State Water Planning

Report on an Investigation into Aboriginal Significance of Wetlands and Rivers in the Perth–Bunbury Region

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STREAMLINE Abstract

REPORT ON AN INVESTIGATION INTO ABORIGINAL SIGNIFICANCE OF WETLANDS AND RIVERS IN THE PERTH–BUNBURY REGION

This report documents the archaeological, ethnographic and Aboriginal historical significance of wetlands and rivers in the Perth–Bunbury region of Western Australia according to existing records and relevant agencies, interest groups and knowledgeable individuals. The report is intended to assist in the development of a water resources strategy plan for the Perth–Bunbury region.

Aboriginal; wetlands; rivers; historical; archaeological; ethnographic; planning; sites; Western Australia.

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Other titles in this series are:

- Surface Water Resources Assessment — A Strategy for the Future
- Surface Water Resources Assessment — Background Report by the Working Party
- Promoting the Efficient Use of Water Through Management of Demand
- A Strategy for Water Allocation in the Perth–Bunbury Region — Discussion Paper
- A Strategy for Water Allocation in the Perth–Bunbury Region — Working Paper
- Environmental Significance of Wetlands in the Perth–Bunbury Region
- Recreation Opportunities of Rivers and Wetlands in the Perth–Bunbury Region — Volumes 1, 2, 3, and 4
- A Strategy for Water Allocation in the Perth–Bunbury Region — Summary of Public Submissions
- Water for the 21st Century — Supply options for the long term water requirements of southern Western Australia

About the Council:

The Western Australian Water Resources Council is a statutory body established in 1982 to advise the Minister for Water Resources in relation to the assessment, development, construction, management and protection of the water resources of the state. It is independent of other government agencies. The Council comprises nine members, including the Chairman, appointed by the Governor and seven *ex officio* members who are the heads of various state government agencies with interest in water and land management.

Cover photograph:

Spearing fish, J. Walsh Collection, Art Gallery of Western Australia

Foreword

The Western Australian Water Resources Council is currently directing studies by the Water Authority of Western Australia aimed at developing a water resources allocation strategy for the Perth–Bunbury region. This allocation is to be based on the ecological, recreational, scientific, cultural and water supply values of the region's water resources.

As part of these studies, Quartermaine Consultants were commissioned by the Water Authority to assess the significance of wetlands and water resources within the region to Aboriginal people, in terms of both previous activity and current associations.

This report by the consultants has been published by the Council to inform the community and encourage wider debate on this important aspect of water resources planning. The ethnographic information contained in the report was contributed by Aboriginal people in the knowledge that it would be published; the consultants advise that this was acceptable to all people interviewed. Council would welcome comments on this document from any interested person .

The recommendations contained in this report are the consultants' and are not necessarily endorsed by the Council.

W. S. Shelton
Chairman
Western Australian Water Resources Council

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Background

In February 1989 the Water Authority of Western Australia commissioned Quartermaine Consultants to conduct an investigation into Aboriginal significance of wetlands and rivers in the Perth–Bunbury region of Western Australia. The ethnographic and Aboriginal historical component of this investigation was primarily conducted by Rory O'Connor and C. Bodney of Rory O'Connor and Associates Pty Ltd, who have extensive experience in Aboriginal consultation and Aboriginal site survey work. The archaeological component was conducted by Gary Quartermaine, Archaeological Consultant, with Caroline Heine and Emma Quartermaine as research assistants. The report was completed in June 1989.

Scope of Project

The consultancy brief required a study of:

> 'the significance of wetlands and rivers to Aboriginal people in terms of both previous activity and current associations.'

The study area is defined as extending from the Moore River in the north to the Preston River in the south, taking in the Murray River and the Collie River catchments to the east but not the upper Swan-Avon system. The area is shown in Figure One. This research was undertaken for the Water Authority of Western Australia as part of a wider study into scientific and cultural values for this region. The study forms part of the development process for a water resource allocation strategy for the Perth to Bunbury region being directed by the Western Australian Water Resources Council. The strategy pertains to both surface water and groundwater resources in the area designated.

The proposed studies were seen as essentially 'desk studies' utilising information available from existing maps, reports and sources, such as relevant agencies, interest groups and knowledgeable individuals. There were constraints of time and budget that limited the scope of this project; however, the essential aims were covered.

Part One of this report looks at prehistoric Aboriginal sites, or sites with material evidence of previous Aboriginal activity. Part Two addresses ethnographic sites, or sites of significance to living Aboriginal people.

Consultant's Recommendations

1. In view of the fact that a great deal of ethnographic data has yet to be collected in the survey area and many parts have not been investigated for archaeological sites, it is recommended that any further development which could have either a direct or indirect effect on the region's wetlands should be preceded by an Aboriginal site survey.
2. Follow up work should be conducted, where necessary, based on preliminary results, in consultation with relevant Aboriginal people.
3. The Aboriginal sites listed in this report, and others yet to be documented, are covered by the provisions of the Aboriginal Heritage Act, in accordance with which it is an offence to disturb them unless prior Ministerial permission has been received. It is therefore recommended that Water Authority of Western Australia personnel be notified of the known sites of significance in their regions, of the possible existence of not yet recorded sites, and of the provisions of that Act. Should any of the registered Aboriginal sites be affected by future development, permission for site disturbance, under Section 18 of the W.A. Aboriginal Heritage Act, 1972–1980, must be obtained before any disturbance occurs. This can be done by written application to the trustees of the W.A. Museum for permission to use the land containing the sites under the above section.
4. Some provision should be made in the event of the discovery of subsurface archaeological material during excavation and earthworks for any project in this region. This may occur where no surface archaeological material is present, particularly on alluvial terraces of the various rivers. It is recommended that the developers and contractors be made aware of the type of material likely to be located (see Section Three, Part One) and any discoveries should be reported immediately to the W.A. Museum.
5. Aboriginal people in the Swan Valley have shown on a number of occasions in 1988 and 1989 that they consider a thirty metre (30 m) buffer zone on either side of the rivers and creeks in the region (with the exception of Bennett Brook[1]) sufficient to protect the integrity of those waterways associated with Waugal beliefs. It is recommended that this thirty metre buffer zone be considered a standard feature of Aboriginal site protection in the Swan Valley.
6. It is important that Aboriginal people should be involved in preserving wildlife habitats and developing recreational facilities in the vicinity of the wetlands. The discussion and debate arising from such involvement will serve to defuse the potential conflict arising from Aboriginal aspirations and those of the wider community. This involvement would be best sought through the local community organisations listed in Section One, Part Two of this report.
7. In summary, therefore, it is the authors' opinion that prior consultation and discussion, and involvement of Aboriginal people in decision making, will serve to avoid the potential conflicts which could arise over the usage of the survey region's wetlands and rivers for urban/industrial, irrigation/rural, ecosystem maintenance and recreational uses.
8. It is pointed out that human interference to Aboriginal sites is an offence, unless authorised under the Act, as outlined in Section 17 of the W.A. Aboriginal Heritage Act, 1972–1980. Therefore, it is recommended that the Authority take adequate measures to inform any project personnel of this requirement.

[1] There is no inconsistency here — the Bennett Brook site incorporates pre-contact, historical and current camping grounds and other important aspects as well as the Brook itself.

