BURRUP PENINSULA ABORIGINAL HERITAGE PROJECT

A Report to the Department of Conservation and Land Management 1993

Peter Veth Elizabeth Bradshaw Tom Gara
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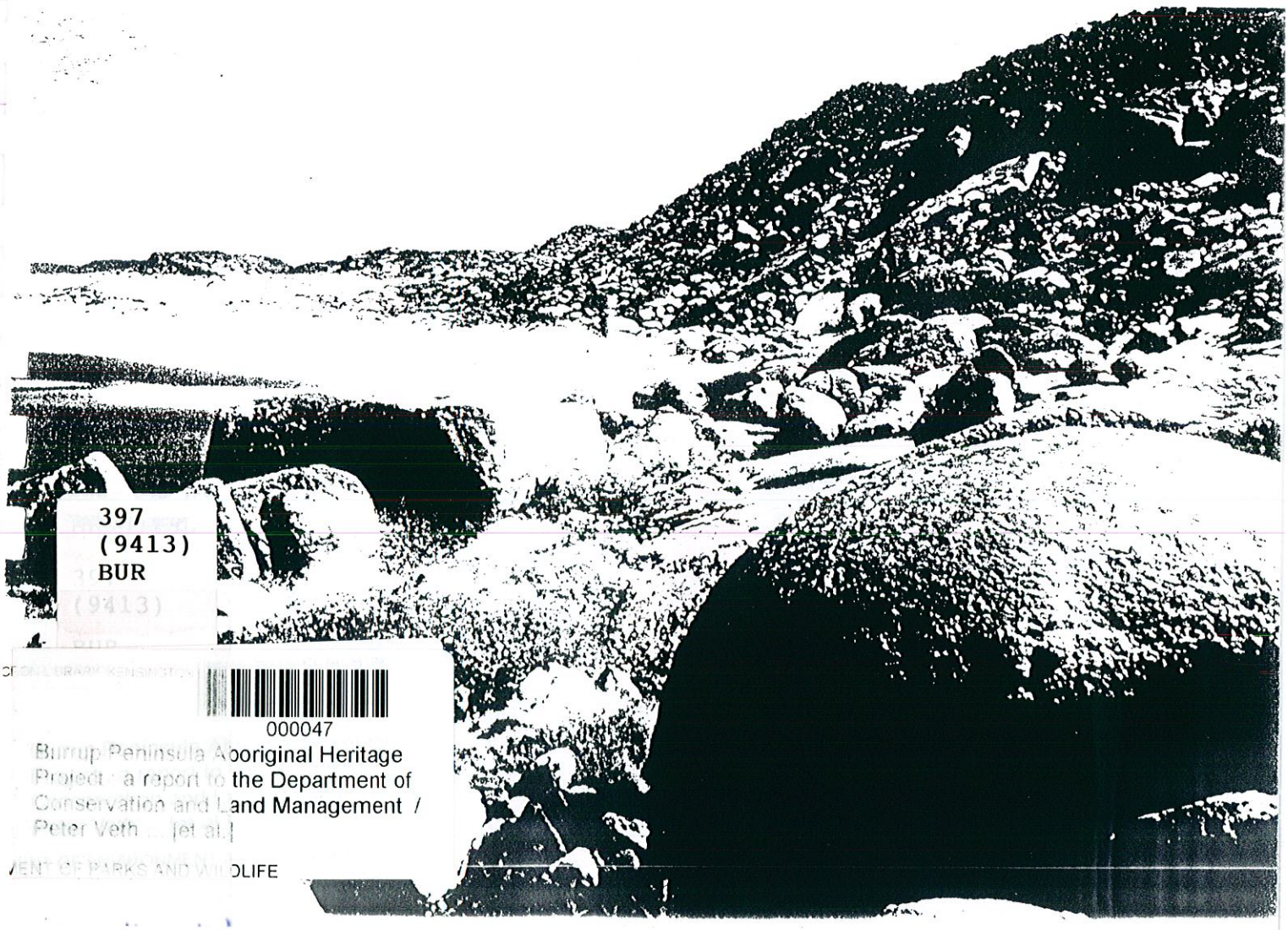

Errata

The Burrup Board of Management mentioned in this document now has an advisory role and its future function is under review.

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A Report to the
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We dedicate this work to the memory of

Roger Solomon

Yirra Bindiri ('Evening Star')

His love of his people's culture was equalled by his commitment and patience in teaching and sharing his knowledge

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ACKNOWLEDGMENTS

A large number of individuals and organisations have contributed to this project both logistically and financially. The major funding was obtained by CALM through the National Estates Grants Programme specifically for the survey of Aboriginal sites on the Burrup Peninsula. The Department of Aboriginal Sites (Western Australian Museum), the Australian National Parks and Wildlife Service (CEPANCRM funds) and the Aboriginal Affairs Planning Authority (WA) contributed funds to the field programme and for the production of this final report.

The Ngurin Aboriginal Corporation administered funds for Aboriginal consultants. The Department of State Aboriginal Affairs (South Australia) released Tom Gara for considerable periods of time. Sections 3 and 10 of this report have been specifically authored by Tom Gara.

Woodside Offshore Petroleum provided access across its leases for field survey.

Specifically we wish to acknowledge the assistance of Nic Green and Pat Vinnicombe, from the Department of Aboriginal Sites, and Hugh Chevis, Michael Hughes and Greg Oliver, from the Department of Conservation and Land Management. Hugh Chevis was involved in many aspects of the management of the project and provided considerable editorial feedback.

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Finally, the initiative for the original N.E.G.P. proposal and the provision of ongoing support for the successful completion of this project must be credited to Dr Peter Kendrick (CALM).

EXECUTIVE SUMMARY

The numerous rock engravings, stone arrangements and habitation sites of the Burrup Peninsula have been known and commented on since first contact between European and Aboriginal people in the area. Over the last 30 years detailed recording by both professionals and amateurs has raised the profile of the visually spectacular and abundant rock art to the world stage. Many international authorities consider the Burrup Peninsula to be a major rock art province of international significance. More recently, the significance of rock art to contemporary regional Aboriginal communities has also been established.

With a potential role in the management of this cultural resource, and with increasing pressure on land in the West Pilbara, the Department of Conservation and Land Management applied to the National Estates Grants Programme in 1991 for funding to conduct a broadly based Aboriginal heritage assessment of the Burrup Peninsula. This work began in 1992 and comprised a detailed review of existing literature and site records, ethnographic and historical background, a systematic site survey of lands north of Hearson's Cove and the LNG, the assessment of significance of the sites recorded and ultimately preparation of the present report.

A total of five archaeologists/historians, numerous specialists and 30 Aboriginal consultants have been involved in the project. The entire programme has received support, and has been actively participated in, by local Aboriginal communities.

The central aim of the project has been to accurately characterise the distribution and structure of Aboriginal sites within the designated survey area, so that significant site complexes and areas might be identified for the purposes of management and potential nomination to the National Estate.

The study area was surveyed using parallel transects, oriented west to east, and spaced 500m from each other. A 100m wide corridor was intensively inspected on foot along the entire length of each transect. All sites which lay within or had a boundary intersecting the transects were mapped onto colour aerial photographs. A total of 87.83km of transect were surveyed.

The present survey recorded 498 sites, giving an average of 56.7 sites per square kilometre (see Figure 7.1). The most common cultural features are stone pits (33.7%), followed by artefact scatters (20.9%) and engraving complexes (19.9%). Other categories included shell accumulations, grinding complexes, quarries, standing stones and stone arrangements.

Analysis of site distribution and cultural features indicates that the richest geomorphic zones are the coastal and inland valleys, and adjacent uplands. There are also large, and sometimes dense, sites on the coastal flats, usually aligned along foredunes and major creek systems.

This report presents detailed discussions on regional research questions and past and present Aboriginal associations to land which, together, provides a rational and systematic framework for the assessment of site significance. To address the research questions outlined in Chapter 9, sites must possess a number of required features. These features, which contribute greatly to the significance of sites, are summarised below;

- Stratified deposits covering considerable periods of time (*i.e.* thousands of years) in continuous sequences are not common on the Burrup Peninsula and are essential in addressing most of the research questions. Sites with this characteristic may be ranked as being of high significance.

- Sites which show evidence for having been major places of aggregation must be compared to those which are obviously task-specific and show evidence for low-intensity occupation. Therefore, some suites of sites will better address questions of site function and settlement behaviour than others.

- Sites with the greatest potential to provide information on the spatial arrangement, chronology and function of rock art are those with a large number of motifs, in topographically diverse contexts. Significance is enhanced where some desert varnish has been noted within engravings. Recent dating of varnish on engravings in the Olary Province in South Australia has provided dates of over 40,000 BP through to 1,500 years ago (Nobbs and Dorn 1993), making that the oldest rock art documented in the world.

Non-archaeological cultural values provide complementary support for the potential nomination of areas with high research, educational and aesthetic values. These include sites of historic and contemporary significance to Aboriginal people. It should be noted that while Yaburarra language and most mythology is no longer extant, several Yaburarra descendants have been identified and there is an established cultural interest amongst local Aboriginal people for the management of what has been termed "orphan country".

The site complexes which are argued to be highly significant are V34 and Y25/W15 at the northern end of the Burrup Peninsula; F1 (Climbing Men) near Withnell Bay; K12, K13, J12 and H7 at Watering and Cowrie Coves. All of these sites, except H7, are located within currently listed or nominated areas on the Register of the National Estate (see Figure 1.2)

Sites argued to be of moderate to high significance include Q15, Q17, R1, R2, S4 and T9, all located within the Conzinc Bay catchment; and I2 and I5, located at the south of Withnell Bay.

Areas of significance due to Aboriginal historic and contemporary associations include Searipple Passage and Watering Cove (early sites of contact and areas known to be associated with the Flying Foam Massacre), and Cowrie and Hearson's Cove, where groups have held corroborees and had family camps. The great potential for cultural tourism and community involvement in this is also a consideration when assessing the significance, particularly of the rock art.

Potential National Estate nominations presented here are for areas containing groups of sites sharing geographic proximity, which together satisfy several criteria for significance. This is more efficient than a large number of nominations for individual sites, and identifies areas which satisfy multiple significance criteria. Using this approach, the following recommendations for areas to be included in National Estate nominations are made.

Recommendations:

1. It is recommended that the considerable values of site complexes in the Conzinc Bay catchment are recognised by nominating an extension to the Burrup Peninsula North listed area, as shown in Figure 12.1.

This southern extension to the boundary of a current National Estate listing will ensure that both the protection and management of the large Conzinc Bay site complexes are feasible.

2. It is recommended that the configuration of the Watering Cove nominated boundary is changed to more accurately represent site distribution at this location, extending along the coast to include Cowrie Cove (see Figure 12.1).

3. It is recommended that Sites I2 and I5 are nominated to the National Estate and that the boundaries shown in Figure 12.1 are adopted.

Concluding Recommendations:

The cultural resource of the Burrup Peninsula is acknowledged internationally, and should be a source of great interest and pride to both indigenous groups and the wider community. The current survey has produced the first unbiased baseline sample of cultural heritage values occurring on the Burrup Peninsula, in that the survey area was not delineated as a result of specific impact proposals. It demonstrates clearly that there is patterning and structure in the archaeological record and that this can be understood with reference to past Aboriginal settlement and subsistence behaviour and the dramatic topography of the Dampier Archipelago.

In terms of the management and integrity of cultural resources on the Burrup Peninsula, the endorsement of the nominated areas by the Burrup Peninsula Board of Management to the National Estate is strongly urged. As the management authority with responsibility for the area, a large onus exists on the Board to make long term decisions for the successful management of the cultural resource.

1. BACKGROUND AND AIMS OF THE PROJECT

1.1 Project Aims

This report aims to provide a detailed assessment of the cultural significance of Aboriginal sites located on the Burrup Peninsula in the large area to the north of King Bay and Hearson's Cove (Figure 1.1). Sites, complexes and areas argued to be of significance will be recommended for nomination to the National Estate.

The primary focus of the grant was to assess the Aboriginal cultural heritage values of the area, prior to any location-specific development proposals.

The project involved four distinct stages, as identified by CALM (letter dated 22/1/1992). These were;

1.1.1 initial review of archaeological and anthropological source materials, to determine which areas of the Burrup had not been adequately surveyed.

1.1.2 archaeological field survey and documentation of Aboriginal sites,

1.1.3 ethnographic investigations into the contemporary significance of the Burrup Peninsula area,

1.1.4 analysis and review of the results of the field component of this project, in order to

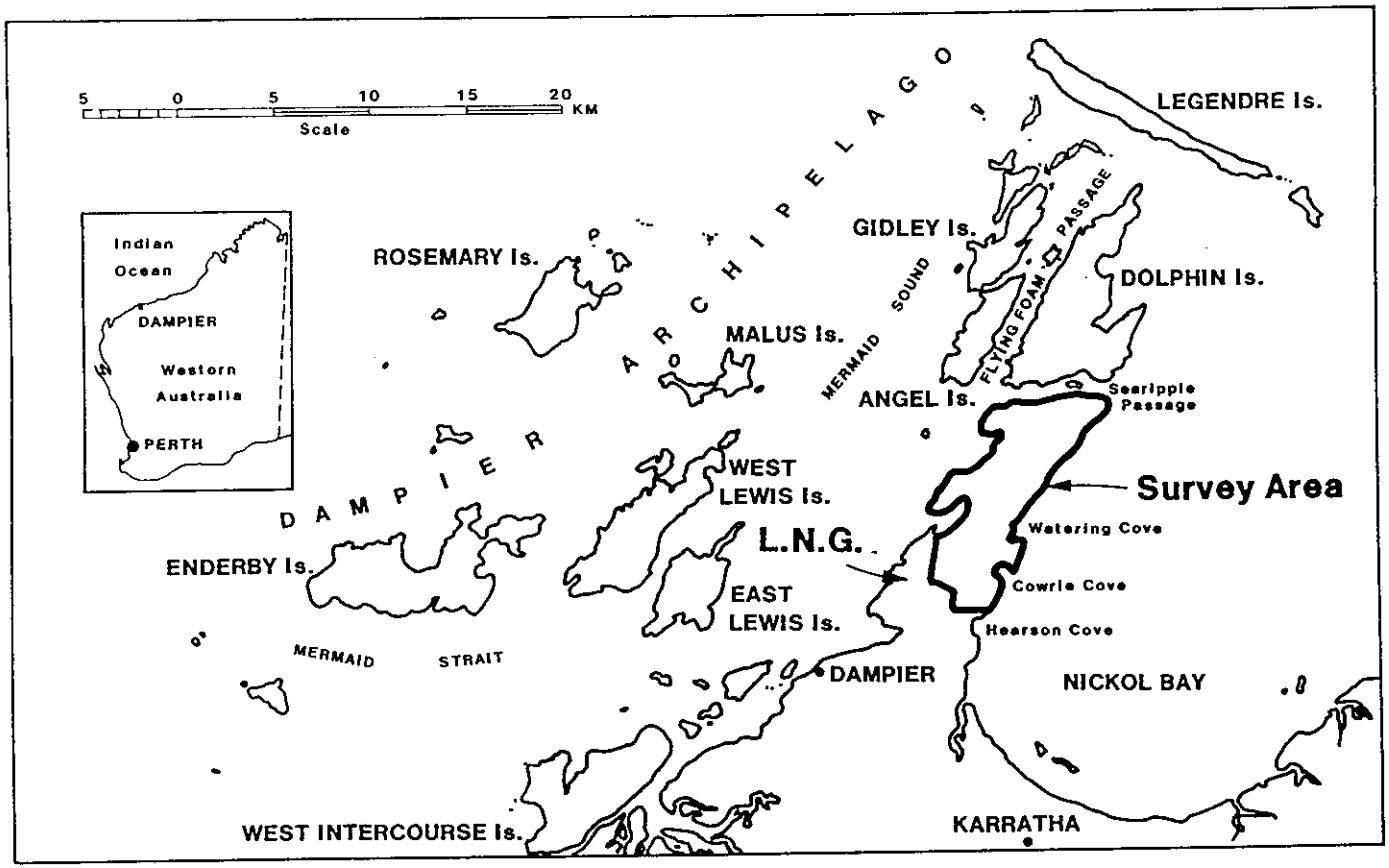

Figure 1.1 Survey area boundaries.

1.1.4.1 identify areas of outstanding archaeological and cultural value,

1.1.4.2 provide draft management guidelines for protection of the cultural heritage values of the areas surveyed, and

1.1.4.3 nominate significant sites, groups of sites or areas to the Register of the National Estate, as required by the Australian Heritage Commission as a condition of the Grant.

A position statement was developed to explicitly define the relationship between CALM and Ngaluma people regarding the survey and assessment of Aboriginal heritage values on the Burrup Peninsula. Those understandings are reproduced in full in Appendix 1.

1.2 Background to Cultural Heritage Recording

Early observers at the turn of the century noted the multitude of very obvious and prominent engraving complexes on the Burrup Peninsula (*cf.* Withnell 1901). It was not until some time later, however, in the 1960's and 70's, that systematic recording of specific areas was undertaken (Virilli 1977; Wright 1968). Further work in the 1970's by such people as Maynard (1977) and Clarke (1978) established the high regional significance of the engraving complexes and hinted at their possible great antiquity.

More broadly based analyses of general occupation sites on the Burrup Peninsula and their relationship to the art sites (*cf.* Turner 1981; Veth 1982) indicated that a wide range of prehistoric economic activities had occurred on the Burrup Peninsula, in addition to the execution and curation of art complexes. The Peninsula, originally an island of the Dampier Archipelago, had clearly formed part of the estate of an Aboriginal group (*cf.* Stanner 1965) with evidence for the exploitation of both marine and terrestrial resources. Following more detailed surveys by teams of archaeologists (*e.g.* Vinnicombe 1987b) it became apparent that a very wide range of archaeological features occurred at a very high density (up to 34 to 52 sites per square kilometre) across most of the Peninsula. These features include shell middens and scatters, artefact scatters and quarries, stone pits and "terrace" walls, standing stone arrangements, rock shelters with evidence of occupation and grinding patches. These features, in conjunction with the engraving complexes, represent an extremely rich and diverse archaeological signal on the Pilbara scale.

1.3 Background to Management Proposals

The area considered for heritage significance assessment in this current project includes all lands to the east and north of the existing liquid natural gas facility boundaries (Figure 1.1), therefore taking in the majority of the Peninsula north of the King Bay/Hearson Cove flats.

The major embayments of Withnell and Conzinc Bays, on the western littoral, and Watering and Cowrie Coves, on the eastern littoral, are included in this assessment. In addition, the lands adjacent Searipple Passage to the north have also been included.

There is a long history of attempts by various parties to develop a plan of management to protect Aboriginal sites and control land use pressures on the Burrup Peninsula. As early as 1974 a report on the Aboriginal sites of the Dampier Archipelago (DAS 1974), as a contribution to the Pilbara Study Report, identified the need to consider sites during the planning stage of development, identify reservation areas for permanent protection and provide for supervision of sites in the Archipelago by a locally based officer.

A number of subsequent survey reports associated with the Woodside Offshore Petroleum liquid natural gas (LNG) project (DAS 1979a, 1979b, 1979c, 1980b, 1980c, 1984a, 1984b; Kirkby 1981) also highlighted the need for management.

The Butler report on third party effects on the natural environment (Butler and Butler 1984) drew particular attention to sensitive heritage areas on the Burrup Peninsula. This was presented by Woodside to the Department of Resources Development (DRD) in 1985.

In 1986 DRD convened a meeting between Woodside, the Department of Conservation and Environment (DCE), Department of Aboriginal Sites (DAS), CALM and Department of Land Administration (DOLA).

The meeting concluded that a management plan should be developed under CALM and suggested vesting of vacant crown land on the Burrup Peninsula under Section 5(g) of the CALM Act. In May 1987 DRD proposed a management initiative to Cabinet, which was approved by that body in June 1987.

In August 1987 a meeting was convened by CALM (Perth) and attended by representatives of EPA, DAS, CALM, DOLA, Department of Resources Development (DRD) and Department of Regional Development and the North West (DRDNW). This meeting resolved to set up a Karratha working party to investigate, amongst other things, recommendations regarding funding.

Despite a number of meetings between 1987 and 1990, it should be noted that 5(g) vesting has not occurred. The notion of a gate to restrict access to the north (Searipple Passage) was raised as was the need for public comment on this option (note press release by Pam Buchanan regarding the gate on 19 February 1990). No further progress occurred until the commencement of the Pilbara Study (see below).

Two areas on the Burrup Peninsula have been declared Protected Areas under the WA Aboriginal Heritage Act 1972-80 (see Figure 1.2). The first is the "Dampier Climbing Men Site" and associated engravings located within a small gully near the Withnell Bay access road. This area covers 3.5ha. The second area covers a substantial portion of the north of the Burrup Peninsula, referred to as "Burrup Peninsula - North (Dampier)".

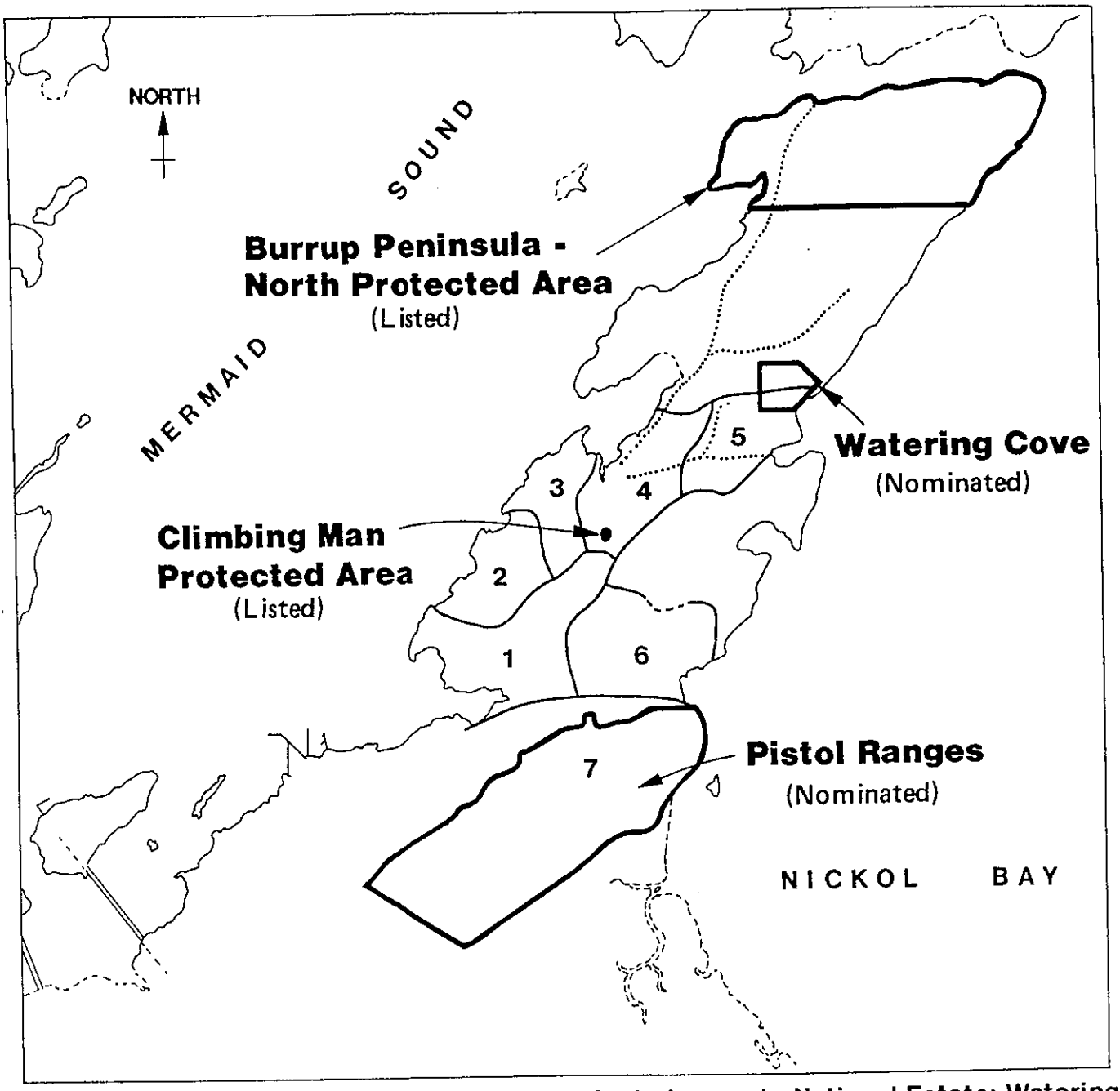

Figure 1.2 Location of Protected Areas. Nominated areas to National Estate; Watering Cove and Pistol Ranges.

A total of 32 concentrations of engravings, stone structures, artefact scatters, shell middens and grinding patches have been recorded in this area prior to the present study. Both Protected Areas were gazetted in 1984.

A further Protected Area is located at the southern end of the Peninsula covering some 1500ha, including the important midden and engraving complexes of Skew and Gum Tree Valleys (*cf.* Bevacqua 1974a; Lorblanchet 1977). These three areas are also listed on the Register of the National Estate, with meritorious comments from representatives of the Joint Academies Commission. It should be noted that most of the islands of the Dampier Archipelago, through their status as a Nature Reserves, are also listed on the National Estate.

Two further areas on the Burrup Peninsula (Figure 1.2) have been nominated for National Estate listing (No's 400 and 401, undated). The first, at Watering Cove, on the east coast of the Burrup Peninsula, covers 75ha and comprises an outstanding complex of engravings with associated shell middens along a seasonal watercourse. This area is vacant Crown Land and the nomination has been approved by all relevant government departments and the shire. The second comprises a larger area of 1250ha over the Pistol Ranges and includes numerous middens, stone arrangements and engravings of outstanding significance. This nomination has been approved by the Shire and all relevant government departments, on the condition that the western boundary excludes the amenities corridor to the LNG plant and Supply Base.

1.4 The Pilbara 21 Study

The need for adequate assessment of the cultural heritage of the Burrup Peninsula for planning purposes is clearly outlined in the Pilbara 21 Draft Strategy Report (Pilbara 21: 1992). Indeed that document (1992:34) notes;

> It is usually as a result of the lack of planning that conflicts arise, which often lead to much controversy, delay or bitterness.

Further, it highlights that Aboriginal cultural heritage is an issue of importance to all Australians, in stating (1992:69) "The cultural values of the area are immense as it is one of the richest petroglyph (rock art) sites recorded".

The Pilbara 21 study (1992) proposes a model or "blueprint" based on the Burrup Peninsula for resolving different land-use needs in the Pilbara. In its mapping for the Burrup Peninsula it demarcates areas which might be set aside for differing uses, such as industry. It specifically earmarks the western third of the Peninsula for the use of industry and a possible transport corridor north to Legendre Island. An earlier draft has a figure showing stippled areas of heritage significance on the Burrup Peninsula. The source of these mapped site complexes is not acknowledged although similarities with boundaries in a previous report have been noted (Butler and Butler 1984).

These previously reported boundaries do not conform with the boundaries of registered sites and their absence in the proposed heavy industry zone;

1.4.1 does *not* reflect the distribution of registered sites as documented by the end of 1992, and

1.4.2 does *not* reflect the actual absence of site complexes due to a lack of previous systematic survey.

Possible impacts of future industry, transport and tourism are identified in detail in the final Pilbara 21 report.

In a recent response to the Pilbara 21 Draft Strategy Report (1992), the Department of Aboriginal Sites outlined seven areas of concern. These were;

1.4.3 As acknowledged in the document, the rock art sites are world renowned and it is our opinion that the area is of *world heritage significance* and therefore, after extensive consideration, may be worthy of complete protection.

1.4.4 The archaeology of the Burrup Peninsula is unique and is worthy of continued major investigation.

1.4.5 Living Aboriginal people do have information relevant to the Burrup Peninsula (for example mythological tracks) and are concerned about the area. The rock art is also of current significance to Aboriginal people throughout the Pilbara.

1.4.6 The Aboriginal heritage of the Burrup Peninsula is currently being adversely affected by land use including recreational activity.

1.4.7 A management plan needs to be instituted which clearly defines the heritage value of the Burrup Peninsula to Aboriginal people as well as to the wider community before any proposals for land use of the area are considered.

1.4.8 Consultation with Aboriginal people in the neighbouring areas is essential to an understanding of current and traditional concepts regarding the care of "orphan" land (that is, land for which there are no living traditional owners) or for which connections are depleted.

1.4.9 Options for vesting the land (pp 6,7) should include reference to the Minister for Aboriginal Affairs (Aboriginal Heritage Act and Aboriginal Affairs Planning Authority Act) as well as to the Aboriginal people with interests in the area.

The cultural resource of the Burrup Peninsula has been visited over the years by numerous international rock art specialists, academics, heritage advisers and educational authorities. It is thus well known worldwide for its rich and unique rock art, both through international publications and through direct visitation. There is a very real focus on the rock art component of the archaeology of the Burrup Peninsula on a world scale and therefore the onus for its responsible management on the Burrup Peninsula Board of Management must be stressed.

The National Estate Grants Programme (NEGP) is the main Commonwealth Government programmed which provides assistance for projects aimed at identifying, protecting and conserving the National Estate. The National Estate is defined in the legislation as;

> those places, being components of the natural environment of Australia, or the cultural environment of Australia, that have aesthetic, historic, scientific or social significance or other special value for future generations as well as for the present community.

2. ABORIGINAL CONSULTATION AND THE OWNERSHIP OF CULTURAL INFORMATION

2.1 Aboriginal consultation regarding the Burrup Peninsula

A number of ethnographic investigations (*cf.* Wright 1979) since the 1960's concluded that the Yaburarra dialectal group had become extinct. Although some Yaburarra descendants have now been located in the west Pilbara (Section 10, this report), it is felt by most people that no one is left who has been initiated the "Yaburarra way", the language (dialect) is gone and most of the place names and mythology are also gone.

While succession by one local group of the estate of another group either extinct or nearly so, or through migration, has been documented (*cf.* Palmer 1983; Stanton 1983; Turner 1990), most of these studies have dealt with semi-traditional groups. One Ngaluma consultant referred to the Burrup Peninsula as "orphan country", in that it required looking after, and that this was a collective responsibility in the absence of proper owners. The responsibility for looking after the Burrup Peninsula is seen to fall on Ngaluma due to their former close cultural and social links with the Yaburarra; in a sense they are "next in line".

As outlined in Section 10, both DAS, CALM and many industry interests have, since 1982, accepted that Ngaluma have to be consulted in relation to heritage matters on the Burrup Peninsula and the islands nearby.

2.2 Community direction of, and involvement in, field recording programme

CALM has developed with relevant spokespeople a position statement outlining agreed work practices for the project (see Appendix 1). In summary, the (Ngaluma) community had to vet the heritage consultants and ratify their proposed field methodology, had, and continue to have, control over the use and distribution of cultural material collected, had continuous representation in the field recording team, were regularly briefed with progress reports and finally had executive representation on an Aboriginal Consultative Committee.

Prior to the drafting of the position statement a total of six meetings were held in Roebourne between staff of CALM and Aboriginal representatives over the purpose of the NEGP and the appropriate level of community control. The principal archaeological consultant (Veth) attended two of these meetings and made substantial input into the drafting process.

Prior to fieldwork, the field recording team (Hall, Haydock and Bradshaw) in meetings with both men's and women's groups, and combined, discussed appropriate levels of field participation by Aboriginal community members. It was tacitly agreed that two community members should ideally work as part of the recording team at all times. A demarcation was established in that Bradshaw would work exclusively on economic (non-engraving sites) while Hall and Haydock would work predominantly on the complementary categories.

This overcame the potential problem of a female researcher inadvertently viewing non-secular themes in engraving complexes. It is well acknowledged, however, that female researchers have worked, following community clearance, on the engravings of the Burrup Peninsula. A total of 30 Aboriginal people participated in at least one aspect of site recording on the Burrup Peninsula, with a core of 5 accounting for the majority of days actually funded. This continuous involvement in field recording and training establishes new levels of Aboriginal involvement in such heritage management oriented work in Western Australia.

The field recording team and CALM staff aimed to report back to the community on average once a week, and to formally constitute a larger meeting no less often than once a month. At all times a broad cross-section of community members were encouraged to participate in some aspect of the fieldwork. In fact on three occasions, large excursions of family groups were made to Searipple Passage and Conzinc Bay to both observe the field programme and to enable younger members of the community to appreciate the richness and diversity of the cultural record. Such extended camps were probably the most effective way of translating back to the wider community both the intent and results of the work.

2.3 Community ratification of report, its recommendations and pictorial content

A total of four days were set aside in early February 1993 for CALM staff, the principal consultant and one of the field team (Haydock) to meet with community representatives to discuss the interim report recommendations and to endorse possible nominations to the National Estate.

In addition, selected slides taken by the male researchers during the field programme were shown in staggered sittings to community members. This was undertaken to assess the suitability of some plates for inclusion in this report and for possible further publication in other forums.

The meetings were attended by a total of 5 individuals who sat through a cumulative period of 15 hours of discussions, votes and slide viewing.

All conclusions, recommendations and nominations contained in this report have been ratified by a wide selection of community representatives during these meetings. All slides replicated in this report have been approved for publication.

3. ARCHAEOLOGICAL, ETHNOGRAPHIC AND LINGUISTIC SOURCES FROM THE GENERAL REGION

3.1 Regional references

A summary of sources located in Veth and Bradshaw (1992) are listed in Appendix 2 under four main headings for ease of access; they are reproduced in full in the bibliography.

3.2 Ethnographic Background

3.2.1 Tribal organisation

There has been considerable controversy in recent times as to the nature of the "tribe" in traditional Aboriginal society. Whereas Tindale and some other researchers have viewed the tribe as a discrete social unit with clearly delineated boundaries, others (*e.g.* Berndt 1959; Peterson 1976) have argued that the term "tribe" was not strictly applicable to the Australian situation because the tribe rarely if ever functioned as a social, political or economic unit. Furthermore, in many parts of Australia, a tribe was not clearly delineated, either territorially or linguistically, from neighbouring tribes. It is now widely recognised that neighbouring tribes were linked together by social, ritual and economic ties and that tribal boundaries were relatively flexible and permeable (emic boundaries are shown in Figure 3.1).

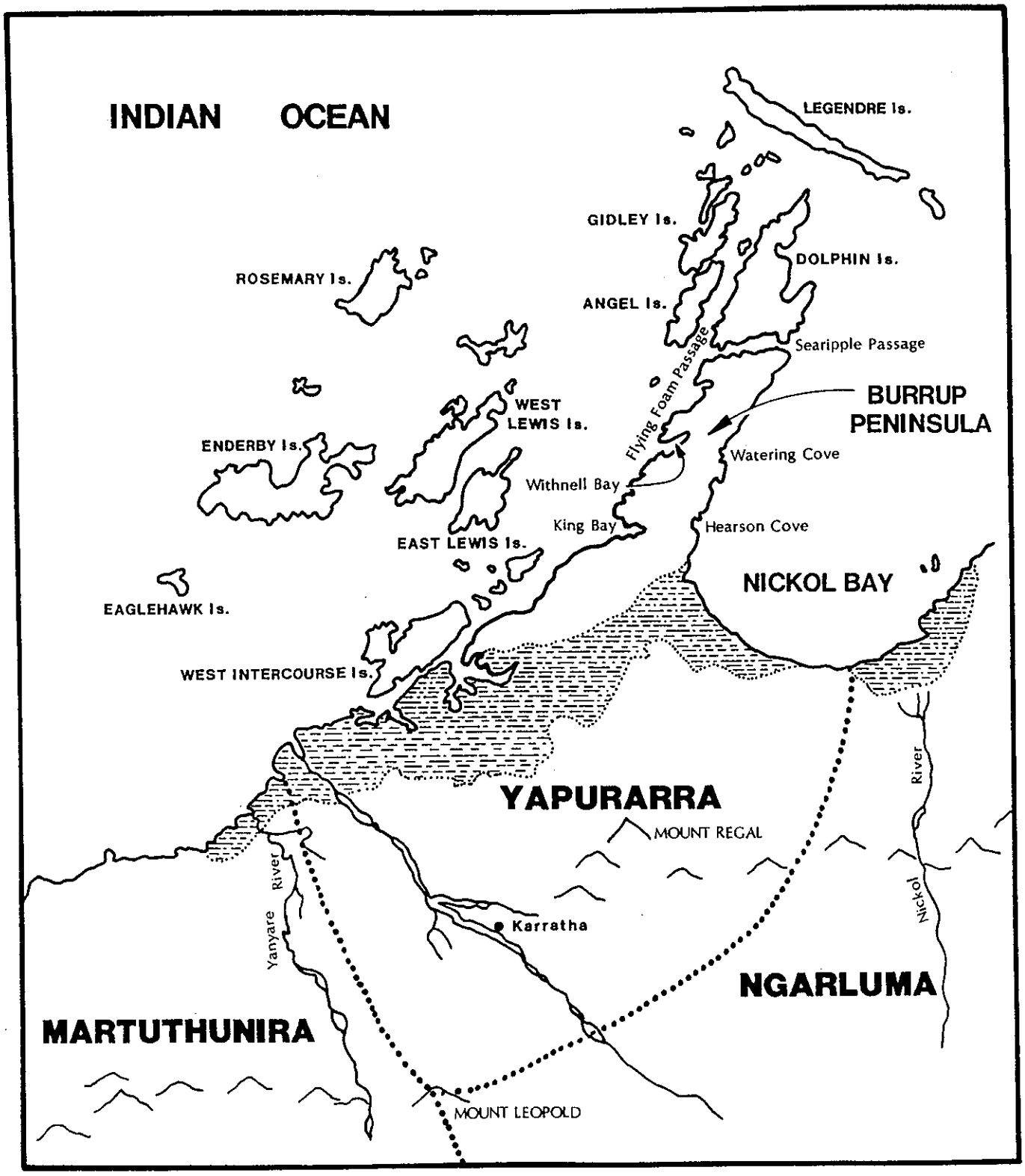

Figure 3.1 Yapurarra tribal boundaries, according to Ngarluma and Martuthunira people today.

