begins the process of forming a basic regional understanding of the variability of the archaeological record in one region: the southern Curtis Coast.

Background to the study

The stimulus for this study derives from earlier work (Ulm 1995, 2002a; Ulm and Hall 1996) which synthesised the radiocarbon date and fish bone datasets from southeast Queensland to test propositions about cultural change. This synthesis of site use and discard patterns demonstrated that the apparent trend towards increased site creation and use, identified in the radiocarbon record at 1,000–1,200 BP, is also reflected in structural changes in the regional archaeological record. Most significant is the widespread appearance of shellfish remains, as evidenced by the dramatic increase in coastal shell middens, a site type which only appeared in the mid-Holocene. Several other studies have also documented significant subsistence transformations in southeast Queensland in the late Holocene, reflecting a general broadening of the subsistence base (e.g. Morwood 1986, 1987; Walters 1986).

Despite the volume of research conducted in southeast Queensland, many key issues remain poorly understood. Although the widespread appearance of intensive shellfishing appears to be a late Holocene phenomenon, limitations of the database, particularly a lack of comparability in recovery and analytical techniques, preclude detailed consideration of these developments in the context of other changes, such as representation of fish remains and patterns of stone procurement and use (see Ulm 2002a). Establishing the antiquity and nature of marine fishing in the region also remains a highly contentious issue. Walters (1992a, 1992b, 2001) has forcefully argued that marine fishing was only regularly incorporated into Aboriginal subsistence and settlement regimes in southeast Queensland in the last 2,000 years as part of permanent and intensifying coastal settlement. Others, however, have pointed to limitations imposed by taphonomic factors and recovery techniques and the presence of earlier fish remains to the north and south of the region as the basis for alternative interpretations (McNiven 1991a; Ross and Coghill 2000; Ulm 1995, 2002a). Other scholars regard the evidence from southeast Queensland as fundamentally problematic owing to its heavy reliance on open sites in active sedimentary contexts (David 1994; David and Chant 1995; Lourandos 1996). Ulm and Hall (1996) have also highlighted potential problems in the accuracy of radiocarbon chronologies in the region arising from a heavy reliance on marine and estuarine shell samples.

These contested accounts of cultural change in southeast Queensland represent a microcosm of the wider debates about the nature and causes of late Holocene changes played out across the continent.

The study region

The southern Curtis Coast study area is located at the northern end of the southeast Queensland bioregion, just south of the Tropic of Capricorn. The area extends along the coast from Wreck Rock in the south to Hummock Hill Island in the north and inland to Miriam Vale and Bororen in the west. This region covers a total land area of about 1,200km², with a high water shoreline length of over 500km. The boundaries of the study region are located 70km northwest of Bundaberg and 20km southeast of Gladstone. For the purposes of this study, the southern Curtis Coast is defined as the coastal landscapes between the mouth of Baffle Creek and Rodds Bay. This region is characterised by broad, curved, sandy beaches anchored to rocky headlands backed by high dunes

in the south and extensive tidal estuaries and freshwater wetlands bordered by low transgressive dunes in the north. Further inland, the near-coastal ranges formed of local granites contribute to a complex drainage system which maintains freshwater coastal swamps and wetlands and which flows both north into Rodds Harbour and south into Baffle Creek.

Since 1993, archaeological surveys and excavations have been conducted in the study area as part of the Gooreng Gooreng Cultural Heritage Project, an interdisciplinary Aboriginal cultural heritage investigation of the Burnett-Curtis region of southeast Queensland. The project was initiated by the Aboriginal and Torres Strait Islander Studies Unit at the University of Queensland in collaboration with Aboriginal people from the study area. The broader project includes studies in archaeology, history, contemporary social landscapes and linguistics in a region which coincides with the area broadly identified as the country of Gooreng Gooreng speakers at the time of European invasion (see Clarkson et al. n.d.; Jolly 1994; Lilley et al. 1998; Lilley and Ulm 1995; Lilley et al. 1996; Lilley et al. 1997; Ulm 2002b, 2002c; Ulm et al. 1999a, Ulm et al. 1999b).

To date, the archaeological component of the Gooreng Gooreng Cultural Heritage Project has concentrated on the Cania Gorge area as an inland component of the study, where Aboriginal occupation has been dated to the early Holocene (Chapman 1999, 2002; Eales 1998; Eales et al. 1999; Lilley et al. 1998; Westcott 1997; Westcott et al. 1999a; Westcott et al. 1999b), and the southern Curtis Coast, centred on the Town of Seventeen Seventy, as a coastal component and subject of the present study.

Aims of the study

The major task of this research is to map the dynamics of archaeological change and continuity on the southern Curtis Coast through documentation of the distribution, size, composition and chronology of sites in the region. The research assembles a regional archaeology problematised in terms of theoretical and methodological issues emerging out of archaeological studies in southeast Queensland. Sampling targetted a range of sites in order to develop a basic understanding of coastal land-use across the region through time. Excavations and analyses of eight open coastal sites located on six separate estuaries are described and discussed. Differences in site structure, content and chronology are used to establish a framework to describe variability in the regional archaeological record. Patterns in resource use are investigated through systematic comparison of individual site histories, thus permitting a more detailed understanding of spatial and temporal variability in regional land-use. The articulation of this variability with those from neighbouring regions is considered and areas for further investigation identified.

The project has a number of specific objectives:

- to create an independent regional archaeological dataset, based on a consistent data recovery strategy, to establish a first-order understanding of regional land-use histories;
- to establish a reliable and robust regional chronology, based on dating initiation, periodicity and termination of site occupations and evaluation of marine and estuarine reservoir factors;
- to evaluate site integrity in order to enhance the contribution of open coastal shell midden deposits to understandings of late Holocene lifeways; and
- to use findings to investigate key interpretations of the southeast Queensland archaeological record and promote a broader understanding of patterns of regional interaction in the wider southeast Queensland region.