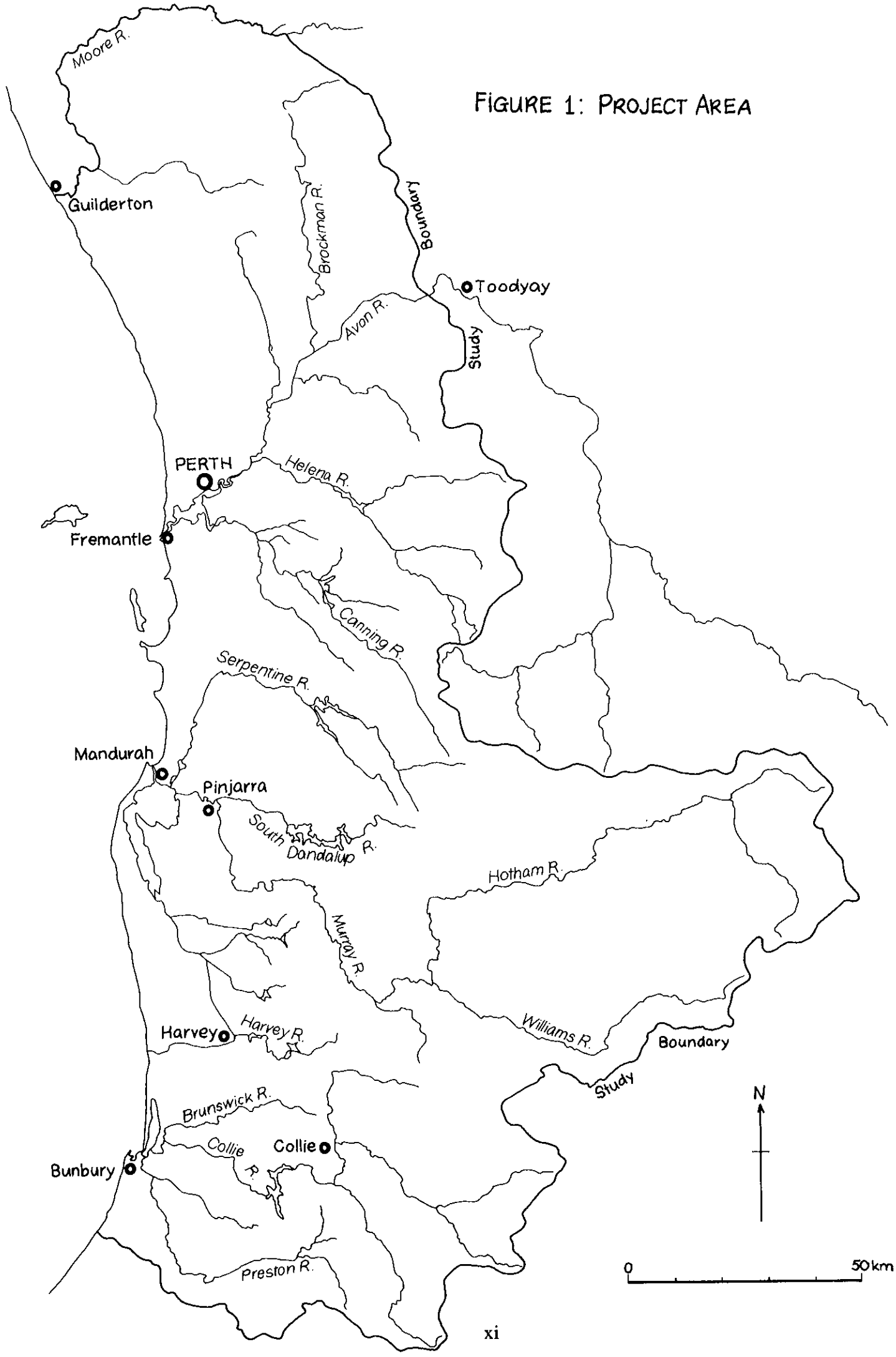


FIGURE 1: PROJECT AREA

Part One

Archaeology

Gary Quartermaine

1.0 Introduction

This part of the report looks at prehistoric Aboriginal sites, or sites with material evidence of previous Aboriginal activity. This work was conducted by Gary Quartermaine, assisted by Caroline Heine and Emma Quartermaine.

1.1 Definition of Archaeological Sites

For the purpose of this project, an archaeological site was defined as any material evidence of prehistoric Aboriginal activity. This is manifested in a number of different site components which may occur singularly or with one or more of the others to form an archaeological site. The most common of these are surface artefact scatters, quarries, art sites, stone arrangements, rockshelters with evidence of occupation, grinding patches, burials, and marked trees (see also Appendix 2).

An artefact scatter is usually recorded as a site if it contains three or more artefacts in association. Solitary artefacts are recorded as Isolated Finds but are not usually registered as sites.

The sites that are within the project area are significant from two perspectives. They are of importance to Aboriginal people and they also have scientific significance. Their significance to Aboriginal people is discussed in the ethnographic section of this report (Part 2).

Archaeological significance, in this report, is based on recognising that a body of archaeological data can answer regional research questions and questions about intra- and inter-site attributes as well as those concerning a particular site's attributes. The potential for a site to yield further information, particularly of a stratigraphic nature that may contain datable material, is also important.

The recorded sites within the project area can be classified into four categories. These are:

(i) Important sites that should be preserved;

(ii) Important sites from which more information may be obtained by collection or excavation;

(iii) Sites that require further investigation or monitoring;

(iv) Sites with limited potential to yield further information.

1.2 Format of Report

The format of this report is based on the structure that follows.

Section Two gives a brief description of the environment of the study area, with information on climate, geology, geomorphology, vegetation, drainage and palaeo-environment.

Section Three describes the recorded sites in the project area, based on information in W.A. Museum Aboriginal site files and relevant survey reports.

Section Four reviews information on dated archaeological sites, area models, and ethnohistorical material.

Section Five discusses the results of this investigation and makes recommendations for future management.

2.0 Environment

2.1 Climate

The climate of the project area is dry Mediterranean characterised by winter rainfall and a dry summer. There are five to six dry months over the summer period. The average annual rainfall in Perth is 883 mm (Beard, 1979:25). Mean monthly temperatures range from 13 degrees Celsius in June to 26 degrees Celsius in February (Beard, 1979:26). There are generally higher summer and lower winter temperatures east of the Swan Coastal Plain while temperatures are cooler to the south.

2.2 Geology

There are two distinct geological units in the project area, divided by the Darling Fault. These are the Perth Basin in the west and the Yilgarn Block (part of the Western Shield geological region) to the east.

The Perth Basin geological unit is a deep trough filled with Phanerozoic sedimentary rocks with a surface mantle of Quaternary deposits (Playford, *et al*, 1975).

The Yilgarn Block is an area of Archaean rocks consisting partly of metamorphosed igneous and sedimentary assemblages known popularly as greenstone belts, and partly of intrusive granitic and migmatic terrains (Williams, 1975).

2.3 Geomorphology

The four units of landform-soil which occur in the project area are described by Churchward and McArthur (1980). They are:

(i) The Darling Plateau of Precambrian crystalline rocks;

(ii) The Collie Basin of Permian and younger sediments;

(iii) The Dandaragan Plateau of Mesozoic rocks;

(iv) The Swan Coastal Plain of Quaternary surficial deposits.

The geomorphology, after Semenuik, 1987, for these units is described as follows:

(i) The Darling Plateau has a broadly undulating surface with an average height of 400 metres above sea level. It is dissected by steep-sided valleys with incised channels and valleys with broad, flat ribbon flood plains and small channels.

(ii) The Collie Basin is a large topographic depression of very low relief. Elevation above sea level is 200–250 metres.

(iiii) The Dandaragan Plateau is a gently undulating area at 200 metres above sea level.

(iv) The Swan Coastal Plain is an area of low relief, 20–30 kilometres in width, that has marked zonation of distinct large-scale landforms. These are arranged either parallel to the coast or associated with major rivers (McArthur and Bettenay, 1960; and McArthur and Bartle, 1980). From west to east, these zones are as follows:

- the Quindalup Dunes, a Holocene dune sequence;
- the Spearwood Dunes, large scale linear continuous parallel ridges, predominantly Pleistocene aeolianites;
- the Bassendean Dunes, an undulating plain of low degraded quartz sand hills;

- the Pinjarra Plain, a flat to gently undulating system of alluvial fans; and
- the Ridge Hill Shelf, with underlying sediments of Pleistocene laterite and sand.

A chain of lakes, including Bibra lake, form a boundary between the Spearwood and Bassendean zones. The lake system came into existence when the coastline reached its present formation as a result of rising sea levels. This is estimated to have been about 7 000 years ago (V.Semenuik, pers. comm.).

2.4 Vegetation

The vegetation of the project area is largely determined by soil, topography and water.

Beard (1981) has classified the area of this study as part of the Southwestern Botanical Province. The coastal section is described in the Drummond Subdistrict of the Darling Botanical District. The Dale Subdistrict lies to the east of the Darling Scarp.

The Drummond Subdistrict is characterised by Banksia low woodland on leached sands and Melaleuca and associated species where poorly drained. A woodland of tuart *(Eucalyptus gomphocephala)*, jarrah *(E. marginata)* and marri *(E. calophylla)* are present on less leached soils (Beard, 1981:180).

The Dale Subdistrict contains a jarrah forest on the ironstone gravels, marri-wandoo *(E. wandoo)* woodlands on loamy soils with *sclerophyll* understories (Beard, 1981:185).

2.5 Drainage

The river systems in the project area drain into the Indian Ocean in a generally east to west direction. The main systems in the project area, from north to south, are as follows:

(i) Moore River with Gingin Brook;

(ii) Swan River with Avon and Helena Rivers;

(iii) Canning River with Wungong River;

(iv) Serpentine River;

(v) South Dandalup River;

(vi) Murray River with Hotham and Williams Rivers;

(vii) Harvey River;

(viii) Collie River with Harris River;

(ix) Preston river.

2.6 Palaeoenvironment

The environment of the project area appears to have remained relatively unchanged for the past five thousand years. Before this time, sea level changes, as a result of the alternate melting and freezing of the polar ice-caps during the Glacial and Interstadial periods of the Pleistocene, would have resulted in a vastly different coastal formation. At one stage, the coastline would have been west of Rottnest Island resulting in a much wider coastal plain, possibly around 15–20 000 years ago (Playford and Lynch, 1977).