Some anthropologists now prefer to use the terms "dialectal unit" or "socio-linguistic group" in place of "tribe" but the latter term continues to be widely used, even by some of its critics, as a convenient label for the broadest level of social organisation recognised by the Aborigines themselves. In its general usage, the term is understood to refer to a number of neighbouring local groups speaking a common language or dialect, sharing common customs and mythology, and with some sense of collective identity.

3.3 Local organisation

The local descent group, a group of people related to each other through patrilineal descent, is often regarded as having been the principal religious and land-holding unit in Aboriginal Australia (*cf.* Berndt 1979: 9). This group, sometimes also referred to as a "clan", had mythological and totemic associations with a particular area of land, called the "estate" by anthropologists, which included a constellation of sacred sites and the country that surrounded them. The group's members believed that their identity derived from ancestral beings who created the land and whose spiritual power still resided at those sites. The members of the group, particularly the senior men, were responsible for maintaining the sites of sacred significance within their country and for performing "increase rites" and other rituals that ensured the perpetuation of the animal and plant species and the continuity of the cycle of the seasons.

Radcliffe-Brown studied the local organisation of the Kariara in detail during his fieldwork in the Pilbara in 1911. At that time the Ngaluma and Martuthunira were few in numbers and he was not able to obtain much detailed information on these two tribes. However, he concluded that their system of local organisation was "in all respects similar" to the Kariara (Radcliffe-Brown 1913: 171, 176). He reported (*ibid*: 145-6) that the Kariara tribe was formerly composed of about 25 local descent groups, each of which numbered about 30 members. These groups were patrilineal (*i.e.* an individual belonged to the local group of his or her father) and patrilocal (upon marriage, a woman left her own group and went to live with her husband's group). Each group occupied a defined territory, which included a number of totemic sites known as *thalu*. Each *thalu* site was associated with a different species of animal or plant or with some natural phenomenon such as rain or cooler weather. The members of the local group "owned" the ceremonies and songs associated with the *thalu* sites, and by performing those ceremonies they could ensure that the particular animal or plant species associated with that site continued to increase in numbers or that rain or cooler weather would come (*ibid*: 160).

Normally, an individual could not venture onto the land of another group without the permission of the owners. However, on important ceremonial occasions or when food was seasonally abundant in one group's area a number of neighbouring groups might gather together.

Radcliffe-Brown observed that:

> When some particular article of food became very plentiful in the country of one group they invited their neighbours to come and stay with them. Thus the inland natives visited those on the coast when fish were plentiful. On the occasion of the performance of a ceremony, members of different local groups might be found camped together often for weeks at a time. There was thus a perpetual shifting to and fro both within the country of the group and from one group to another (*ibid*: 147).

As Radcliffe-Brown pointed out, the basic social unit in Aboriginal society was the family. A man, his wife or wives and their children would often travel, hunt and camp together. When they met up with others, each family maintained its own fire in the camp. Radcliffe-Brown did not think there were individual rights to land; instead he believed that the entire territory of the group, and its animal, plant and other resources, belonged equally to all the members of the group. He stressed the strong links that existed between an individual and his or her own country, but also pointed out that there were a number of "secondary rights" to land:

> A woman seems to have retained a sort of right over the country of her birth, so that a man and his wife were generally welcome to visit the wife's local group whenever they wished. A man seems also to have a sort of secondary right over the country of his mother, that is the country to which she belonged by birth (*ibid:* 147).

At the time of European settlement the Burrup Peninsula and the islands to the north were the territory of the Yaburarra. The status of this group and the actual extent of its territory are somewhat uncertain; it is now difficult to ascertain whether the Yaburarra were a small tribe in their own right or a subgroup of the Ngaluma tribe, who occupied the coastal plains between the Maitland and Sherlock Rivers. As is documented later in this report, the Yaburarra were effectively destroyed as a social unit in frontier conflict in the late 1860s. The few survivors were scattered along distant coasts by the pearling boats, or sought refuge on the pastoral stations inland. Early ethnographic sources such as Richardson (1886), "Yabaroo" (1889), Withnell (1901), Bates (1905, 1913) and Hall (1971) record a great deal of useful information on the material culture, subsistence techniques, customs and beliefs of the Ngaluma tribe. However, little is known specifically of the Yaburarra.

Radcliffe-Brown (1913: 170), who studied Aboriginal social organisation in the Pilbara in 1911, defined Ngaluma territory as extending from the Maitland to the Sherlock River and inland to the tablelands, the territory of the Indjibarndi. The Ngaluma's neighbours on the western side of the Maitland River were the Martuthunira. Radcliffe-Brown did not refer specifically to the Yaburarra, and included the peninsula in Ngaluma territory. His accompanying map (see Figure 3.2) showed the Ngaluma-Martuthunira border as commencing on the coast a few kilometres east of the mouth of the Maitland River and heading nearly due south from there (*ibid*: 171).

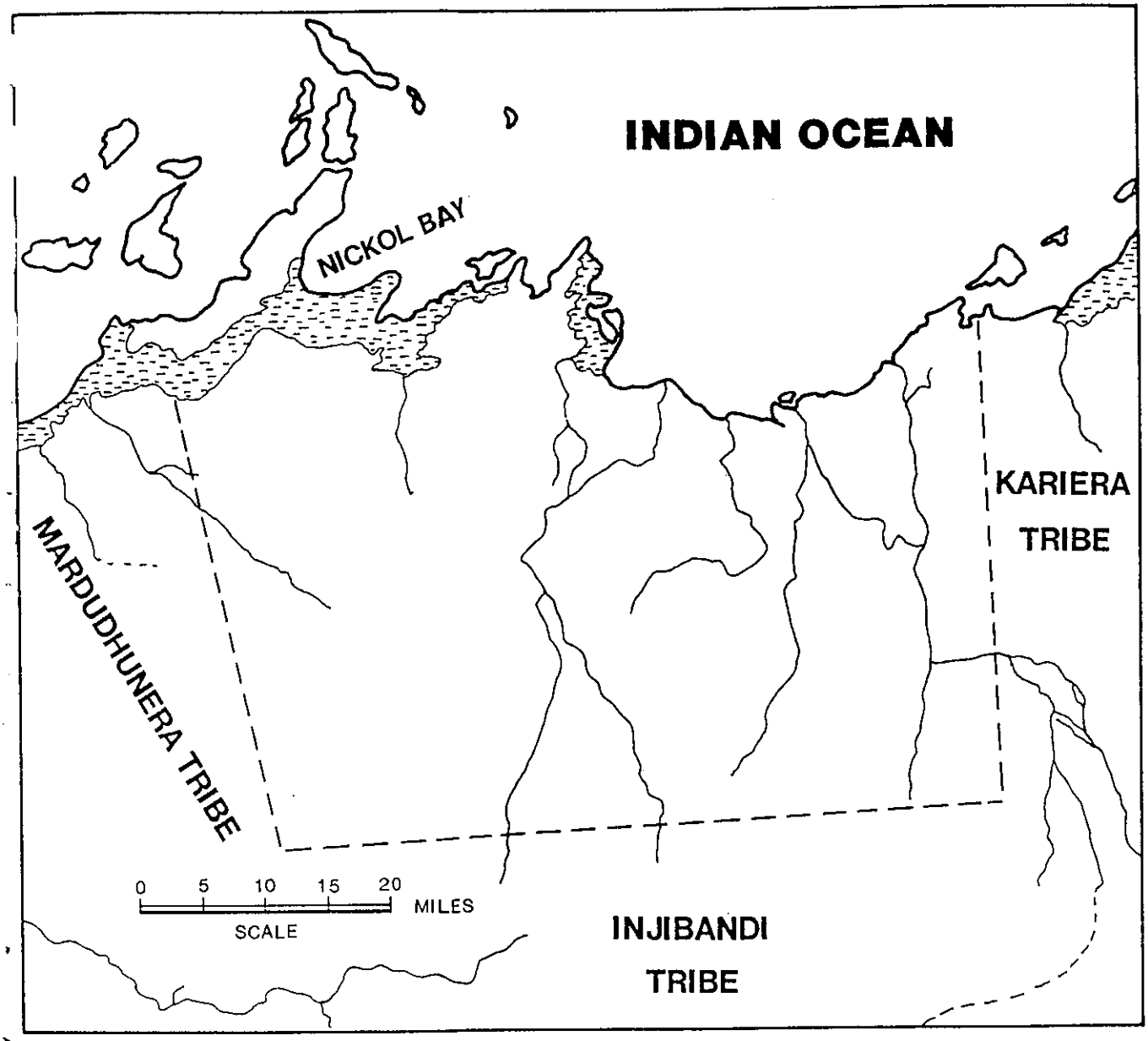

Figure 3.2 Ngarluma tribal boundaries according to Radcliffe-Brown (1913).

His description of Ngaluma territory corresponds closely with the accounts of tribal boundaries in the Nickol Bay area by Richardson, Withnell, Hall and other early observers.

In 1940 Tindale produced a map of tribal boundaries in Australia which, for the Pilbara at least, was based largely on earlier ethnographic sources. The boundaries shown on this map (Tindale 1940) are similar to those delineated earlier by Radcliffe-Brown. Tindale and his colleague Birdsell visited the Pilbara in 1953 and recorded detailed genealogies and collected other ethnographic data from Aborigines in Roebourne, Port Hedland, Yandeearra, Cooya Pooya and other stations and communities. Tindale incorporated the information on tribal boundaries that he obtained on that trip, as well as data he gained during another visit to the Pilbara in 1966, into the revised version of his tribal map published in 1974, reproduced here (Figure 3.3). It is evident that Tindale learned something of the Yaburarra, whom he referred to as the "Jaburara", during his visits in 1953 and 1966 because his new map showed the Yaburarra occupying the peninsula and the islands to the north - Angel, Gidley and Dolphin - as well as the Nickol Bay coast and a portion of the adjacent mainland. Tindale was uncertain of the position of the boundary between the Yaburarra and the Ngaluma and indicated it with a broken line.

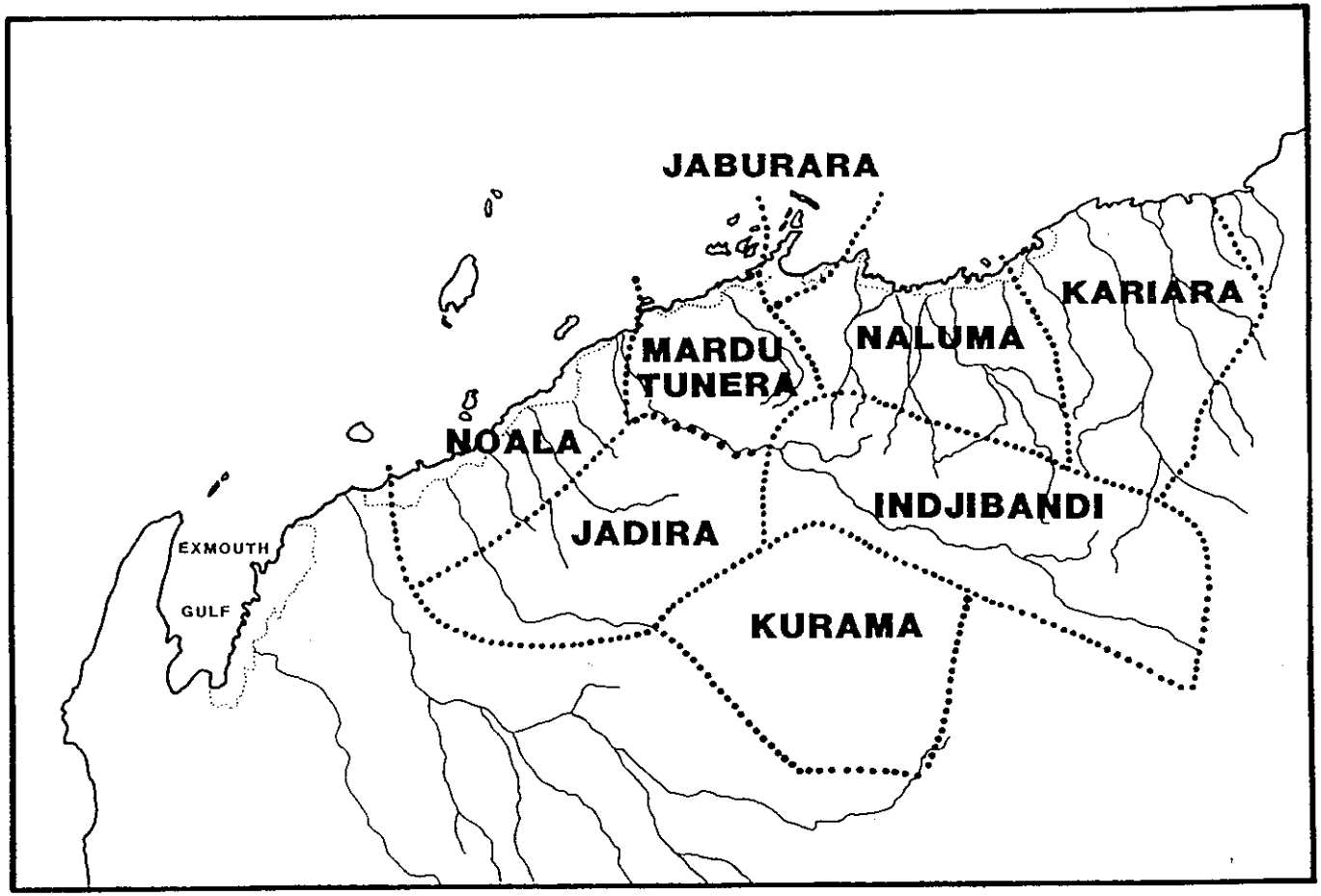

Figure 3.3 Tribal boundaries in the Pilbara according to Tindale (1974).

He described the Yaburarra as:

> a small tribe, now extinct, with a separate dialect related to Ngaluma. The name usually means "northerners". My informant half remembered another name as Madoitja but suggested it be queried since he had not thought about it for a long time. In his youth the Jaburara had been reduced in numbers to a small family (1974: 242).

The western islands of the archipelago, according to Tindale, belonged to the Martuthunira, whose territory extended along the coast as far as Cape Preston and inland to the Fortescue River (*ibid*: 248).

Tindale believed that tribal boundaries were clearly defined and seldom trespassed, but the earlier observations of Radcliffe-Brown indicate otherwise. Radcliffe-Brown observed that intermarriage between local descent groups across tribal boundaries tended to blur the distinctions between tribes. In the vicinity of the Kariara - Ngaluma - Indjibarndi border, he found it difficult to determine to which tribe some local groups actually belonged. He wrote:

> I was told more than once that [a particular "clan"] was "half Ngaluma, half Kariera" [*sic*], and it was sometimes spoken of as a Kariera clan and sometimes as Ngaluma . . . The fact is that one tribe is not clearly marked off from its neighbours, but there are often near the border a number of local groups that occupy an indeterminate position (1913: 160-1).

As is discussed later in this report, the coastal Pilbara tribes were linked by kinship and intermarriage, economic interdependence, trade and shared ritual obligations. To varying degrees, these links tended to blur both tribal boundaries and the distinctions between tribes.

3.3.1 The Yaburarra

In some of the official correspondence from the Resident Magistrate in Roebourne in the 1860s there are a number of references to the "island natives", indicating that there was a distinct Aboriginal group occupying the archipelago. The earliest specific reference to the Yaburarra is in the Ngaluma vocabulary compiled by Hall in about 1910 where the term "Yaboorannie" is defined as "that portion of the Ngarlooma [sic] tribe living about Flying Foam" (Hall 1971: 28). Von Brandenstein, who carried out linguistic research with Ngaluma and Indjibarndi people in the 1960s, obtained some information on the Yaburarra. He believes the Yaburarra to have been a northern linguistic division of the Ngaluma (1967: 3; 1970, vol. I: vii), rather than a separate tribe as Tindale thought. He pointed out that the term "Yaburarra" more correctly translates as "sea-side" or "downstream", and this reflects the fact that all the rivers and creeks in this region run northwards to the sea.

Von Brandenstein believes that the Yaburarra occupied the peninsula and the islands to the north and that the western islands were visited by the Martuthunira (pers. comm. 1981, 1992). His linguistic map of the western Pilbara is reproduced here as Figure 3.4.

Aboriginal people today believe that the Yaburarra occupied the peninsula and islands, as well as a significant portion of the adjacent mainland (see Figure 3.1). The exact boundaries are not certain; some believed that the Maitland River was the boundary between the Yaburarra and the Martuthunira while others thought that the boundary was a few kilometres further west, nearer the Yanyare River. Most informants agreed that the range of hills that included Mt Leopold and the well-known *Kadarrabuga Thalu* (Whale Thalu) marked the southern edge of Yaburarra territory. There was also general agreement that Yaburarra territory included the hills around Karratha and the adjoining coastline of Nickol Bay. Tom Gara recorded the following conversation between Aboriginal elders at King Bay on 16th July 1992:

> TG: That whale *thalu* was in Yaburarra country?
> Gordon Lockyer: Proper Yaburarra, right in the middle of it.
> James Solomon: Yeah.
> TG: And the hills near Karratha?
> GL: Yeah, and Mount Leopold.
> David Connors: Mount Leopold, Aboriginal name they call it *Ngarrari.*

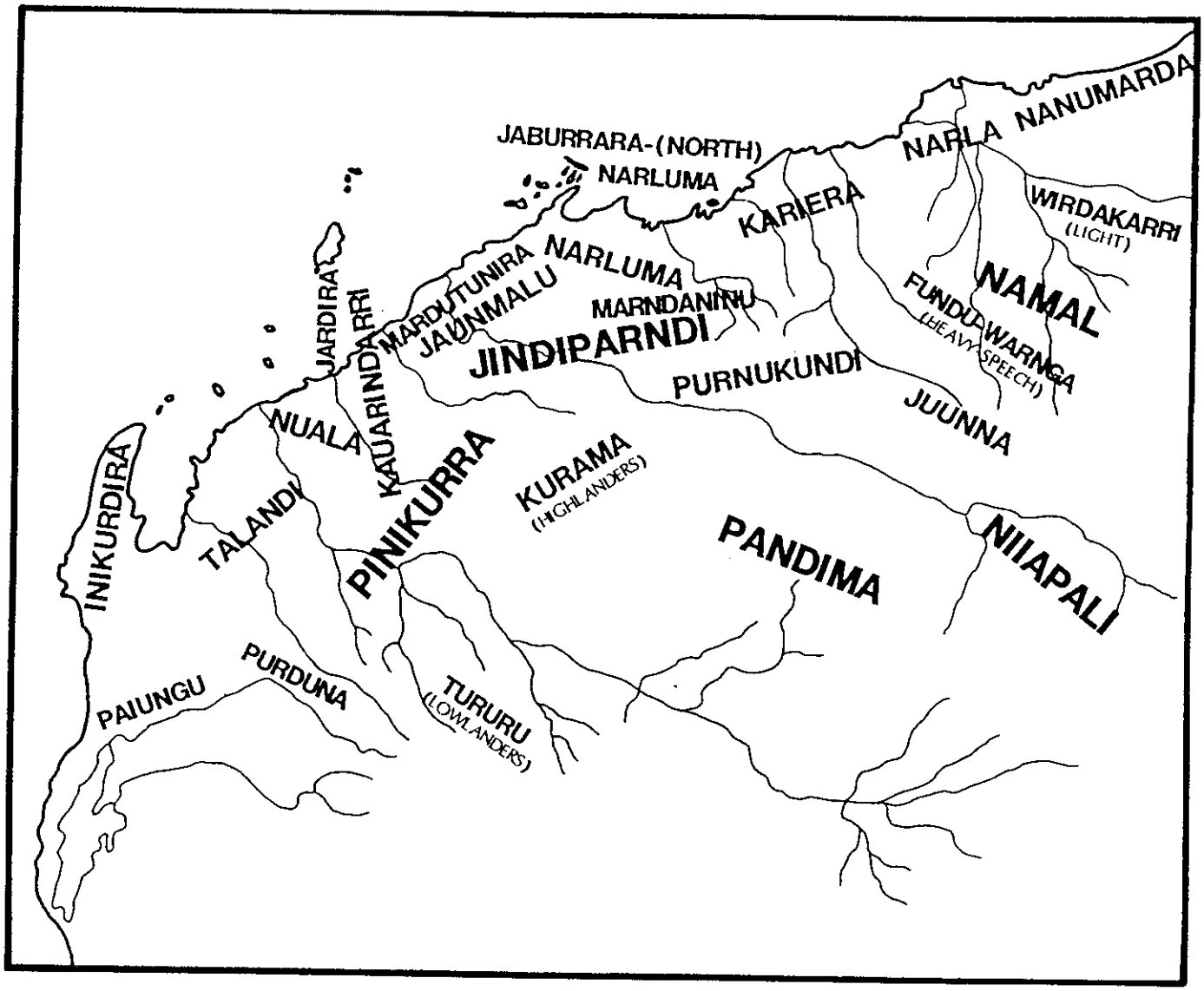

Figure 3.4 Linguistic boundaries in the Pilbara according to von Brandenstein (1967).

No-one was quite sure how far Yaburarra country extended eastwards; apparently the boundary was somewhere west of the Nickol River, which was widely recognised as being in Ngaluma country. There was uncertainty over who the western islands of the archipelago belonged to; most people thought that they were Yaburarra but some suggested they were shared with the Martuthunira.

In discussions about tribal boundaries, many of Gara's informants referred to three low, isolated, rocky hills on the coastal plain south-west of the mouth of the Maitland River. They are visible from several points when driving along the North West Coastal Highway between the Yanyare and Maitland Rivers. The three hills are in Martuthunira country but their relative positions represent or "stand for" the three tribes; the western-most hill is the Martuthunira, the central hill stood for the Yaburarra while the eastern-most hill stood for the Ngaluma. Gordon Lockyer said:

> it shows this side Ngaluma, this side Martuthunira, this side Yaburarra. You can't mix them up! Mingala must have put them there.

A number of early explorers and settlers commented on the fact that the coastal Aborigines were tall, muscular people. King (1827, vol. I: 42), for example, described the Aboriginal man that he took aboard his vessel in the archipelago in 1818 as "a well-made man, and at least six feet in height" and Gregory and Gregory (1884: 56) met a man at Hearson Cove in 1861 who was six feet four inches (193 cm) tall.

Aboriginal people in Roebourne consistently described the Yaburarra as "big" or "tall" people, particularly the men. Indeed, a skeleton uncovered near Cossack several years ago was widely believed to have been that of a Yaburarra man because of the length of its leg-bones. Several informants also described the Yaburarra as "fair-skinned", perhaps the result of early contact between the island people and American whalers.

During his conversations with Aboriginal elders, Gara got the impression that whereas Ngaluma and Martuthunira people define the Yaburarra as those people living on the peninsula and islands, some Indjibarndi and other inland people use the term Yaburarra as a more general term for all the "sea-side" Ngaluma, the local groups who lived along the coast between the Maitland and Sherlock Rivers. Not only are there very few people of Yaburarra descent that can be identified today, there are also few people left who can claim to be genuine "sea-side" Ngaluma. Although Ngaluma refer to themselves as "sea-siders" or "coastal people" to distinguish themselves from the Indjibarndi and other inlanders, most of the Ngaluma elders were born and raised on the stations inland. There, as Turner (1990: 90) points out, their economic and ceremonial interests focused on the inland margins of the coastal plain and the tablelands beyond. Most have had little contact with the sea until comparatively recent times. The Martuthunira are also classed as "sea-siders" by their inland neighbours. Mibbin Lowe (recently deceased) was probably the sole remaining coastal Martuthunira man, although he was born on the Sherlock River, *i.e.* in Ngaluma country.

3.3.2 Language

Little is known today of the Yaburarra language. The 70 or so words that were collected by Walcott at Hearson Cove in 1861 (Gregory 1884) may be all that survives of the Yaburarra dialect, and these terms correspond closely to the Ngaluma vocabularies of Hall (1971) and von Brandenstein (1970).[1] Algie Patterson and some of the old people in Roebourne remember the Yaburarra language being spoken when they were young but it is no longer spoken. As Algie Patterson said: "Yaburarra language finished. No-one got that language anymore". The last speaker of Yaburarra seems to have been a man named Charlie Aleck, whose Aboriginal name was Thugari. He was Kurrama but he had learned the language from Yaburarra people when he was living on Mardie Station. Mibbin Lowe's daughter, Dorie, remembers Charlie Aleck speaking Yaburarra to her when she was young. She said:

> He used to talk that language but I never understand, you know, it was too twisty. He used to talk that language . . . He was brought up there, with the old people.

Von Brandenstein believed that in addition to the northern Ngaluma dialect spoken by the Yaburarra, there were also linguistic differences between the western (or coastal) and eastern (inland) Ngaluma.

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[1]Noelene Harrison, the historical researcher for the film "Exile and the Kingdom" produced by Frank Rijavec and Roger Solomon, has recently found in the Battye Library a short vocabulary from the Nickol Bay area which may also be Yapurarra.

He wrote:

> The East Ngaluma east of the Harding River spoke a dialect different from the West-Ngaluma west of the Harding River and the North or Seaside-Ngaluma on Nickol Bay peninsula and the islands of the Dampier Archipelago (1970, vol. I: vii).

According to von Brandenstein (1967: 8-9, 13-4; pers. comm. 1992), both the Yaburarra and West Ngaluma dialects are now extinct, and the few remaining Ngaluma speakers use the eastern dialect. Some vocabulary of the other two dialects survives in the Ngaluma *padupadu* respect language, which was formerly used between people who were in certain in-law relationships, but this language too is probably no longer spoken. In his book on Pilbara Aboriginal song poetry, von Brandenstein (1974: 10) provides one short poem in the West Ngaluma dialect entitled "Waves", composed about the turn of the century by a West Ngaluma man, Dougall Kudjardi-Kudjardi. Von Brandenstein, who now lives in Albany (WA), has recordings of other West Ngaluma language material in his possession.

The majority of the people Gara talked to believed that the Yaburarra language was a dialect of Ngaluma but some, *e.g.* Algie Patterson and David Connors, thought that Yaburarra was closer to Martuthunira. David Connors said that:

> they reckon that Yaburarra language much like Martuthunira language. They reckon it was a good language. Very clear, like Indjibarndi, easy to pick up.

Roger Solomon was one of several people who thought that Yaburarra was a mix of the other two languages. He noted that:

> Those Yaburarra people were no different to us. Only the language; the dialect was different - Martuthunira and Ngaluma mixed. They were West Ngaluma people but they were called the Yaburarra because they lived in that direction: sea-side.

It seems likely that the Yaburarra dialect was closer to Ngaluma than it was to Martuthunira. However, as Alan Dench, who has been researching the Martuthunira language, points out (pers. comm. 1992), the Yaburarra's geographical position would have ensured that most Yaburarra people were fluent in both Ngaluma and Martuthunira.

As is discussed later in this report, there are few remaining Ngaluma or Martuthunira speakers today and Indjibarndi has become the dominant language spoken in Roebourne. The young people there speak Indjibarndi but identify themselves as being Ngaluma, Martuthunira or otherwise on the basis of their parents' and/or grandparents' tribal affiliations. Linguistic knowledge is an important element of Aboriginal identity; as Turner (1990: 84) notes, people of Aboriginal descent who do not speak the *wangka* (language) are considered to be "cultureless" or "homeless", and are regarded with some sympathy or pity. For Roebourne elders, language also seems to be synonymous with culture. They view the loss of the entire Yaburarra language with considerable sadness.

James Solomon in particular lamented the loss of the language, explaining that if only some of it had survived, it would have told us a lot about the Burrup Peninsula and its people. There seems to be a link between the land, the language and the people; not only was the land "orphan country" because there were no longer Yaburarra to look after it, it was also "orphan country" because its language was gone.

3.3.3 Aboriginal culture in the western Pilbara

Tindale (1974: 58-9) noted the close correspondence between tribal boundaries and environmental zones in the Pilbara. He illustrated this point with the figure reproduced here as Figure 3.5, which shows the Ngaluma occupying the coastal plains, the Indjibarndi living in the tablelands and, further inland, the Pandjima occupying the high country of the Hamersley Range. Much the same divisions are recognised by Pilbara Aborigines today, who differentiate between the "sea-side" people (the Ngaluma and Martuthunira), the "tableland" people (the Indjibarndi) and the people of the "mountain country" or "top end", the Pandjima and Kurrama (Turner 1990: 86).

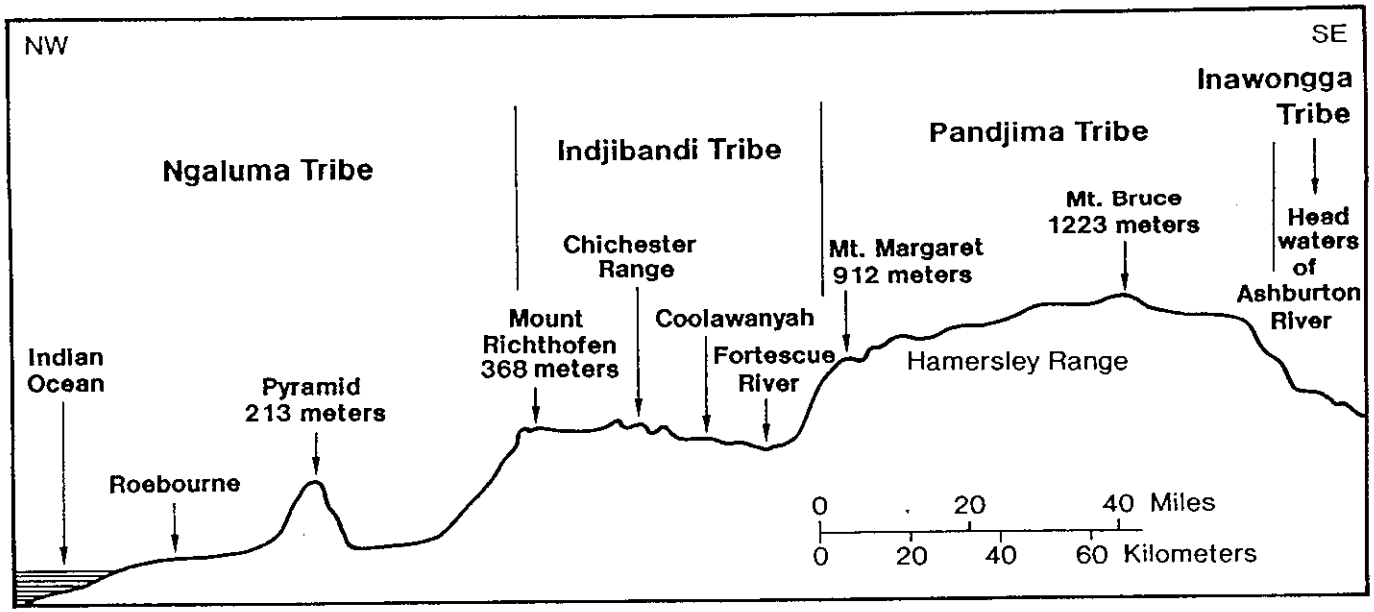

Figure 3.5 Cross section from the Indian Ocean to the Hamersley Ranges, showing relationship between physiography and tribal boundaries (from Tindale 1974:59)

The Yaburarra, Ngaluma, Martuthunira, Kariara and Indjibarndi spoke closely-related languages (von Brandenstein 1967; Wordick 1982: 5-7), shared mythological beliefs that emphasised *thalu* or "increase sites" as the focus of land-based rituals, and had similar systems of social organisation based upon the operation of four matrilineal, exogamous sections or "skin groups" (Bates 1905: 41-3; Radcliffe-Brown 1913). These tribes were linked by kinship and intermarriage, as well as by trade, economic interdependence and ceremonial ties. There were important cultural differences, however, between the coastal tribes and those of the inland. The principal difference was in initiation practices. The coastal tribes did not circumcise their male youths, while the Indjibarndi did practise circumcision (Radcliffe-Brown 1913: 174). The tribes of the Hamersley Ranges - the Kurrama and Pandjima - practised both circumcision and subincision. Initiation laws are now "shared" between the Pilbara tribes, although each tribal group keeps its own traditions distinct.

Culturally, the Kurrama and Pandjima were more closely linked to their neighbours further inland, who belonged to what has been termed the "Western Desert Cultural bloc" by Berndt (1959) and Berndt *et al.* (1979). This cultural grouping encompassed most of the tribes of the vast central desert region of Australia, who spoke closely-related dialects and had similar systems of social and local organisation and religious beliefs and practices.

There is evidence that indicates that the Western Desert culture was spreading outwards from the desert in pre-contact times, and this expansion has subsequently accelerated as the desert people have moved in to fill the partial vacuum left by the decline of other tribes less insulated from the effects of European settlement (Berndt 1979: 7). The effects on the Aborigines of the western Pilbara of this outward expansion of the desert culture are discussed later in this report.

3.4 Aboriginal Post-Contact History

3.4.1 Early contacts with European explorers

The Dampier Archipelago is named after the English privateer and adventurer William Dampier who sighted the islands in August 1699 from his vessel, the *Roebuck*. Dampier saw smoke from Aboriginal fires rising from one of the islands and when a party was sent ashore on either Malus or Enderby Island, they found signs of recent fires but no other evidence of Aboriginal occupation (Masefield 1906, vol. II: 435). The next documented visit to the archipelago was more than a century later. Philip King, in command of the *Mermaid*, charted the islands of the Dampier Archipelago and the nearby coastline of Nickol Bay in February 1818. King's journal (1827, vol. I: 37-48) documents several encounters with Aboriginal people on the islands that he named the Intercourse Islands, to mark the "friendly intercourse" he had with the Aborigines there.

He observed groups of 30 or more people on two occasions on those islands. During the 1840s and 1850s American whaling vessels operated in the Dampier Archipelago, hunting the humpback whales that migrate northwards along the coast each spring. Whaling bases were established at a number of sites in the archipelago (Macilroy 1979) and it is likely that Aboriginal people had some contact with the crews of these vessels, providing food and water in exchange for tobacco and other goods.

In May 1861, F. T. Gregory and his exploration party aboard the *Dolphin* landed at Hearson Cove and established a base-camp there. Gregory and Gregory (1884: 56-8) observed Aborigines on several occasions at Hearson Cove and King Bay before setting out on his explorations inland. The camp was maintained by the *Dolphin's* crew until Gregory's return in October. While he was away, the Aborigines had some contact with the men who remained at Hearson Cove. According to Gregory (*ibid*: 73), Walcott, one of those who remained behind, had "established a friendly understanding" with the local Aborigines. They had assisted in supplying water and firewood, and had been rewarded with ship's biscuit. Walcott also obtained from them "a very useful vocabulary of native words and other interesting particulars".