3.0 Previously Recorded Archaeological Sites

3.1 Methods

The site files of the Department of Aboriginal Sites, W.A. Museum, were inspected to determine the number and type of archaeological sites within the project area. This information was used to produce a map showing the location of registered archaeological sites outside the Metropolitan Area (Figure 2).

3.2 Archaeological Sites

As a result of previous surveys and independent research, 1136 Aboriginal sites have been recorded and registered with the W.A. Museum in the research area (e.g. Hallam, 1986, O'Connor and Quartermaine, 1987a; Pearce, 1982; Veth, *et al*, 1983; and Anderson, 1981). These sites are mostly small artefact scatters but also include quarries, burials, modified trees, structures, engravings, paintings, grinding patches, fish traps, and repositories. There are also a number of sites of dubious nature for which little information is available. The recorded archaeological sites are listed in Appendix 3. Tables show the numbers of each site overall (Table 1), for the metropolitan area (Table 2), and outside the metropolitan area (Table 3).

Surface artefact scatters are by far the most common archaeological site type in the project area. They make up 77% of sites in their own right plus they are present as a component of 10% of other sites. The next most common site types recorded are burials (1%) and artefact scatter/quarry (1%). Other site types are in very low numbers, often as low as one example, with several sites containing multiple components.

Previously recorded sites in the project area reflect a distribution that indicates where site survey work has been undertaken as well as the location of numerous sites on the margins of rivers, lakes and swamps. Figure 2 shows the location of recorded archaeological sites in the project area but omits a major part of the metropolitan area because of the small size of the area and large number of sites.

Site density for various parts of the project area, based on the results of archaeological surveys, points to an average site density of about two sites per square kilometre overall with large variations according to location and environment.

In the south, the Worsley survey (Pearce, 1981a:12), which covered an area of 25 sq km north–west of Collie, yielded a site density of just below two sites per sq km (49 sites located). By comparison, the Harris River survey north of Collie, covering an area of 10.6 sq km along the drainage basin of the river, yielded a site density of five sites per sq km (53 sites located —Veth, *et al*, 1983:16)

Since the Worsley survey was not restricted to drainage areas while the Harris River survey was, it appears that areas adjacent to drainage systems are the most likely to contain archaeological material in the jarrah forest. There is also a tendency for the larger sites to occur adjacent to swamps and river pools (Anderson, 1981:24; Pearce,1981b:57; and Veth, *et al*, 1983:24).

Site density in the Boddington area (Pearce, 1981) is 0.8 sites per sq km (213 sites in 255 sq km). Site density in the North Dandalup area was 1.25 sites per sq km (Anderson, 1981 and 1982). Another survey, of a large area between Mandurah and Bunbury, revealed that most artefacts were found in areas that had been cleared of surface vegetation, either by natural or human means. Most sites recorded during this survey were to the west of the Peel Inlet/Harvey Estuary (Novak,1975).

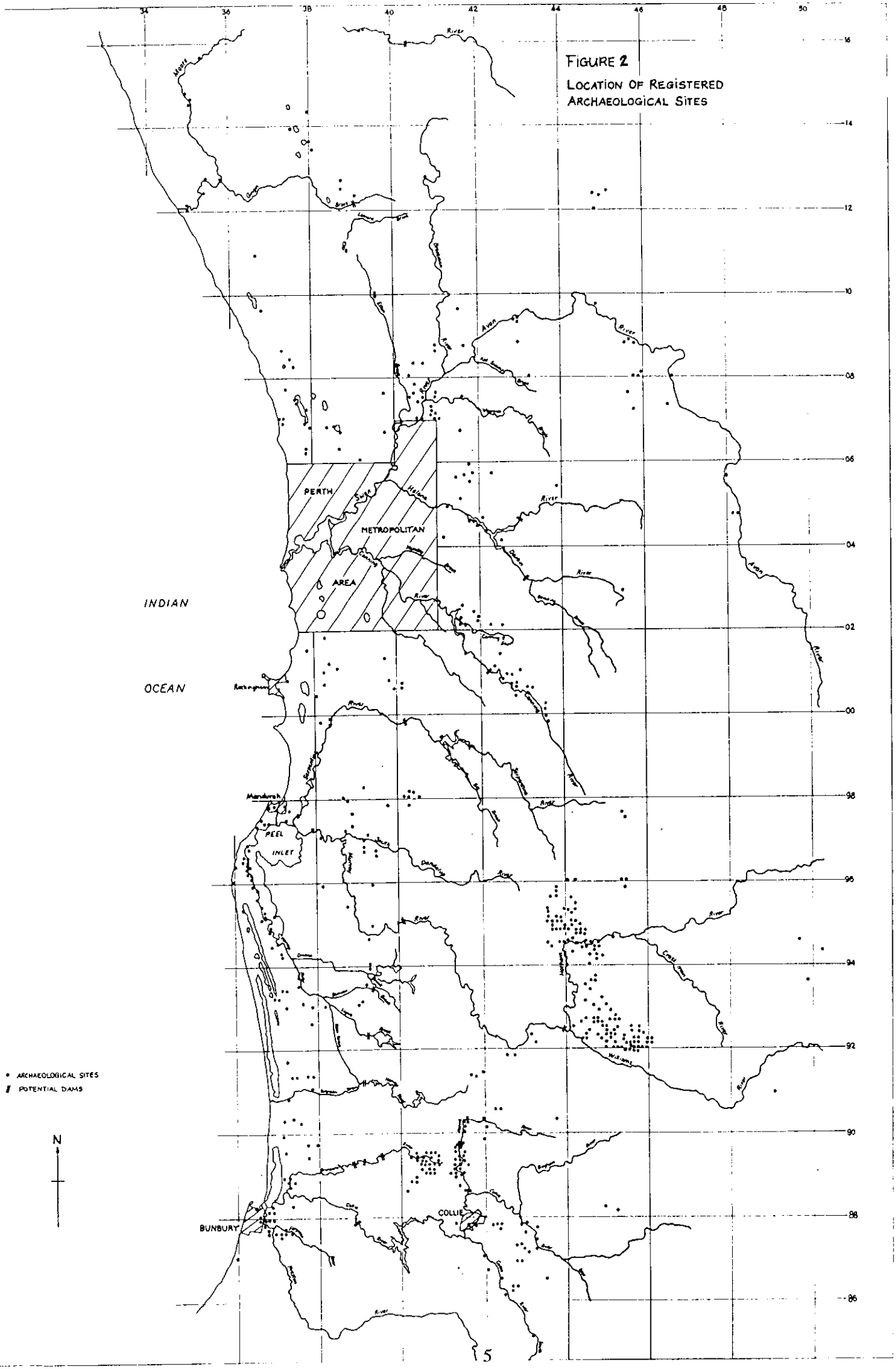


FIGURE 2
LOCATION OF REGISTERED ARCHAEOLOGICAL SITES
PERTH
METROPOLITAN
AREA
INDIAN
OCEAN
PEEL
INLET
Mandurah
BUNBURY
COLLIE
ARCHAEOLOGICAL SITES
POTENTIAL DAMS
N

Anderson (1984:20) has investigated site densities in three south–west ecological zones; the coastal plain, the jarrah forest and the Darling Plateau; and has found that the coastal plain site density exceeds the other zones because it contains a richer resource base. The recorded site density for the coastal plain surveys was 6.5 sites per sq km (6 sq km) and 3 sites per sq km (14 sq km). For the scarp, it was 0.8 sites per sq km (25 sq km) and 1.3 sites per sq km (8 sq km). For the Boddington area, it was 0.8 sites per sq km, and for Collie 2 per sq km (25 sq km) and 5 per sq km (10 sq km). For the Avon River at Yealering, it was 1.7 sites per sq km (10 sq km). North of the metropolitan area, no large-scale survey work has been completed. However, those areas near lakes, swamps and rivers are the most likely to contain archaeological material. Investigations have revealed a site density of between one and two sites per sq km away from major watersources (Strawbridge, 1984). Some areas, such as the sandplain country near Cataby, have a much sparser distribution of archaeological sites due to the limited resource base e.g. 1 site in 6 sq km (O'Connor and Quartermaine, 1987).

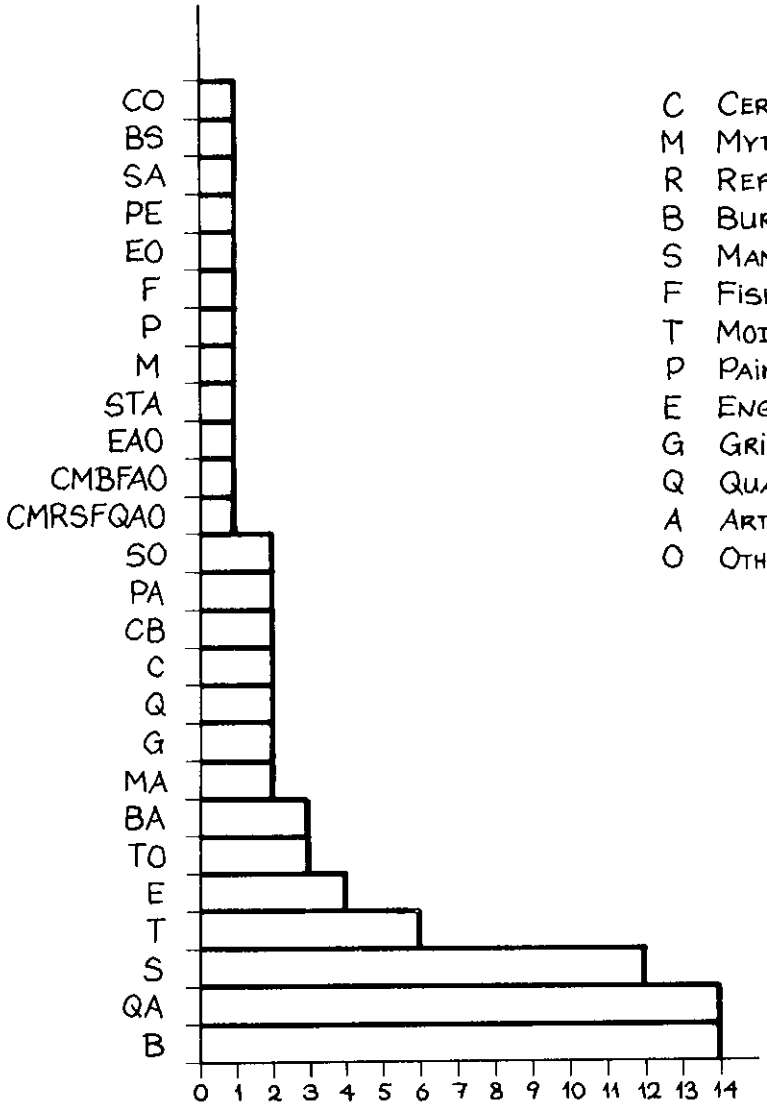
While surface artefact scatters are the dominant recorded site type, quartz is the dominant lithic material used in the manufacture of stone tools. Other materials used include fossiliferous chert, dolerite, silcrete, mylonite, calcrete and granite plus the addition of glass and pottery in historic times.

There is some difference in the use of lithic materials in the project area, based on information from previous survey work. Assemblages from areas immediately east of the Darling Scarp (Collie, North Dandalup and South Canning) are almost entirely made from quartz. Assemblages from areas further to the east (Yealering and Boddington) are still dominated by quartz but dolerite appears as a minor component. While quartz is also dominant on the coastal plain, other materials are often present in varying amounts, and these include fossiliferous chert, dolerite, mylonite, silcrete and glass (Anderson, 1984:25).

Some differences in artefact types between coastal plain and inland site assemblages are also noticeable from the recorded site information (Anderson, 1984:25–26). This difference relates to the proportion of retouched/utilised artefacts in site assemblages; on the coastal plains it is calculated as 17.8% (Anderson, 1983) and 9.9% (Hallam, 1983). For the area immediately east of the scarp, it was 0.6% (South Canning – Anderson, 1982) and 0.7% (North Dandalup – Anderson, 1981). For the Collie area, it was 28.1% (Pearce, 1981a) and at least 2.0% (Veth, et al, 1983). Finally, for Boddington, it was 33.5% (Pearce, 1981b).

Artefact density is many times greater on the coastal plain than the inland sites (Anderson, 1984: 25–26). A figure of 50 000 artefacts per sq km is given for a part of the coastal plain while figures for the scarp and Collie are less than 200 per sq km. Boddington appears to be about 4 000 artefacts per sq km.