3.4.2 European settlement

Gregory reported that there were large tracts of land suitable for sheep and cattle in the north-west and it was not long before the first European settlers arrived. The first settlement, in 1863, was at Cossack, near the mouth of the Harding River but a larger settlement soon began to develop further inland at Roebourne. The accounts of the early settlers indicate that relations with the Aborigines were initially friendly (Gara 1984: 7-8). A bad drought from 1864 to 1866 caused great hardship to the new settlers and the Aboriginal people as well, as by that time game animals had become scarce and vegetable foods had been greatly depleted by the new herds of livestock. A smallpox epidemic in 1866 caused many deaths among the Aboriginal people (Hasluck 1970: 104). It is not known how many Aborigines died or how far the epidemic spread but Sholl, the Resident Magistrate in Roebourne, reported that:

> The natives have been attacked with smallpox and a number have died . . . There was a sick camp close to our own. The invalids were deserted by their comrades and left to starve . . . Some bodies have been seen near the coast (Perth *Inquirer* 21/3/1866).

Despite the effects of introduced diseases, drought and the increasing alienation of their traditional lands, the Ngaluma seem to have maintained peaceful relations with the newcomers in the early years of settlement.

The Yaburarra were relatively isolated from the European settlements but this isolation was to end when rich beds of pearlshell were discovered in Nickol Bay in 1865. Enterprising white settlers began collecting the shell from the shores and the reefs at low tide, but when the easily accessible shell was exhausted, the whites began employing local Aboriginal people as divers in exchange for tobacco, flour and other European goods (Gara 1984: 10). Little is known of the activities of the early pearlers operating in the Nickol Bay area. It is known that some established camps on the shore of Nickol Bay; others may have camped on the eastern side of the Burrup Peninsula, where fresh-water was available at Watering Cove and Hearson Cove. The pearlers, most likely, had little regard for the local Aborigines when they dispossessed them of the vital water supplies there. The Yaburarra apparently responded to these intrusions by stealing food and other goods from the pearlers' camps and from the boats offshore. They also made occasional raids on Karratha Station. Coppin Dale told Nic Green in 1983 that the Yaburarra:

> used to come off that island [the Burrup Peninsula], go to Karratha [Station] in the night, get the bread, get the bullock meat, put them in the bag, take them back to the island.

3.4.3 The Flying Foam Massacre

In February 1868, some Aborigines stole a quantity of flour from a pearling boat anchored in Nickol Bay. This minor theft led to the death of a policeman, his Aboriginal assistant and two white pearlers, and this in turn led to what has become known as the Flying Foam Massacre. Rumours about this massacre, not actually a single incident but rather a series of shootings at King Bay and around Flying Foam Passage over three or four days, first became public in the 1880s. It has been referred to in a number of historical studies and other published sources since that time. Many Aboriginal people in the Pilbara have heard elements of the story and long-term European residents are also aware that something happened at Flying Foam Passage in the early days, although few seem to know any details. The official account of the incident, which comes from the reports of Robert Sholl, the Resident Magistrate in Roebourne, and the leaders of the special constables he despatched to apprehend the Aborigines believed to be responsible for the murders, indicates that only a few Aborigines, perhaps 5-10 at the most, were killed. Other historical and oral sources suggest that the death toll was much higher.

The official account[2] states that the policeman, Griffis, and his Aboriginal assistant, Peter, arrested an Aboriginal man named Coolyerberri, who was alleged to have stolen some flour from a boat anchored in Nickol Bay.

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[2]The Resident Magistrate's reports relating to this incident, and the reports of the special constables, can be found in the files of the Colonial Secretary's Office in the Battye Library (CSO 3679/1886). Most of these reports were also reprinted in full in the *Perth Gazette and WA Times*, 3/4/1868: 3.

They camped for the night near the coast a few kilometres west of the mouth of the Nickol River. During the night, other Aborigines freed Coolyerberri, who had been chained to a tree, and speared to death Griffis, Peter and two white pearlers camped nearby. When the news reached Roebourne, Sholl paid a visit to the murder scene where he met some Aborigines who said that they had tried to dissuade the others from killing the policeman. From the tracks left in the sand, he estimated that more than 100 Aborigines had been present at the time of the murders. The Aborigines told Sholl the names of some of the murderers, among them a number of "island natives", presumably Yaburarra men:

> Poodegin alias Charley, Woolgolgarry alias Ned, Mullagaugh, an island native, Minulgajebba, an island native, Parrakarrapoogoo, an island native, Cooracoora . . . and Chilwell.

Three other Aborigines were later named as being involved in the murders:

> Pulthalgerri alias Big Monkey, Euculgurria alias Jimmy, a lad who took spears with him, Warrara, an island native.

When he returned to Roebourne, Sholl swore in two parties of special constables from among the local settlers, one to go by boat and the other go overland on horseback, to apprehend the alleged murderers who were said to have fled to the islands around Flying Foam Passage.

The special constables on horseback, led by Alex McRae, rode to Hearson Cove on February 16 and then continued across the peninsula. They camped for the night at a waterhole near the south shore of King Bay. Aboriginal fires were visible on the beach nearby and in the morning McRae and his men rode into the camp. The Aborigines fled into the adjacent mangroves so the special constables opened fire and, according to McRae, one Aborigine - one of the alleged murderers, Chilwell - was shot dead and several others wounded. McRae claimed that he found items taken from the dead policeman in the camp. The boat party, led by J. Withnell, arrived at the scene at about the same time and, on the following day, transported McRae's men to Dolphin Island.

Over the next few days, the two groups of special constables apparently roamed around the islands of Flying Foam Passage, firing upon any Aborigines they saw. Their reports provide few details: Withnell reported having a "sharp skirmish" with some Aborigines on either Angel or Gidley Island while McRae's men shot and killed one man they caught crossing the passage on a log and fired at some others they saw on one of the islands. On that occasion, "several were shot or wounded", according to McRae. The two parties then returned to Roebourne where they were officially thanked for their services by the Resident Magistrate. In March Constable Francisco, aided by several Aboriginal assistants, tried to apprehend two of the alleged murderers, Parrakarrapoogoo and Woolgolgarry, near the mouth of the Maitland River. However, both men and another Aborigine were shot dead while trying to escape.

Four other Aborigines implicated in the murder were arrested on Legendre Island in May; another man there was shot dead while trying to escape. Two of those arrested were later sentenced to 12 years imprisonment on Rottnest Island for their part in the murders.

In an earlier paper Gara (1983), has presented a number of historical sources that provide a different perspective on the events of February 1868. McRae himself hinted, somewhat obscurely, at what really happened in a letter he wrote to his sister soon after returning to Roebourne. He wrote:

> Two strong parties were organised to go out and give the natives "fitz" [*sic*] - one by land and the other by sea . . . Farquar and Anderson was out with me - a great many lost the number of their men. [3]

The only other contemporary reference to the massacre that he was able to find is in a letter written by a Roebourne settler, W. Taylor, to the Colonial Secretary early in 1869. Taylor claimed that Griffis' death was in retaliation for the policeman's abduction and rape of an Aboriginal woman, and he also alleged that the special constables had subsequently committed "the most cowardly and diabolical acts both on innocent women and children".[4] The Colonial Secretary apparently took no notice at the time of those claims.

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[3]Battye Library AN396A: 24/2/1868.
[4]CSO 646/69: 4/1/1869.

It was not until 1886 that allegations of a massacre were first made public by Rev. Gribble, who was told by David Carley, a settler at Roebourne, that:

> it is very well known by all old hands around Nickol Bay and the Flying Foam Passage that in one day there were quite sixty natives, men, women and children shot dead. The natives have shown me the skulls of 15 who were shot dead. Three of the skulls were those of children and two of these small skulls had bullet holes in them (Gribble 1905: 30-1).

For some time debate raged in the correspondence column of the *West Australian* newspaper (*cf.* Reilly 1903: 312-58); some early settlers of the North-West wrote to deny that such a massacre took place, others did not try to hide the fact that many Aborigines had died but said that the shootings were necessary to "teach the natives a lesson". The controversy aroused by Carley's allegation died down the following year when Gribble left the state, after losing a libel case he had instituted against the *West Australian* (Hunt 1984). Since that time the massacre has been referred to in a number of general historical studies (*cf.* Bartlett 1954: 86-7; Hasluck 1970: 188-9; Biskup 1973: 17; Green 1981: 102) as well as in occasional newspaper articles.[5]

[5]The Local History Collection of the Karratha Community Library has a file of some recent references to the massacre in various newspapers and magazine articles.

The massacre is also spoken of in oral histories of Aboriginal people in Roebourne. Coppin Dale, a Ngaluma man who lived for many years on Karratha Station, told Nic Green in 1983 that he had heard of the massacre in his youth from the few remaining Yaburarra people left alive then. His account provides corroboration for Taylor's claim that Griffis was killed for abducting and raping an Aboriginal woman. Coppin told Green that:

> Lot of Yaburarra people there [the Burrup Peninsula], long time ago. This policeman took a young girl into the bush, with a rifle. The old fella [the girl's husband] he got a spear in his hand, he put the spear right through the policeman's chest. The other police all got their guns, went out there, got all the Yaburarra people up, got them all together, shot them down. Must be 30, 40 people killed (Gara 1983: 91).

Coppin Dale has since told Jan Turner (1990: 43) a detailed account of the shootings that appears to correspond closely with what is known of the movements of the special constables. He did not wish this information to be made public, however. Jan Turner also heard stories about the massacre from other Roebourne elders, since deceased, in the early 1980s.

Many of the older Aborigines with whom Gara talked had heard of the massacre but did not know any details, or perhaps were reluctant to discuss the incident with him. David Connors, from Warambie Station, had heard the story when he was young and provided some interesting information.

When Gara first asked him if he knew what had happened to the Yaburarra people, he replied:

> They all got shot. King Mullagong,[6] that fella that showed the Withnell brothers Roebourne, he didn't like those people down there, he had something against them. He got the coppers there to go and shoot them. One of the coppers got speared too!

David noted that an old Yaburarra man named Maitland had told the elders at Karratha Station the story of the massacre when he (DC) was living there as a young boy. David heard the story from the elders when he was older. Gara told him that the official reports of the incident suggested that only a few Aborigines had lost their lives. He replied:

> No, they wiped the whole lot out, women and children too. Only one young fella left, he fell beside the old fellas and the blood all covered him and after they shot them all, they kicked the young fella in the ribs . . . The young fella he was alive for quite a while - he killed a lot of policemen, police boys and all. He used to wait for them and he got hold of one of their rifles and learned about it. He ended up shooting them before they got there because they had to come across in a dinghy - they reckon he was really bloody deadly.

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[6]Mullagong was a Ngaluma man, described by the early settlers at Cossack and Roebourne as the "chief" of the local Aboriginal people (Gara 1984: 8-9).

Maitland had not been on the Burrup Peninsula when the massacre occurred but he had heard about it soon afterwards and went back to the peninsula, according to David, " to see what damage had been done". Maitland met the young survivor there and tried to convince him to come into Roebourne "to apologise". The young man refused, however, and declared his determination to stay there and to kill any whites who came looking for him. According to David, the police made several attempts to capture the young man and finally succeeded when they came overland across the peninsula and cornered him at either Watering Cove or Cowrie Cove. They killed him there after he had exhausted his supply of spears.

There is no confirmation of this episode in the historical sources. However, as noted previously, the police did make several forays out from Roebourne in the months after the massacre seeking the remaining alleged murderers, and it is possible that something like the incidents described by David did occur. It is unlikely that the young Yaburarra man killed any white policemen, for this would not have gone unreported in the official correspondence, but it is possible that he killed some Aboriginal police assistants before he himself was killed.

There seems little doubt that the Flying Foam Massacre did occur although we will probably never know the real death toll. The special constables' reports indicate that only 5-10 Aborigines lost their lives.

Other estimates are larger, ranging from the 30 or 40 that Coppin thought had been killed up to the clearly exaggerated figure of 150 deaths mentioned in one of the early accounts (Reilly 1903: 316). Confusion over where the massacre took place appears to be the result of some early references stating that it occurred "near Cossack". Recent historical studies have perpetuated the more sensational estimates of the death toll and confused the circumstances of the massacre itself. Biskup, for example, states that:

> Early in 1868 some 150 Aborigines were said to have been shot near Cossack "while resisting arrest" by a posse sent out to revenge the killing of a party of settlers (1973: 17).

Edmunds (1989: 4) notes several local European versions of the massacre. One states that the Yaburarra were actually killed by a rival tribe from Roebourne, another suggests that the death toll in the incident itself was minimal and that disease was the principal cause of the Yaburarra's decline. The Jaburara Heritage Trail pamphlet obscures the true story, stating that:

> at least three large-scale massacres are known to have taken place in one tribal territory alone . . . The loss of their land and the violence which ensued had a devastating effect on the Jaburara tribe; the last full-blooded Jaburara person died in the 1930s.[7]

[7]Produced by the Dampier Salt Shakers and the Rotary Club of Karratha for the WA Heritage Committee, c. 1990.

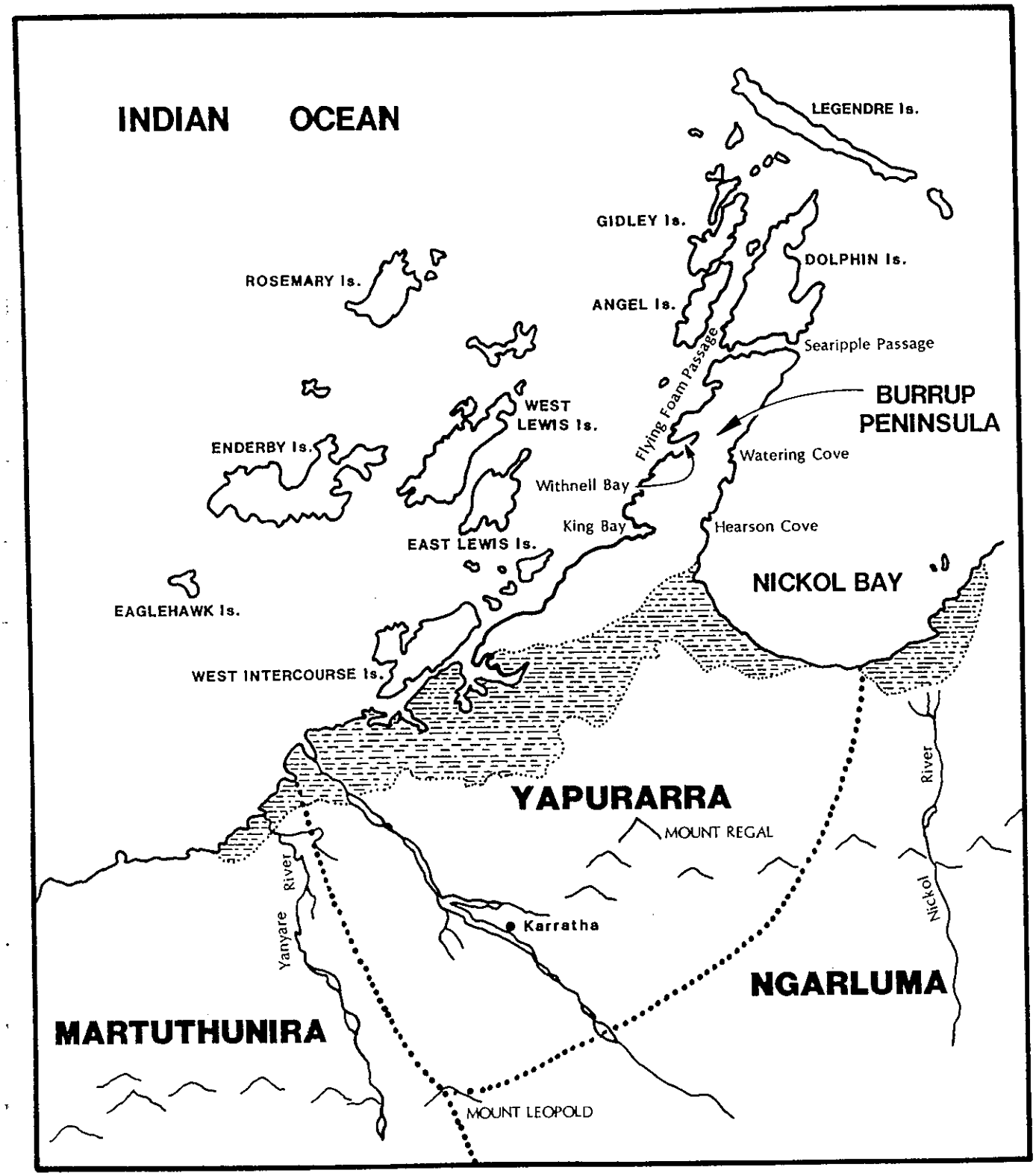

Figure 3.1 Yapurarra tribal boundaries, according to Ngarluma and Martuthunira people today.

The pamphlet on the Dampier Archipelago produced by CALM also presents a somewhat abbreviated version:

> Introduced disease, exploitation and violent confrontation with the settlers reduced [Yaburarra] numbers, and it is now believed that no members of the group remain.

Reynolds (1981), in his book *The other side of the frontier*, estimated that at least 20,000 Aborigines lost their lives as a direct result of conflict on the Australian frontier. Feuding, revenge and pay-back killings were a common feature of traditional Aboriginal society but these were strictly regulated and violence was kept to a relatively low level. Presumably the Yaburarra did not expect the Europeans to allow the murder of Griffis and his companions to go unavenged but it is unlikely that the Yaburarra could have foreseen the scale of the European reprisals. For, as Reynolds observed:

> Pioneer communities appeared to be unable to cope with the psychological tensions produced by even small amounts of inter-racial violence. The punitive expedition - official and unofficial -was the almost universal riposte. The objective was simple: the use of overwhelming force to crush resistance once and for all and drown in blood the Aboriginal determination to take an eye for an eye and a tooth for a tooth (Reynolds 1981: 63).

Some Yaburarra survived the shootings, perhaps hiding in the scree piles inland beyond the reach of the horsemen. Others may have sought refuge on the more distant islands of the archipelago.

Some, like Maitland, may have been visiting relatives on the mainland at the time. However, irrespective of how many people died, the massacre effectively meant the end of the Yaburarra as a cohesive social unit. The indiscriminate slaughter of senior elders, young men, women and children left the survivors fearful and scarred, both physically and psychologically, and with shattered kinship networks many family groups were destroyed. After the "killing times" were over, the Yaburarra, like other Aboriginal groups throughout Australia, had little choice but to acquiesce to the whites.

3.4.4 The Yaburarra after the massacre

The pearling industry continued to expand during 1868 and some pearlers began exploring more widely for new beds of pearlshell. A rich bed was found in Flying Foam Passage in 1869 and large numbers of boats were soon operating in that area. Historical sources show that some Aborigines were still living on the islands of the archipelago in the late 1860s and early 1870s (Gara 1984: 16-18).

They are sometimes referred to as the "island natives", as in the following letter written by Sholl to the Colonial Secretary in 1869:

> the island natives, more especially so since the establishment of the pearl shell fishery, are a migratory race, moving from island to island and visiting not infrequently the mainland.[8]

[8]CSO Vol. 111/646: 24/2/1869.

However, the surviving Yaburarra, as well as the coastal Ngaluma and Martuthunira, were increasingly falling victim to forced recruitment into the pearling industry. Aboriginal men were abducted to work as divers on the boats; Aboriginal women were also abducted to work as divers and as sexual partners for the white pearlers. When local Aboriginal labour became scarce, pearlers and "entrepreneurs" sailed along the coast as far south as the Ashburton River and north to the DeGrey River, seeking recruits for the boats. In many cases, if inducements failed, the Aborigines were simply kidnapped, chained together and marched to the boats on the coast. From there they may have been transported to pearling grounds hundreds of kilometres from their homes and abandoned there at the end of the season (Gribble 1905: 30). Aboard the boats, the murder, mistreatment and rape of Aborigines was commonplace. In 1870 an outbreak of smallpox caused many deaths among the Aborigines employed on the boats. This disease may have been introduced by Malay divers who had been imported to work the pearling boats when Aboriginal labour started to become scarce (Green 1981: 119-20).

Correspondence between Sholl and the Colonial Secretary early in 1869 confirms that Aborigines from the archipelago were among those being abducted by the pearlers. Sholl reported that one pearler had forcibly taken women from one of the islands to new pearling grounds at the mouth of the DeGrey River. Sholl observed sadly that he could not prosecute the white man because the other Aborigines would not come willingly to Roebourne to testify.[9]

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[9]CSO Vol. 111/646: 24/2/1869.

One year after the massacre, the Yaburarra's reluctance to come to Roebourne is easily understood. Aboriginal men were also being abducted, as a dispatch from Sholl the following month shows:

> one of the pearling boats proceeded lately to Flying Foam Harbour [Watering Bay, on the western side of Dolphin Island] ostensibly for the purpose of fishing the banks in that direction. Some 15 or 20 natives were induced to embark, supposing that their services would be required in their own country; but during the night sail was set for the Eastward, and now they are some 200 miles from their home and friends.[10]

Aboriginal divers, both men and women, were often forced to work long hours and to dive to dangerous depths without adequate safeguards. However, for some of the women there was a worse fate.

According to one researcher, Aboriginal women were abducted and then kept as virtual slaves on islands of the archipelago and sold off to the masters of the pearling boats:

> Some men gave up the idea of searching for [mother of pearl] when they realised that easier money was to be made by establishing slave markets or "barracoons" on islands that lay offshore from Shark Bay to King Sound.

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[10]CSO Vol. 111/646: 13/3/1869.

> Young female Aborigines at such markets at Enderby, Lambre [sic] and Barrow Islands were sold to the highest bidder. When the police began searching islands around the Dampier Archipelago, the "barracoons" were transferred further to the north-east (Bain 1983: 41).[11]

Oral histories indicate that some of the Yaburarra people who had survived the massacre, the depredation's of the pearlers and the smallpox epidemic eventually sought refuge at Karratha and Mardie Stations, where they settled down with other Ngaluma and Martuthunira people working there and were absorbed into the pastoral industry. Opportunities to visit the Burrup Peninsula and islands were subsequently limited to trips during the "summer holidays". By then, however, Yaburarra culture would already have been seriously weakened.

Yaburarra elders who had the knowledge of the sites and rituals had died, without passing on the information to the young people. The young men and women themselves were either dead too, or scattered along distant coasts where they eventually settled down and were absorbed into other Aboriginal communities. There may be people of Yaburarra descent scattered throughout the north-west of the state who know little if anything of their heritage.

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[11]Bain does not quote the source of this information. However, Noelene Harrison (pers. comm. 1992) has recently found evidence of this "slave trade" in the Colonial Secretary's Office files in the Battye Library.

3.4.5 The coastal tribes after European settlement

The coastal tribes bore the full brunt of the impact of European settlement, being dispossessed of their traditional lands and reduced in numbers by diseases, frontier conflict and mistreatment. In the face of these dislocations, social order and religious life began to disintegrate. Radcliffe-Brown estimated that the Ngaluma tribe had probably numbered between 500 and 600 people at the time of European contact. In 1911, when he did his fieldwork in the Pilbara, there were only about 60 Ngaluma people left, the majority of them living and working on the pastoral stations. He believed that there were less than 100 Martuthunira people alive at that time.

The Indjibarndi, relatively isolated from the European settlements near the coast, remained numerically and culturally strong. Some of the tableland people began to move in to Ngaluma country and, as Wordick (1982: 8) noted, by 1900 Indjibarndi had supplanted the Ngaluma language as the principal dialect spoken in the Roebourne area. There the Indjibarndi intermarried with local people and established ties with the new country. Indjibarndi elders gained access to Ngaluma, Martuthunira and Yaburarra traditions, while maintaining their ceremonial links with their own country further inland. The breakdown of coastal traditions enabled the newcomers to retain their own cultural practices in the new country.

3.4.6 Aborigines in the pastoral industry

Aboriginal people played a vital role on the early sheep and cattle stations in the Pilbara. The men quickly learned how to ride horses, work with livestock, and mastered other skills such as mustering, shearing and fencing. Some women found employment on the stations as housemaids or cooks while others worked alongside their husbands as boundary-riders and shepherds. The Aboriginal workers on the stations were rarely paid in cash for their services but instead received rations of food as well as tobacco, clothes and other items. Exploitation and mistreatment frequently occurred (Bolton 1981: 127).

Despite their relegation to a dependent and subservient position, poor working conditions and the continuing disintegration of their traditional culture, Aboriginal people developed close links with the station properties on which they lived and worked. Wilson (1979: 155-6) noted that by the late 1920s many Pilbara Aborigines had come to regard a particular station as "home", and kinship networks which had developed around each station provided a strong sense of identity and community. Although life on the pastoral stations was arduous and the work often dangerous, elderly Aborigines now look back on the "station times" with some affection (Edmunds 1989: 22-5).

Aborigines involved in the pastoral industry in northern Australia adapted many aspects of their traditional lifestyle to fit in with the requirements of their station duties (McGrath 1987). Their bush skills and knowledge of the country were of course invaluable to the white settlers, while the largely seasonal nature of station work and the frequent travelling and camping meshed easily with the Aborigines' semi-nomadic, seasonal lifestyle. In addition, those working on the stations could maintain relatively close links with the land and fulfil their ritual obligations towards it. Of particular importance in the maintenance of tradition and links to the country was the long summer holiday, when the people left the stations and returned to the bush, to hunt and forage, to meet with kinfolk from neighbouring stations and to conduct ceremonies (Wilson 1979: 155-56).

Traditional skills and knowledge of the country also helped Aboriginal people to earn additional income by gathering and selling pearl and trochus shell, by trapping and shooting dingoes, prospecting and small-scale mining enterprises.

Ngaluma people lived and worked on stations throughout the Pilbara, alongside Indjibarndi, Martuthunira and people from other tribal groups. Mardie and Karratha Stations both employed large numbers of Aborigines, principally Ngaluma and Martuthunira people. The former seem to have predominated at Karratha, while Martuthunira people seem to have been closely associated with Mardie Station. This pattern probably reflects the importance of the old tribal boundaries. Oral history shows that people of Yaburarra descent were also residing on both stations.

Strong links developed between these people and their station homes; Mibbin Lowe (now deceased) and Algie Patterson, for example, both say that they "belong to Mardie".

When Tindale and Birdsell visited Roebourne in the middle of 1953 there were about 60 Aboriginal people living at the Two Mile Reserve. More than half of those they interviewed identified themselves as Indjibarndi, less than a quarter as Ngaluma and the remainder were mainly Kurrama and Pandjima people.[12] The Aboriginal population of Roebourne increased during the early 1960s when the decline in the pastoral industry led to the loss of many jobs on the sheep and cattle stations.

In 1968 the implementation of equal pay provisions in the Pastoral Industry Award led to the eviction of many of the remaining families working on the stations. Many of the Aborigines came to congregate at the Two Mile Reserve (Howitt 1989: 163). With the movement away from the stations into Roebourne in the 1960s most forms of religious activity declined. This decline continued into the early 1970s (Turner 1990: 121).

Rapid industrialisation of the Pilbara followed the lifting of the embargo on iron ore exports in the early 1960s. Iron ore mines were established inland at Tom Price, Goldsworthy, Paraburdoo and Pannawonica, and townships and ports to service the mines were constructed at Port Hedland, Dampier, Wickham and Cape Lambert.

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[12]Family History Collection, South Australian Museum. See later Sections for further details on this collection.

The white population of the region increased dramatically, from just over 3,000 in 1961 to nearly 40,000 by 1976 (Howitt 1989: 159). There were few employment opportunities for Aboriginal people in the new iron ore industry and the influx of thousands of white men, combined with the ready availability of alcohol, had disastrous social effects upon the Aborigines (Howitt 1989: 161-4; Edmunds 1989: 7-9). In addition, many important sites were destroyed by the construction of the new mines, ports and townships, and by the railways, transmission lines and other facilities. This caused great distress to the Aboriginal people. Turner (1990: 70) suggests that in the early stages of industrialisation the Aborigines were unable to appreciate the magnitude of the developments and their effects upon the landscape. Lacking any political organisation or means of making themselves heard, they were powerless to prevent the destruction of their sites.

3.4.7 Aboriginal cultural revival

During the 1970s the town of Roebourne itself went into decline as many of the businesses and Government agencies shifted to Karratha, established in 1968 as the new administrative centre for the Pilbara, while many of Roebourne's white residents found employment in Karratha, Wickham and Dampier. However, at the same time there has been a marked cultural revival among the Aborigines of the Pilbara and, indeed, throughout the Kimberley and Gascoyne regions (*cf.* Akerman 1979; Gray 1978).

This revival has been attributed to the growing influence of the Western Desert culture as well as a number of other factors, including the increasing mobility of Aboriginal people, increasing pride in Aboriginal identity and a growing awareness of the importance of preserving cultural knowledge and transmitting it to the young people. In Roebourne, the rise of the Pilbara Aboriginal Church has also coincided with the revival of interest in traditional culture and, indeed, many of the people who play a prominent part in Church activities have also played a significant role in the Aboriginal cultural revival (Edmunds 1989: 141).

The traditional revival has manifested itself principally in the resurgence of religious activity, especially in the sphere of male initiation. The focus on initiation rites has seen a consequent decline in the performance of the broader range of land-based *thalu* rites (Turner 1990: 111).

The cultural revival is also manifest in the Roebourne community's increasing concern with sites and heritage. The Ngurin Resource Centre (now the Ngurin Aboriginal Corporation), established in the aftermath of the Harding River dam controversy, successfully negotiated for the employment of a Heritage Officer at the dam site. That position was jointly funded by the Public Works Department and the DAS.

Ngurin also received some compensation from the WA Government for the effects of the construction of the dam in the form of the leases to Ngurawaana and Gurru-Bunya. Ngurin played an important role in the West Pilbara Site Documentation Project from 1985 to 1989 and in negotiations with CALM for the training and appointment of Aboriginal rangers at Millstream.

The revival has coincided with, and been affected by a general movement of more traditionally oriented people from the desert core to its margins, to places such as Marble Bar and Jigalong, where they have exerted considerable influence on the Aboriginal communities in Port Hedland, Roebourne and Onslow. As Berndt (1979: 7) pointed out, these Desert people, who had kept many of their traditional beliefs intact, were a powerful source of motivation for the coastal people in revitalising their own culture.

As the coastal initiation rites have declined, the coastal languages have nearly died out. There are few remaining Ngaluma or Martuthunira speakers and Indjibarndi has become the dominant language spoken in Roebourne.

People of Ngaluma or Martuthunira descent there speak Indjibarndi as a first language, and it is spoken as a second language by other linguistic groups such as the Kurrama and the Pandjima, making Indjibarndi a *lingua franca* for the western Pilbara (Wordick 1982: 3). Young people in Roebourne today speak Indjibarndi but identify themselves as Ngaluma, Martuthunira or Indjibarndi *etc.* according to the tribal affiliations of their parents and/or grandparents.

4. PREVIOUS ARCHAEOLOGICAL SURVEY ON THE BURRUP PENINSULA AND ADJACENT ISLANDS

4.1 Areas surveyed

There have been numerous documented surveys of different portions of the Burrup Peninsula and adjacent islands. These surveys form two groupings; those which were associated with the Woodside LNG project, and those which were initiated in response to more general industrial and recreational land use. The approximate extent of documented archaeological survey is shown in Figure 4.1, noting the inset shown as Figure 4.2. Only those stippled areas associated with Woodside clearances, shown in Figure 4.2, can be deemed to have been surveyed in a systematic and comprehensive manner before this current project. The remaining areas had only been subject to preliminary reconnaissance.

In other words, a strong sample bias existed in the other studies due to both the stated aims of recovering as many sites as possible in a short time or by geographically restricting the survey to easily accessible areas.

The systematic survey and analysis carried out in the LNG zone is discussed in more detail in the next section. In addition to previous survey reports noted in the synthesis of the Woodside LNG work (Vinnicombe 1987b), a number of other sources have been identified in a desktop review. These sources include;

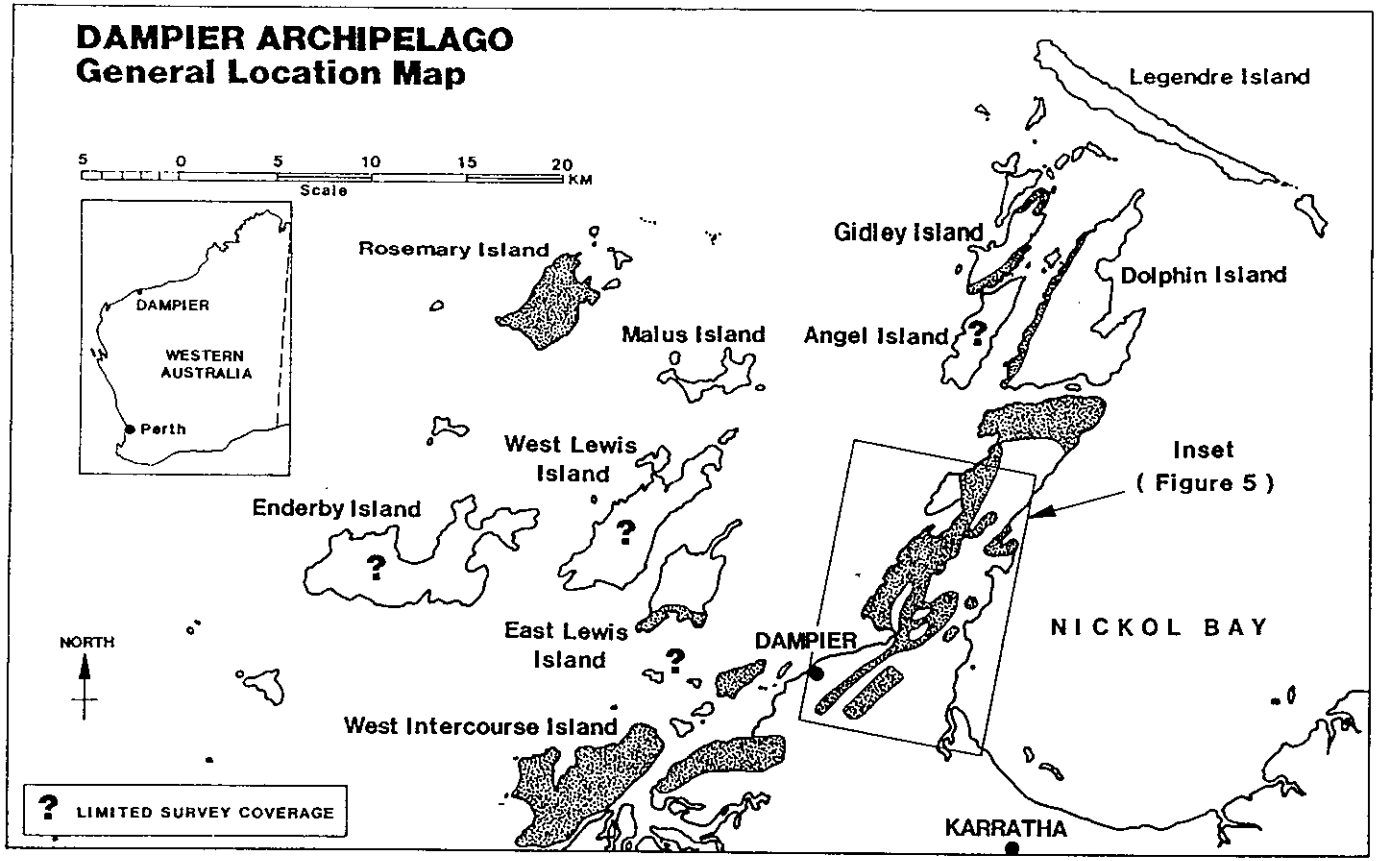

Figure 4.1 Approximate location of areas which have received some degree of survey coverage.

Note: Only some specific portions within the L.N.G. area have been systematically and comprehensively surveyed (see Figure 5).