TABLE 1: ARCHAEOLOGICAL SITES IN PROJECT AREA



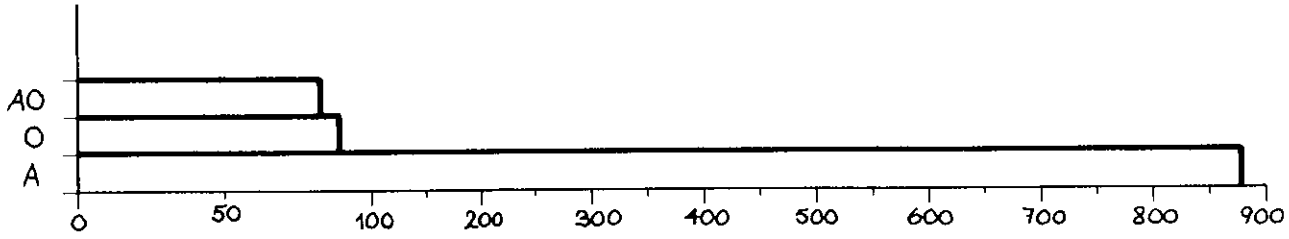


TABLE 2: ARCHAEOLOGICAL SITES IN METROPOLITAN AREA

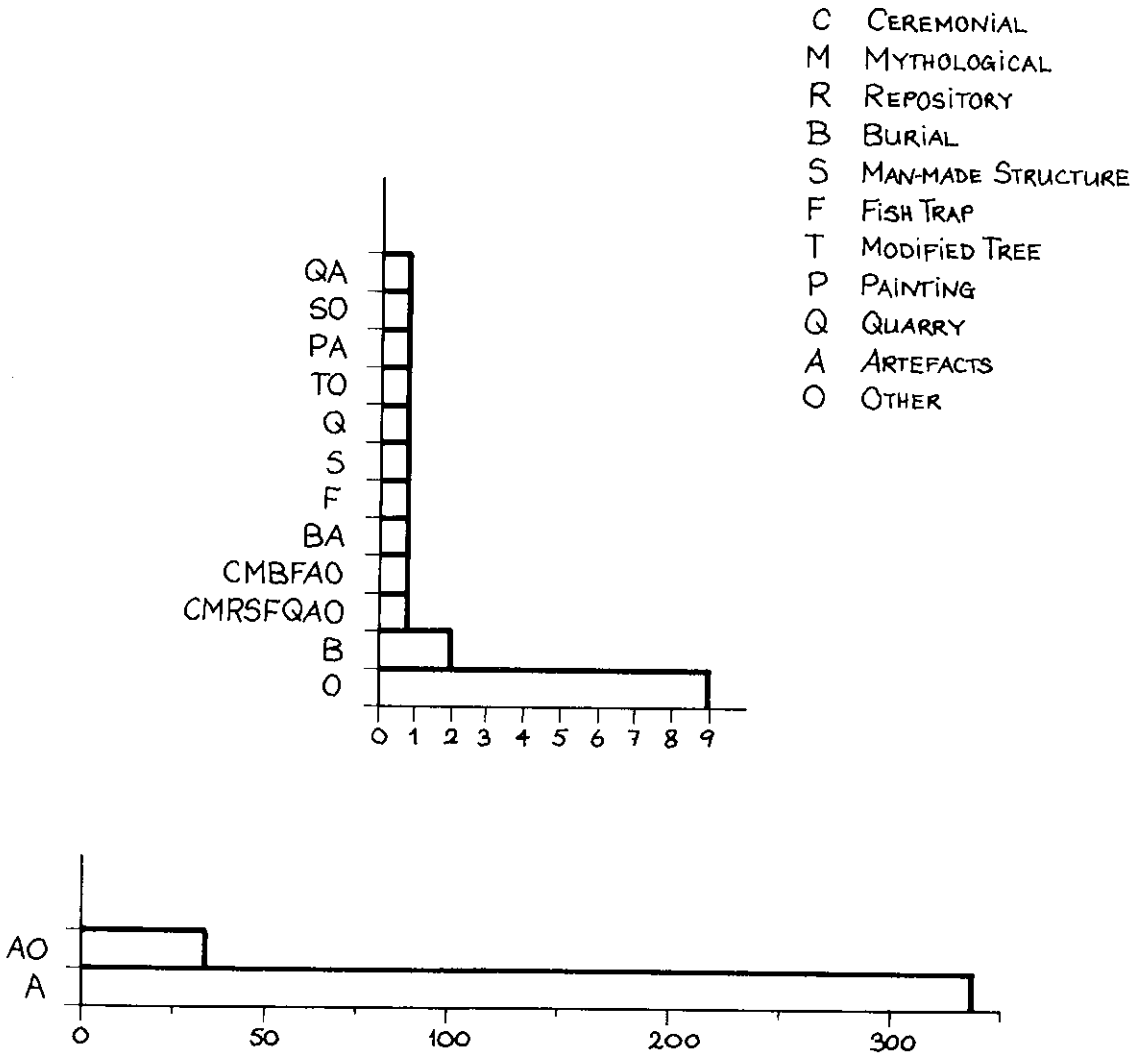
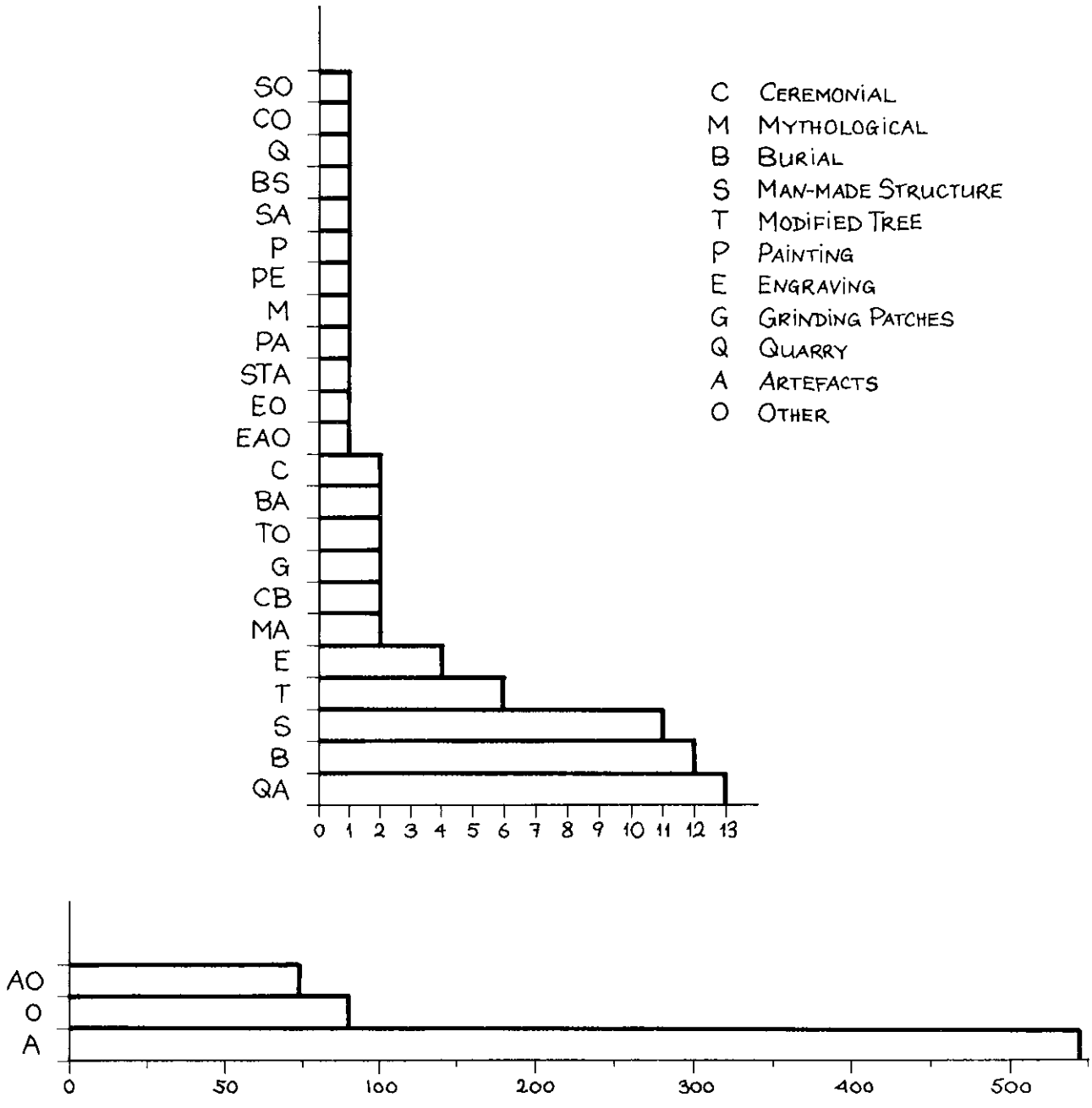


TABLE 3: ARCHAEOLOGICAL SITES OUTSIDE METROPOLITAN AREA



4.0 Previous Archaeological Research

4.1 Dated Evidence

The earliest evidence for prehistoric occupation of the South–West of Australia is dated at 38 000 years ago, for a stratified site at Upper Swan, located 25 km northeast of Perth (Pearce and Barbetti, 1981). Two other sites in the south–west have also yielded Pleistocene dates, Devil's Lair and Helena River. A number of Holocene sequences have yielded data on possible cultural/environmental changes during, and after, the recent transgression of the sea, for the metropolitan region (see Clarke and Dortch, 1977; Hallam, 1974; and Pearce, 1978). This work postulates increased populations on the Coastal Plain, rising to a peak just before European contact.

The Upper Swan site, S0999, is situated on an alluvial terrace of the Swan River at a point 2.5 kilometres west of the Darling Scarp. Extensive down-cutting has resulted in the river bed being presently 10 m below the level at the time of Aboriginal occupation. The series of dates in the high 30 000 years ago is for a relatively sparse artefact assemblage that was subsequently covered by a layer of sediment about 30 000 years ago. Artefacts were made from quartz (71%), quartzite, chert, dolerite, bryozoan chert and granite. Changes in sea levels after this period would have resulted in possible adverse environmental conditions in this area with an increasing distance to the coast-line during the period from 20 000–15 000 years ago (Pearce and Barbetti, 1981; and Pearce, 1983).

Another metropolitan alluvial site that has yielded old dates for Aboriginal occupation is situated on the Helena River, 10 kms south of the Upper Swan site. This alluvial terrace site, S1453, has a date of 29 400+/–2 000 years ago from the basal artefact level, 123–143 cm below surface level. The artefacts from this level were a quartz flake and a bryozoan chert flake and lump. Another date of 3 750+/–90 years ago from 23–28 cm bsl indicates possible usage of this area over an extended period of time. Lithic materials at the site include quartz, chert, mylonite and dolerite. Quartz makes up 95% of the surface assemblage. Ten percent of the assemblage is retouched/utilised and 2% is classified as formal tools. This includes adzes, scrapers and backed blades. Chips make up 60% of the assemblage. Some glass and other historic material is also present (Schwede, 1983).

Beyond the metropolitan area, there is a site in the Leeuwin–Naturalist Block that has provided equivalent dates to the above sites. Devil's Lair, a cave site in aeolian limestone 20 km north of Cape Leeuwin, has yielded Pleistocene dates in the order of 30 000 years ago. A date of 31 400+/–15 000 years ago has been obtained for a sample taken from above two occupation features and artefact assemblages. The upper-most level that is believed to contain in situ archaeological material has a date of 6 490+/–145 years ago. Archaeological assemblages from this site contain a variety of mammal, bird and reptile species, mussel and emu shell, a number of different stone artefacts and a range of diverse bone tools. Some of the stone tools have a dark staining that may indicate hafting with gum (Dortch and Merrilees, 1973; and Dortch, 1977).

Several Holocene dates have been obtained from archaeological deposits at sites in the south–west. These are at Walyunga, Orchestra Shell Cave, Minim Cove, Hotham River, Collie, and North Dandalup.

Walyunga contains an extensive artefact scatter. Excavations completed by Pearce (1978) gave dates from 8 000+/–260 years ago in a more-or-less, continuous sequence down to the time of European colonisation. It also showed a sequence

break at about 4 600 years ago when bryozoan chert ceased to be used and backed blades and flat adzes slowly increased in usage. Quartz made up 80% of lithic material at all levels. 10% of artefacts were retouched/utilised and 4% were classified as formal tools. The artefact assemblage at this site is seen as having changes in technology in a continuing tradition. This is seen by the following feature:

(i) the disappearance of bryozoan chert and silcrete;

(ii) an increase in mylonite use;

(iii) a decrease in steep scrapers;

(iv) the introduction of backed blades and flat adzes; and

(v) a late increase in fabricators.

Orchestra Shell Cave is situated near Lake Neerabup which is about 30 km north of Perth. Dated archaeological material, mainly worked pieces of hard limestone, shows that prehistoric activity occurred in the cave between 6 400+/–120 and 1 730+/–85 years ago. The roof of the cave contains a series of different markings in the form of grooved patterns that are considered to be a form of art/engraving. A nearby cave, Murray's Cave, contained a quartz artefact in a sequence dated at 7 550+/–125 years ago (Hallam, 1971).

Minim Cove, on the Swan River at Mosman Park, contained a few artefacts in a stratigraphic level with a minimum age of 9 930+/–130 years ago. The artefacts were 14 fossiliferous chert flakes and chips and two quartz chips (Clarke and Dortch,1977).

Pearce (1982) excavated two sites on the Darling Plateau south–east of Perth. S1372 is a laterite cave 160 metres above the Hotham River, part of the Murray River system. A date of 3 230+/–170 years ago was obtained from 30–35 cm bsl. The quartz artefact assemblage included scrapers, fabricators and a microlithic component. S1208 is situated on a swamp margin north–west of Collie. A date of 5 810+/–330 years ago was obtained from 30–35 cm bsl.

These two sites demonstrate the usage of the inland jarrah forest for at least 6 000 years. The density of sites was nearly one per square kilometre in the overall survey area north of Collie: 262 sites were located in 280 sq kms (Pearce, 1982).

Finally, Anderson (1981) conducted a test excavation at a site in the North Dandalup area. Artefacts were found to a depth of 45 cm bsl and a date for the 15–20 cm spit was 1 280+/–80 years ago (Anderson, 1982). The survey located 10 sites, all within 100 metres of the North Dandalup River. Quartz was the only lithic material. Site density was 1.25 per square kilometre (Anderson, 1981).

4.2 Area Models

Three models for archaeological material and site distribution, that are relevant to the project area, have been proposed by Dortch (1977), Hallam (1987) and Anderson (1984). These are discussed below.

4.2.1 Stone Tool Industry

Prehistoric stone tool industries in the South–West have been classified into earlier and later phases (Dortch, 1977). The early phase industries have only been documented from a few well-dated sites. In the South–West of Australia, these are Devil's Lair (Dortch and Merrilees, 1973), Puntutjarpa (Gould, 1977), and Koonalda (Wright, 1971). They include small thick flake scrapers, bipolar cores, notched-denticulated pieces, flakes from discoidal cores, and single and multi-platform cores. These artefacts have been manufactured from a range of lithic materials, including a distinctive Eocene fossiliferous chert. It appears that access to this chert

was lost after the last marine transgression (Dortch, 1977; Glover, 1975). This phase corresponds broadly to Mulvaney's (1975:14) 'Australian core tool and scraper tradition' that describes assemblages found throughout much of Australia.

Later phase stone industries, generally found in archaeological contexts dating from 4 000 years ago, include the addition of geometric microliths, backed blades, and a variety of adze flakes, which are part of the Australian 'small tool tradition' (Dortch, 1977; Mulvaney, 1975:210). The early phase tool types continued as a reduced component of the later phase stone industry. The later phase includes a range of geometric microliths and microlithic backed points and bladelets, a variety of adze flakes including a high proportion of tula form, various axe types but notably bifacially flaked, edge-ground axes, horsehoof cores and thick flake scrapers, denticulated or notched pieces, pebble tools, and grindstones and mortars (Dortch, 1977:123).

4.2.2 Swan Coastal Plain

As part of a regional survey of the Metropolitan area, Hallam (1986:5) concludes that the majority of sites lie around the lakes and swamps of the Swan Coastal Plain, and that site numbers double in the last few hundred years. Four phases of occupation are suggested for the Coastal Plain. These are:

(i) Early — low number of sites centred towards the coast. Artefacts include steep scrapers on flakes and scrapers made from an Eocene fossiliferous chert. This phase was up to 5 000 years ago.

(ii) Middle — from 5000–500 years ago. Showed a contraction of occupation to sites near permanent water. Artefacts were made on quartz and green chert and included backed blades, adzes, scrapers and flakes.

(iii) Late — from 500 years ago. Concentration of sites on the Coastal Plain. Fabricators (bipolar cores) were introduced and a large percentage of assemblages were made up of quartz flakes, chips and debitage.

(iv) Final — post European contact and settlement. Use of introduced materials, such as glass, pottery and clay pipes, for the manufacture of artefacts (Hallam, 1973,1974 and 1986).

Information from an archaeological survey of the Swan Coastal Plain to the foothills of the Darling Range and centred on the Swan River gives a picture of Aboriginal prehistoric occupation concentrated on the area immediately west of the foothills (Hallam, 1987). This information includes the results of two east–west transects across this region.

The results show that the majority of recorded archaeological sites are located in the Bassendean Dunes and Pinjarra Plain landforms, around the rivers, lakes and swamps. There is little evidence of usage of coastal areas, only starting in the eastern part of the Spearwood Dunes zone (Hallam, 1987:20–23).

4.2.3 Between Plateau and Plain

Anderson (1984) has proposed a land-use model for prehistoric exploitation of the Swan Coastal Plain, and its hinterland, based on regional research into the relative proportions of variously sized surface artefact scatters and their associated artefact densities. This model suggests that, due to the variation in resources available in the three different environmental zones investigated, there was more intensive use of the coastal plain than either the adjacent forest or open woodland plateau.

This model also suggests a concentration of large numbers of people near the various bodies of water (coast, estuaries, lakes, swamps and rivers) of the coastal plain. In winter and early spring, there was some movement into the jarrah forest in the Darling Ranges. The small size of archaeological sites in this zone points to

exploitation by small, mobile groups in an area of less concentrated resources and water sources. By late spring, there was movement back onto the coastal plain.

Different groups inhabited the area from 30 kilometres east of the escarpment and exploited the eastern jarrah zone which graded into wandoo woodland. There appears to have been trade and ritual exchange between these plateau groups and those on the coastal plain.

4.3 Ethnohistory

The information contained in the early writings, letters and diaries of the first European settlers to Western Australia provides some indication of the lifestyle of the Aboriginal people at the time of the initial settlement. This information is very generalised and is tempered by the major effect that European settlement had on traditional Aboriginal society. Early writings of interest include Lyon (1833), Armstrong (1836), Symmons (1841), Grey (1844), Moore (1884) and Hammond (1933). More recent analysis of these early records is presented in Hallam (1979), Green (1979 and 1984) and McNair and Rumley (1981).

It is possible to draw some conclusions about Aboriginal life from these writings. Much of this relates to ethnographic information and is discussed in Part Two of this report. However, certain aspects are relevant to, and have implications for, the archaeological record. These can be divided into Aboriginal population, seasonal movement of people, camping areas, economic patterns and trading practices. However, these aspects of Aboriginal life are all closely related to each other and to mythological, ceremonial and social aspects.

The Aboriginal population of the Swan River area has been estimated in several sources.

Armstrong (1836:797) gives an estimated number of 700 Aboriginal people who had visited the Swan River Colony up to 1836. However, these may not have all been local inhabitants.

Hallam (1977:26–27) concluded that a population density of 25 people to 100 square miles was a reasonable assumption for the Swan Coastal Plain. This gives an estimated 420 Aboriginal people occupying the area between Moore River and Safety Bay, taking in the near hills area to the east.

Hammond (1933:23–25) attended a gathering of about 300 Aboriginal people at Bailup. Bunbury (Bunbury and Morrell, 1930:79), while in the vicinity of the Leschenault Estuary, met a large party of Aborigines in the northern part and another party of 100–200 men and boys further south.

The seasonal movement of Aboriginal groups relates to the exploitation of the various resources available in the different environmental situations.

Hallam (1979:5–7,25) concludes that Aborigines congregated around the estuaries and lagoons of the coastal plain in the summer and dispersed, in small groups, in winter through a wider hinterland which included the area of the Darling Scarp and Plateau.

Early writers have noted this congregation around watersources. For example, Moore (1884) describes the use of a number of localities and resting places along the river banks plus rockholes away from the river that were used by Aboriginal people.

Stirling (1827:560) recorded that the Aboriginal groups frequent the sea coast in summer to fish and in winter they inhabit the higher grounds to hunt kangaroo and other game and gather roots.

Armstrong (1836:793) also noted that, in winter, the larger gatherings separate into family groups that camp for four to six weeks at a place where seasonal food is available. Temporary shelters are built at these camps.

As well, Hammond (1933:20) states that '...a month would be a long stay for a group of natives to make at any one place. Often they stopped for only a night or two.'

Large gatherings were mainly for three reasons.

(i) To exploit abundant food resources. For example, hundreds of people gathered at Barragup, on the Serpentine River, for fishing at the beginning of winter. Wooden palisade and brush weirs were used for this exercise (Hammond,1933:23,46). It should be noted that the only archaeological evidence recovered for these fish traps has been the recent discovery of a single wooden stake found by divers in the area of the registered Barragup fish trap site, S0210 (C.Dortch, pers. comm.).

(ii) For ceremonial purposes. Three hundred people are recorded as attending a gathering at Bailup, on the Woorooloo Brook, for corroborees and to talk together (Hammond, 1933:23,48).