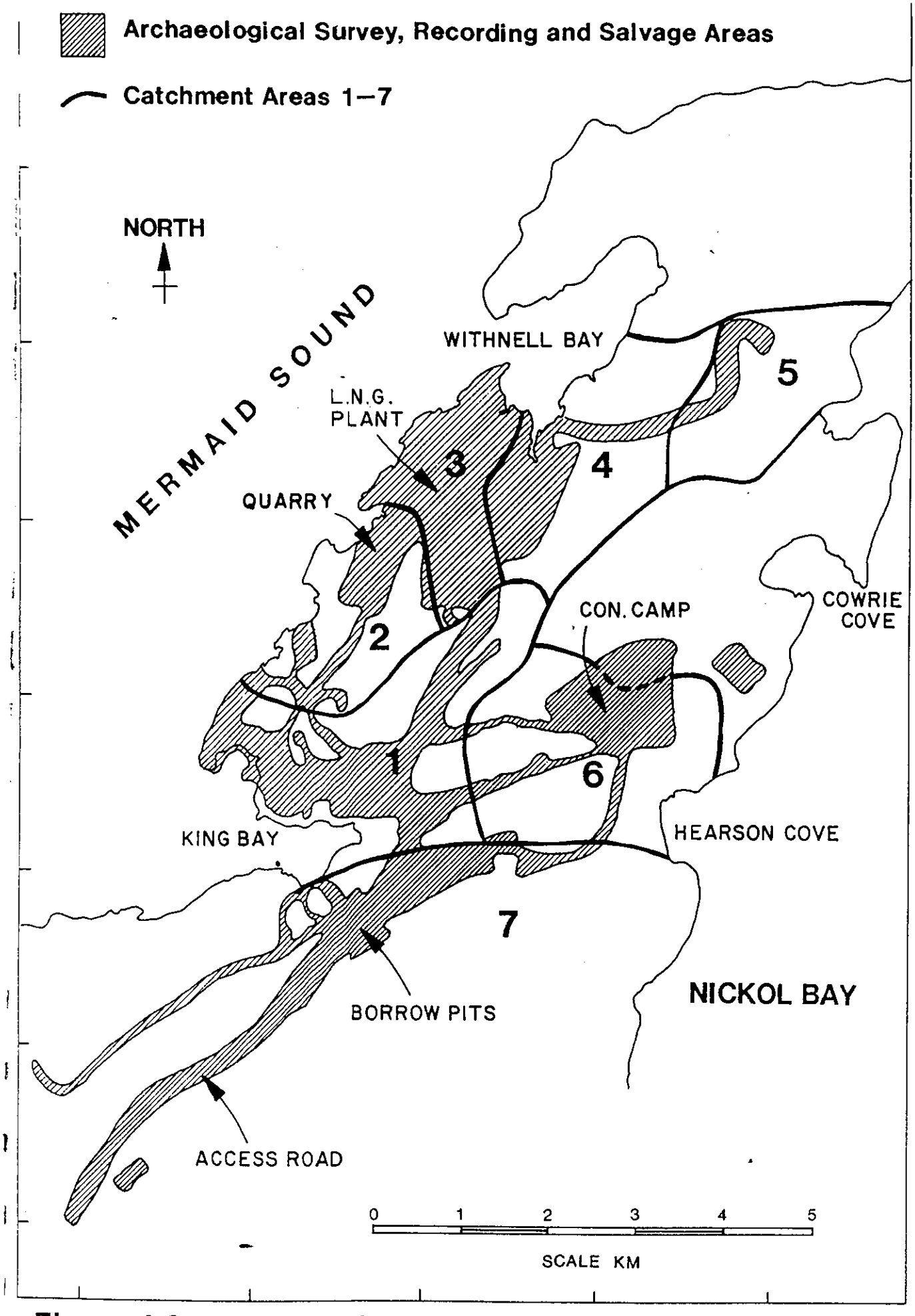

Figure 4.2 The shaded areas above demarcate the areas comprehensively surveyed as part of the L.N.G. project.

4.1.1 Bevacqua, R. 1974b. A limited coastal and peripheral survey of Gidley Island.

4.1.2 Bindon, P. 1978. A report covering the area south of Dampier next to and including some of West Intercourse Island.

4.1.3 Department of Aboriginal Sites. 1982b. A map showing sites of outstanding significance.

4.1.4 Dix, W. 1970. Field notebook I, containing information on sites near Dampier and on East Intercourse Island. Information in DAS site files.

4.1.5 Dix, W. 1973. Field note book II, Dampier Archipelago. Full information on the survey of Dix and Randolph along the western coasts of Burrup Peninsula and Dolphin Islands. Information mainly in DAS site files.

4.1.6 Lorblanchet, M. 1983. Report on intensive rock art recording in Dampier region.

4.1.7 Lorblanchet, M. 1985. Report on intensive rock art recording and analysis, dating of shell samples from Gum Tree Valley, including comments of Lyons Radiocarbon Laboratory and WA Museum.

4.1.8 Randolph, P. 1973. Field notebook I, site information from his survey with Dix along the western sides of Burrup Peninsula and Dolphin Island. Includes some information on where there are no sites to be found.

4.1.9 Vinnicombe, P. 1987a. Field notebook, CALM Survey, Dampier Archipelago. Sites recorded as part of a survey for CALM examining areas impacted by shacks on the islands. Recorded several new sites on Enderby, Rosemary and other islands.

It must be emphasised that the majority of surveys previously carried out outside the Woodside LNG project area have not been systematic. For example, in an early report Dix (1973: 3) states for Enderby Island "The island has been little inspected" and for East Intercourse "The island has not been fully inspected". It is usually not clear what survey strategy was used, what percentage of an area was covered or what the ground visibility was like. Some expeditions were also predominantly concerned with locating engraving complexes. For management purposes only the Woodside LNG areas have been appropriately surveyed.

The proposed area of the Pistol Range National Estate nomination lying to the south of the King Bay and Hearson Cove flats falls outside the proposed Burrup Peninsula zoning plan (Pilbara 21: 1992), and was thus not considered by this survey. This area has been proposed for reservation for conservation and heritage purposes and should therefore be systematically surveyed.

4.2 Excavation results and radiocarbon dates from the Burrup Peninsula

A total of 32 dates are available from the Burrup Peninsula, inclusive of the Skew Valley midden excavation (Lorblanchet 1976). These are largely on shellfish, with a few from charcoal samples.

They range from 6,740 ± 130 BP from *Terebralia* sp. (gastropod) to 260 ± 80 BP from *Anadara granosa* (bivalve). A more recent hearth date of 98.1 ± 7 BP is presumably from the post-contact period.

A broadly regional trend can be seen in the earlier dominance of mangrove gastropods such as *Terebralia palustris* and *Turbo cinereus* changing to the ubiquitous bivalve *Anadara granosa* by 3,840 ± 80 BP. The type sequence is from Skew Valley, although Georges Valley is at variance.

The earliest, although equivocal, individual date which precedes the last marine transgression is from Gum Tree Valley (Lorblanchet 1985) from a large shell of *Syrinx aruanus* with an uncorrected determination of 18,510 ± 260 BP. The shellfish was found wedged between engraved boulders near a prehistoric soak. A letter from the Curator of Palaeontology, WA Museum to M. Lorblanchet (Kendrick, dated 19/12/85) notes the Pleistocene shoreline was 130km distant at that time and that the shellfish was likely to have been transported while fresh, *i.e.* soon after death.

It must have been incorporated within some soil matrix for a majority of this period, otherwise it would have disintegrated. Given the growing number of Pleistocene dates of this order from the Pilbara uplands (Hughes, pers. comm; Strawbridge, pers. comm.) it is probably only a matter of time before Pleistocene sequences are obtained from the coastal Pilbara.

An unpublished honours thesis describing the excavation of a shell midden at Georges Valley, Burrup Peninsula (Harris 1988) is of some significance in that it addresses the issue of residential permanency on the Burrup Peninsula.

As Harris (1988: vi) notes;

> My specific objectives are to determine whether the Burrup Peninsula was inhabited on a permanent year-round basis or was only used for occasional seasonal forays and whether the nature of occupation changed over time.

Harris notes (1988: 73) that the Georges Valley shell midden was a task-specific temporary camp site. It is seen to have been occupied during the summer, due to the presence of immature oyster, *Saccostrea* sp. and adult crab, *Portunas pelagicus*. After island formation at 6,500 BP, *Terebralia* dominates the Skew Valley site. At Georges Valley, however, rocky platform species dominate the assemblage. There is some evidence for a decrease in sea level by 3,600 BP (Harris 1988: 69).

While microliths appear in the Skew Valley site by this date, they do not occur at Georges Valley. The shift to the sand/mudflat species, *Anadara*, at Skew Valley is not registered at Georges Valley.

By 2,500 BP at Georges Valley, rocky platform species decrease as sand/mudflat and mangal species increase. Other changes which occur by 2,500 BP include the appearance of *Anadara* artefacts and notched implements.

Finally, Harris (1988: 73) concludes;

> As an indirect result of sea level change, a change in shellfish exploitation occurred. This change in strategy took the form of an increasing interest in sand/mudflat areas and to a lesser extent, mangrove areas at the expense of rocky platform zones.

While the dominant regional archaeological pattern is for a shift to sand/mudflat species from mangal species by 3,600 BP. the Georges Valley excavation illustrates that at the local, site-specific level patterns of resource exploitation may vary.

4.3. Summary of the Western Australian Museum's Liquid Natural Gas Archaeological Salvage Programme on the Burrup Peninsula: Size and scope of survey

A major programmed of archaeological survey and mitigation was undertaken by the WA Museum during 1980 in response to the proposed impacts of the Woodside liquid natural gas project on the Burrup Peninsula. Those areas surveyed as part of that programme are shown in Figure 4.2, comprising approximately 15% of the Burrup Peninsula. The field component lasted over two years, with the analysis continuing until the end of 1982. A lengthy descriptive report of this work was published two years later, along with a large format map folio (Department of Aboriginal Sites 1984a, 1984b).

A more interpretative synthesis of all site data, with a comprehensive bibliography, was produced by Patricia Vinnicombe (DAS), three years later (Vinnicombe 1987b). This report represents the first effort to discuss the overall archaeological patterning of the Peninsula and, as such, is summarised in detail. All sources identified by Vinnicombe are provided in the bibliography. The present report provides survey results which, in some instances, vary from those summarised by Vinnicombe from the Museum's salvage programme.

4.4 Summary descriptions of site types and their topographic context recorded from the Museum salvage project

Vinnicombe (1987b: 45) explains how the locational analysis of 720 sites documented during the survey and salvage programme demonstrates clear clustering near prime economic resource zones, *i.e.* semi-permanent water sources, creeklines and the near-littoral zone.

The most common archaeological sites encountered are engravings, followed by open occupation sites, stone features, grinding patches and utilised rock shelters. On the basis of the site distribution maps (DAS 1984b; and see Figures 3 and 4) Vinnicombe (1987b: 48) notes that;

4.4.1 The majority of engravings are clustered on accumulations of granophyre boulders on Inland Plains (25.5%), followed closely by Near Coastal Plains (23%) and Inland Plateau (17.7%). Stone features follow a similar pattern.

4.4.2 Open artefact scatters (with or without shell) occur predominantly on the Inland Plain (25.21%), as do seed grinding patches (32.6%), both closely associated with water sources. Interestingly, occupation sites are relatively evenly distributed across the other zones suggesting at least transient occupation and use of all ecotones on the peninsula.

The focus on the Inland Plain geomorphic zone is likely to represent its transitional and optimal position between the coastal and inland resource zones.

4.4.3 Finally, quarries correlate with fine-grained granophyre seams with ubiquitous low density *in situ* flaking occurring wherever medium and coarse-grained granophyre occurs.

Importantly, the average overall density of archaeological sites is 34.3/km^2, one of the highest recorded in Australia (however, compare the present survey density of 56.7 sites per square kilometre).

Site definitions and terms for the LNG project are defined at length by Vinnicombe (1987b: 21-24). She distinguishes sites as separate entities when separated by 25m or greater.

Isolated artefacts may comprise either stone implements, manuports or shellfish.

Quarry sites are exposures of fine-grained granophyre which have had material removed through flaking, block removal along natural fractures and heat fracturing (application of fire).

Stone tool manufacturing sites are reduction areas or factory sites which do not contain evidence of the secondary trimming of flakes.

Monospecific shell scatters are seen as meal time halts, so-called "dinner time" camps, usually associated with companion economic activities.

Campsites vary in size from 100m^2 to 5,000m^2 and are usually located near a water source. They may comprise scattered or mounded shell and stone artefacts and, in the case of larger base-camps, seed grinding bases, exotic stone and discrete activity areas.

Stone tool assemblage variability is determined by site function and the proximity of favoured quarry-derived materials (after Veth 1982).

Engravings have been formed by pecking, scratching and rubbing into rock cortex and the number of individual motifs varied from 1 to 1,177 per site. Most sites have less than 10 motifs.

Thematic content of the engravings was as follows;

unidentified	34.9%
non-figurative	26.5%
human	10.5%
marine fauna	8.2%
terrestrial fauna	6.2%
avifauna	13.7%

While speculative ages of 17,000 BP and greater have been suggested for the engravings on the basis of the presence of desert varnish on engraved surfaces, this must await relevant testing and analysis (Dragovich 1984a, 1984b, pers. comm.) The oldest confirmed date for the rock art is 3,800 BP, where shellfish over-lies an engraved surface at Skew Valley.

Grinding patches usually occur near water sources, mainly on horizontal bedrock, expressed as a circular to oval smooth depression 20-25cm in length.

Stone features include standing stones, pits and stone walls. While the former are seen to have ritual or mythological significance, the latter two are likely to have been hunting hides, tuber extraction sites and possibly moisture retaining devices for the encouragement of monsoonal vegetation.

Rockshelters are extremely rare; only seven with surface occupation were recorded. Two were excavated to 30cm depth and contained shallow, unstratified deposits.

The oldest date obtained was 4,760 ± 100 BP (site P1843). Broadly based, yet sparse, economic faunal remains in these shelters include euro, rock wallaby, black flying fox, northern quoll, fish, crab and bird.

4.5 Research Focus of the Museum's salvage programme

Vinnicombe (1987b: 50, 54) identifies a number of problem areas deserving further attention. In summary, they include;

4.5.1 an examination of changing patterns of subsistence exploitation over time,

4.5.2 clarification of the seasonality in which the Burrup Peninsula was used, and

4.5.3 the origin and purpose of the stone structures.

Further multi-factored rock art and site catchment analysis is also advocated.

5. SURVEY AND SAMPLE METHODOLOGIES USED FOR THE RECOVERY OF SITE DATA IN THE CURRENT PROJECT

5.1 Development of an Appropriate Survey Strategy

The development of an appropriate survey strategy for the purposes of identifying areas of outstanding archaeological and cultural value involved seven stages of research. These were;

5.1.1 Review of all previous sample techniques used on, and adjacent to the Burrup Peninsula, to judge their relative effectiveness,

5.1.2 Critique of sample techniques for the size and configuration of survey area,

5.1.3 Evaluation of simulation of regional sampling designs performed on known archaeology of the Burrup Peninsula,

5.1.4 Definition of time/money constraints,

5.1.5 Field trial of ideal survey strategy actually on the Burrup Peninsula,

5.1.6 Consultation with Ngaluma concerning strategies that would be culturally acceptable and appropriate,

5.1.7 Refinement of recording forms and field mapping.

5.2 Survey strategy used in the Liquefied Natural Gas salvage programme

Archaeological surveys preceding the LNG mitigation programme did not clearly define what sort of sample techniques or survey coverage had been employed, nor surface visibility values. In contrast, the LNG mitigation programme employed systematic linear and meandering traverses, parallel and at no greater distance than 20m apart, in addition to more purposive techniques.

It was estimated that a recorder employing the systematic technique can cover an area of approximately 0.3km^2 per day in the Withnell Bay and King Bay area, and record sites to DAS standards, *i.e.* equivalent to Aboriginal Heritage Commission recording requirements. More time would be required to record sites for research purposes. A number of review documents (*e.g.* Veth 1982; Vinnicombe 1987b) note that the rate of site recovery using the closely spaced traverses is extremely high, the only category of cultural material likely to be substantially under-represented being isolated artefacts. The boundaries of the proposed survey area are shown in Figure 1.1. Use of a wide range of sampling techniques was possible given this area's configuration, including systematic transects, random transects, large random quadrats and small random quadrats (*cf.* Schiffer *et al.* 1978).

5.3 Sampling simulation study for Burrup Peninsula

There is a need for properly designed sampling to determine the nature, extent and condition of the archaeological resource (*cf.* Bowdler 1981, 1984). A useful sampling simulation exercise has been conducted on the Burrup Peninsula (Mattner 1989). This used the detailed map folio (DAS 1984b) produced from the LNG survey results, focusing on two specific zones; North King Bay (2.27km^2) where 178 sites had been recorded, and South Withnell Bay (3.91km^2) where 250 sites had been recorded. The two areas were also combined for further simulations.

Four sampling techniques were tested by simulation in the three sample areas (Mattner 1989:45).

SRQ; Small random quadrats, 250m square (0.0625km^2);

LRQ; Large random quadrats, 500m square (0.25km^2);

RT: Random transects, 100m wide, aligned east-west;

and

ST: Systematic transects, 100m wide, aligned east-west.

These sample strategies were evaluated at three rates of coverage (20%, 33%, 50%) and replicated 25 times to produce sampling distributions. The strategies were evaluated on their ability to provide precise and accurate estimates of the number of sites in a given area, in addition to how comprehensively the site types were sampled. Definitions for acceptable results (Mattner 1989:56) are as follows;

- A desirably accurate strategy is defined as one that estimates the total number of sites ±10%,

- Precision is measured by the coefficient of variation, the smaller the CV the more precise the sample, and

- Comprehensiveness is measured by counting the number of times, over 25 repetitions, that one example (or more) of a site type fails to be discovered.

In summary, random and systematic transects were found to be the most accurate, particularly at low sample fractions (*e.g.* 10%). Systematic transects were the most precise technique, irrespective of the size of the sample area or sample fraction. Transect designs also proved to be the most comprehensive, with systematic transects rating the best. In short, transects are superior to quadrats in recovering sites (Schiffer *et al.* 1978). These results are noted to be in general agreement with other studies (Judge *et al.* 1975; Plog 1976).

In conclusion, Mattner (1989:78) notes that:

> In the largest [combined] sample area, about 6km^2, a 10% coverage was sufficient for one design, Systematic Transects, to provide comprehensive discovery of a representative sample of site types, with moderate accuracy and precision.

Therefore, a sample coverage greater than 10% will improve the accuracy and precision of results.

5.4 Trials of proposed survey strategy

This proposed survey technique was trialed on the Burrup Peninsula by several archaeologists during the week of 21st to 28th April 1992. Transects were made from the coast at the Watering Cove embayment, to the west, up the steep scree slopes of Mt Wongama (one of the Burrup Peninsula high points) and back to the coast again. Through the use of aerial photos and careful compass bearings the transects actually covered were within 2% of true bearings, as plotted. A combination of centre-line flagging and alternate zig-zag traverses within two adjacent 50m wide easements allowed each of two archaeologists to survey at the appropriate rate and to keep to a true bearing. Zig-zagging is clearly more efficient in negotiating the tortuous scree-dominated topography of the Burrup Peninsula and satisfied the arbitrary 25m distance threshold, established during the LNG project, as separating individual site boundaries.

Another objective of the field visit to the Burrup Peninsula was to attempt to use draft site recording forms, designed to be compatible with the existing LNG data base at the WA Museum. There were eight proposed site forms covering engravings, artefact scatters, stone arrangements, rock shelters, grinding surfaces, shell midden/scatters, quarry reduction sites and isolated artefacts. Field trial of these forms resulted in amendments.

5.5 Actual field survey techniques

The survey area was actually covered following the proposed systematic transect format outlined in Figure 5.1. The survey team comprised two, sometimes three, archaeologists and a variable number of Aboriginal consultants. A total of 30 Aboriginal consultants were involved in the field recording programme at different times.

Using the colour laser plots of each transect , a datum point was established on the ground at the western end of the transect. One field worker then flagged a centreline, while two archaeologists examined the 50m wide easements on either side of this centreline using zig-zag traverses and purposive inspections of any likely sites or features.

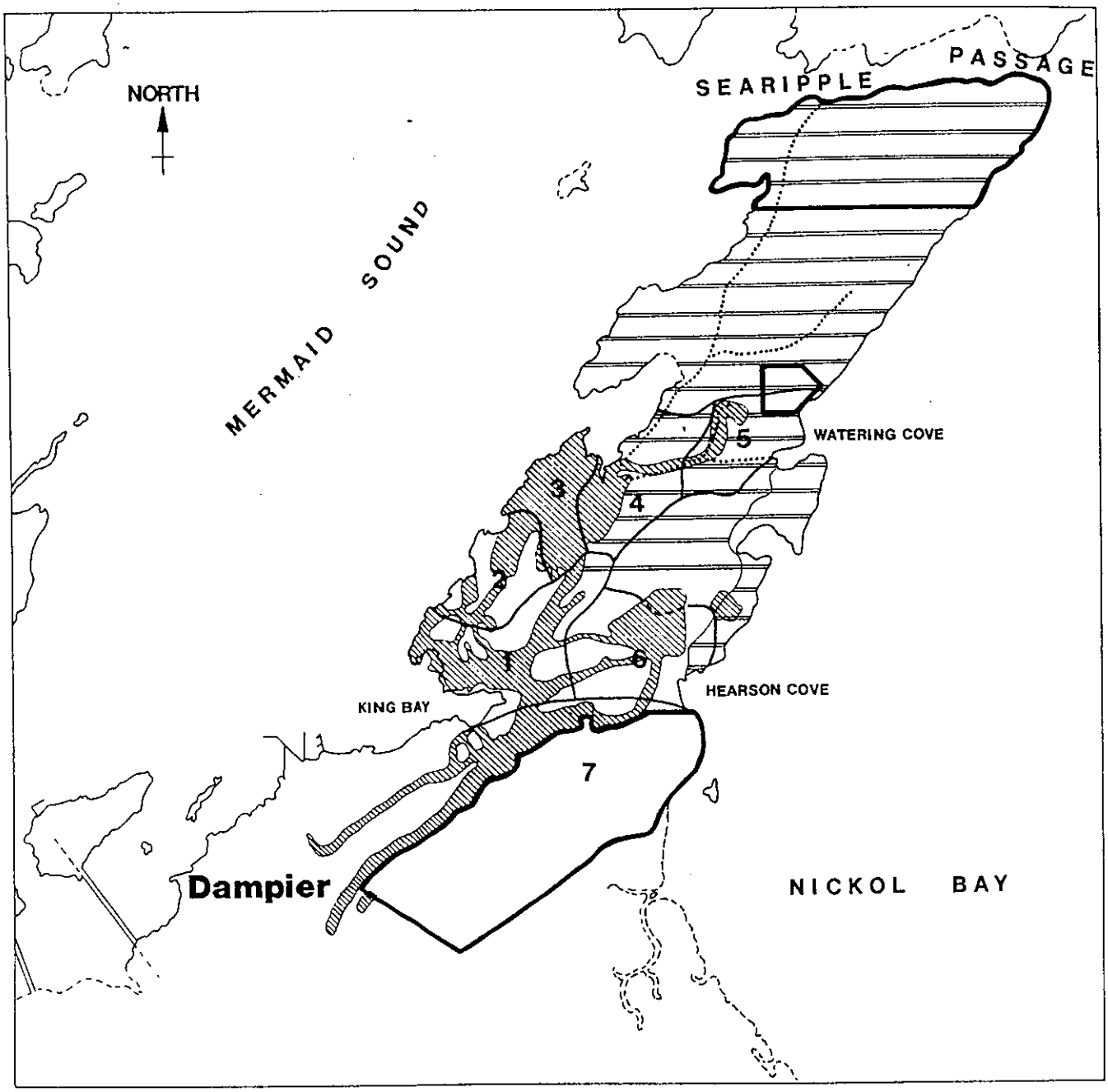

Figure 5.1 Location of proposed 100 m wide survey transects, Burrup Peninsula.

While compass readings were taken to establish the centreline when flagging, the peripheral distortion at the edges of the aerial photographs meant direct interpretation of features and the relationship of drawn lines was necessary on the ground. Transects were surveyed methodically from south to north. A number of base camps were established in the central and northern portion of the Burrup Peninsula, providing the fieldworkers with daily access to successive portions of uncompleted corridors.

6. RECORDING METHODS; SITE FORMS, AERIAL PHOTOGRAPHY PLOTS, DATABASE TYPE AND STORAGE

6.1 Development of coded site recording forms

In the review document by Veth and Bradshaw (1992) a total of eight site forms were presented, one each developed for different "site types" expected. Attributes to be recorded were consistent with those used by various recording teams on the LNG between 1980-81; however, considerably more detail and consistency was sought in the present field recording programme.

The different site types included engravings, shell middens or scatters, artefact scatters, stone arrangements, grinding surfaces, quarry/reduction sites, rockshelters and isolated artefacts. It became apparent after initial field visits and trials that the forms needed to be collapsed into a single form. The eight page format was awkward and poorly accommodated multi-featured sites.

Advice was sought on specific sections of the form. For example, in relation to the engraving section, Dr Diedre Dragovich (Department of Geography, University of Sydney) was contacted about critical features of rock varnish that were relevant to her on-going analyses.

The field form was laid out in a manner which would allow information to be entered into a database rapidly at a later date. Each field and major variable has a specific designation, suitable for most database systems.

Sites recorded on early drafts have been transferred onto the final version. The form was designed to cover four sides of a folded A3 page, with the fourth side being for site plans or motif sketches.

In designing the form, an effort was made to strike a balance between reducing the amount of free-form text fields, and a restrictive tick-box format. The tick-box format was used to reduce the amount of writing required in the field (of things like 'fine grained granophyre'), and to enable figures useful for analysis to be generated quickly. Where possible with the tick-box format, an 'other' (describe) category was included so that the options were not restricted.

6.2 Large scale aerial photographs, calibration of field transects and field plotting of site boundaries

Large scale aerial photographs of the Burrup Peninsula were produced at a scale of 1: 5,000. This photomosaic was used as the base for aligning survey transects, for producing colour laser field copies and for marking permanent site boundaries by scoring the film emulsion.

Survey transects were drawn on the photos to scale at 500m intervals. These transects were labelled consecutively, south to north, as transects A to X. Each transect centre line was calibrated in 25m intervals and these were used as reference points for any sites located. For example, an artefact scatter located north of, but within, transect T at 1100m east would be noted as T1100N.

Three copies of A4 format colour laser prints were made of each transect, with usually at least 2cm overlap between consecutive prints to control for distortion. These copies were laminated and used as field guides to direct the actual transects and to plot site boundaries when located. Site boundaries were marked by holes through these field photographs.

On the rear of the photos, continuous rectangular white labels were aligned along the transects so that when boundaries were pinned, these also appeared on the labels. The labels could then be annotated, as required.

6.3 Use of database as permanent file system

Filemaker Pro data base software was selected due to its ability to easily accommodate a large number of fields; 154 in this study. It also allows substantial text to be accessioned for site descriptions. This can be collapsed to single line presentation in summary hard copy format. This database is widely available and economical; all of the data for the nearly 500 sites recorded in this project is contained on a single floppy disk.

An additional advantage of the database is the ability to carry out virtually unlimited computations between fields within single files (individual sites) or between files.

6.4 Arrangements for storage of cultural data with various parties

After consultation with local communities (see Section 2), it was agreed that unrestricted versions of the report and database would be forwarded to the Australian Heritage Commission, the Department of Aboriginal Sites, Department of Conservation and Land Management, Ngurin Aboriginal Corporation, the Burrup Peninsula Board of Management, and key participants in the field recording programme.

A large volume of site files, aerial photographs, black and white proof sheets, colour slides, files of correspondence and some restricted pictorial material has now been gathered on behalf of relevant Aboriginal groups (see Appendix 1 on CALM's position statement to Ngaluma people). This material is now in the possession of the Ngaluma community of Roebourne.

7. SUMMARY RESULTS OF SYSTEMATIC SAMPLE SURVEY

A total of 498 sites were recorded during the survey. The locations of these sites is shown in Figure 7.1. These sites were located within (or had at least one boundary intersecting) a total of 87.83km of transect, 100m wide, totalling 8.78km^2. This gives an average site density of 56.7 sites per square kilometre, considerably higher than the average of 34 sites recorded during the earlier LNG programme. It should be noted that a considerable number of these sites contain multiple features. For example, stone pits often occur in groups ranging from two to ten. Engraving complexes commonly have shell and stone artefact scatters in association. Table 7.1 provides a breakdown of different features recorded at the 498 sites.

	No.	%
Engraving complexes	156	19.9
Grinding complexes	43	5.5
Shell accumulations	61	7.8
Artefact scatters	164	20.9
Quarries	47	6.0
Stone pits	264	33.7
Standing stones/arrangements	38	4.8
Rock shelters	6	0.8
Other (features)	5	0.6
TOTAL:	784	100.0

Table 7.1: Breakdown of Different Cultural Features at Sites

Clearly the dominant categories of cultural features are stone pits, artefact scatters and engraving complexes. The very high representation of stone pits (33.7%) is of interest, given their presumed role as hunting hides. This aspect of terrestrial resource usage has been under-represented in previous surveys, primarily because of the near-coastal focus and the lack of systematic survey of interior uplands. Equally, the surprisingly high proportions of artefact scatters, equal to that of engravings, likely reflects previous bias towards the recording of engravings. The low number of rockshelters recovered is consistent with previous results, stressing the paucity of such stratified sites on the Burrup Peninsula. Of the six newly recorded shelters, only two are likely to contain substantial cultural deposits with depths greater than 15-20 cms.

The location of sites by geomorphic zones is non-random, even taking into account the different areas occupied by these zones. Table 7.2 presents data on site location by zone.

	No.	%
Coastal	48	9.6
Tidal mudflats	14	2.8
Coastal plain	16	3.2
Coastal or near coastal uplands	104	20.9
Near coastal valley	40	8.0
Inland plain	12	2.4
Inland valley	96	19.3
Inland highlands	168	33.7
TOTAL:	498	100.0

Table 7.2: Distribution of Sites by Geomorphic Zone

The results of this site distribution stand in stark contrast to those noted by Vinnicombe (1987b); even if weighting for differences between the actual areas of the geomorphic zones between study areas is taken into consideration. The Inland Plain which was identified in the LNG survey as an optimal location with numerous sites contains only 2.4% of sites in the present study. Vinnicombe notes that over 25% of all artefact/shell scatters within the LNG survey area were located within the Inland Plain; over 32% of grinding patches occurred there also. The present survey notes that only 2.1% (n=9) of these sites are located on this unit. This discrepancy can largely be attributed to the biases inherent in the Museum's sampling of predominantly near littoral and creekline-rich areas in the previous Withnell Bay and King Bay areas. When sampled throughout the rest of the Peninsula, the Inland Plain unit is the least productive zone. This challenges Vinnicombe's (then reasonable) assertion that the Inland Plain represented an "optimal" location between important inland valley and littoral ecotones.

Table 7.2 illustrates that the inland highlands contain the highest proportion of sites; many of these comprised of the ubiquitous stone pits (see below). The most "populous" zones are the coastal or near coastal uplands zone and the inland valley and highlands zones. It is argued that these zones represent "optimal" locations and in fact contain the greatest number *and* diversity of cultural features, particularly those which relate more specifically to habitation.

This becomes apparent when the various cultural features are broken down into geomorphic zones, as shown in Table 7.3. The fact that the Inland Plain only contained 20 cultural features (2.6% of all features recovered) and that few of these sites were large (see below) argues against this zone's primacy in local Aboriginal settlement rounds on the Burrup Peninsula.

Not surprisingly the near coastal zones, comprising coastal and tidal mudflats and Near Coastal Valleys, contain the highest proportions of shell accumulations (20.8%, 26.7% and 11.1% respectively), reflecting the proximity of shellfish supply areas.

Interestingly, engraving complexes are dominant within the valley systems, in the Near Coastal Valley and Inland Valley zones (28.4% and 26.4%). An apparent correlation between higher numbers of engraving sites, which also contain larger numbers of motifs, and semi-permanent rock pools and creekline systems within the valleys was noted. This is consistent with observations from the wider coastal Western Pilbara. The presence of water retaining depressions within the valley systems and the greater protection afforded from evaporation makes these localities the most reliable water points on the Burrup Peninsula. The concentration of motifs within the valleys, and specifically nearer the more reliable water points (whether surface pools or subsurface soakage) is common in semi-arid and arid portions of Australia.

Percentage in Brackets (across)	Engravings	Grinding Surface	Shell Accumulation	Artefacts	Quarry	Stone Pit	Stone Arrangement	Rock-shelters	Other	Sub-Totals
Coastal	18 (18.75)	8 (8.33)	20 (20.83)	26 (22.08)	10 (10.42)	6 (6.25)	5 (5.21)	2 (2.08)	1 (1.04)	96
Tidal Mud-flats	5 (16.67)	4 (13.33)	8 (26.67)	9 (30.00)	4 (13.33)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	30
Coastal Plain	1 (3.70)	1 (3.70)	2 (7.40)	9 (33.33)	3 (11.11)	8 (29.63)	2 (7.43)	0 (0.00)	1 (3.70)	27
Coastal or Near Coastal Uplands	29 (19.46)	5 (3.36)	7 (4.70)	29 (19.46)	4 (2.68)	64 (42.95)	8 (5.37)	2 (1.34)	1 (0.67)	149
Near Coastal Valley	23 (28.40)	11 (13.58)	9 (11.11)	10 (12.35)	4 (4.94)	18 (22.22)	6 (7.40)	0 (0.00)	0 (0.00)	81
Inland Plain	2 (10.00)	1 (5.00)	2 (10.00)	6 (30.00)	1 (5.00)	7 (35.00)	1 (5.00)	0 (0.00)	0 (0.00)	20
Inland Valley	38 (26.39)	6 (4.17)	5 (3.48)	29 (20.14)	10 (6.94)	50 (34.72)	6 (4.17)	0 (0.00)	0 (0.00)	144
Inland Highlands	40 (16.88)	7 (2.95)	8 (3.38)	46 (19.41)	11 (4.64)	111 (46.84)	10 (4.22)	2 (0.84)	2 (0.84)	237
									TOTAL:	784

Table 7.3 Distribution of cultural features by geomorphic zone

For example, some of the largest rock art complexes known from the adjacent east Hamersley Ranges and the central Western Desert are found near major water points such as Durba Hills and the Carnarvon Ranges.

It is clear from the sub-totals in Table 7.3 that a disproportionately large number of cultural features are contained in the two contiguous zones of Inland Valley and Highlands (48.6%, n=381). Additionally, the highest number of engraving, artefact and quarry features are all found within these two zones.

While stone pits are numerically more dominant in the Inland Highlands Zone, with 42.0% of all pits recorded here, the distribution of stone arrangements (including standing stones) between all zones is surprisingly consistent.

The tethering of sites to water sources at a local scale, where these are discernible, can be seen in the proportional distribution of sites at increasing distances from different water sources (Table 7.4).

Proximity to water source	No. sites	% sites
<50m	92	18.5
50-100m	45	9.0
100-200m	30	6.1
>200m	68	13.6
Unknown	263	52.8

Table 7.4: Distribution of Sites by Distance from Water Sources

The majority of sites of known distance from water sources (47.2%) are located within 100m of a water source. Of those sites located greater than 200m from a source, the majority of their cultural features are stone pits, arrangements and quarries, *i.e.* task-specific sites, where a constant water source was not essential.

Of those sites which could be given distances to discernible water sources, the greatest proportion are associated with unconsolidated rocky creek beds and channels with calcrete bases.

Sites were often located upon a variety of substrates (*e.g.* sand/silt adjacent a medium-grained granophyre outcrop). The results of substrate tabulations are provided in Table 7.5. Not surprisingly the granophyres, as the most common lithology on the Burrup Peninsula, have the highest proportions, this accentuated by the preferred use of medium-grained granophyre for engraving. Almost all of the sites on the sediment (sand, mud, silt) category comprise shell/artefact scatters.

Substrate type	No. sites	% sites
Porphyritic granophyre	18	3.2
Fine-grained granophyre	21	3.8
Medium-grained granophyre	322	57.8
Coarse-grained granophyre	103	18.5
Granite	8	1.4
Gabbro	18	3.2
Other	19	3.4
Sediments	48	8.6

Table 7.5: Breakdown of Sites by Substrate Types

As Figure 7.1 illustrates, there is a huge range in the size of sites as these were mapped from the transect corridors. For example site V34, located within a large valley on the north east of the Burrup Peninsula extends for over one kilometre north/south and continues down most minor tributaries/valleys which brachiate from the major valley. Almost continuous galleries of engravings (estimated number of >100,000 motifs), shell/artefact scatters, stone arrangements and quarries make this one of the largest site complexes recorded in the Pilbara. Similarly sized, yet less dense, complexes can also be seen in the Conzinc and Withnell Bay catchments on the western littoral.

More commonly, engraving and shell/artefact complexes extend from 50 to 200m along their maximum dimensions, and these may be seen within most parts of Figure 7.1.

8. SUMMARY DESCRIPTIVE STATISTICS FOR MAJOR SITE ATTRIBUTES AND ASSEMBLAGE COMPOSITION

8.1 Engravings

The location of engraved motifs on different portions of boulder slopes/piles is fairly even, with slight bi modality in the preference displayed for lower slope and apex of rocky rises. (Table 8.1.).