(iii) To trade between groups. Wilgi (ochre), which was found at various locations in the metropolitan area, was traded widely. It was a greasy material that was refined by firing. It was reportedly traded to Gingin and Kellerberrin, among other local places, and as far afield as South Australia and the Northern Territory (Bates, n.d.). Spearwood, which grew near the wetlands of the metropolitan area, was traded 'far up the coast' (Hammond,1933:24).

The seasonal availability of food was an important factor in Aboriginal life. Many of the fish and waterfowl, that are found in the coastal waterways in summer, migrate further afield in winter. The yam *'Warryn'* is found in the hills in winter (Hammond, 1933:28–29). Large areas of the coastal plain would have been inundated during winter, making travel and camping difficult if not unpleasant.

The food resources used by Aboriginal people in the traditional society have been described by Meagher (1974) as well as various observations by the early settlers. A range of animal, reptile and bird species were hunted and trapped. Fish were taken by use of fish traps or by spearing. Various roots, bulbs, tubers, seeds, nuts, fruit, fungus and nectars were collected and eaten by Aboriginal people.

Meagher (1974:24) believes that roots, bulbs and tubers were the staple vegetable foods. Species commonly used were *Caesia, Dioscorea* (yam), *Haemodorum* (mutta), *Platysace* (karno and koolung), *Prasophyllum* (wild potato), and *Typha.*

Evidence of the use of low intensity controlled firing of the vegetation by Aboriginal people in the South–West of Australia has been documented by Hallam (1979). This burning was widespread and enabled the Aboriginal people to modify their environment and maximise economic resource exploitation. Burning was used to encourage (by growth of low grass) and trap game, to encourage particular vegetable species, and to provide ease of access by removing vegetation growth.

Aboriginal material culture is based, to a large extent, on non-durable materials, such as wood, bark, fibre and skins, that have a limited life in the archaeological record. Stone tools, conversely, remain as often the only evidence of prehistoric activity. Bone, either as a tool, as refuse, or as a burial, falls somewhere between these extremes. Lofgren (1975:7) describes spears, spear-throwers and clubs for men, and digging sticks, wooden carrying dishes and grindstones for women, as the basic implements of Aboriginal life.

Therefore, stone artefact sites reflect only one aspect of Aboriginal material culture which utilised a wide range of materials from the natural environment.

5.0 Conclusions

5.1 Discussion

This investigation addresses archaeological aspects of the significance of wetlands and rivers to Aboriginal people, in terms of both previous activity and current associations, for an area between the Moore River and the Preston River.

The investigation involved a review of archaeological sites registered with the Department of Aboriginal Sites, W.A. Museum, survey reports and other relevant literature, and historical sources concerning Aboriginal traditional life at the time of early European settlement of Western Australia. The project was discussed with senior personnel of the Department of Archaeology, W.A. Museum, and other persons who have, or have had, research interests in the project area.

The most numerous archaeological site type recorded in the project area is surface scatters of stone artefacts, which account for 77% of sites as the sole component and a further 10% as one component of multi-component sites. Other site types, in the total of 1136 recorded sites, were only in very low numbers, none more than 1% of the total number. Some of the artefact scatters, particularly those on alluvial terraces, may have potential to contain a stratified deposit from which dated sequences may be obtained, as with the Upper Swan and Helena River sites (S0999 and S1453).

It should be noted that stone tools are the most durable material that remains in the archaeological record. The traditional Aboriginal material culture was based, to a large extent, on organic products, such as wood, bark, fibre and skins, that are under-represented at archaeological sites. Stone tools were used partly as maintenance tools for the various wooden implements as well as for various cutting and chopping tasks. The wooden palisade and brush fish weirs, described in early literature, in the Serpentine River near Barragup, have recently yielded their only archaeological evidence — a single wooden stake recovered from the river bed by divers.

There is archaeological evidence that gives a time depth of at least 40 000 years for Aboriginal occupation of the South–West of Australia. This comes from alluvial terrace sites on the Upper Swan and Helena Rivers, as well as from a cave deposit in the Leeuwin–Naturaliste Block, Devil's Lair. Other, more recent, dates show Aboriginal occupation of many areas of the south–west in various environmental situations, particularly in the last 5 000 years.

The archaeological evidence is supported, to some degree, by early historical writings that suggest a pattern of land usage in traditional Aboriginal society based on seasonal and environmental factors. It appears that Aboriginal people gathered in large groups around the various bodies of water on the coastal plain, in summer, to exploit their resources which included fish, waterfowl, turtle, frog, and vegetable foods, that were largely available on a seasonal basis. With the rains of late autumn and early winter, they moved along the various water courses over the plain and into the hills of the Darling Range to hunt game (kangaroo, possum, emu, etc) and collect vegetable foods, especially yams. Winter activities were conducted in small family units that amalgamated with others in late spring to move back onto the coastal plain for summer.

The existing archaeological evidence shows that the major sites were on the coastal plain while sites in the foothills and plateau tend to be small, low density areas. There is a larger range of lithic materials present in coastal plain site assemblages although quartz is the dominant lithic material used on both sides of the Darling Scarp. In the Collie area, quartz is virtually the only lithic material recorded at archaeological sites.

There is a tendency, in all parts of the project area where sites are recorded, for sites to be located near the various water sources, such as rivers, creeks, lakes, swamps and estuaries.

Based on existing information, the most important river systems in the project area are the Swan, Murray–Serpentine and Collie River systems. This conclusion shows a bias because of a relative lack of information about the other systems. The chain of lakes to the north and south of Perth are also important areas but these would appear to have a limited time depth for archaeological material based on their formation in the Holocene Period.

The construction of dams on the rivers of the project area have the most potential to disturb archaeological sites compared to the development of bores to tap groundwater sources. However, the latter has inplications for ethnographic sites because of the potential alteration to the water table (see Part 1). Some of the potential dam site areas have already been subject to Aboriginal site surveys, to varying degrees, particularly North Dandalup, South Canning and Harris River but also, to a lesser degree, the Swan, Helena and Hotham Rivers.

The following conclusions are based on the preceding information:

(i) Small, low density, surface stone artefact scatters are the most numerous archaeological site type.

(ii) Larger sites are most likely to occur near bodies of permanent water.

(iii) Quartz is the dominant lithic material used for the manufacture of artefacts.

(iv) Flakes and chips form the major class of artefact types in the recorded artefact assemblages.

(v) River, lake and swamp margins, and areas of devegetated sand are the main areas where sites have been recorded.

5.2 Recommendations

(i) Aboriginal site surveys should be conducted in the areas of future dam sites and associated works.

(ii) Aboriginal site surveys should be conducted at groundwater bore sites and associated pipelines.

(iii) Follow up work should be conducted, where necessary, based on preliminary results, in consultation with relevant Aboriginal people.

(iv) Some provision should be made in the event of the discovery of subsurface archaeological material during excavation and earthworks for any project in this region. This may occur where no surface archaeological material is present, particularly on alluvial terraces of the various rivers. It is recommended that the developers and contractors be made aware of the type of material likely to be located (see Section Three) and any discoveries should be reported immediately to the W.A. Museum.

(v) Should any of the registered archaeological sites be affected by future development, permission for site disturbance, under Section 18 of the W.A. Aboriginal Heritage Act, 1972–1980, must be obtained before any disturbance occurs. This can be done by written application to the trustees of the W.A. Museum for permission to use the land containing the sites under the above section.

(vi) It is pointed out that human interference to Aboriginal sites is an offence, unless authorised under the Act, as outlined in Section 17 of the W.A. Aboriginal Heritage Act, 1972–1980. Therefore, it is recommended that the Developers take adequate measures to inform any project personnel of this requirement.

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Part Two

Ethnography

Rory O'Connor and Corrie Bodney

1.0 Introduction

This part of the report deals with ethnographic sites, that is sites of significance to living Aboriginal people, and with relevant Aboriginal historical material. This research was undertaken by Rory O'Connor and Corrie Bodney, with occasional input as appropriate from other Aboriginal associates.

1.1 Consultation

The Water Authority of Western Australia advised the researchers that:

(i) The entire study area should be considered; and

(ii) Where practicable, attention should be given to the potential for conflict between Aboriginal association with wetlands and rivers and their value and possible allocation for urban/industrial; irrigation and rural; ecosystem maintenance and recreational uses.