Location	% sites
Lower 1/3 of boulder slope/pile	22.2
Middle 1/3 of boulder slope/pile	17.9
Upper 1/3 of boulder slope/pile	16.0
Top of boulder slope/pile	20.2
Isolated boulder	5.4
In drainage channel	6.6
Other	11.7

Table 8.1: Location of Engravings on Rocky Rises

The proportions of engravings on isolated boulders and within or adjacent to drainage channels is similar, only comprising a total of 12.1% of all engravings. Clearly, most engravings are located on larger rock piles, rises and ridges; these being distinguishable features and often having larger site complexes in association, such as artefact scatters on adjacent flats.

The mean distance of engraved motifs from the edge of rock slopes and pits is 7.2 m. This is consistent with the engravings being fairly evenly distributed.

There is a distinct preference in selection of engraving surfaces for medium sized boulders, as these occur on varied portions of the rocky rises. The mean values for all boulders engraved (where measured) are length 1.2m, breadth 0.9m and height 0.4m. This preference may be related to the fact that such sized boulders have a high ratio of area of weathered cortex to mass, are of suitable size for typical engraving themes and are common on the valley scree slopes.

Attempts were made to measure the depth of engraved grooves on a representative selection of motifs. Due to the very large number of motifs at some sites, however, and highly variable depths of grooves over the rock face, these figures are only a guide. The mean depth of grooves was 2mm, with the maximum just over 10mm.

The recording of desert varnish was equally purposive, as accurate controls and examination of individual motifs to the required level was well beyond the scope of this study. Nevertheless, data collected at a large number of sites again provides a useful guide (Table 8.2.).

Varnish attribute	Values
No. engravings with varnish	14 (total)
% varnish cover within engraving	11% (mean)
% varnish cover next to engraving	10% (mean)
Reflective/glossy appearance	68 (total)
Non-reflective appearance	37 (total)
Black appearance	59 (total)
Dark red appearance	50 (total)

Table 8.2: **Values for Desert Varnish Attributes**

From this sample, it is clear that engravings that have unambiguous desert varnish within their engraved surfaces are not common (9% n=14) and that the actual coverage of these engraved areas is also quite low (mean = 11%). The values for reflectiveness, as an indicator of clear silica gloss, are higher than non-reflective. The colour of the varnish is slightly more black, on average, reflecting a higher manganese content.

The actual number of individual motifs contained within the 156 engraving sites recorded is difficult to assess, as the very large complexes such as V34 require much more detailed recording than was possible in this current project. If the very large complexes of an estimated 10,000+ engravings are treated separately, the remaining 150-odd sites have a total of 2,581 recorded motifs. The average number of motifs occurring at fully recorded sites is 15.8.

When the motifs were organised (after Maynard 1977) into geometric and figurative categories, the breakdown is fairly even between categories (Table 8.3). These may be compared (Table 8.4) with the results of Vinnicombe (1987b).

Motif style	% motifs
Geometric	21.1
Naturalistic	35.1
Anthropomorph	24.4
Patches, striations/unidentified	19.4

Table 8.3: Motif Style Breakdown for Present Survey

Motif style	% motifs
Geometric	26.5
Naturalistic	28.1
Anthropomorph	10.5
Patches, striations/unidentified	34.9

Table 8.4: Motif Style Breakdown for LNG Survey (Vinnicombe 1987b)

The most noticeable difference between the tables is the lower proportion of anthropomorphs in the LNG survey and the higher proportion of unidentified motifs. The proportions of geometric to naturalistic are surprisingly similar. The anthropomorphs were extremely varied in form and ranged from simple stick figures to complex outlined "spirit" figures, gracile elongate-limbed dancing figures to intricately engraved "archaic" faces with detailed infill and full facial morphology. Groups of similarly styled figures were common, often marking the entrance or confluence of a creek-system.

The size of motifs was strongly skewed, with the majority falling in the <30cm category (Table 8.5). Clearly few motifs are "large"; although often an impression of largeness is gained when looking at engraved panels, due to clustering and multiple superimpositions.

Motif size class	% motifs
<30cm	71
30-60cm	23
>60cm	6

Table 8.5: Size Distribution of Engraved Motifs

A breakdown of the techniques used in the execution of the engravings shows an unexpected dominance of techniques other than pecking. Again, the superficial impression is that pecking accounts for the majority of the engravings, as these are generally the most intricate, striking and prominent. As Table 8.6 shows, scoring is the most common technique, with abrasion the second most prevalent.

Engraving techniques	% motifs
Pecked	26
Scored	42
Abraded	29
Other	3

Table 8.6: Techniques used for Execution of Engravings

Finally, the distribution of different motif types in the various geomorphic zones is shown in Table 8.7. Three main trends are apparent from these figures. Firstly, the proportional representation of naturalistic motifs between geomorphic zones is remarkably consistent. Not unexpectedly, marine-oriented themes dominate the near littoral zones, while macropods and other terrestrial fauna dominate the more interior zones. Secondly, the highest proportion of geometric motifs is found within the interior valleys, these often recorded in proximity to obvious water sources. Their significance in symbolising mythological/religious phenomena in Pilbara rock art has been noted by a number of authors. Lastly, the anthropomorph category is proportionally best represented in the contiguous coastal plain and coastal uplands units, where they often appear in prominent positions. Good examples occur near the main access route through the Conzinc Bay catchment.

	Types of Motifs			
	Geometric	Naturalistic	Anthropomorphic	Patches/ striations unidentified
	%	%	%	%
Coastal	24.3	30.0	24.3	21.4
Tidal mudflats	18.2	36.4	18.2	27.3
Coastal plain	13.3	33.3	33.3	20.0
Coastal or near uplands coastal	24.1	32.2	32.3	11.3
Near coastal valley	21.2	30.8	28.8	19.2
Inland plain	10.0	33.3	23.3	33.3
Inland valley	29.7	27.0	20.3	23.0
Inland highlands	18.2	28.6	28.3	26.0

Table 8.7: **Proportions of Types of Motifs by Geomorphic Zones**

8.2 Artefact scatters, quarries and grinding patches

These features have been described from the LNG area in detail by Veth (1982, and also 1989). In summary, the 164 newly located artefact scatters are generally similar in assemblage composition, formal artefact attributes and size range to those previously located.

The largest and most complex open artefact scatters are located near more permanent water sources in the valleys and adjacent creeklines crossing the plains. In addition, sizeable scatters are associated with large shellfish scatters at prime coastal zones (mainly dunes) at places such as Watering Cove.

The dominant lithologies found at nearly all sites are the (locally available) granophyres, with a preference for the fine-grained type in the edge-altered classes (see Table 8.8). The majority of isolated artefacts found off-site are of porphyritic and coarse-grained granophyre. Although quartz and dolerite occur in small and specific areas on the Burrup Peninsula and may produce durable implements, they only comprise some 5% of all artefacts.

As with the LNG survey, the paucity of formal tools is noticeable, as it the minimal degree of edge alteration and the generally multifunctional appearance of the implements. The exotic stone sources which are known to occur off the Burrup Peninsula, chert silcrete, and quartzite, only comprise 0.5% of all artefacts.

Previous work has demonstrated that the quarry-derived lithologies (the fine- and medium-grained granophyres) comprise the bulk of lithic materials found on the habitation sites within the Burrup Peninsula. The so-called "non-quarry" sources (after Gould 1977), such as porphyritic and coarse-grained granophyre, are poorly represented at these sites.

The general lack of implements which might be classed in the Australian Small Tool Tradition (*i.e.* those that were obviously hafted in composite tools) is a recurring observation on the Burrup Peninsula; while local lithologies do not favour their manufacture, absence of hafted tools even as curated or transported items, is surprising.

Lithology	% represented
Porphyritic granophyre	2.4
Fine-grained granophyre	31.6
Medium-grained granophyre	46.6
Coarse-grained granophyre	12.0
Quartz	2.0
Dolerite	3.4
Chert	0.5
Gabbro	0.8
Other (describe)	0.7

Table 8.8: Proportions of Different Lithologies at Open Artefact Scatters

Cores have little evidence for platform preparation, with perhaps rotation along the one platform (for the production of large blades) the most noticeable feature. The proportions of single to multi-platform cores are 44% to 55%, with little evidence for core exhaustion. About 1% of cores were bipolar, almost all in quartz.

The general impression is that stone resources have only been subjected to moderate intensities of exploitation and that economising and recycling behaviour has been at a minimum. This is reinforced by the high proportion of intact flakes in the debitage class (54.1%), versus broken flakes - both lateral and longitudinal (19.6%) and debris (26.4%). Equally, only 2.4% of artefacts have had any macroscopic edge modification. This is at the lowest end of values noted for habitation, or even task specific sites, in the semi-arid zone (*cf.* Veth 1989).

Artefact density is highly variable, with an average density of seven artefacts per square metre. This is comparable with the LNG survey area.

Grinding patches were generally associated with artefact scatters near obvious water sources, with a total of 180 individual patches recorded, an average of five per site. The very high density and number of grinding patches recorded near the mangals and creeklines of Withnell Bay Catchment (Vinnicombe 1987b) was not replicated, even though suitable horizontal bedrock was apparently available in the present survey area.

The 47 quarries recorded varied from large individual granophyre boulders, with multiple flake removals, through to substantial fine-grained granophyre seams which have been extensively block-broken, flaked and, in a few cases, excavated from the side, although this appears quite superficial. Approximately 96% of the stone sources have evidence for surficial extraction, 2% for excavation and 2% evidence for heat fracturing. A detailed discussion of quarry assemblage composition on the Burrup Peninsula may be found in Veth (1982).

8.3 Shellfish accumulations

Shellfish accumulations were recorded at 61 localities within the survey transects, with the majority occurring in the coastal, tidal mudflats and near coastal valley zones. These accumulations vary from small, discrete monospecific surface concentrations through to large and submounded features representing a wide range of species. The most obvious expressions are the dense concentrations located within coastal dune deflations, such as at Watering Cove, or near water sources within the near coastal valleys, such as at Conzinc Bay.

When the proportion of species represented at sites are pooled (Table 8.9) it is clear that the bivalve *Anadara granosa* dominates most assemblages, followed by the large baler shell (*Melo amphora*) and the gastropod, *Terebralia palustris*. It should be noted, however, that the counts on *Melo* are predominantly on fragments or partial shells, while those on the *Anadara* and *Terebralia* are largely on individual specimens. It should be reiterated that *Anadara* and *Terebralia* are the major species in the Skew Valley sequence (Lorblanchet 1977), with the succession of the former, probably due to local progradation and loss of mangals. The sequence of dates obtained from the earlier Museum study (Vinnicombe 1987b) also suggest that succession may have occurred at a more regional level.

Almost all of the scatters on coastal dunes and sands are proximal to potential sandy, mudflat or rocky substrate shellfish habitats, while those more mounded forms within the coastal valleys reflect species from more varied shellfish habitats from a wider catchment. Substantial shell accumulations are not common within the interior valleys, although large, diffuse and heavily fragmented scatters do occur. Accumulations vary greatly in density, with an average of 33 individuals per square metre, and a range of 0.1 to 600 per square metre.

Shellfish species	% representation
Anadara granosa	35.0
Terebralia palustris	18.8
Telescopium telescopium	1.8
Nerita undata	0.5
Syrinx aranus	1.0
Melo amphora	23.0
Turbo cinereus	0.9
Acanthopleura spp.	8.9
Saccostrea spp.	4.5
Barbita tusca	0.1
Acrosterigma spp.	0.3
Trochus hanleyanua	0.1
Other	5.1

Table 8.9: **Proportions of Shellfish Species Represented at Shell Accumulations**

None of the scatters or middens recorded during the present survey are thought to have as good a potential for stratification and depth as the large mounded and rockshelter deposits already excavated near the base of the Peninsula at Skew Valley, Georges Valley, Not So Secret Rockshelter and Anadara Shelter (Lorblanchet 1977; Harris 1989: Bradshaw, pers. comm.).

8.4 Stone pits

As noted above, stone pits are the most common feature on the Peninsula, being recorded at 264 localities. The location of pits on boulder slopes and rises is remarkably uniform, suggesting a continuous distribution (see Table 8.10).

Location of pits	% pits
Lower 1/3 of boulder slope	27.3
Middle 1/3 of boulder slope	23.3
Upper 1/3 of boulder slope	20.6
Top of boulder slope	28.8

Table 8.10: Location of Stone Pits on Boulder Slopes/Rises

Where measured, the size of removed boulders which were stacked adjacent to pits were uniform and reflects their sub-rounded form, with a mean length of 77cm, mean width of 63cm and mean thickness of 61cm.

Finally, the mean values for pit dimensions (examples below from the first three instances of multiple feature sites) illustrate the pits are near circular in plan and that they have consistently similar depths (Table 8.11).

Pit no.	Length (mean)m	Breadth (mean)m	Depth (mean)m
1	1.15	0.99	1.07
2	1.04	0.94	0.96
3	1.06	0.98	0.99

Table 8.11: Dimensions of Stone Pits

It is not possible nor relevant to provide individual descriptions for the 498 sites recorded in the text of this report. It is appropriate, however, to describe the major site complexes containing multiple features in some detail, to provide a sense of spatial context and as a background to recommendations for the nominations which follow. These sites are described in Chapter 11.

The following chapter outlines research questions which have relevance to the scientific values of the Burrup Peninsula and general Pilbara archaeology. The ability to address these questions significantly increases the scientific and cultural value of the Burrup.

9. RESEARCH QUESTIONS RELEVANT FOR ASSESSMENT OF SITE SIGNIFICANCE ON THE BURRUP PENINSULA

In addition to integrity, size, uniqueness, aesthetic, educational and mythological values, the significance of sites can be assessed by their ability to address a number of regional research questions, as identified below.

9.1 The Burrup Peninsula forms a regionally unique hardrock area on a semi-arid coastline. Its topographic variability, combined with its high ratio of coastline to land area, have provided a rich and seasonally reliable resource zone for prehistoric inhabitants. Is the extremely high density of Holocene sites a product of this rich resource zone or is it a result of a diverse topography separating and spreading activities over a wide area?

9.2 Was the Burrup Peninsula occupied before the last marine transgression, as part of a hinterland range on a coastal plain, which stretched out a further 130km westward at 18,000 BP?

9.3.1 If the general area of the Burrup Peninsula was occupied before 25,000 BP, as were Pilbara uplands, was occupation continuous through the intensified aridity of the last glacial maximum?

9.3.2 If demographic shifts are registered in response to glacial aridity, what is the nature of the archaeological record with the onset of climatic amelioration by approximately 15,000 BP?

9.4 Can any differences in the rate of cultural discard be discerned in stratified sites between the periods 6,000 BP to 3,600 BP and 3,600 BP to present?

9.5 There are a number of competing paradigms for the interpretation of rock art element composition and spatial arrangement. Can the majority of intersite rock art variability be explained in terms of the structure of resource catchments or the rock arts' ceremonial and mythological significance?

9.6 Can phases of rock art style be discerned in the manner most recently used by Lorblanchet (1985) at Gum Tree Valley?

9.7 Can the rock art of the Burrup Peninsula be dated using the cation-ion ratio dating method, so that discrete temporal and stylistic units might be defined?

9.8 Are the Holocene archaeological sequences from the Burrup Peninsula comparable to those now well documented from the Hamersley Plateau?

9.9 Do particular suites of occupation sites allow us to assess the seasonality of use of the Burrup Peninsula and characterise mobility and aggregation cycles, with reference to hinterland territory?

9.10 Are the assemblages of the habitation sites structured differently so that inferences may be made about residential permanency and group size, *i.e.* intensity of occupation in specific functional contexts?

To address the specific research questions outlined above, sites must possess a number of required characteristics. These may be summarised as follows:

9.11 Stratified deposits covering considerable periods of time (*i.e.* thousands of years) in continuous sequences. These are not common on the Burrup Peninsula. Stratified deposits, whether rockshelter, midden or artefacts are therefore at a premium and are essential in addressing most of the research questions. Therefore, individual sites and particularly clusters of these with good chronostratigraphic controls may be ranked as being of high significance.

9.12 Sites which are inferred to be major aggregation complexes must be compared to those which are obviously task-specific or have evidence for less intensive occupation. In order to examine questions 9.1, 9.9 and 9.10 and to provide a representative sample of site variability, it is necessary to delineate contiguous site systems which, by definition, have some considerable aerial coverage. Therefore, some suites of sites may be earmarked as being better able to address questions of site function and settlement behaviour than other suites. Site variability and representativeness are the key issues.

9.13 The sites with the greatest potential to provide information on the spatial arrangement, chronology and function of rock art are those with statistically large motif populations in topographically diverse contexts.

Additionally, the presence of at least some desert varnish should have been noted as should other more subjective indications of possible antiquity (*cf.* Lorblanchet 1985). The same arguments for representativeness through contiguous site systems also apply here.

The Burrup Peninsula is clearly an outstanding research resource, allowing detailed examination of a wide variety of questions.

10. CONTEMPORARY ABORIGINAL INTERESTS IN THE BURRUP PENINSULA

10.1 Some Yaburarra people

Information that Gara obtained from Aboriginal elders indicates that the last full-blood Yaburarra people probably died in the 1930s or 1940s. Some of the people with whom he spoke came into contact with those people in their younger days when they were working on Karratha, Mardie and Balmoral Stations. Coppin Dale seems to have spent a considerable time with the Yaburarra in the early days and learnt a lot of their history and culture. He, along with Algie Patterson and Mibbin Lowe (recently deceased), is regarded by most people in Roebourne and elsewhere as being one of the best qualified people to talk for the Burrup Peninsula.

He is "half and half" Ngaluma and Indjibarndi and apparently was one of the last Ngaluma men to be initiated "the coastal way". Algie Patterson took his cue from Coppin Dale. When Algie wanted to go out to the Burrup Peninsula to look at the engravings, he asked Coppin for "permission". Algie said;

> When I was working on Karratha Station, I went out there looking for carvings [engravings] on the rocks. I went around to Dampier and a little bit north from there. Old Coppin Dale told me "Well, you allowed to have a look around, you're allright".

Coppin now lives in a nursing home in Port Hedland. He has had several strokes and is apparently very frail and rarely lucid. People who knew him considered it unlikely that Gara, as a stranger, would be able to obtain any information from him. As his time in Roebourne was limited, he did not consider it worthwhile to drive to Port Hedland to talk to him. Mibbin Lowe, (now deceased), a Martuthunira man from Mardie Station, was aged in his 70s at the time of Gara's visits and was somewhat deaf and in poor health. Gara found it difficult to obtain much information from him. Algie Patterson evidently knows a great deal about the Burrup Peninsula and its former inhabitants. When Gara asked Algie if he remembered any of the Yaburarra he said:

> AP: Only one I know for sure is that fella Iniarba. Other old people that used to be around there - I remember Moodegin, old Carley, old Banuwa - all pretty close to Yaburarra.
> TG: Any children of those people left now?
> AP: No. No children, no grandchildren, no-one following them.

The information that Gara obtained on Iniarba and some of the other Yaburarra people is set out below.

Iniarba was identified as a Yaburarra man by Yilbie Warrie, James Solomon, Algie Patterson and others. Algie said that Iniarba was the last Yaburarra man that he knew:

> He's a poor old boy, the last one, that old Iniarba - he was really *Pijurru* [Yaburarra], that man, he belong to there.

Iniarba probably died in the 1940s. His wife was Woggi, a Martuthunira woman from Balmoral Station. Gordon Lockyer thought that Woggi might have been "half-and-half" Martuthunira and Yaburarra, and several other informants also thought this might have been the case. Iniarba and Woggi had at least two children of their own, a boy, Papa, and a girl, Pixie; Woggi also had another child, Nickolas Cosmos, to a Greek father. Iniarba brought up Nickolas as his own son along with the other two children. Algie Patterson said:

> Nickolas Cosmos' father was Iniarba. That old fella, he looked after him, brought him up.

Nickolas was born at Karratha Station and spent most of his early life there. Milton Churnside recalled that Iniarba was a very good horse rider and a good jockey and, like his father, Nickolas was also good with horses. Nickolas taught David Connors how to ride.

Papa and Pixie both died a long time ago and have no known descendants. Nickolas died in the early 1980s aged about 60. When Bruce Wright from the DAS was seeking traditional owners for the Burrup Peninsula in the 1970s, Nickolas was identified by Aborigines in Roebourne as being one of the right people to talk for that country. Nickolas told Wright then that he had no knowledge of the Burrup Peninsula or its former Aboriginal occupants. Several Aborigines who knew Nickolas said that he was knowledgeable about that country, but he was a quiet man and unlikely to talk much to strangers.

Nickolas and his wife, Dulcie Saunders, had seven children. These children are regarded by most of the Aborigines that Gara spoke to as the sole remaining Yaburarra descendants. This is discussed further below.

Maitland was a Yaburarra man who died probably in the late 1930s or early 1940s. James Solomon, Algie Patterson, Mibbin Lowe, Milton Churnside, Yilbie Warrie, David Connors and others all remember him. Like most of the other Yaburarra men he was described as a big, tall man, and he was very old at the time of his death. He was apparently a boy or young man when the Flying Foam Massacre occurred in 1868 so he was probably aged at least 90 when he died. He was born on the Maitland River but he was "proper Yaburarra", according to Yilbie, and his country came all the way up to the Nickol River. Yilbie said that he had never met Maitland but had heard his story.

James Solomon and Miltòn Churnside both remember meeting Maitland at Munda Station when they were young. David Connors, a young boy at the time, met Maitland on Karratha Station.

According to David, Maitland had been working previously at Carnarvon and Rocklea; he stayed at Karratha for some time and then moved on. He died at Roebourne or Port Hedland a few years later.

Gara recorded the following conversation between James Solomon, David Connors and Gordon Lockyer while they were on the Burrup Peninsula:

> JS: You knew old Maitland?
> DC: Yeah, I only saw him when I was a young fella.
> JS: He worked at Munda when I was a young fella.
> DC: He been with these [Yaburarra] people.
> GL: His family still living today?
> JS: No, no family, all finished.
> DC: He come to Karratha, stopped with us, that's where I got to know him.
> TG: What about that fella "Island", was he Yaburarra too?
> DC: Yeah, he been with this mob. They're the people that knew that language.

Banuwa was identified as a Yaburarra man, or possibly Yaburarra-Martuthunira, by a number of people, including James Solomon, Algie Patterson and Milton Churnside. Banuwa was known as "Big Dan" - he too was described as a big, tall man. His wife was Jangarong. He died on Karratha Station and is buried there.

James Solomon and David Daniel spoke about Banuwa and Maitland when they were camped with Gara at Searipple Passage:

> JS - Old Banuwa he belonged to Karratha, and old Maitland he belonged to Karratha.
> DD - Yeah, they very close to Yaburarra. They been living at Karratha . . . Them two, any family belong to them left alive now?
> JS - No, no-one.

Island was another Yaburarra man that David Connors remembers being at Karratha Station when he was growing up. Like Maitland, he was an old man when David knew him. Several other Aboriginal elders remembered Island or had heard of him, and they agreed he was a Yaburarra man. He has no known descendants.

Dougall Kudjardi-Kudjardi was identified by von Brandenstein and Thomas (1974: 10) as a West Ngaluma man. However, Milton Churnside thought that Dougall's country went all the way from Cossack right down to Mardie, and that Dougall himself was Ngaluma-Martuthunira. Dougall was the adopted father of George Togo, whose biological father was a man named Garrba. Both David Daniel and James Solomon thought that Garrba may have been a Yaburarra man. George Togo therefore has strong coastal connections although he has no specific knowledge of the Burrup Peninsula or of Yaburarra traditions.

Willy Cooper, a Martuthunira man, was thought by several informants to have possible connections with the Yaburarra people. His Aboriginal name was *Karlikuru* (= diamond dove). Willy lived most of his life at Mardie. He had a boat and took other Aborigines with him when he visited the islands. David Connors said of Willy Cooper:

> he's another man who would have knocked around out here [on the Burrup Peninsula]. He's passed on now. In his younger days he would have mixed with these people.

He died about 20 years ago, but his wife Clare, a Martuthunira/Indjibarndi woman, is still living in Roebourne. Some of their children today live in Derby.

"Old Nickol", or Nickol Sheckler was believed by Yilbie Warrie to have Yaburarra and/or Martuthunira connections. He was a very old man living down by the Nickol River when Yilbie knew him. Sheila Boona remembers him at Mardie Station when she was there. George Sheckler, his son, lives in Roebourne. Gara tried to speak to him on several occasions but he was reluctant to talk.

Sandy, or Yangangoona, was thought by Yilbie Warrie to have Yaburarra and/or Martuthunira connections. Dorie Lowe remembered Sandy at Mardie but said that he died a long time ago. Algie Patterson thought that two other men, Moodegin and Carly, might also have been close to the Yaburarra.

Cane Hicks informed Gara that the genealogical data that he has collected includes some information on Yaburarra people, and others with connections to the Burrup Peninsula and islands.

Gara asked the men that he talked to, as well as the women, if they could remember any Yaburarra women. The only women that people could remember were Pixie (Nickolas Cosmos' sister) and a number of women who were probably closer to Martuthunira than Yaburarra, *e.g.* Clare Cooper, Alf Boona's sister, Nancy, and a woman called Kelloway.

When people found out that Gara was seeking information on the Yaburarra, he was frequently told that he was just a few years too late to find out much. Some said that Coppin Dale before his last stroke could have told Gara all he wanted to know, or Mibbin Lowe a few years ago would have been able to tell him everything. Alf Boona, who died just a year or so ago, was clearly a very knowledgeable man. So too, evidently, were several other men who have died only in the last few years. David Connors said:

> Another fella who would have told us more was Mick Fazeldene. He was tangled up with Maitland and Island, he died last year. The old fellas might have told him some yarns.

David also suggested Wilson Walley and Carey Hicks:

> Another bloke - old Uncle Carey - he would have been handy. He knew them old blokes - he was with those old fellas, grew up with them. They used to go down that way. Old Carey Hicks, my uncle, he passed away the year before last.

Gordon Lockyer also said that Fred Hicks would have been "Number 1". Sheila Boona agreed that her brother, Fred Hicks, would have been good to talk to. She said:

> If my brother was living he could tell you. He know them people, he could tell you all about them.

10.2 The Cosmos family

Most of the people with whom Gara spoke believed that the people with the closest ties to the Burrup Peninsula were the children of Nickolas Cosmos. Nickolas was identified as the last Yaburarra man but most people were unsure as to where his connection came from. It was Algie who cleared this up, stating that Iniarba was the last full-blood Yaburarra man and although he was not Nickolas' real father, it was Iniarba who "raised Nickolas up". According to Algie and several other people, Iniarba passed on a lot of his knowledge of the Yaburarra and their land to Nickolas. It seems that Nickolas may also have had connections to the Burrup Peninsula via his mother, Woggi, who was probably "half and half" Martuthunira/Yaburarra.

Gordon Lockyer told Gara that:

> that old bloke [Iniarba] he's still like a father, he reared up Nickolas and Papa. That old fella he was real Yaburarra; he give the name to the two sons to keep it alive . . . Now Nickolas and Papa have both died, now the girls and the one boy they are grandchildren belong to those Yaburarra people.

Gara talked briefly to Colin Cosmos in Karratha on one occasion. Colin told him that his father had never talked much about the Burrup Peninsula. He was aware that he and his brother and sisters had links with that country and said that he was happy to discuss the matter with the Roebourne people.

10.3 Other people with links to the Burrup Peninsula

While the Cosmos family has the strongest links to the Burrup Peninsula, there are a number of other Aboriginal people who may be considered to have associations with that area. These include people who are related to the Cosmos family such as Calvin and Kenny Saunders, brothers-in-law to Nick Cosmos, and another branch of the Saunders family that apparently also is related. George Togo is considered by many people to have a link to the Burrup Peninsula via Dougall Kudjardi-Kudjardi. Further genealogical research is required to verify some of these family histories. There are also individuals who have traditional authority for the area such as Coppin Dale and Algie Patterson. The children of Coppin and Mibbin Lowe (deceased) in particular may have some rights in their fathers' countries. Some people have historical associations with the Burrup Peninsula through long-term residence on Karratha or Mardie Stations. These include various members of the Hicks family and the children of Alf Boona, Willy Cooper and other Martuthunira people.

10.4 Aboriginal knowledge of place-names

Prior to the development of the port and township of Dampier in the mid-1960s and the construction of the causeway, the Burrup Peninsula was an island separated from the mainland by a wide expanse of tidal mud flats.

As documented in the following section, Aboriginal people from both Mardie and Karratha Stations were visiting the Burrup Peninsula and the other islands of the archipelago on a more-or-less regular basis from the turn of the century, and probably earlier, up until the 1960s. Surviving Yaburarra people probably passed some of their knowledge on to Ngaluma and Martuthunira kinsfolk before they died, but over the years most of this information appears to have been lost. Coppin Dale is probably the only man still alive who visited the Burrup Peninsula frequently in his younger days and who acquired traditional knowledge of that area from the last of the Yaburarra people. Unfortunately, it now appears to be too late to obtain any information from him. Algie Patterson is regarded as an authority for the Burrup Peninsula but he has little direct knowledge of the place. Prior to his visits in the 1980s with DAS researchers, Algie had only been to the Burrup Peninsula briefly once before. His authority seems to be based upon his long association with Martuthunira and Yaburarra people at Mardie. Other Aboriginal people who lived and worked on Karratha and Mardie learned some place-names and other information about the Burrup Peninsula from the older people on the stations. David Connors visited the Burrup Peninsula on several occasions in the 1940s and 1950s with the older men with whom he worked on Karratha. Now aged about 60, he could remember several place-names, some of which Gara was able to verify with other people.

Most of the Aborigines in Roebourne today refer to the peninsula as *Murujugga*, literally "hip-bone sticking out", a term first recorded by Bruce Wright during discussions with Aboriginal people in 1980 concerning the proposed Woodside development. He apparently obtained the term from Coppin Dale, his principal informant at that time. A similar term, *Moolajacka*, appears in an early Ngaluma vocabulary (Hall 1971: 29) where it is given as the name for the "big horseshoe reef in head of Nicol [*sic*] Bay". Another early list of Aboriginal place-names[13] gives the name *Moogerka* for Legendre Island. It is likely that *Moolajacka* and *Moogerka* are both European interpretations of the term *Murujugga*.

During the course of his work in the area, Gara also obtained another name for the peninsula, *Pijurru*, from a number of informants. It seems that the southern portion of the peninsula, where Dampier is now situated, may have been known as *Pijurru* while the northern portion, north of the King Bay - Hearson Cove salt flats, was *Murujugga*. Aborigines apparently regard what is now the Burrup Peninsula as formerly being two islands and indeed, prior to the Woodside development, this was nearly the case; on spring tides, the salt flats behind King Bay can be inundated nearly all the way through to Hearson Cove. Gara first heard the word *Pijurru* from David Connors as a name for the peninsula.

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[13]Battye Library PR 1001.

Algie Patterson used the term to refer to the peninsula but he also used it as an alternative tribal or dialectal term for the Yaburarra people. Jan Turner (pers. comm. 1992) recorded the term *Pijurru* from Coppin Dale in the early 1980s; he applied it to the "black hills" in the vicinity of Skew Valley.

Robert Boona and his mother Sheila were also familiar with the term *Pijurru*, which they had heard Robert's father and other old people use. They could not recall ever having heard the term *Murujugga*. David Connors learnt the names of several places on the Burrup Peninsula from the old people on Karratha Station. One of these was *Kirrijirrie*, for the prominent red hill on the eastern side of the Burrup Peninsula just south of the Dampier Salt causeway:

> the name of that hill is *Kirrijirrie*. The one this side of the Two Mile, that red-looking hill as you're going in to Dampier, standing on his own. That's *Kirrijirrie*, because he glares; must be that Yaburarra language, because he's shining.

Two other place-names that David remembered were *Piragura* and *Piragudda*. He thought that the first name was applied to King Bay and the second to a large sandy bay on the eastern side of the peninsula that was visible from Karratha, probably either Watering Cove or Hearson Cove. It was at *Piragudda* that the young Yaburarra man who survived the massacre was later shot by police, according to David.

David thought that both names had something to do with a large species of sea-shell, probably the "muttonfish" or abalone, which appears in an early Ngaluma vocabulary (Hall 1971: 20) as *peera*. Algie Patterson knew a similar place-name, *Pidagura*, but could not remember what it was applied to:

> *Pidagura*, that's the one, that's the name for one place out there. Don't know where, don't know whether it is *munda* [hill] or rockhole or camping place.

Sheila Boona used the same term, *pidagura*, to refer to pearl-shell. Algie Patterson and David Connors both knew the Aboriginal name for Mount Leopold, *Ngarrari*, which marked the southern edge of Yaburarra territory.

David Connors was told the names of several other places on the Burrup Peninsula by the old people when he was working on Karratha Station but he could not remember the names at the time of Gara's visit. However, further work with David may elicit this information. Further interviews with Sheila and Robert Boona and Calvin and Kenny Saunders may also prompt them to recall other place-names. Algie knew one other place-name, *Kumuru*, which was identified by von Brandenstein (1970, vol. II: 220) as Eaglehawk Island, the western-most island of the archipelago. Mibbin Lowe said that he used to know the Aboriginal names of some of the islands but he could no longer remember any of them.

He tried to recall the name for one island "just out from Dampier" but could not do so. He said, "he's got a big name, that island, but I forget. It's been too long". Two other place-names recorded in early Ngaluma vocabularies are *Yoorintha*, for Hearson Cove (Hall 1971: 29), and *Walyingoo* for Delambre Island.[14]

10.5 Aboriginal visits to the Burrup Peninsula prior to 1970

In the later decades of the 19th century there were probably few white visitors to the archipelago. By then most of the surviving Yaburarra people would have already been absorbed into the pastoral industry but they probably would have visited the Burrup Peninsula and the islands during their summer holidays. During the course of his fieldwork Gara was able to document from oral sources evidence of Aboriginal visitation of the area of this nature since earlier this century. It is possible that historical research may provide information on Aboriginal use of the archipelago during that intervening period - from the 1870s to about the 1920s. Artefacts of glass, ceramic or other introduced material occur at many sites on the Burrup Peninsula and it is possible that some of these artefacts can be related to that period.

[14]Battye Library PR 1001.

Aborigines working and living on Mardie and Karratha Stations were able to maintain their links with the coast. During their summer holiday, some of these people travelled out to the Dampier Archipelago and other islands to hunt and fish, utilising their traditional skills and knowledge of that area. Mibbin Lowe said that his relations and other old people used to go out to the peninsula when they were working on Mardie Station. He said:

> All my grandparents been in Dampier before Dampier was up. All the old people been living there all the time . . . All my grandfathers and grandmothers and all them, they've been in that country all the time . . . Even born in that place.

Karie Monadie, who lived for many years at Mardie, also said that many of the old people there went out to the islands to fish. These visits were not restricted just to the islands accessible on foot at low tide. Willy Cooper and a number of other Aboriginal men, including Mibbin Lowe and Milton Churnside, had their own boats, or access to them, at various times and this would have enabled Aboriginal people to visit the further islands. As well as fishing and hunting, Aborigines searched for pearl and trochus shell which could be sold to local dealers.

Robert Boona told Gara that his grandfather and father, Alf (Mibbin Lowe's brother), as well as other old people from Mardie Station, had frequently gone out fishing and collecting pearl-shell on the peninsula and the nearby islands.

Gara recorded the following conversation with Robert and his mother, Sheila:

> RB: Where Dampier is now, Mum's been telling me, they used to go there. What them shells Grand-dad used to go out there looking for?
> SB: Pidagura, pearlshell, years ago.
> RB: Where the causeway is now, low tide they go across on a spring-cart, live on the island for months, collecting them shells.
> TG: Who was this, your grandfather or father?
> RB: My grandfather, years ago, before he met my grandmother.
> TG: Did your father go too?
> SB: Yeah, he went there sometimes.
> TG: When he was working on the station?
> RB: He was on Mardie all the time. He worked on Karratha after that, years and years after that. I think he spent most of his time, about 45 years, on Mardie.
> SB: Yeah, that was his home, Mardie, his proper home. He was born there.

Robert recalled that he and the other children were not allowed to look at the Burrup Peninsula:

> When I was a kid growing up, that place was a sacred place to us. We used to go out from Karratha Station where that horse-club is now, just down from the railway station, even that wasn't there then. We used to come on a mail-run, we can't look at that place when we were kids, we had to look away, it was a sacred place to us ...the whole of that island, where the causeway goes in now, that was a sacred place to us, we don't look at it any time of the day because we believe that everything that keeps us alive comes from there. If we looked when we were kids it would have broken our generation. Only the old people could go there.

Yaburarra descendants and other Aboriginal people living at Shallow Well and other outstations of Karratha were also visiting the peninsula and islands from early this century. Several Aborigines stated that there were one or two places where it was possible, at low tide, to get horses and springcarts across the salt flats and marshes to the island. David Connors said that his older relatives used to visit the Burrup Peninsula and the islands "long before Dampier was there" and before he himself was born. Calvin Saunders, now aged 50, said that when he was a young boy living on Karratha Station the "old people" would often go out to the peninsula and the islands on their holidays to fish. Ernie Smith (deceased), who was also living on Karratha Station at about the same time, recalled that Aboriginal people still went out there occasionally. Cane Hicks, who was at Shallow Well on Karratha Station when he was young, also recalled the older Aborigines visiting the peninsula and islands then. As noted previously, Janis Cosmos said that her father sometimes went out to the Burrup Peninsula from Karratha Station in the 1950s and 1960s. She remembered him taking some of his other children on one trip there about 20 years ago.

As well as these "holiday" visits, Aboriginal men working on Karratha Station sometimes visited the Burrup Peninsula as part of their station duties. David Connors went there several times in the late 1940s and the early 1950s while working on Karratha. On his first trip out there he was accompanied by Syd Lockyer, Carey Hicks and others. David also went out there several times with Coppin Dale.

David said:

> I been across to Dampier, all around there, on horseback, before they built the town there. The last two fellas who went across there on horseback are me and Coppin Dale. Must have been 1949.

David remembers this visit quite well as he and Coppin almost perished of thirst on that occasion. They had been sent by the manager to look for a large number of sheep that had supposedly wandered off from the station and found their way across the salt flats to the peninsula. David and Coppin searched for the sheep without any luck and, in the process, exhausted the water supplies they had brought. Coppin dug unsuccessfully for water in the dunes near the south shore of King Bay but David found water by following the tracks of some kangaroos to a freshwater spring in the coastal rocks near where the pellet plant is now situated.

David went back to the Burrup Peninsula on two or three subsequent occasions, again following reports of sheep straying from Karratha. David said:

> We didn't find nothing - might be one or two sheep but you couldn't knock any sense into them, couldn't wheel them, nothing. Couldn't gallop over here or you'd break the horse's leg. Once the sheep got into the hills, that was the end, you could say goodbye to them!

David Connors recalled attempts in the mid 1940s to construct port facilities in the King Bay area. Workmen built a shingle and gravel track across the salt flats and transported equipment and supplies across to the peninsula with bullock wagons. However, just after construction commenced, a cyclone blew in and destroyed everything. Plans to build a port there were shelved and instead it was decided to upgrade the facilities at Point Samson.[15] One of David Connors' later visits to the Burrup Peninsula with Coppin Dale took place about a year after that cyclone. He and Coppin followed the new shingle track out to the Burrup Peninsula but found it washed away at one point. They retraced their steps and tried to cross at another spot but got their horses nearly bogged on the salt flats on the south-western side of the peninsula. They managed to extricate themselves and their horses and reached the peninsula.

They travelled across to King Bay and there David saw the ruins of the port destroyed by the cyclone not long before. David also remembered tools and equipment lying abandoned at the site. He and Coppin discussed ways of getting some of the items back to Karratha Station but decided it was impractical.

On this same trip David and Coppin found a waterhole near the south shore of King Bay. David believed this site matched the description of the waterhole which was, according to the old Yaburarra man, Maitland, the scene of some of the shootings during the Flying Foam Massacre.

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[15]Research by Anna Vitenbergs at the Karratha Community Library has confirmed David's account of this early development at Dampier, which occurred in 1945.

Gara had identified this same waterhole from the historical sources and took David and other Aborigines there on 16 July. He confirmed that it was the same one that he had found about 40 years before. In the mid 1960s David Connors worked on the construction of the Hamersley Iron rail facilities at Dampier and stayed at the Poon Brothers single men's quarters. He tried to relocate then the spring that he had found on his first visit but discovered that it had been bulldozed.

Aboriginal visitation to the Burrup Peninsula probably ceased in the early 1960s when the construction of the port and facilities at Dampier imposed restrictions on access to the area. At about the same time, many of the Aboriginal people employed on the pastoral stations were leaving the country and moving in to Roebourne and Onslow. Once they were living in town, lack of money and vehicles prevented them returning to the country.

Over the last 20 years or so, many of the old coastal Ngaluma and Martuthunira men who lived on Karratha and Mardie Stations and who knew the last Yaburarra people have died, men such as Willy Cooper, Bob Churnside, Nick Cosmos, Alf Boona, Mibbin Lowe and others. The only ones left are Algie Patterson and Coppin Dale, and, as noted previously, only Algie can now provide much information.

10.6 Aboriginal visits to the Burrup Peninsula since 1970

Since the early 1970s Aborigines in Roebourne and those still living on Karratha and Mardie Stations have been questioned on numerous occasions by archaeologists and anthropologists, as well as by mining company personnel, Government officials and others concerning the former Aboriginal occupants of the peninsula and the islands. As part of these consultations Aboriginal people have visited the Burrup Peninsula and/or the islands on many occasions with white researchers. Below, Gara has documented some of these consultations and visits. Gara did not have sufficient time to study in detail the files and correspondence of DAS or other possible sources of information. It is likely that there have been other consultations and visits apart from those discussed below.

In 1970 Bruce Wright carried out consultations with Aboriginal people to determine the traditional owners of the Burrup Peninsula. These enquiries were prompted by the development of the Dampier Salt facilities. Wright talked to Algie Patterson, Nick Cosmos and Coppin Dale, and later on in the 1970s, he also talked to Mibbin Lowe. These four men were identified by other Aborigines as being the most knowledgeable concerning that area. Nick Cosmos and Mibbin Lowe claimed to have no knowledge of that area.

Coppin Dale told Wright that the area belonged to the Martuthunira while Algie Patterson believed that it was occupied by a group that was neither Ngaluma nor Martuthunira (DAS 1979a). Wright did not state the name of this group but presumably it was the Yaburarra, or the *Pijurru* as Algie calls them now.

At some time in the early 1970s Ben Sharpe, formerly of Mardie Station but then working for Hamersley Iron, took Mibbin Lowe and several other Aborigines out to the islands and showed them some of the engraving sites there. Gara was not sure whether this trip was a public relations exercise or an attempt by the company to ascertain the extent of the knowledge of the Aborigines concerning the islands. In the early 1970s Enzo Virili, an employee of Dampier Salt who was carrying out archaeological excavations at Skew Valley, took Coppin Dale and a number of other Aboriginal elders out to that site.

A photograph of Enzo Virili and his Aboriginal informants at Skew Valley appears in an undated magazine article in the Karratha Community Library.[16] In 1974 Kingsley Palmer, then with DAS, carried out some research on rock art in the Pilbara. He questioned a number of Roebourne elders as to the identity of the traditional occupants of the archipelago and concluded that the area was in Ngaluma territory (Palmer 1975: 153-4).

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[16]Karratha Community Library, Local History Collection (VF 00063).

However, none of the Aborigines accompanied Palmer when he visited the rock art sites there. Other researchers, such as Warwick Dix and Peter Bindon, who carried out surveys on the Burrup Peninsula and the islands during the 1970s, may also have consulted with Aboriginal people in Roebourne and may have taken them out there during the course of their fieldwork.

When the North-West Shelf Natural Gas Project was first proposed in the late 1970s, Bruce Wright, at that time the Registrar of the Department of Aboriginal Sites, carried out more consultations with Aboriginal people concerning the Burrup Peninsula. He apparently was unable to obtain any information additional to that he had learned in the early 1970s. However, at that time, the destruction of sites in the archipelago was of concern to Aboriginal elders at Strelley and elsewhere in the Pilbara. At some time in the late 1970s, Strelley men came to Karratha and met there with Roebourne people to discuss that issue (Turner 1990: 81).

In late 1980, after the DAS survey of the LNG facilities had commenced, but before any engravings had been salvaged, Wright took Mibbin Lowe, Algie Patterson and Herbert Parker out to the Burrup Peninsula. It is not known exactly what was discussed or what transpired on that occasion but Wright reported to DAS, and to the archaeological field team (of which Gara was a member), that there were no Aboriginal objections to the development or the archaeological salvage programme. The DAS salvage programme on the Burrup Peninsula went ahead, on the assumption that there were no Yaburarra people left and that local Aboriginal people had no substantive interest in the area.

The assumption that Aborigines had no continuing interest in the Burrup Peninsula was, however, questionable. Aboriginal people have strongly criticised DAS for what they regard as the limited nature of the ethnographic consultations undertaken in relation to the Woodside development. They voiced their disapproval of DAS' actions to the Aboriginal Land Inquiry in 1984:

> The Roebourne community also asserts that at that time [the early 1980s] the Sites Department of the Museum involved itself very deeply in archaeological investigation of the Burrup Peninsula without consulting living Aboriginal people about their traditional interests in the Peninsula (Seaman 1984: 54).

It seems that researchers had questioned Ngaluma and Martuthunira people at length about the Yaburarra and their demise and tried at various times to trace possible Yaburarra descendants.

Having failed to find any descendants, they concluded that there were no Aboriginal interests anymore. However, as Turner (1990: 12) pointed out, apparently no-one ever asked the question of the Aborigines, who now has responsibilities for the Burrup Peninsula?

While the lack of adequate consultation over the Woodside project was the principal complaint of the Roebourne people, concerns were also voiced concerning the destruction of sites on the Burrup Peninsula, the salvage of engraved boulders and the involvement of white female researchers in rock art recording.

It was, of course, not just the Woodside development that concerned the Roebourne community. People with whom Gara spoke also expressed resentment that they were never consulted about the earlier developments on the Burrup Peninsula, such as the Hamersley Iron and Dampier Salt facilities, and that many sites had been destroyed by those developments. This concern was also documented by the Seaman Inquiry (Seaman 1984: 72). It is likely that at the time that those early developments took place there were people alive who would have had much closer links with the Burrup Peninsula and would have expressed concern for those areas had they been able to.

In 1982 DAS established a survey to ascertain the extent of Aboriginal knowledge of the Burrup Peninsula and islands. Nic Green and Jan Turner had detailed discussions with Aboriginal elders in Roebourne and Green took a group including Algie Patterson, Mibbin Lowe and Gordon Lockyer on a short boat trip to the islands. Turner carried out interviews with both Aboriginal men and women but this project was interrupted by the Harding River dam controversy; Green and Turner were transferred to work on that issue and the Burrup Peninsula project was never completed.

Roebourne people were consulted in relation to a number of developments in the Burrup Peninsula and Nickol Bay area after 1982, including the Karratha West Access Road (Green & Turner 1983) and the Dampier-Cape Lambert Gas Pipeline (O'Connor 1983).

During most of 1983 and 1984 the attention of the Roebourne community was focused elsewhere as the Ngaluma and Indjibarndi people were actively involved in the attempts to stop the construction of the dam on the Harding River. In late 1984, Pat Vinnicombe talked with the Roebourne people about the inclusion of photographs of Burrup Peninsula engravings in the DAS final reports on the Woodside project. According to Vinnicombe (pers. comm. 1992), the Aboriginal elders were very clear about which photographs could and which ones could not be published.

During the 1980s the Roebourne people also voiced other concerns in relation to Burrup Peninsula engravings, particularly those of a restricted nature which were clearly visible to passersby. In 1985 Jan Turner took a group of Roebourne Aborigines, including Woodley King, Yilbie Warrie, James Solomon and Gladys Walker, out to the Burrup Peninsula. They inspected some of the development sites and then met with Woodside's Environmental Officer at the salvage yard. The Aboriginal men pointed out that several of the salvaged boulders had motifs which should only be seen by men. They requested that these boulders be turned over so that the motifs were no longer visible and Woodside did as requested. At about the same time Aborigines expressed concern to Turner (pers. comm. 1992) that some white people in Dampier had engraved boulders in their gardens. Aboriginal people in Roebourne told Gara of a boulder with a restricted motif which was clearly visible from a main road on the Dampier Salt Lease. The engraving was covered up with another boulder at the request of the Roebourne community.

In 1987 a female Museum officer took a number of Aboriginal men - James Solomon, David Daniel, Ernie Smith and Ned Snip - out to the islands to record engravings and other Aboriginal sites. This trip proved to be controversial. After the return of the group from the islands, a number of Aboriginal women called a special meeting at the Ngurin Resource Centre during which the men who had gone with the officer were strongly criticised for not consulting properly with the women before the trip and for breaching social etiquette by camping with a white woman.

In particular, the women criticised the men for allowing the officer to look at engravings, thus exposing her to potential spiritual or physical danger, although, in their defence the men pointed out that they had covered up with their coats several engravings that they thought she should not see, and directed her away from other sites (Turner 1990: xiv-xx).

However, the main reason why this trip is well-remembered by most Aboriginal people in Roebourne is because that it was on Enderby Island during that trip that Ned Snip, one of the elders, was "abducted". He wandered away from those involved in recording the rock art and despite several searches on foot by other members of the party, he was not found by the time that darkness fell. Early next morning a helicopter was brought in to assist in the search. Ned was soon found far inland. He later claimed that he had heard women's voices and followed them, and had ended up spending the night with those women who, he believed, must have been the spirits of the Yaburarra people.

Those who later criticised the trip attributed Ned Snip's disappearance to the breach of Aboriginal tradition (Turner 1990: xviii). The "spirits of the Yaburarra" are discussed later in this report.

In 1988 Ngaluma people staged a corroboree at Hearson Cove where the Roebourne children danced for children from the primary schools in Karratha, their parents and the general public. Later that same year Roebourne Aborigines took children from Karratha, Goldsworthy, Newman and other mining towns on a visit to Hearson Cove and other sites on the Burrup Peninsula.

There they explained to the visitors something of the meaning and significance of the engravings, showed them how to find bush tucker and talked about other aspects of Aboriginal life and culture. In 1989 Diedre Dragovich consulted with Ngaluma people, and was assisted in the field by Gladys Walker and David Daniel, when she collected samples of desert varnish for dating from some engraving sites on the Burrup Peninsula. In the following year Ngaluma people cooperated with the Rotary Club of Karratha and the Dampier Salt Shakers in the establishment of the Jaburara Heritage Trail, which has proved popular with local people and tourists in Karratha. Early in 1992 James Solomon and Frank Smith took a group of researchers from the Australian Rock Art Research Association on a tour of some of the Burrup Peninsula's engraving sites.

A few months later, Ngaluma people including James Solomon, David Daniel and Roger Solomon and their families camped at Searipple Passage with CALM staff during preliminary investigations associated with this current National Estate-funded site recording project, a project in which Roebourne people are, and have been, closely involved.

A large consultative programme was initiated by CALM (P. Kendrick and H. Chevis) for this project early in 1991, involving 5 main consultants and including up to 30 other individuals at different times.

During the survey for this report in 1992 there were two large consultative components, facilitated at all times by CALM staff. These consultations involved mainly the Smith, Daniel and Solomon families, and various other individuals.

The numerous visits that have been made over the years have strengthened Aboriginal links to the peninsula and islands and given the Roebourne people direct experience of the richness and diversity of the area's cultural heritage. The elders have acted as custodians throughout the 1980s and, in that capacity, have been consulted over a range of proposed developments on the Burrup Peninsula and elsewhere in Yaburarra territory. Their authority has been accepted by the wider Aboriginal community and by the many consultants, industrial groups, researchers and Government officers who have worked there. They have always cooperated readily in these and other surveys and acted responsibly in terms of Aboriginal tradition.

Close cooperation with DAS and CALM has strengthened their semi-official status as custodians. While Gara was in Roebourne, Woodside requested DAS to find out from that community whether it was acceptable to have a cast of the Climbing Men displayed in the Visitor's Centre at Withnell Bay. Dampier Salt seems also to have accepted that Roebourne people have the authority to speak for the area.

Over the last few years Aboriginal people have been initiating more direct links with the Burrup Peninsula. The focus is now on involving the young initiated men in site-surveys and conservation work, and training them to eventually take on responsibility for that country.

These younger men have visited the Burrup Peninsula already on several occasions, and some of them went out with Gara in July. Other older Aboriginal men, such as James Solomon and David Daniel (and, until their recent deaths, Roger Solomon and Ernie Smith) take every opportunity they can to visit the Burrup Peninsula. They are especially keen to take their families with them on these trips. Camping and fishing trips, especially with the women and children participating, are an important part of restoring and revitalising Aboriginal links to the land. Passing on of knowledge to the children is seen as an important element in the maintenance of cultural traditions. Fishing and hunting skills and knowledge of local bush foods and medicines are a source of pride for the Aborigines and also an important element of their identity.

10.7 Mythology of the Burrup Peninsula

In Aboriginal society, knowledge of mythology and ritual was the preserve of the elders who made that knowledge available progressively to younger people as they went through the various stages of initiation. Information would normally only be given to a white researcher after prolonged contact had enabled sufficient trust and confidence to develop on the part of the Aboriginal informant. It would have been improper for Gara to directly seek from Aboriginal elders information relating to mythology and mythological sites or to expect that much information of this type would be revealed during the course of this short consultancy. However Gara did obtain some information concerning the mythology of the Burrup Peninsula.

One myth that relates to the Burrup Peninsula that seems to be relatively well-known to most of the older Aborigines is the *Waramurrungka* (Flying Fox) Myth. In the Dreaming times, a large number of flying foxes came out of the sea and travelled southwards along the Burrup Peninsula, across the salt flats and coastal plains and over the range of hills near Mt Leopold. A line of dark rocks on the hills marks the spots where the flying foxes crossed the range. From there the *Waramurrungkas* travelled up the course of the Fortescue River to Millstream. This myth is also referred to in at least two published sources.

The Karratha Community Library has an undated magazine article discussing Virili's excavations at Skew Valley which mentions that the rocks at the highest point of the southern peninsula are the metamorphosed bodies of the ancestral flying foxes, who were turned into stone there by a vengeful spirit. The source of this information was probably Coppin Dale. The *Waramurrungka* myth is also mentioned in the Jaburara Heritage Trail brochure, which acknowledges the assistance of David Walker and David Daniel as Aboriginal advisers.

Yilbie Warrie related some details of the *Waramurrungka* story to Gara and also mentioned another myth about an ancestral dog who travelled along the Burrup Peninsula in the Dreaming. The prominent hill near the causeway identified by David Connors as *Kirrijirrie* seems to be connected to this myth, and Yilbie regarded it as a particularly dangerous site.

Yilbie made it clear that he and other Indjibarndi elders know other myths that relate to the Burrup Peninsula and the islands and that they were prepared to teach this mythology to the younger Ngaluma men who took on responsibility for that area. Other mythology relating to the Burrup Peninsula has been recorded over the years by Jan Turner, Nic Green, Pat Vinnicombe and other researchers, but has not been published. Von Brandenstein informed Gara that he also has some other mythology relating to the archipelago on tapes recorded in the 1960s with Bob Churnside and other Ngaluma elders now deceased.

Von Brandenstein (1970, II: 220) has recorded some mythology relating to *Kumuru* (Eaglehawk Island) which was believed by the Aborigines to be populated by the spirits of the dead. He notes that Eaglehawk Island was a ceremonial meeting place for Yaburarra, Martuthunira and Indjibarndi people. Some of the Aborigines with whom Gara spoke regarded it as an evil or dangerous place.

10.8 Attitudes to rock art

In 1865 Yaburarra people on Dolphin Island helped J. P. Stow and his companions replenish their boat's water supplies from a rockhole near the beach where Stow's boat, the *Forlorn Hope*, had landed. The Aborigines also showed the white men some of their engravings.

Stow wrote:

> They showed us water in the rocks, nearly at the summit of the hills, about three-quarters of a mile from the boat, and we took in a full supply in six journeys, several of these friendly savages assisting us. The natives showed us some of their drawings on the rocks. There were sketches of fishes, turtles, lizards and different kinds of birds, including emus (Stow 1981:66).

Local white people and tourists today can visit the Climbing Men or other art sites on the Burrup Peninsula, or see engravings along the Jaburara Trail near Karratha. However, Stow and his companions were the first and probably the only Europeans to be given a guided tour of a rock art site by the Yaburarra.

Aborigines throughout the Pilbara believe that engravings are the work of spirit-beings known as *Marrga* who, during *Ngurranyujungkamu* times (an Indjibarndi term for "the Dreaming" which translates literally as "when the earth was soft"), formulated the rules of social conduct for human beings to follow. The *Marrga* left the engravings behind as permanent visual reminders of how the Law should be followed (*cf.* Palmer 1975). As well as being a constant reminder of the Law, they were also places of continuing spiritual power. Some were associated with *thalu* rituals or other totemic ceremonies, others perhaps with initiation rites or other ceremonies. Ngaluma and Indjibarndi people still perform ceremonies at some engraving sites inland.

The Roebourne elders are familiar with many of the motifs that occur on the Burrup Peninsula, as similar engravings often appear at other Pilbara sites, and they can explain or interpret many of the motifs and themes on that basis. The Burrup Peninsula's engravings are of great spiritual significance to Aboriginal people, not just in Roebourne but throughout the Pilbara, as the record of the Law left in stone by the *Marrga*.

Opinions differed widely on the question of whether white women should be allowed to look at engravings. Elders such as David Daniel and James Solomon stressed that in traditional times, Aboriginal women (and children) would have known which engravings it was permissible for them to see and which ones were not. Several informants explained that if an Aboriginal family was visiting an area where "dangerous" engravings might occur, the man would have gone first and checked whether any such engravings were visible. He would then advise his wife and children where they could go or couldn't go. Some informants thought that white women should not be permitted to see any engravings. Yilbie Warrie and Kenny Jerrold, for example, were quite clear on that point:

> YW: If a woman [Aboriginal] don't know much about that [country], they got to go half-way and stay there. The man takes a look, if its OK he can bring the woman up to have a look.
> TG: What about a white woman?
> YW: Same. They shouldn't look.
> TG: A lot of tourists want to go out and look at those carvings now . . .
> KJ: White woman got their own culture and we don't interfere with their culture. We like to put it this way, you know, we don't want them to interfere with our culture.

Others thought that it was acceptable for white female tourists to look at engravings, as they would not know what they meant.

Another view was expressed by James Solomon who thought that white women could look at engravings of fish, turtles, kangaroos and other fauna but not at other types of motifs such as human figures with head-dresses and what he refers to as "bush bibles" - elongated or elliptical figures with infilled dots or other designs. James and others expressed concern that if a white woman were to see those engravings, she might get sick or have an accident. Informants who were prepared to allow female tourists to see engravings viewed female rock art researchers in a different light; they believed that it was inappropriate to allow women to study rock art. This is by no means a new attitude; similar views expressed at several Pilbara Bush Meetings led to the DAS in 1981 withdrawing its female archaeologists from the Burrup Peninsula and other sites in the region.

10.9 The Burrup Peninsula as a dangerous place

The story of Ned Snip's "abduction" by the Yaburarra spirits (see Section 10.6) is widely known among the Roebourne community and other Aborigines in the Pilbara; it has already become almost a legendary event.

An early vocabulary of the Ngaluma refers to spirits apparently similar to those described by Ned:

> Willagullee - Legendary Sirens, light skinned, very beautiful, with long hair, having no males amongst them, they capture native men and hold them as captive lovers (Hall 1971: 26).

A number of other people that Gara spoke to believed the Burrup Peninsula to be the abode of spirits. David Connors was warned by the old people that the Burrup Peninsula was a dangerous place. He remembered that when he first went there in the 1940s searching for lost sheep, he was really scared. He told Gara:

> I wasn't looking out for the sheep, I was looking out for someone might be coming out of the bushes and grab me.

David recalled that when he was living in the single men's quarters at Dampier in the late 1960s he had an eerie experience:

> When I was working at Dampier with Poon Brothers, my quarters were right up against the hill. One night I hear girls' voices calling "Dave, Dave" and I turned slowly, looking around, feeling my head, thinking I must be going mad. I went and told this other bloke, he come from Uganda, that I was sure I'd heard girls talking up there near them rocks. But he had heard them too, and he told me "I thought I was going off my head but now you telling me you hear those girls too".

As noted previously, Robert Boona described the Burrup Peninsula as a sacred place, a place that his parents forbade him from even looking at when he was young. Calvin Saunders echoed Robert Boona's feelings about the Burrup Peninsula, saying that it was a sacred place, and very dangerous. Calvin's comments about the spirits that he believed lived there are particularly interesting, especially in the light of Ned Snip's experience.

The old people warned Calvin when he was young not to go there because it was inhabited by spirits "like little people" that could "turn people's heads" or "make them hear voices". These spirits were connected with places that Calvin referred to as *wanta thalu*. The term *wanta* translates as "madness" or "insanity", or also as an "evil spirit". These *wanta thalu* sites would presumably have been used by the Yaburarra to make their enemies go insane in the same way that *parraruru* (smallpox) *thalu* or *kurranja* (march fly) *thalu* were used to afflict enemies. Confirmation of the existence of *wanta thalu* is provided by Radcliffe-Brown (1913: 189) who noted that one Martuthunira local group had *wanda*, which he translated as "devil or evil spirit", as one of its totems. Calvin was told that the spirits lived in the rocks and one of their main camping places used to be a big hill near the township of Dampier. However, according to Calvin, the spirits had all been frightened away by the blasting and other activities associated with the construction of the port and township. David Connors' experience while staying at the single men's quarters suggests that the spirits may not have left the area.

The "spirits of the Yaburarra" frequently came up in conversations in Roebourne and they were the subject of numerous references, usually half-joking, half-serious, while Gara was out on the Burrup Peninsula with Aboriginal people. To most people they are traditional spirit beings associated with the land itself, although in some people's minds they seem have become entwined with the "ghosts" of the Yaburarra people.

Fear of these spirits does not stop Aborigines from visiting or camping on the Burrup Peninsula or the islands, although it seems to place some restrictions on movements, especially after dark. On one occasion Gara was at Patterson's Valley with some of the Aboriginal men. It was getting late in the afternoon but no-one seemed to be in a hurry to leave until David Connors said:

> It's getting late and there will be ghosts coming out of the hills any time now.

Within a few minutes the billy had been emptied, the fire put out, the cups gathered up and everyone was ready to leave. On another occasion when they camped for the night at Searipple Passage, Aboriginal mothers warned their children not to stray too far from the fire or else "those Yaburarra spirits will get you and take you away".

Aborigines believe that some sites in the landscape were so powerful spiritually that they could not be approached by women and children or by men who had not been fully initiated. Such sites might be caches of sacred objects, ceremonial places or inhabited by dangerous spirits.

A transgressor risked death or other punishment from the custodians of the site or, even worse, supernatural retribution from the spirits. Sites of this type may be forbidden to all but the most senior initiated men, and knowledge of the sites was similarly restricted. Visits to "unknown country" are fraught with danger for Aboriginal people because of the possibility of accidentally causing sacrilege to a powerful place.

Most of the elders with whom Gara spoke were concerned about places of this type on the Burrup Peninsula, where anyone - Aboriginal or non-Aboriginal, male or female - might unwittingly venture with disastrous consequences. It was not just the individual that trespassed upon such a site who was liable to suffer at the hands of the spirits. In Aboriginal belief, some natural disaster or disease might be unleashed upon the whole community by an act of trespass.

Though they recognise that some sites may have to remain off-limits to the general public or to women and children, there exists a widespread and genuine desire on the part of the Aboriginal people in Roebourne to share and interpret elements of their own culture and country for the benefit of non-Aboriginal visitors. They are aware that there may be difficulties in demarcating areas off-limits to women but if suitable areas could be found where restricted engravings did not occur, walking trails similar to the Jaburara Heritage Trail near Karratha could be established.

Aboriginal people see themselves having an increased involvement in cultural tourism in the future, including guided tours of art sites and other cultural activities and perhaps through the establishment of an interpretation centre.

10.10 The perspective of the Indjibarndi and other Aborigines in the Pilbara

While in Roebourne, Gara talked to several of the Indjibarndi elders concerning the Ngaluma people's desires to look after the Burrup Peninsula. He spoke at some length with Yilbie Warrie, an Indjibarndi elder and widely-respected Law man. Yilbie worked on both Mardie and Karratha Stations when he was a young man and knew some of the last Yaburarra people. From these men and other coastal people, Yilbie learned some of the mythology that relates to the Burrup Peninsula (see Section 10.7). Yilbie believed that Ngaluma people should look after the Burrup Peninsula now and named David Daniel and Roger Solomon (now deceased), as initiated elders, as being the men with the best qualifications. Yilbie was keen to help the Ngaluma people in the task. Gara also spoke briefly to Woodley King, Johnny Walker and Kenny Jerrold. They all echoed Yilbie's feelings on this issue, being supportive of Ngaluma aspirations and offering their help in educating the younger Ngaluma men.

During Gara's visit to Onslow, Algie Patterson was reluctant to state his opinion on who should be looking after the Burrup Peninsula now, saying that it was not his place to talk for that country, but he stressed the claims of the Cosmos children through their father and grandfather.

10.11 Rights to Country

It was largely Radcliffe-Brown's early work with the Pilbara tribes that enshrined the patrilineal local descent group as the basic land-owning unit in Aboriginal Australia. However, some anthropologists (*cf.* Hiatt 1962; Meggitt 1975: 47-74) have argued against the construct of local descent groups living as relatively discrete units on their own totemic lands.

In more recent years, some researchers have demonstrated the adaptive and dynamic nature of Aboriginal local organisation by documenting the importance of rights to land acquired through matrilineal descent or residence (see below) while others have shown that rights to land and resources were rarely exclusive (*cf.* Myers 1986). As is discussed in more detail below, the process of succession to land is also well documented in the anthropological literature. The flexibility that seems to permeate most aspects of Aboriginal local organisation is now regarded as an important mechanism that enabled Aboriginal groups to maintain a balance with each other and their environment (*cf.* Peterson 1983: 134-5; Hiatt 1984: 11). Gumbert (1984: 90) has argued that, in Aboriginal society:

> Each individual was equipped not with a single patrilineal affiliation as the classical explanations suggest but rather a unique configuration of rights and obligations stemming from his relationship to a complex set of sites, individuals and groups.

Throughout most of Aboriginal Australia, primary rights to country were inherited patrilineally, *i.e.* an individual "inherited" rights in the country of his/her father. However, there are numerous other ways in which an individual may claim rights in a particular area. As noted above in the Section on Local Organisation, Radcliffe-Brown (1913: 147) observed that in the Pilbara an individual had a "secondary right" over the country of his or her mother.

Whereas Radcliffe-Brown did not invest this right with much significance, Hiatt (1984: 19) and other researchers have stressed the importance of the special relationship that a man has for the country of his mother and to certain other maternal kin. There are also other rights to land which are not mediated by kinship. These interests, which vary in importance from one region of Australia to another, include the rights arising from conception, birth or initiation at a particular place, from having a parent or grandparent buried at that place, or by having strong totemic or ritual associations with that place (Peterson and Long 1986: 60-2). Long-term residence may also confer authority; this process can be seen to be operating in the post-contact situation where Aboriginal communities have developed strong associations with a particular pastoral property or mission station. Another process documented in post-contact times occurs when an elder who has no direct male descendants chooses another man suitable to take over his country, and makes it publicly known that he wishes his country to be passed on to that man (*cf.* Christensen 1984: 320; Sutton and Rigsby 1986: 164).

These non-patrilineal interests can be converted, directly or over time, into patrilineally transmitted interests. This would permit, for example, a local descent group to take over the estate of another group that had become extinct (Peterson 1983: 137-8; Peterson and Long 1986: 145-6). This process of succession has been documented in the Ranger Uranium Environmental Inquiry.

There, the conclusion of the Ranger Commission was that:

> succession . . . is recognised in the Region . . . It means that primary spiritual responsibility for sites on the land of a clan which becomes extinct will pass to members of another clan which has had kinship and religious ties with the extinct clan (Ranger Uranium Environmental Inquiry 1977: 260).

Succession by one local group of the estate of another group either extinct or nearly so has also been documented in the Yirrkala land claim,[17] where the succeeding group were said to be "looking after" that estate, and on Cape York Peninsula (Sutton and Rigsby 1986: 161). The study by Palmer (1983) of the Yandeearra community, south of Port Hedland, demonstrated that a local group could gain *de facto* control over the estate belonging to an extinct group, or an estate belonging to "ineffective" owners, *i.e.* those who had failed to fulfil their ritual obligations to that estate.

The Seaman Inquiry also documented the process of succession:

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[17]Milirrpum v. Nabalco Pty Ltd and The Commonwealth of Australia (Gove Lands Rights Case) Supreme Court of the Northern Territory, 1971.

> in the case of groups which die out or are reduced in numbers, there are mechanisms to allow for succession to rights in the land by other groups (Seaman 1984: 12).

Peterson (1983: 135-6) suggests that the extinction of local descent groups would have occurred occasionally even in pre-contact times.

Secondary rights to land were a mechanism by which succession could take place, where those extinct estates could be claimed by others. It should be noted, however, that succession would only take place if the new owners knew the sites in that country, as well as the proper songs and rituals and also had possession of the sacred objects associated with those sites.

The process of succession by migration is also well-documented in the anthropological literature. This process, in which an immigrant group gains and consolidates authority in another group's area, has been described by Palmer (1983) at Yandeearra and by Stanton (1983) at Mt Margaret. The situation with the Indjibarndi in Roebourne is another example.

As discussed earlier in this report, Indjibarndi people have moved into Roebourne. By virtue of their numerical and cultural strength relative to the Ngaluma, the similarity of Ngaluma and Indjibarndi ritual cycles and the Indjibarndi's familiarity with Ngaluma country acquired through joint ritual activities and historical association, the immigrants have been able to retain and consolidate their own cultural practices in the new country (Turner 1990: 119-121) and share them with the Ngaluma and other coastal people.

Most of the studies that have dealt with succession have focused on semi-traditional Aboriginal groups who had maintained close links with their land. Little research has been carried out on Aboriginal perceptions of rights to country in those areas where traditional links to the land have been largely severed.

In most parts of "settled" Australia, individual and local descent group links to land have broken down in the face of massive depopulation, social disruption and the alienation of the land. In the place of those links has often emerged a more generalised interest in land and sites over a wider area (*cf.* Jacobs 1988: 37-8; Rumsey 1989; Kolig 1990: 239-40). In some cases these new links may be based on historical association, *i.e.* with a particular pastoral property, a former mission reserve or another area of community interest. In other cases people take on responsibility for what they regard as their "tribal land".

The latter appears to be the situation with the Ngaluma people; an individual has strong links with the particular area in which he or she grew up, but that individual also has more generalised interests over what is regarded as Ngaluma country - the coastal plains between the Maitland and Sherlock Rivers.

Ngaluma people are well aware of the fact that the Burrup Peninsula and the islands were not their land and had belonged to the Yaburarra. They do not wish to be seen as taking over that land but rather, as "looking after" it on behalf of its former owners. Use of the term "orphan country" by Ngaluma people has been recorded by field officers from DAS and other researchers over the last few years. A similar view was voiced to Edmunds during her research in Roebourne in 1987-8.

She wrote that:

> Although there was no group who claimed [the Burrup Peninsula and the islands] when Hamersley began work on Dampier, there is a strong interest today in reclaiming the area by the Ngaluma [*sic*] people of Roebourne. Their stated position is that, in the absence of the original owners, it is their duty. 'For Aborigines', one Ngaluma [*sic*] leader explained in relation to the claim, 'land always has an owner' (1989: 47).

When groups recently camped overnight at Searipple Passage, David Daniel spoke at some length on the need to look after the Burrup Peninsula. He explained that in Aboriginal society if a child's parents died, he or she was always adopted by other relatives.

The same process operated in relation to land; if an area was left without people to care for it, other people would take it on. He said:

> Aboriginal Law says no such thing as orphan. Always pass on to somebody . . . Next people over got to take over the country . . . We're saying this land belong to next tribe . . . This land belong to next generation. If a kid has got no mum and dad, next people in line take over. It's exactly the same with the land.

Roger Solomon referred to the Burrup Peninsula as being "orphan country" in early discussions Gara had with him. Later, however, when he was able to identify a number of people who had links to the Yaburarra, including George Togo and the children of Nickolas Cosmos, Roger observed:

> Now we know it's not orphan country. It's got two sides of the family that are actually alive here - George Togo and the Cosmos mob.

David Daniel, on the other hand, believed that the Burrup Peninsula was still "orphan country" because there was no-one left who had been initiated the "Yaburarra way", and because the Yaburarra language was gone and most of the place-names and mythology were also gone. David, Roger and other Ngaluma people did not accept that any part of Ngaluma country fell into the category of "orphan country", although there are some areas, particularly along the coast, where traditional owners can no longer be identified on an individual level.

In the perspective of the Roebourne elders there are still Ngaluma people left to look after their land and Martuthunira people to look after Martuthunira land. Only the Yaburarra's land is "orphan country".

Although the process of succession is well-documented in the anthropological literature, Gara has not been able to locate any references to "orphan country" or any similar concept, except for in the writings of Daisy Bates.

She referred to "orphan country" in some of her accounts of the Aborigines of the Nullarbor Plain where she worked between 1912-34. In one vocabulary she recorded there she included the term *naruri*, designating "orphaned waterholes and country whose owners are all dead" (Bates 1918: 158). In her book *The Passing of the Aborigines*, first published in 1938, she also uses the term "orphan" country on several occasions to describe areas whose local totem groups were extinct (1938: 134, 168).

Aborigines frequently describe their relationship to the land in terms analogous to that of a parent-child relationship. Sometimes the Aborigines see themselves as the children of the land; an example of this is the popular Aboriginal slogan "the land - my mother", which reflects their dependence on the land for physical and spiritual survival. Sometimes the Aborigines see themselves in the role of parents.

A good example of this is the Pitjantjatjara expression "growing up the country":

> the Pitjantjatjara do not see the land as a 'thing' separate from themselves. They 'grow up the country' just as they 'grow up the kids', with deliberate care and affection. They see themselves as the land's inherent and perpetual custodians (Toyne and Vachon 1984: 5).

The process of "growing up the country" or "caring for the country" involves physical activities such as cleaning out the rockholes, carefully harvesting the plant and animal resources and keeping the country open by judicious burning.

Most importantly, caring for the country requires the performance of the ceremonies that ensured the continued fertility of the land. Land that was neglected would become barren; the waters would dry up and the plants and animals would die.

For people who see their relationship to the land in this way, "orphan country" is clearly an appropriate term to use to describe land that is bereft of people. When applied to the Burrup Peninsula, it is also a particularly powerful term, expressing both sadness for the Yaburarra who were shot and then enslaved by the pearling trade, and sympathy for the land, which has been neglected for so long. There is also today a growing sense of hope and optimism in relation to the Burrup Peninsula.

As Aboriginal people become more familiar with the Burrup Peninsula and take a greater role in its management, it will cease to be orphan country. David Daniel thinks that this process has already begun:

> We're here [at Searipple Passage] and the spirits of the Yaburarra are rejoicing. They didn't get shot for nothing. They're rejoicing because the next people are taking over. That's why we bring our kids here, so they can understand that too.

10.12 Discussion

Ngaluma people expressed to Gara a strong and consistent desire to "look after" the Burrup Peninsula. They are fully aware of the strong traditional prohibitions against a group claiming or speaking for country without the proper authority, but they see looking after that land as their responsibility, in the absence of its proper owners. This desire is not new; it can be traced back to at least the Seaman Inquiry in 1984 and it probably extends much further back. The elders do not and cannot justify their claim to the Burrup Peninsula on those criteria usually recognised as being important in such matters. A few Ngaluma (and Martuthunira) people have some historical associations with the area but no-one now has much traditional geographic or cultural knowledge of the landscape, including the few Yaburarra descendants who have been identified, the Cosmos and Togo families, and perhaps the Saunders family. No-one claimed to have been born there or had parents or grandparents who had been born or died there. No-one claimed direct mythological or totemic links with the Burrup Peninsula or any economic dependence on either the land or the sea.

For the Aborigines, land always has to have an owner. The Burrup Peninsula is "orphan country", it has been neglected, in Aboriginal terms, for a long time. The people are gone, the language is gone, so too are most of the place-names. It is, however, still a place of great spiritual power to the Aborigines. The work of the *Marrga* is everywhere to be seen in the countless thousands of engravings that adorn the scree slopes and rock piles.

The Aborigines recognise the Burrup Peninsula's significance and feel responsible for looking after that country now. This responsibility falls on to the Ngaluma because of geographical proximity and their former close cultural and social links with the Yaburarra.

Further genealogical research may reveal other people of Yaburarra descent and perhaps provide confirmation of the claims of those people identified in this report as being related to the Yaburarra. The support of Yaburarra descendants gives the Ngaluma added authority to speak for the Burrup Peninsula but it should be pointed out that even if there were no people of Yaburarra descent alive, the Ngaluma would still wish to look after the Burrup Peninsula on the basis of general cultural links with the Yaburarra. For Roebourne people, documentation of genealogical links is not as important as an acknowledgment of their right to assume responsibility for the Burrup Peninsula.

The evidence that Aborigines inhabited the Burrup Peninsula is everywhere to be seen in the countless engravings, the numerous campsites, middens, scatters of stone artefacts, stone quarries and workshops, standing stones, hunting hides and other stone arrangements. The Ngaluma elders talk with great sorrow of the Yaburarra's passing and the loss of their culture, language, mythology and place-names. They are also aware of what caused their demise. Knowledge of the Flying Foam Massacre seems until recently to have been restricted to the elders, who were unwilling to pass the stories on to the younger generation.

However, coverage of the incident in the film 'Exile and the Kingdom' (by Frank Rijavec, Noeline Harrison and Roger Solomon), which was shown in Roebourne while Gara was there, led to the massacre being widely discussed for several days afterwards, by old people as well as the younger men and women. Already the massacre has become a potent symbol for some Ngaluma people who say that they want to look after the Burrup Peninsula "in memory" of the Yaburarra and the crimes committed against them.

Several of the Roebourne people suggested that a monument to the Yaburarra people should be erected at King Bay or Searipple Passage, where so many of them lost their lives in February 1868.

Since 1982 DAS has accepted that Ngaluma people have to be consulted in relation to heritage matters on the Burrup Peninsula and the islands; in effect DAS has recognised them as *de facto* custodians and given them semi-official status. CALM also appears to have accepted the Ngaluma as custodians. There seems also to have been some recognition of Ngaluma claims to the Burrup Peninsula by Hamersley Iron, Dampier Salt and Woodside. Greater familiarity with the Burrup Peninsula and islands has increased the Aborigines' awareness of the area's rich heritage.

They also have become aware of the extent of the destruction of sites by the industrial developments that have occurred there in the past and the potential for further destruction in the future. Since the Harding River dam controversy, the Aborigines in Roebourne have become considerably more politically aware and more organised. Their growing is reflected in their demands to take a more significant role in protecting their own heritage and country, and also protecting the "orphan country" of their former neighbours. Ngaluma interests in the Burrup Peninsula should be seen in this broader historical and cultural context. The assertion of the right and responsibility to speak for the Burrup Peninsula is itself an assertion of identity and authority on the part of Ngaluma people.

In the past Ngaluma interests in the Burrup Peninsula have been largely oriented towards sites and heritage. Turner (1990: 255) observed that in the Harding River dam controversy, the Aboriginal Heritage Act 1972-80 was the only legal avenue open to the Roebourne community to focus public attention on their broader concerns, such as the dam's social impact, loss of hunting and fishing rights, the alienation of land and the ever-increasing marginalisation of the Aboriginal people. The situation continues today with the Burrup Peninsula; in the absence of any land rights legislation in Western Australia, it is only through heritage legislation that the Ngaluma people can voice these wider concerns.

Ngaluma people want to take a more direct role in discussions concerning future management and development on the Burrup Peninsula, to ensure that their interests are taken into account. Government authorities and mining companies continue to consult with DAS over heritage matters on the Burrup Peninsula when, in the opinion of the Ngaluma people, they should be consulting directly with Ngaluma people. Ngaluma people see more direct liaison between themselves and developers as a means of achieving acknowledgement of their custodianship of the Burrup Peninsula. Their chief concern at the moment is the preservation of Aboriginal heritage, but in the future other issues such as access, camping and hunting rights may gain greater prominence. These issues should be taken into account in future management plans for the Burrup Peninsula.

As another step towards a greater involvement with the Burrup Peninsula, Ngaluma people want DAS and/or CALM to train and appoint Aboriginal rangers for that area, preferably chosen from among those young men who have been through the Law and who are taking an interest in their heritage and culture. Some of the middle-aged men might also be suitable as rangers or in other land-management positions, having learnt a wide range of practical skills on the pastoral stations and in other occupations in their younger days. They could also instruct the younger men in traditional religious and environmental knowledge.

The rangers should be involved in site protection and monitoring, public education and research, and could also participate in CALM's land-management and conservation activities, such as feral animal control programmes, biological surveys and routine management operations.

11. ASSESSMENT OF RELATIVE SIGNIFICANCE OF SITE COMPLEXES

It must be stressed that the density of individual sites on the Burrup Peninsula recorded from this 20% sample survey, at 56.7 sites per square kilometre, is exceptionally high and that in many respects the entire Peninsula could be treated as a more or less continuous site (see Appendix 4 for descriptions of major site complexes).

It is probably a combination of the durability of the granophyre parent rock, upon which most engravings were executed, and the minimal sediment build-up over the flats that provides such a transparent record of occupation over many thousands of years. It is precisely these characteristics which produce such poor chronological control.

It was stressed that many of these issues pertinent to the Burrup Peninsula can only be assessed by looking at aggregations of contiguous sites which adequately reflect the range and diversity of human behaviours that would have constituted people's daily and seasonal rounds of land use.

Given the above, it would be inappropriate to assess the relative significance of individual sites. Instead, the most significant associations of sites, or areas, will be discussed as a background to National Estate nominations.

The first area to be examined includes the large interior and coastal valley systems of the northern Burrup Peninsula which drain into Searipple Passage and Conzinc Bay. It should be noted that the most northerly valleys are already incorporated into a Protected Area listed on the National Estate (see Section 1).

There are at least four major clusters of site complexes at Conzinc Bay which are focussed on well defined creeklines and which are at least partially contained within valleys. These include sites Q15, Q17, R1 and R2, S4 and T9. These sites satisfy the conditions for addressing regional research issues and also have aesthetic and educational values. They provide statistically large samples of stylistically and thematically diverse engravings, contain stratified deposits which may provide cultural sequences, have the full range of cultural features which have discrete spatial patterning and reflect exploitation of the full range of littoral and terrestrial habitats which are locally available.

Additionally, they have moderate to good integrity and have not been impacted to the extent that, for example, some near coastal sites have been at the south of Withnell Bay (*e.g.* I1). While large site complexes have been recorded at the northern end of Withnell Bay (*i.e.* M5, M6, N9), they lack well stratified deposits, have less cultural features and have less spatial integrity.

Within a one kilometre radius of the Conzinc site complexes are a wide variety of task-specific sites, such as the stratified quarry/reduction site P7, numerous stone pits, monospecific shell scatters and discrete flaking areas. The coastal valley complexes in conjunction with the task-specific sites, therefore, have the potential to address the full range of research questions identified in Section 9. They are argued to be of moderate to high significance.

It should be noted that a burial has previously eroded from the coastal dunes at Conzinc Bay (H. Chevis, pers. comm.). These dunes are prime areas for burials and are likely to contain more burials which have not yet been exposed through erosion. The integrity and protection of burials is of great concern to local Aboriginal communities, as stated by them on many occasions.

The main mitigating factors which precludes the assessment of these Conzinc Bay sites as *clearly* highly significant, are:

11.1 Stratified deposits are apparently residual and minor components of the sites, and are not likely to be of substantial depth, *i.e.* unlikely to cover more than several thousand years,

11.2 The density and thematic diversity of engravings are not outstanding at the local scale, nor is desert varnish present on more than a couple of engravings (*e.g.* in comparison to Gum Tree Valley, K13, V34, *etc.*).

As noted, in Section 9, the massive valley complexes of the northern zone draining into Searipple Passage comprising Site V34 and Y25/W15 are outstanding in their ability to address regional research questions and in their aesthetic and educational values. There are beach dune/sand-deposits near V34 (east along coast) which may contain burials. While stratified midden deposits at V34, in particular, require further examination, it is possible they will cover considerable periods of Holocene occupation. A high potential for relative or absolute dating of the rock art exists given the presence of distinctly different rock art styles, degrees of patination and desert varnish within engraved surfaces. V34 in particular appears also to be of considerable importance to local Aboriginal communities. Senior initiated male spokespeople have noted that many of the engraved motifs depict aspects of ceremonial and initiatory events or probable ancestral mythological beings.

Concern has been expressed over unrestricted public access into this valley system. As already recognised by their Protected Area status, the northern site complexes, in association with smaller 'satellite' sites, are argued to be highly significant.

The 'Climbing Man' panel (Site F1), has also been listed and given Protected Area status in recognition of its uniqueness, aesthetic and educational qualities.

The other area which has been nominated, but not yet listed, is the Watering Cove engraving and habitation complex (J12, K13). We note the additional recording of a stratified rockshelter at Watering Cove (K12) and draw attention to the stratified mound midden located to the south of Cowrie Cove (H7). This site has some potential to yield a continuous mid- to late Holocene sequence. It is likely that a systematic survey of Cowrie Cove would yield other such sites. In recognition of the contiguous 'site systems' approach it is argued that this site be included in the nomination for the significant sites of Watering Cove. Boundary changes to the nomination are discussed in the following section.

Finally, there are two associated sites located at the southern end of Withnell Bay (sites I2 and I5), which are argued to be of moderate to high significance and which are worthy of nomination. These are both multi-featured sites associated with an incised, rocky based creekline draining into Withnell Bay. They appear to be focused on a large semi-permanent rockhole within this drainage line.

They contain probably over 1,000 engravings, have numerous grinding bases or platforms, contain stone pits and walled structures, have substantial shell and artefact scatters and have quarry sources and reduction areas. Importantly, they represent intensive occupation within the Withnell Bay catchment, a catchment which has already been substantially impacted through the construction of the LNG facility and recreational use. Boundaries for their nomination are provided in the following section.

A consideration of a range of other (non-archaeological) cultural values provides complementary support for the potential nomination of areas with high research, education and aesthetic values. The detailed discussion of the Flying Foam Massacre (Chapter 3) illustrated that Searipple Passage, at the northern end of the Peninsula, was one of the sites of reprisal shootings. It has become a focal area for local Aboriginal people, in symbolising the injustice of this random retribution. Some Aboriginal people also believe that a survivor from the massacre, who became a fugitive, was finally tracked down and shot near Watering Cove.

Recently, local groups have been camping out and fishing at the top end of the Peninsula; additionally, corroborees have been held at both Cowrie and Hearson's Cove.

At least one major mythological saga (flying fox) is believed to be associated with the Burrup Peninsula and is known to be manifested in several mainland features at the base of the Peninsula.

Finally, it should be acknowledged that the numerous engravings on the Peninsula are believed by Aboriginal people to have been created during the Dreamtime (epoch), to have been made by the *Marrga*, and as such are of contemporary significance. A number of motifs are seen to depict events and objects of a ceremonial and ritual nature, as these occur elsewhere in the Pilbara and are as such of restricted status. Initiated males do not feel it is appropriate for some of these engravings to be viewed by the wider community.

12. RECOMMENDATIONS TO THE BOARD OF MANAGEMENT FOR ALTERATIONS AND ADDITIONS TO NATIONAL ESTATE LISTINGS ON THE BURRUP PENINSULA

Sections 7 to 11 of this report have provided data on the nature, distribution and significance of newly recorded archaeological sites located within a 20% sample of lands lying east and north of the LNG facility. A total of 498 sites were recorded, many of these comprising multiple cultural features such as engravings, shell and artefact scatters and stone arrangements.

In summary, the coastal sand flats, near coastal valleys and interior valleys contain the largest and most complex cultural assemblages, and have the greatest potential to provide datable sequences.

The significance of site complexes has been assessed with reference to ten local and regional research questions and values such as representativeness, educational and aesthetic merit. The research questions focus on the ability of sites, and groups of sites, to inform on past patterns of human subsistence, group mobility, demography and social organisation.

The existing listed area for Burrup Peninsula North, incorporating the highly significant site complexes of V34, W15 and T9, is shown in Figure 1.2. The 20% sample survey (Figure 7.1) clearly demonstrates that sites of national significance occur within the boundaries of this listed area.

To the south of this boundary are a number of extensive site complexes aligned along the valleys and foredunes of the Conzinc Bay catchment. These are sites Q15, Q17, R1, R2 and S4 (also note P7). These sites, in conjunction with minor associated sites, are argued to be of moderate to high significance. Additionally, burials have been located in the foredunes of Conzinc Bay and the likelihood of further burials occurring here is very high. These sites are collectively worthy of National Estate nomination.

The "Climbing Men" Listed Area (Site F1) is clearly of national significance and warrants full protection.

The Watering Cove engraving and midden complex has been nominated for listing (see Figure 1.2) and correspondences indicate that all relevant parties have given consent. Given the additional location of significant sites both at Watering and Cowrie Coves, however, the currently proposed boundaries should be altered.

Finally, two site complexes in the Withnell Bay catchment, I2 and I5, are argued to be of moderate to high significance and worthy of nomination (see Figure 7.1).

12.1 Recommendations

12.1.1 It is recommended that the considerable values of site complexes in the Conzinc Bay catchment are recognised by nominating an extension to the Burrup Peninsula North listed area, as shown in Figure 12.1. This southern extension to the boundary of a current National Estate listing will ensure that both the protection and management of the large Conzinc Bay site complexes is feasible.

12.1.2 It is recommended that the configuration of the Watering Cove nominated boundary is changed to more accurately represent site distribution at this location, extending along the coast to include Cowrie Cove (see Figure 12.1).

12.1.3 It is recommended that Sites I2 and I5 are nominated to the National Estate and that the boudaries shown in Figure 12.1 are adopted.

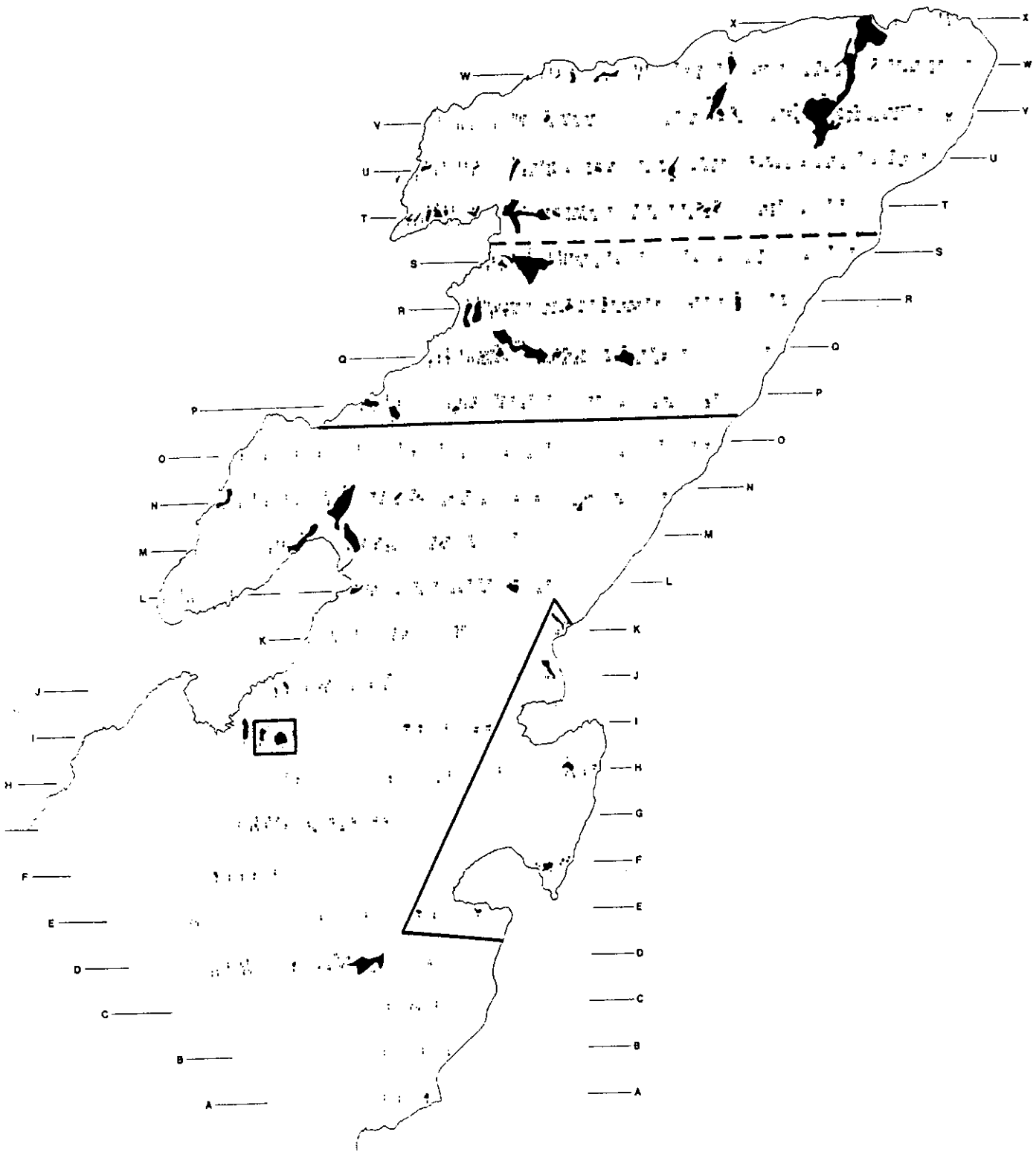

Figure 12.1 Proposed boundaries for nominations to National Estate; Conzinc extension, Withnell Bay south and Watering - Cowrie coves.

13. RECOMMENDATIONS FOR PROCEDURES TO ASSESS POSSIBLE FUTURE IMPACT ON THE CULTURAL RESOURCE

13.1 Inter-departmental liaison

As noted at the beginning of this report, it is essential in the successful planning of land use strategies that liaison between land users and managers is both streamlined and optimised. This may be addressed through the composition of a Burrup Peninsula Board of Management which now hosts permanent representatives from:

The Pilbara Development Commission
The Department of Resources Development
The Department of Conservation and Land Management
The Department of Aboriginal Sites, Western Australian Museum
Roebourne Aboriginal Community
Dampier Port Authority
Woodside Offshore Petroleum
Hamersley Iron Pty Ltd
Shire of Roebourne
Local community

In the (draft) terms of reference for the Board it clearly notes that, among other interests, it will:

> ... promote multiple land use ensuring in particular that ... heritage (Aboriginal in particular) interests are recognised in the planning and management processes.

Further, it notes that the Board has the power to:

> Establish Committees/Working Groups under the auspices of the Board ensuring that development, *conservation* and management functions are adequately carried out.

Given the scope and significance of the cultural resource of the Burrup Peninsula, it seems highly desirable that a permanent working group is established to deal specifically with the management of sites and with any incipient proposals that may affect their status.

This group should ideally have representatives from the Roebourne Community, the Pilbara Development Commission, the Department of Aboriginal Sites (WAM) and CALM, and should report regularly to the Board of Management.

13.2 Statutory obligations of proponents

One of the principal aims of such a working group would be to make proponents aware of their obligations to state and federal legislations regarding the protection and management of Aboriginal sites. Additionally, it might direct proponents to relevant contacts for advice on proposed land uses which may affect the status of sites. Detailed counsel may then be provided at an early stage of planning. One of the most effective ways to ensure that on going advice is available to all land users, including recreational and tourist interests, is to establish a permanent employee with land management responsibility for the Burrup Peninsula with specific training in cultural resource management.

It must be stressed that the current survey has highlighted zones on the Burrup Peninsula which are of particular heritage significance and therefore are worthy of greater attention in both management and protection. This has been a sample survey, however, and in no way provides a comprehensive data base of sites which may be used to provide clearances for the environmental impact assessment process. Firstly, a 20% sample is not adequate in such a rich area and secondly, the level of site recording is not adequate for the purposes of mitigation.

What is indicated is that very high levels of survey coverage and possibly collection and excavation would be required in some areas of the Burrup Peninsula, should these areas become subject to Section 18 applications under the Western Australian Aboriginal Heritage Act 1972-80.

13.3 Concluding recommendation

The cultural resource of the Burrup Peninsula is arguably significant and should be a source of great interest and pride to both indigenous groups and the wider community. The current survey has produced the first unbiased baseline sample of the Burrup Peninsula, in that the survey areas have not been delineated as a result of specific impact proposals. The survey demonstrates that there is patterning and structure in the archaeological record and that this can be understood with reference to past Aboriginal settlement/subsistence behaviour and the dramatic topography of the Dampier Archipelago.

Land use pressure will increase in the West Pilbara over the next ten years and, in recognition of this, it is recommended that systematic survey for sites is extended beyond the boundaries of the current recording programme.

Specifically, the area between the existing LNG and Dampier, and adjacent offshore islands, should receive systematic survey similar to that described in this report.

The greater the local data base, the greater will be the number of informed options available for the siting of any newly proposed developments.

In terms of the management and integrity of cultural resources on the Burrup Peninsula, the endorsement of the nominated areas by the Board of Management to the National Estate is strongly urged. The lands are vested in the Board and, as such, a large onus exists on the Board to make long term decisions for the successful management of the cultural resource.

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APPENDIX 1 Calm's Position Statement

1. Funding agency and purpose of grant:

The Australian Heritage Commission has provided funding to CALM for two purposes; to document Aboriginal cultural heritage values in areas of the Burrup Peninsula not previously surveyed, and to prepare nominations for suitable areas to the Register of the National Estate.

2. Role of consultants:

Archaeological and anthropological survey, mapping and reporting will be performed by consultants employed by CALM. Consultants involved in survey work must be acceptable to the traditional custodians (Ngaluma). Prior to commencement of the survey, the consultants will meet with the Ngaluma people to ensure that the people involved and the approach used are acceptable.

3. Traditional custodians:

The original inhabitants of the Burrup Peninsula (the Yaburarra) are now extinct. However, the neighbouring group (Ngaluma) based in Roebourne, now claim custodianship of the Yaburarra lands.

CALM will thus consult with and involve the Ngaluma people as described below. This will particularly relate to control of the use of cultural and archaeological information collected during the survey. Sites of spiritual significance to Ngaluma people are known within Yaburarra country.

4. Use of information collected during the survey:

While acknowledging that control over the use of information must reside with the Ngaluma community, it is desirable that the report to the Australian Heritage Commission contains some level of data presentation. However, this must be acceptable to the Ngaluma community. To this aim, we suggest that the following guidelines be followed throughout the survey:

- collection of information during the field survey will be on behalf of the Ngaluma people, whether this is performed by CALM or by CALM's consultants.

- all data and field documentation will be provided to the Ngaluma people, should they desire to accept it. The offices of the Ngurin Resource Agency may be a suitable repository. However, lodging a copy with

some other body (such as DAS) should be considered. A copy may be retained by CALM if acceptable to Ngaluma people;

- use of this information must be solely at the discretion of the traditional custodians. This will include use within the report to be submitted to the Heritage Commission. If inclusion of specific site information is not acceptable, then some form of summarised presentation will need to be negotiated. Consent for use of this information must be sought from the traditional custodians prior to inclusion within reports, data bases or publications;

- professional archaeologists and anthropologists will be employed to perform field survey and write the report. Throughout the project, we will seek to directly involve Ngaluma people. Firstly, through direct liaison with both CALM officers and the consultants, Ngaluma people will be regularly informed of progress and development of the project. Regular monthly meetings of the Ngurin Resource Agency in Roebourne may be an appropriate venue.

Secondly, Ngaluma people will be employed to assist with components of the survey. These people will be selected by the Ngaluma community.

5. Consultative Committee:

To facilitate any negotiations which may be required between CALM and the Ngaluma community, we suggest that a Consultative Committee be established. The committee will not replace community meetings as the primary source of liaison. However, it may provide a means whereby any issues of concern can be raised and discussed at short notice.

We propose that the committee comprise of at least three senior Ngaluma people, one CALM officer and one of the consultants.

6. Resolution of disputes:

In the event that any dispute arises over any aspect of the survey, we propose that the consultative committee meet to discuss the issue prior to full resolution before an open meeting of the Ngaluma community.

APPENDIX 2

Additional sources

1 Previous archaeological surveys

Brown 1979; DAS 1974, 1979a, 1979b, 1979c, 1980a, 1980b, 1980c, 1981, 1982a, 1982b, 1984a, 1984b; Green and Turner 1982; Kirkby 1981; Lorblanchet 1976; Pickering 1982a, 1982b.

2 Management studies or listings

Australia Department of Northern Development and Department of Industrial Development 1974; Butler 1984; Clough/Soros-Longsworth and McKenzie (SLAM) 1980; EPA 1979; Maunsell and Partners 1971; WA Planning and Co-ordinating Authority 1979; Woodside Petroleum Development 1979.

3.1.3 Anthropological and ethnohistorical sources

Gara 1983, n.d.a., n.d.b.; Hall 1971; King 1969; Palmer 1975; Petri and Schultz 1951; Radcliffe-Brown 1913; Richardson 1886; Tindale 1974; von Brandenstein 1967, 1970, 1972; Withnell 1901.

3.1.4 Regional research of general relevance

Baynes 1981; Berndt 1964; Bevacqua 1974b; Bolton 1980; Chappell 1975, 1982; Clarke 1978; Crawford 1964; Dix 1977; Dixon 1982; Dragovich 1984a, 1984b; Green 1982a, 1982b; Harriss 1988;

Keene 1981; Lorblanchet 1977, 1983, 1985; Lorblanchet and Jones 1980; Lorblanchet *et al.* 1978; McCarthy 1961; Turner 1981, 1984; Veth 1982; Virilli 1977; Wright 1968, 1970.

APPENDIX 3

Definitions of recording form variables:

General Site Description:

1. Air photo location. Field site location was determined from 1:5,000 aerial photographs. This allowed accurate plotting of sites which was superior to that possible on the 1:25,000 topographic series. The approximate level of accuracy is 5m, or 1mm on the photos.

   The four components of locational details are -

   - transect letter.
   - distance along transect as marked on air photos.
   - letter (either N or S) indicating location of site centroid north or south relative to transect centre line.
   - distance of site centroid north or south of transect centre-line.

   Large sites were given single locations with readings for their centre. A site straddling the transect did not have a N or S distance recorded.

2. Date. The day, month and year the site was recorded in the field.

3. Recorder. The individual primarily responsible for recording the site.

4. Site number. Sequential site numbers; west to east, south to north along transects.

5. Grid reference. Aerial photo site boundaries were converted to map-based AMG co-ordinates.

6. Site locality name: English/Ngaluma. Some sites were recorded in close proximity to named features, and this was noted where possible or left blank for filling in at a later date. In discussions with Aboriginal consultants, it was decided that equivalent Ngaluma words, or another appropriate Ngaluma name would be given to some sites, or areas (where more appropriate than non-Aboriginal site names).

7. Site status. Determining the status of sites was considered to be an important function of the project. In particular, the team wished to identify those locations which were known to be, or considered likely to be, restricted. Categories .1 and .3 (in conjunction with .4 and .5) were used in the field, with .2 (the confirmed category) being left until confirmation from a *range* of suitable people had been obtained. The "confirmed" and "to be determined"

values were seen as useful in identifying 'no go' areas and locations requiring further clarification.

8. Cultural features. The variety of cultural features noted at any one location were recorded in this category. Site complex boundaries were defined on the basis that at least 25m separated one cultural feature from another. Any features located beyond the 25m limit were recorded on a separate form, as long as at least part of that site's boundary fell within the 100m transect survey zone.

9. Geographic zone. These were recorded following the definitions used in the Dampier Archaeological Project (Vinnicombe 1987b:14) for the previous recording of 720 sites in the LNG zone. One change made however was the previous Zone 8 (inland plateau), which was divided here into plateau or slope and redesignated as 'inland highlands' to describe the verge of rockpiles and stones found in elevated inland positions.

10. Specific topographic context. This was a free-form text field, where specifics of site environs could be given. For example, the depth and slope of a valley could be noted or the size of a prominent isolated outcrop.

11. Vegetation/visibility conditions. Specific details of vegetation on, and adjacent to, a site were noted. The only substantial ground-cover was *Triodia* sp. and its percentage coverage of the ground surface was noted.

12. Proximity to water source. This variable was recorded in the field where sites were obviously proximal to one of a range of generally ephemeral or semi-permanent water sources. For example, rockholes or rocky creek channels with calcrete deposits.

13. Water source type. Following question 12, this variable aimed to characterise the type of water source; for example, calcrete-lined creeklines are correlated with a greater number of persistent pools than sediment filled creek channels which may hold water for only short periods or weeks after local rain.

14. Site dimensions. Maximum site dimensions were recorded perpendicular to each other on one plane. Height records the maximum dimension normal to the horizontal plane. Maximum dimensions on small to medium sites were measured with tape while larger features have been estimated from 1:5,000 aerial photos.

15. Aspect and orientation. Site aspect was noted either as an approximate direction towards which a site faced (*e.g.* north/north-west), as a single figure indicating the specific direction a feature was facing (*e.g.* 270 degrees), or as a range of degrees indicating the maximum extent from a particular locality (*e.g.* 20-280 degrees). Orientation

measures the bearing of linear figures such as stone arrangements or complexes, such as numerous stone pits. Often such features followed linear ridges.

16. Angle of slope. The angle of slope on which a site occurs was noted.

17. Description of site substrate. The substrate on which sites are located, or adjacent to, was noted for the sake of characterising local geomorphology and also to characterise possible stone artefact sources and engraving surfaces. Field specimens of different substrate types were forwarded to the Geological Survey of Western Australia and these descriptions used as the standard.

18. Site description. This was used for explaining features of the site not adequately treated elsewhere in the form. Specifically, the relationships of features to each other and their distribution across the site were noted here. Annotated site plans accompany these records.

19. Film. Roll number and frame number were noted here. Subject details were kept in running records in relevant field notebooks. General site context, then individual site features, were photographed; however, not all sites (*e.g.* stone pits) were photographed, due to their large number and poor presentation from camera perspective.

Engravings:

20. Rock surface context. The rock surface context for engravings and grinding patches was recorded to identify patterns in the placement of features. This represents a standardisation of specific site location information beyond that provided in questions 9 and 10. Trends such as whether engravings or grinding patches occur predominantly around the base of rockpiles, or whether some engraving styles are differentially distributed on apexes, can be assessed.

21. Distance of features from edge of rock slope/pile. The distance from the edge/base of rocky rises to the actual engraving features. The distance value has behavioural implications, in terms of how far individuals were prepared to ascend over often jumbled rock masses to execute engravings.

22. Boulder size(s). This field provides an average value for the overall volume of engraved boulders. The main benefit of this field is the identification of exceptions to the general range of boulder sizes.

23. Depth of engraved groove or ground area. The depths of these features were estimated for larger engraving complexes, and are used to provide a modal figure and range. Where individual motifs were engraved to an unusual depth, these engravings might be individually measured.

24. Surface coatings. The presence of desert varnish and whether it occurred within, or adjacent to, the engraved surface was noted. The colour of the varnish was also noted, as an indication of the amount of manganese present, together with the degree of reflectiveness, indicated whether or not there was a silica skin coating any of the dark red varnish.

25. Colour contrast. The degree of colour contrast between the rock and the engraved surface was recorded. Such a descriptive scheme does not involve having to interpret either rock coatings or the "nature" of repatination.

26. Total number of motifs. Records either the actual or estimated number of motifs occurring within each engraving complex.

27. Orientation of engraved surface. It was noted whether the engraved rock face was oriented vertically or horizontally, or at some other intermediate position.

28. Motif types. Motif types were assigned to categories comparable to those used by the WAM in the early 1980's, comprising geometric, naturalistic, anthropomorph, patches/striations and unspecified.

29. Motif size. The number or percentage of motifs falling within the following size classes; <30cm, 30-60cm and >60cm. These size classes were manageable for recording in the field and provided adequate numbers of motifs per class for statistical manipulation.

30. Technique. The mode of execution for the engravings was recorded under the categories of pecked, scored, abraded and other.

31. Additional description/relationship with other features. This is a catch-all field which may include text on such features as super-imposition, unusual motifs and the specific context of unusual motifs.

32. Grinding Surfaces: number of grooves (on grinding surfaces). This feature was noted for both portable and *in situ* grinding bases.

33. Description of spatial arrangement. This field notes whether grinding patches occur in any patterned manner and whether their location is correlated with such features as drainage lines, mangals, *etc.*

34. Dressing/attrition. Here it is noted if the basal grinding stones have evidence for curation/rejuvenation.

35. Rockshelters: description of rockshelter. The dimensions, type of substrate and overall morphology of the shelter are noted here.

36. Description of deposits. An assessment of matrix type, visible surface artefacts and any possible stratification was recorded.

37. Estimated depth of deposits. Through the examination of erosional gulleys, rills or animal burrowing an attempt to assess depth of deposit was made.

38. Integrity of deposits. An assessment was made of whether deposits were subject to obvious cultural or natural transforming agencies.

39. Other cultural features present. If other features were noted within 25m of the shelter these were recorded under the categories of engraving, grinding surface, shell, artefacts and other.

Exploited Stone Deposits:

40. Lithologies (at artefact scatters and quarries). Ten categories of local and exotic lithology were identified, which were known to occur on, or adjacent, the Burrup Peninsula.

    Local materials include porphyritic granophyre, fine-grained, medium-grained and coarse-grained granophyre, quartz, dolerite, and gabbro. Exotic materials include chert and silicified sandstones.

41. Core types. These were broken into the virtually exclusive categories of single, and multi-platform, and bipolar.

42. Debitage type. Basic divisions were made into flake, broken flake and other debris (after Sullivan and Rozen 1985).

43. Edge modification. Artefacts with some macroscopic evidence for retouch and/or use-wear were noted here.

44. Density of artefactual material. The average artefact density, or the range in density, was noted for all scatter and quarry sites. Where density was highly variable, a range and modal figure was given.

45. Exploited stone source. With quarry sites, an assessment was made as to whether blanks had been extracted through fracturing from surface exposures, through excavation of subsurface deposits or through application of rapid heating/cooling cycles.

46. Additional description. The evidence for diversity in quarry extraction techniques was documented, as was the presence of nearby reduction areas.

Shell Deposits:

47. Shell assemblage. A total of fifteen commonly occurring shell species were identified on the basis of previous recording and reconnaissance survey. Field keys and photographs were provided to field workers for the identification of shell species.

48. Density of shell/m^2. The same methods were used as for field 44.

49. Evidence for depth/stratification. As for field 37.

50. Integrity of deposits. As for field 38.

51. Other cultural features present. Associated features within a 25m radius were recorded, including engravings, grinding surfaces, artefacts and other.

52. Additional description. Other aspects were noted, including the structuring of shell accumulations and whether these were subsurface or surface, linear or mounded, monospecific or diverse and the distribution of other cultural materials within the shellfish such as stone artefacts, charcoal and other organics.

Stone Arrangements:

53. Description of stone pits/standing stones. Notes were made on the method of construction of the pits, their spatial arrangements and associations and the characteristics of both single and clustered standing stones.

54. Immediate location. The location of stone features on the slope of boulder piles or hills was noted, as was their distance from the edge of the rise.

55. Removed boulder sizes. Where "excavated" boulders lie adjacent and encircle the pits, their gross dimensions were recorded, usually as mean values.

56. Evidence for stacking. Where individual boulders appear to have been systematically placed in mounds or lines, these were recorded as individual features.

The plan/cross section/motif examples. The rear page of the site recording form was dedicated to graphic depictions of site complexes, features and specific engraving motifs. The information on these A4 sheets will not be transferred

APPENDIX 4

DESCRIPTIONS OF MAJOR SITE COMPLEXES

In this Appendix, site complexes are described in some detail where they meet one or several of the following criteria:

- Where they have a large area of coverage,

- Where they contain a high number of cultural features in close association,

- Where they contain an obviously unique feature; *e.g.* the "Climbing Men" engraved panel, or

- Where they provide the potential for some level of chrono-stratigraphic control.

Sites will be described consecutively in alphanumerical order, starting from the south at Transect A. Site locations may be found in Figure 7.1.

Site D14 Air photo location D/2400/N/0

This site complex comprises shell accumulations, artefacts and an exploited stone source. It is located on a valley floor adjacent to a small creek, with an unconsolidated rocky bed which retains water after rain. The site measures 150m E/W by 60m N/S and contains numerous discrete concentrations of fragments of the shellfish *Melo amphora*.

An adjacent dolerite seam has been opportunistically flaked and this lithology comprises approximately 17% of the artefact assemblage. Similar proportions of fine, medium and coarse-grained granophyre also occur, in addition to quartz and a few pieces of chert (a material exotic to the Burrup Peninsula).

The several hundred artefacts comprise whole and broken flakes, debris and a few examples of both single and multi-platform cores. None of the artefacts appear to have undergone macroscopic modification.

The integrity of the site is generally good, although a few vehicle tracks (minor) and some animal burrows were noted. The scatter lies on a soil/stone veneer and has no potential for stratification.

Site F1 (The Dampier Climbing Man Site)
Air photo location F/180/S/25

This engraving complex has been previously well documented, comprising relatively unique Cleland Hill "archaic face" depictions and ascending human figures. It is thematically and aesthetically one of the most outstanding small rock art complexes on the Burrup Peninsula. It is currently listed on the National Estate and is also a Protected Area (see Chapter 1).

The complex contains approximately 35 engraved motifs, breaking down into 10% geometric, 20% naturalistic, 60% anthropomorph and 10% other/undefined. Desert varnish occurs both within and adjacent to engraved surfaces. Most of the boulders have very well developed varnish, with a panel (including an archaic face) opposite the "Climbing Men" motif containing extensive varnish in its engraved surfaces.

The engravings are located on vertical and sloping rock faces flanking a narrow rock-lined creek, covering an area of approximately 10m N/S and 5m E/W. The major panel is located high on the eastern vertical rocky flank.

The art is clustered into four main panels, two on either side of the narrow creekline. This site may be potentially datable through the application of cation-ion ratio dating of the varnish.

Site H7 Air photo location H/3590/N/0

This association of engravings, shell accumulations and artefacts is located adjacent to mudflats on the southern edge of Cowrie Cove. The site measures 40m N/S and 90m E/W and is focused on a raised sand and mudflat mound at the edge of a rocky gabbro rise. A creekline with calcrete base runs around the edge of the mound and flows out onto the mudflats.

Four engravings (a turtle, bird tracks and a geometric shape) are located on adjacent boulders. A sparse scatter of predominantly fine and medium-grained granophyre debitage is located on, and around, the mound. Only 1% of artefacts appear to be modified.

A wide variety of shellfish species were recorded on the mound, which appeared, from erosional sections, to be up to 50cm in depth; density varied from 10-40 fragments or individuals per square metre. Species comprised 90% *Anadara granosa*, 2% *Terebralia* spp., 2% *Telescopium telescopium*, 2% *Melo amphora*, 2% *Acanthopleura* spp., and 2% *Saccostrea* spp.

More importantly, there is the possibility of retrieving stratified deposits from the apex of the sediment/shell mound.

Site I1 Air photo location I/200/N/0

This extensive site contains engravings, a grinding patch, shell accumulations, artefacts and quarried stone sources. It is located on the edge of a coastal plain zone adjacent to mangroves at the southern end of Withnell Bay. The site has been previously recorded by the Western Australian Museum as P3300.

Approximately 20 engravings are located on a number of closely spaced boulder piles. The engravings are very clear, as there is a strong contrast between the orange cortex and the black rock underneath. The motifs are predominantly anthropomorphs, with lesser proportions of geometrics and only a few naturalistic motifs.

A medium to high density artefact scatter (two to ten to 40 pieces per square metre) of predominantly medium-grained granophyre is located amongst a considerably reworked shell scatter. Two areas of fine-grained granophyre boulders have been flaked. Only a few granophyre flakes had evidence of modification on their lateral edges. Shell species are diverse and include *Anadara granosa, Terebralia* spp., *Nerita undata, Syrinx aranus, Melo amphora, Acanthopleura* sp., *Saccostrea* spp., *Barbita tusca* and *Acrosterigma* spp., from mangrove, sand mudflat and rocky platform habitats.

A lack of apparent depth of deposit, combined with visible reworking through tidal action, vehicles, treadage and recent fence construction means this site has little potential for meaningful excavation.

Site I2 Air photo location I/400/S/10

A substantial number of engravings, shellfish, artefacts and stone pits are focussed around a semi-permanent waterhole, which forms part of a rock-lined creek bed. The engravings are located on low lying boulders south of the creek which runs westerly into Withnell Bay.

Over 200 engravings are found over all parts of the rocky rises and are dominated by naturalistic motifs (60%) including turtles, fish, kangaroos, birds, lizards and animal tracks. Anthropomorphs comprise 20%, while geometrics and unidentified 10% each. Pecking and scoring are the main techniques of execution (40% each) with abrading at 20%. The highest density of engraving occurs near the waterhole.

A sparse scatter of medium-grained granophyre flakes were recorded in the base of the stone pits and within cleared patches on top of the boulder piles. Discrete scatters of *Anadara granosa* were also visible in cleared areas.

Three stone pits were found on a horizontal platform of the rock pile south of the waterhole. These are shallow (<35cm in depth) and have sediment in their base. Small boulders have been stacked around their edges.

Site I5 Air photo location I/600/S/40

A large number of engravings (approximately 7,500) are located on vertical rock faces and rockpiles south of a calcrete-lined creek which flows east-west into Withnell Bay. A large semi-permanent waterhole (containing water in September) was located 100m downstream from the site. Numerous grinding surfaces, shellfish, artefacts, stone pits, stone walls and a quarry were also associated with the site. The art comprises 20% geometric (circles and dots), 20% naturalistic (turtles, birds, macropods, bird and kangaroo tracks and fish), 20% anthropomorphs and 40% unidentified.

Over 30 grinding patches are located on horizontal bedrock adjacent to the creekline. Fine-grained granophyre artefacts comprise over 90% of all pieces, with 9% in quartz and 1% in chert and chalcedony. Artefacts are located mainly on flat ground to the north of the creek and have a similar spatial distribution to the shell scatter. Both shell and artefact density is high in parts, with up to 30-50 pieces per square metre. Shellfish comprise 80% *Anadara granosa*, 5% *Terebralia* spp., 5% *Melo amphora*, 4% *Saccostrea* spp. and 1% other.

To the east and north of the creek is a flat rock platform in fine-grained granophyre which appears to have been heat fractured; adjacent boulders have been flaked.

Three stone walls and five pits are also located on top of a rockpile to the south of the creek.

Site J12 (Watering Cove middens)
Aerial photo location J/3120/N/O

These middens form part of the larger Watering Cove site complex which has already been nominated to the National Estate (see Chapter 1). They comprise extensive shell accumulations and stone artefact scatters. The dense midden is situated on extensive high orange dunes above Watering Cove. Cultural material lies on, and within, large blowouts on the northeast face of the dune.

Major concentrations of midden are located in six blowouts and detailed sampling at both assemblage and attribute level was carried out at each of the clusters in multiple one square metre sample quadrats. The shellfish assemblage indicates utilisation of all major shellfish habitats, reflecting this locality's optimal position adjacent to sand mudflats forming part of an embayment flanked by pavement and reef, with some minor mangrove pockets.

Most of the deflated middens have intact and apparently stratified portions which might be usefully excavated to provide a datable sequence. The diversity and high density of shellfish and artefacts (up to 100 pieces per square metre) make this one of the presumably major habitation basecamps on the Burrup Peninsula.

Medium-grained granophyre boulders on the adjacent hill slope to the west have been opportunistically flaked.

Site K12 Air photo location K/2750/N/5

A rockshelter containing shallow deposits with artefacts and shell is located within the Watering Cove catchment. It is situated on a platform above the high-water mark and is formed by a large, split granite boulder providing a total covered floor space of 5.8m by 4.5m. The height of the ceiling varies from 0.85m to 1.2m. A single engraving is located on a granophyre boulder to the north-east of the shelter.

The shallow deposit lies over a granite platform and this appears to be cemented by calcium carbonate. Shellfish noted in this deposit include *Nerita undata, Syrinx aranus* and *Dosinia* sp. Several flakes in fine and medium-grained granophyre were also noted. A large baler shell lies to the rear of the shelter.

Site K13 Air photo location K/2800/N/50

This is a major art complex located on a dolerite dyke which lies directly adjacent to the major creek which runs into Watering Cove. This creek drains from steep uplands, and contains a number of sizeable rockholes. Soakage is available at nearby dunes. Grinding patches, shellfish, artefacts and quarry sources are also located next to the dyke.

Over 300 engravings were counted at this complex, being continuously distributed on all aspects of the slopes and apex. Naturalistic and anthropomorphic motifs each account for 40% of all motifs. Visually striking marine fauna, macropods and economic utensils (such as bowls) are depicted at the site. Importantly, there are three "archaic faces", one of which has pecked grooves up to 10mm in depth. However, abrasion is the main engraving technique used, accounting for 55% of all motifs.

A generally sparse scatter of fine-grained (90%) and medium-grained (9%) granophyre debitage surrounds the dyke. Quartz is also present in both flakes and debris. A sparse scatter of *Anadara granosa* accounts for 95% of all shellfish. The remaining 5% is comprised of fragments of the species represented at the nearby blowout middens of Site J12.

As a discrete engraved feature, the dyke has a high density and diversity of engravings, both thematically and stylistically. Desert varnish was also noted within a number of anthropomorphic and geometric motifs.

Site M5 Air photo location M/1150/S/20

An extensive site complex occurs on dunes and sand at the northern end of Withnell Bay. The site is centred around the back of a small beach which has intermittent rocky outcrops.

A sparse artefact scatter can be found between the rocky outcrops and over the dunes. Unmodified debitage in medium-grained granophyre occurs in densities of one to two pieces per square metre over the dune and was noted as high as seven pieces per square metre at the back of the beach. A number of individual medium-grained granophyre boulders, right down to the water's edge, have been quarried.

Shellfish are located mainly on the dunes and vary in density from one to ten pieces per square metre. Interestingly, *Terebralia* sp. makes up the majority (70%), followed by *Telescopium telescopium* (10%) and then lesser and equal proportions of *Anadara granosa, Syrinx aranus, Melo amphora* and *Saccostrea* spp. (all at 5%). Large mangrove stands, the habitat of *Terebralia*, occur at this site. Minor blowouts reveal some depth of deposit (<20cm) in the dune middens.

Site N1 Air photo location N/100/N/O

Multiple occurrences of engravings, shell accumulations, artefacts and a quarry occur on the western littoral between Withnell and Conzinc Bays. The site complex is located on coastal dunes with the highest concentration of scatters on the beach face of the dunes. Stone artefacts have been produced from local beach pebbles and isolated boulders from the southern end of the beach. The engravings and major shell midden occur at the northern end of the beach. The engravings are mainly naturalistic, mostly representing fish.

Artefacts are mainly broken flakes and debris in granophyre and quartzite, and are found in densities of one artefact per five to 50 square metres. Shellfish comprise *Acanthopleura* sp. (95%), *Nerita undata* (1%), *Melo amphora* (1%), *Turbo cinereus* (1%) and a mud oyster (2%). The density of shellfish is high, with up to 100 pieces per square metre. There is no evidence in the blowout sections for any depth of deposit or stratification.

Site N9 Air photo location N/1350/O/0

A site complex is located to the north of Withnell Bay on sand/salt flats with samphire vegetation inland from an extensive mangrove belt, comprising artefacts, shell accumulations and a grinding stone.

A sparse, yet extensive artefact scatter occurs around the salt flats. The artefacts are manufactured from predominantly fine-grained granophyre (70%), with a lesser proportion of medium-grained granophyre (25%). A minor shell component is also present. Quartz was noted, but is mainly natural and its fragmentation non-cultural (5%). Cores are relatively common with a high proportion of whole flakes (90%) in the debitage class. Artefact density is around three to five artefacts per square metre. A considerable number of the artefacts have evidence for edge modification (5-10 %).

Shellfish, in densities usually lower than one piece per square metre, represented *Terebralia* spp. (62%), *Anadara granosa* (18%), *Melo amphora* (10%), *Syrinx aranus* (5%), *Hexaplex* sp. (2%), *Tridachna* sp. (2%) and *Turbo cinereus* (1%). The site has no evidence for stratification.

Site P2 Air photo location P/250/N/0

A diverse site containing engravings, ground material, artefacts, a quarry, stone pit and a standing stone is located on dune slopes and rockpiles adjacent to a creek bed which flows out at Conzinc Bay.

The engravings depict mainly naturalistic themes (60%) including fish, kangaroos and tracks, and equal numbers of geometric (20%) and anthropomorph (20%) motifs. The majority of engravings have been executed by abrasion (80%).

It should be noted that a number of examples of recent graffiti were recorded, including people's names, symbols and lines.

Artefacts are mainly of medium-grained granophyre and comprise flakes (65%) and debris (35%). A number of medium-grained granophyre boulders from the creek bed have been flaked. A bedrock section of granophyre has two parallel grooves in it.

The standing stone, located to the south of the transect measures 1m in height has a width of 0.2m and breadth of 0.15m. The stone pit is approximately 1m in all dimensions.

There is no evidence for stratification at the site.

Site P4 Air photo location P/550/S/30

A large site complex is located two hundred metres inland from the beach at Conzinc Bay adjacent to a rocky creek bed. Three rock piles contain engravings and two grinding surfaces, and around these occur stone artefacts and a low density spread of shellfish.

The 30+ engravings are comprised of naturalistic motifs (50%, including bird tracks), anthropomorphs (40%), geometrics (5%) and patches/striations (5%). The majority (75%) of motifs have been made with a scoring technique.

Artefacts are mainly from medium-grained granophyre (60%), followed by fine-grained granophyre (20%) and quartz (20%). Multi-platform cores are relatively common (80%). Artefact density is, on average, five to ten pieces per square metre, with a maximum of 25 pieces per square metre recorded.

Sparse shellfish remains include *Anadara granosa, Terebralia* spp, *Melo amphora, Acanthopleura* sp. and *Saccostrea* spp.

None of the scatters at this site complex appeared to have any depth of deposit.

Site P7 Air photo location P/1180/S/30

A substantial quarry/reduction site is located on top of a rockpile at the edge of the inland plateau overlooking Conzinc Bay. A single stone pit has been constructed near the quarry.

Intensive exploitation of several large boulders of medium-grained granophyre has produced dense reduction areas which are mounded and which appear to have up to 25cm of deposit.

The majority of cores at the reduction area are multi-platformed, while debitage is dominated by large primary flakes up to 20cm in length. The main reduction area covers 30 x 10m and has an average density of 150-200 pieces per square metre.

Flake morphology shows the usual trend from parallel to converging dorsal ridges with successive rotations of cores in this medium-grained material.

This site has some limited potential for excavation given the apparent mounding of reduction debitage and debris.

Site Q15 Air photo location Q/820/N/50

A dense concentration of engravings, stone pits and a standing stone are located on a large rockpile on the inland highlands. While engravings are distributed over the whole rockpile, they are concentrated on the top and western face. The stone pits are located lower on the rockpile while the standing stone occurs on the western aspect.

The 60+ engravings comprise anthropomorphs (40%), naturalistic motifs (30%, including emu tracks, echidna and kangaroo), geometrics (20%, such as horseshoe shapes and ovals), and other unidentified motifs such as scratches, lines, isometric shapes and dots.

A wide variety of engraving techniques have been employed, with pecking the most common (55%), followed by abrasion (30%), and scratching/scoring (15%). While black and red varnish occurs on the parent rock, none covers any of the engraved surfaces.

Eight stone pits were recorded, with mean dimensions of 1.5m length, 1.5m breadth and 0.75m depth. The standing stone measures 0.4m in height with a diameter of 0.1m.

Site Q17 Air photo location Q/1200/N/O

A very extensive site complex which contains numerous engravings, grinding patches, shell accumulations, artefacts, stone pits and a standing stone was only partially recorded. The site is focussed along a well defined creek channel (and adjacent valley walls and rockpiles) which drains into Conzinc Bay. Because of variability in site features and the length of the creek, the site was broken into four zones for ease of recording, from east to west. There are a number of semi-permanent rockholes in the creek bed.

Zone 1: Several hundred engravings are located mainly around flat-topped rocks to the south of the creek. Anthropomorphs dominate (50%), with naturalistic motifs following (35%). A composit of pecking and abrasion techniques is most common (50%). Fifteen grinding patches were also located on these rockpiles.

Sparse artefact scatters are mainly in fine-grained granophyre (50%), followed by medium/coarser varieties (45%) and a few pieces in quartz. Scattered individual shells of *Anadara granosa* and *Melo amphora* occur next to the creekbed. A single standing stone and a pit were recorded at the engraving site.

Zone 2: A noticeable shell component is concentrated along the northern side of the creek in a band approximately 10m wide. The shell is generally highly friable and is comprised of numerous fragments of *Melo amphora* (70%), *Acanthopleura* sp. (20%) and *Anadara granosa* (10%). One large piece of pearl shell was recorded, in addition to three clam valves. The shell accumulation does not have any apparent depth.

Zone 3: Only partially examined, the rocky piles and steep sided valley walls of this section contain numerous engravings and stone pits. The engravings are located mainly to the north of the creek and appear to be similar in content to those from Zone 1. Artefacts are scattered amongst the boulders on the rock-slopes and also on several patches located to the north of the creek.

Zone 4: Only partially examined, this spinifex covered plain located close to the coast contains a variable and low density scatter of stone artefacts and shellfish. Artefacts appear similar to those from Zone 1; shellfish to those from Zone 2.

This site requires a substantial recording programme, given its size and the complexity of its cultural components.

Site Q28 Air photo location Q/2200/S/0

Located on a high plateau overlooking both sides of the Burrup Peninsula is a cluster of engravings, stone pits, a standing stone and grinding patch, an artefact and shell scatter, a stone arrangement and quarry.

Twenty-four engravings were recorded here, including 12 anthropomorphs, three geometrics, a turtle and eight abraded patches, scratches and miscellaneous peckings. The majority of these motifs have been made through use of abrasion. One shallow grinding patch was recorded on a sloping surface.

A low density artefact scatter, all of medium-grained granophyre, is comprised of mainly broken flakes and debris. A number of boulders in the locality, also of this granophyre, have evidence of flaking. Shell fragments of *Melo amphora* are located at this site.

A total of nine stone pits were recorded in large rock piles around the periphery of the wall plateau. Also, importantly, there are a number of low stone walls containing circular pits. These walls are made from smallish boulders (approximately 20 cm in all dimensions), with a high proportion of them having been broken, apparently to achieve this modal size range.

There is no evidence for stratification at this site.

Site R1 Air photo location R/100/O/0

A large midden and engraving complex is located on top of high coastal dunes and adjacent rocky hills at Conzinc Bay. Standing stones, stone pits, a quarry source and artefacts also occur here. The midden occurs within deflated blowouts, between the beach and a mangrove-lined tidal creek.

Thirty-two engravings were recorded, these comprising mainly naturalistic (marine) themes (40%). Over 60% of the engravings have been produced by pecking and are conspicuously clustered on the apex and northern face of the granophyre boulder pile.

Assemblage and attribute measurements were made at five replicate one square metre sample quadrats within the dune blowouts. In summary, artefact density varied between 5-10 pieces per square metre with the majority manufactured from medium-grained granophyre (95%), followed by coarse-grained granophyre (3%) and fine-grained granophyre and chert (1% each). Whole flakes dominate the debitage category (70%).

Individual boulders of medium-grained granophyre to the south of the midden complex have been flaked and are a likely source for the dark medium-grained flakes located over the midden.

The midden assemblage is largely comprised of chiton (*Acanthopleura* sp. 70%), followed by *Terebralia* spp. (20%), *Melo amphora* (5%), *Telescopium telescopium* (4%) and *Anadara granosa* (1%). Density of shells is up to 650 pieces per square metre, with an average of 60 pieces per square metre.

There is some evidence for stratification with concentrations of shell in small mounds up to 2.5m in diameter; these may be up to 20cm in depth. These mounds are near deflations and are vulnerable to destruction from both natural agencies and from traffic. Turtle bone and crab were also noted at this site.

Three stone pits and two standing stones were recorded on the granophyre knoll to the south of the midden complex. The standing stones are approximately one metre in height and 0.1m in diameter. The pits have average dimensions of 1.25m in length, 1.05m in breadth and have a depth of 1.2m. There is evidence for the stacking of boulders which have been removed from the pits.

Site R2 Air photo location R/200/N/O

An extensive shell and artefact accumulation is located on dunes on the opposite side of the mangrove creek to site R1. Several vehicle tracks cross this dune, which is substantially deflated and contains numerous small pockets of material of 0.5 to 1.0m in diameter.

Artefact density, on average, is less than one piece per square metre, comprising mainly flakes in black medium-grained granophyre. Shell density is also generally low, however in deflationary pockets may be as high as 10-30 pieces per square metre. The assemblage is dominated by *Terebralia* spp. and *Acanthopleura* sp. (both 35%), followed by *Saccostrea* spp. (15%), *Anadara granosa* and *Telescopium telescopium* (5% each), *Melo amphora* (3%) and *Turbo cinereus* (2%).

There is minimal evidence for stratification, with only a few vertical exposures in the small deflated pockets. Disturbance of this site has been far more extensive than for R1, due to major access tracks and random vehicle movements.

Site S4 Air photo location S/500/N/0

This very extensive site complex has been mapped in detail, and had sample recording of all cultural features at specific localities carried out. It contains all cultural features other than standing stones and a rockshelter. The site is focussed along a well defined east-west oriented creekline, which drains into the extensive mangrove belt of Conzinc Bay. Artefact and shell scatters occur over the flats flanking the creek well upstream, while engravings are located on a number of rockpiles adjacent to the creek. The flats are densely vegetated by spinifex, with 80-85% coverage.

Due to its large size (over 600m in length) the site has been broken down into sections for the purposes of recording and sampling. The western third comprises mainly open flats with occasional rockpiles. Sparse artefact scatters occur over spinifex flats with occasional minor shell scatters. Engravings and grinding patches are located on some of the rockpiles. A total of 60 engravings were recorded, these comprising mainly anthropomorphs (50%), followed by naturalistic motifs (20%). Twenty grinding patches occur in clusters on platforms of granophyre adjacent to the creekline. Artefacts are mainly manufactured from medium-grained granophyre (90%) and comprise mainly broken flakes and fragments, with some whole flakes. Density is low, at only one piece per 100 square metres. Occasional boulders of medium-grained granophyre have been flaked. Shell consists mainly of *Anadara granosa, Terebralia* sp. and *Melo amphora* with a density similar to the stone artefact scatter. Five stone pits were recorded on the rockpiles, having average dimensions of 0.75m length, 0.75m width and a depth of 0.6m.

The central third of the creekline has been divided into three sub-component recording zones, due to the density of engravings and/or shell and artefact scatters.

A group of three rockpiles to the south of the creek were representative of six larger rockpiles which are situated adjacent to them. A total of 57 motifs were recorded, with geometrics at 30% and anthropomorphs at 25%.

Pecking and abrasion accounts for 80% of the engravings, some of which are up to 3mm deep along their engraved surfaces. Twelve grinding patches were also located on these rockpiles.

A very large rockpile, located due east from the former three, contains over 100 engravings, four grinding patches and has artefacts associated with it, on adjacent flats. Engraved grooves are sometimes marked and up to 5mm in depth. Naturalistic motifs account for over 50% of the engravings and include macropods and tracks, birds and tracks and a spotted (likely) marsupial. Anthropomorphs are also common and include several figures with numerous arched, parallel crescents bisecting the torso. Pecking and abrasion are again the most common technique used.

All of the artefacts are from medium-grained granophyre, probably derived from boulders on this large rockpile. Two stone pits also occur here, with average dimensions of 1.25m length by 1m breadth by 1.25m depth.

An extensive scatter of shell and artefacts is also located to the south of the main rockpiles, described above. Several one square metre sample quadrats in high density portions of the scatters indicate a stone artefact density of 66 pieces per square metre and a shellfish density of 600 fragments per square metre. The stone artefacts comprise mainly broken flakes, flake fragments and debris. Only 10% are whole flakes. Macroscopically edge-altered artefacts are absent.

Medium-grained granophyre is dominant (73%), followed by fine-grained (21%), quartz (5%) and quartzite (1%). Shellfish comprise *Acanthopleura* sp. (30%), *Saccostrea* spp. (30%), *Terebralia* spp. (20%), *Anadara granosa* (10%) and *Melo amphora* (10%); both rock and sand/mudflat habitats are thus represented. The shell scatter appears superficial and in some areas the material is highly fragmented and weathered.

Finally, the most easterly portion of the site consists of an artefact scatter located mainly to the north of the creekline on flats adjacent to rocky uplands to the north. Artefacts are similar to those elsewhere on the site, however, with a higher proportion of fine-grained granophyre (50%). Density ranges from five to 40 pieces per square metre. This scatter also has no evidence for stratification.

Site T9 Air photo location T/1150/N/O

This site is focussed along a well defined creekline which drains into the northern reaches of Conzinc Bay. Features include engravings, grinding patches, shell scatters/midden, artefact scatters, quarry sources and stone pits. The incised creek exits from rocky uplands onto the coastal plain, where it passes through low profile dunes to drain into a mangrove embayment.

The majority of engravings are found on steep rock faces south of the creek, although smaller rockpiles on the flats also contain engraving complexes. A sample of 50 engravings from the rock-faces demonstrate the ubiquity of anthropomorphs (50%), many in apparently 'dance-like' postures. Naturalistic motifs are mainly maritime (40%), while geometrics are curiously minimal at this locality (3%). Most engravings have been executed with composites of pecking and abrasion (75%) and generally display sharp contrast to the parent rock. One anthropomorphic motif has desert varnish within an engraved groove.

Individual boulders of dark medium-grained granophyre have been quarried adjacent to the creek and it is this material which accounts for 95% of all stone artefacts found over the flat and plain, and on the dunes around the mangrove belt. Artefact assemblage characteristics are similar to Site S4, although a greater proportion of whole flakes was noted presumably due to the proximity of the quarry boulders. Seven grinding patches were recorded on horizontal boulders adjacent to the creekline.

A total of 26 stone pits were recorded on the rockpiles in the vicinity of the creek. Of these, 15 have evidence for stacking of boulders in their vicinity. Average dimensions for the pits are length 1.3m, breadth 0.6m and depth 0.74m.

Discrete piles of *Terebralia* sp. occur north of the creek along the dunes, with a ubiquitous low density scatter of *Anadara granosa* up the creek and along its flats.

Two discrete patches of shellfish north of the creek appear to have some stratification, with an estimated depth of 10cm. The first comprises *Anadara granosa* (30%), *Terebralia* spp. (10%), *Acanthopleura* sp. (15%), *Turbo cinereus* (15%), *Saccostrea* spp. (20%) and *Melo amphora* (10%). This exposure has a density of approximately 30 pieces per square metre. The second shell feature is similar; here, however *Anadara granosa* comprises over 50% of the assemblage.

Site V34 Air photo location V/4300/N/O

This huge site complex occupies one of the major north-south oriented valley systems of the northern Burrup Peninsula, which drains out into Searipple Passage. At least one other major valley complex occurs in this northern region, as Sites V25 and W15.

Site V34 crosses, and is continuous through, transects V, W and X. It is the largest and most complex site recorded during the present survey and warrants a great deal of further recording to

- accurately characterise it, and
- attempt to manage cultural features within it.

The site contains all the different cultural features, with the only exception being a stratified rockshelter. Most remarkable about the site is the extremely large number of engravings which occur on rocky uplands and steep sided valley walls along its length. The high density of engravings on some boulder piles, and their often poor contrast with the parent rocks, makes an accurate assessment of total numbers extremely difficult; at least until an exhaustive recording programme is carried out. On the basis of sample surveys, however, it is estimated that the site complex contains at least 100,000 individual motifs, and the real figure may be well over this.

At least one large (>5m diameter) rockhole is located along the major creekline of V34 and at the time of survey, October 1992, considerable volumes of water were still there. Around this water source is an extensive and fragmented scatter of shellfish and stone artefacts.

Granophyre uplands and boulder piles either side of the major valley contain engravings, up to 300m distance in some cases. The last 200+ metres of the creek becomes tidal channel with well developed mangroves in association. It is in the central third of the site complex that the valley floor expands and the central creekline bifurcates. The major shell and artefact scatters are located here.

Engraving theme, motif type and style of execution are extremely varied, however several characteristics are worth noting.

Firstly, anthropomorphs are extremely common, comprising up to 30% of all motifs on some boulder piles. These are in the form of simple 'stick' figures (often interconnected with circuitous lines), simple outlines (so-called spirit figures), gracile dancing figures with exaggerated appendages and headdress (similar to those of Woodstock-Abydos), and the highly stylised 'archaic faces'. At least five of the latter were recorded and, of these, at least two had evidence for desert varnish in their engraved surfaces. Interestingly, the anthropomorphs were clustered at individual rockpiles.

Secondly, large numbers of terrestrial fauna are illustrated at some clusters, reminiscent of the interior valley complexes of the Burrup Peninsula. These include a wide range of macropods, including so-called 'fat-tailed' variants, and quadrupeds (some spotted or striped).

Thirdly, the occurrence of superimposition is high and it is common to find both very faint through to sharply contrasted motifs associated on the same rock surfaces.

At present, neither artefact or shell scatters have been adequately assessed. It is worth noting, though, that the artefact scatters in the central third of the valley system are different to those generally found on the coastal margin of the Burrup Peninsula. They contain more exotic materials, such as silicified mudstone, chalcedony, and chert and these are sometimes modified and/or used to the extent of exhaustion.

The granophyre flakes appear smaller than at other occupation sites and cortical flakes are generally absent. The core/flake ratio appears very low and some cores appear to have been well rotated. A few prismatic cores of exotic materials were noted.

Shell scatters, where sampled, appear to be comprised largely of sand or mudflat species such as *Anadara granosa, Terebralia* spp. *Telescopium telescopium* and *Melo amphora*. The quantity of *Melo* fragments at some locations was extremely high, particularly near the major water sources. This possibly may be due to the past breakage of water containers used in the vicinity of the site.

Grinding patches are common close to the creek and a number of clusters were noted near the rockhole. Standing stones and pits are located in an apparently random distribution throughout the rockpiles along the length of the creek.

The prominent display of large anthropomorphs at the head of valleys is not random, and is likely associated with the specific functions of different site features.

PLATE CAPTIONS

Note: the sequence of captions for all pages starts top left and moves clockwise. Transect data refers to figure 7.1.

Page 1: a) View south over sparse shell scatter at mangroves towards the L.N.G. plant, Withnell Bay
b) Rock pool situated within near coastal valley I/400/S/10. Sites I1-3 are located within the same valley
c) Coastal dunes and rocky headlands at the south of Conzinc Bay catchment; transect P
d) View west from inland highlands across to Withnell Bay catchment, transect J/1220/S/5

Page 2: a) View north along coastal valley to Searipple Passage; location U/3250/S/10
b) Mangrove-lined mouth of large valley at Searipple Passage; location W/2075/N/0
c) Typical dune deflation scatter on western littoral containing shell and stone artefacts
d) Typical granophyre paved flats near mangroves with scatter of *Terebralia* sp., *Anadara granosa* and *Melo amphora.*

Page 3: a) View west of foredunes at Conzinc bay; deflationary scatters are common in this area; R/200/0/0
b) Close-up of deflated dune scatter at Conzinc Bay; R/100/0/0
c) Eroded face of partially consolidated dune; location T/100/N/50
d) Entrance to near coastal valley, Conzinc Bay; S/140/S/30

Page 4: a) Entrance to small rockshelter located at Burrup North; W/220/S/0
b) Close-up of shelter deposit
c) Typical stone pit showing stacked boulders adjacent; I/600/S/40
d) Numerous horizontal pavements of granophyre, as illustrated, have evidence of abrasion

Page 5: a) Standing stone on western littoral; U/0/S/50
b) Stone arrangement on supratidal flats; U/1000/0/0
c) Gracile anthropomorph motifs at Watering Cove; K/2800/N/S - Nominated area
d) Extensive superimposition of geometric and figurative motifs on vertical valley walls; I/600/S/40 - Nominated area

Page 6: a and b) "Archaic faces"; Watering Cove K/2800/N/50
c and d) Interlocking anthropomorphs; Site Q17, Conzinc Catchment - Nominated area

Page 7: a) Concentric circles with desert varnish; Site Q17
b) Superimposition of anthropomorph on dugong; Site Q17
c) Non-figurative motif engraved on standing stone; Site S4 - Nominated area
d) Turtle motif at site S4

Page 8: a) "Archaic face" on split boulder; Site S4
b) Crayfish motif at Site S4 (S/200/N/0)
c) Patinated geometric at Burrup North major valley complex, V34 - already listed
d) Anthropomorph on upper valley slopes of V34

Page 9: a) Pecked geometric motif at V34
b) Superimposed macropods at V34
c) Emu motif on cracked boulder, V34
d) Waterbird motif, partly abraded, V34

Page 10: a and b) Pecked and scored fish at V34
c) Infilled turtle motif at V34
d) Possible crocodile motif at V34

Page 11: a) Complex superimpositions of naturalistic motifs on intersecting rock faces, V34
b) Anthropomorph showing internal anatomy, V34
c) Highly gracile figurative motif at V34
d) Commonly occurring fish-tail motif at V34

Page 12: a to d) Simple outline anthropomorphs with minimal facial elaboration, V34