The researchers therefore undertook a wide-ranging consultation, which included discussions with:

(i) Moora Aboriginal Progress Association;

(ii) Families related to the Yanchep region;

(iii) Families related to the freshwater lakes between Yanchep and Joondalup/ Goollelal;

(iv) Nyoongah Community Inc;

(v) Fringedwellers of the Swan Valley Inc;

(vi) Families related to the Chandala Brook/Ellen Brook system;

(vii) Southern Districts Aboriginal Progress Association and families related to the Canning River, Southern River and Neerigen Brook Systems;

(viii) Senior members of the Bennell family;

(ix) Senior members of the Nannup family and others from the Mandurah region;

(x) Pinjarra Aboriginal group and members of the Little family;

(xi) Collie Aboriginal Advancement Association;

(xii) Harvey/Brunswick Aboriginal Corporation;

(xiii) Southern Aboriginal Corporation;

(xiv) Bunbury Aboriginal Progress Association;

(xv) Department of Aboriginal Sites (i.e. examination of previously recorded material);

1.2 Format of Report

Sections Two and Three, which follow, delineate the existing ethnographic data base, describing existing knowledge of ethnographic sites in the survey region. Section Four discusses this database and analyses a series of specific issues arising therefrom. Section Five discusses aspects of Aboriginal history (oral and recorded) relevant to the survey. Finally, Section Six addresses the question of potential for conflict arising from mutually irreconcilable expectations and aspirations regarding the survey region's rivers and wetlands and offers for consideration a series of recommendations aimed at mitigating much conflict.

2.0 'Significant' Sites in the Survey Area: An Example

2.1 'Significance'

'Significance', in the survey area is attributed by Aboriginal people on the basis of former or current domestic usage, or on the basis of relevance to traditional ritual or mythology. Broadly speaking, this distinction can be viewed as a series of dichotomies between historical and mythological, human and supernatural, or mundane and sacred areas. Thus, one area may be viewed as significant from a historical/human/mundane viewpoint, and another from a mythological/supernatural/sacred viewpoint.

As noted by O'Connor and Quartermaine (1989) in a recent report to the Water Authority of Western Australia (Aboriginal Site Survey of proposed Jandakot Mound Borefield), a substantial number of Aboriginal sites are mentioned in Hammond (1933), Moore (1885), Bates (numerous dates) and other historical sources. Any sites not known to contemporary Aborigines cannot reasonably be classified as 'sites of significance to living Aborigines'. However, rediscovery or realization of the existence of such sites, could lead to an attribution of significance. The history of Western Australian Museum (archaeological) site number S0999 is a clear example of this: in that case, a 40 000 year old archaeological site, which was discovered by chance, has become an area of importance and significance to Aboriginal people from Swan Valley (see Pearce and Barbetti [1981] for a description of this site). Therefore, the neat compartmentalization resulting from European academic disciplines may not fit absolutely the Aboriginal models; any archaeological or historical site in the survey region could also be potentially significant to Aboriginal people.

The following two sections of this chapter develop the above discussion by extracting from the ethnographic database material concerning two specific sites, to one of which significance is attributed for reasons of domestic usage, and to the other for reasons of ritual and mythological association.

2.1.1 Lake Claremont (formerly 'Butler's Swamp')

Location and dimensions: Present-day Lake Claremont lies in a depression bounded by Alfred Road to the north, Davies Road to the east, Shenton Road to the south and Central Avenue and Narla Road to the west. Public open space and sports fields, which have resulted from extensive drainage and reduction in water level, surround it to a distance of approximately 500 metres on all sides. The lake itself, which measures approximately 800 metres on its north–south axis by 500 metres at its widest point, is of significance to Aboriginal people, as is also the public open space surrounding it (originally this was swampland). Of particular significance is the present Cresswell Park and the high sandy plateau to the north–west.

Swanbourne Senior High School Sports Fields, which are located in the angle formed by Narla Road, are also of significance to Aboriginal people. The dimensions of this site are approximately 400 metres (north–south) by 300 metres (east–west). It should be noted, however, that the area of Aboriginal usage spread west for an undetermined distance, under the grounds and the buildings of the high school.

Discussion: Aboriginal people have camped in the Claremont/Swanbourne area from prehistoric times until the late nineteen thirties. During this latter period, Lake Claremont was a source of water and food; in fact, it was described by an old man

in his 70s as 'a paradise', where fresh spring water, snakes, possums, turtles and wildfowl abounded. Camps were generally located on the high plateaux around its perimeter.

Traditional burials are reported to have taken place near the north–east corner of the original swamp, although their exact location is no longer known. As extensive residential construction and earthmoving projects have taken place in this area, and as the swamp has decreased in size as a result of drainage programmes, there seems to be little possibility of locating these graves.

In the last decades of the nineteenth and the early years of the twentieth century 'King' Billy and 'Queen' Jeannie made their paperbark mia-mia camp among peppermint gums where Cresswell Park is now located. Other members of their extended family camped nearby. Three men, three women, 'a lot of children' and five or six dogs are reported to have been permanently resident in this camp.

Around 1900, Mr Alexander Doepel,an artist and teacher who had been trained in Victoria, moved into the area, originally to a house in Alfred Road, and then to another near the Picture Theatre in Bayview Terrace. Mr Doepel taught art, photography, woodcarving, painting, modelling and architectural drawing, both privately and in local schools. He also befriended King Billy and his family, the original contact occurring when Billy's daughter Sally applied for the job of occasional cleaner in the Doepel household. Billy and the remainder of his family would arrive for their main meal on days when his daughter worked. This would usually be two sheep-heads, cooked with rice, potatoes and onions. On other days, this process was repeated in other houses. The men earned a living gardening, chopping firewood or selling clothes-line props. On occasion, they would visit Freshwater Bay, where crabs and cobbler were speared and grilled on a fire in a circle of stones. The children made metal kylies on these trips, with which to stun mullet, schools of which thronged in the Bay.

Mr Doepel made two records of this period. One was a painting entitled 'Story of the Bunyip', which showed Billy and his family sitting in the artist's kitchen talking to the children. This painting could not be located by the researchers. The other was a clay bust of Billy, which was produced in 1907. The original work was imperfect and was left in the artist's backyard. Eventually, this was covered with earth, but was excavated in the late 1970s, during construction of the Old Theatre Lane Shopping Precinct. It is now on display in Claremont Museum. A second head proved to be flawless, and was kept in the Doepel household. Billy was proud of this bust, and when rural relatives visited his camp during the Perth Royal Show, he would bring them to see it. The bust is now owned by the artist's grandson, Mr A.F. Doepel.

In the 1920s and 1930s, Aboriginal camps moved further West, centred on the area where the Swanbourne Senior High School playing fields are now located. A well was dug for water supplies in the area of the present cricket pitch and the paperbark mia-mias of the earlier generation were replaced by humpies of discarded roofing iron and canvas. Women from the camps, however, continued to carry out occasional housework and cleaning duties for local European–Australian households, while the menfolk still made and sold clothes line props. The Bodney, Bropho, Armitage, Mindemurra and Pickett families lived here permanently, as also did Sam Broomhall. The last-named is remembered by the children of that era for his story-telling and songs, and also for his skill in manufacturing boomerangs.

Herbert Dyson and other Guildford Aborigines, when visiting the coast for fishing holidays, were also accustomed to stay in this camp (see Bropho: 1980).

Little is left to identify this site nowadays; but an old Tuart tree which camp children used to play in is still standing at the side of Narla Road, having survived an attempt to destroy it in the past.

2.1.2 *Stephenson Avenue (City Beach)*

Location and dimensions: The area of significance is in open bushland at the junction of Stephenson Avenue and West Coast Highway. The notional boundaries of this site are best described by a square, one side of which extends 200 metres along Stephenson Avenue and the adjacent side 200 metres along the West Coast Highway.

Discussion: Insecurity is the fringedweller's heritage, and despite both the ancient and long term habitation of the area and the undoubted good relations that existed between early European–Australian residents and older Aborigines, there is no place for a fringe camp in the elite world of an expanding middle class suburb. A day therefore dawned when the Aboriginal residents of Claremont were driven from their homes and forced to move on: a day remembered with little pleasure by the children of that period. Some families set up camp in the open scrub at the corner of the present Stephenson Avenue and West Coast Highway. A fig tree which was planted by one of the Aboriginal women is still alive there today. From here, the women continued their house-cleaning work and the men their clothes-line prop manufacture and sale. An added benefit of this camp was that wild honey was plentiful in nearby trees.

2.2 Success Hill

Location and dimensions: The present Success Hill Reserve is bounded on its northern side by the grounds of Pyrton Training Centre, on its western side by Seventh Avenue and on its southern side by River Street and Eighth Avenue. The Swan River forms a natural boundary to the east. From the Reserve, a narrow footpath along the riverbank gives access to the Bennett Brook/Swan River confluence. The present Reserve, measuring approximately 450 metres by 200 metres is smaller than the Aboriginal camping/mythological/ritual site that existed in traditional times. This site extended to the western bank of Bennett Brook, with the Swan River as one boundary and a line parallel to the River and 200 metres distant from it as the other.

Discussion: A Waugal, according to tradition, came from the freshwater spring overlooking the Swan River at the eastern edge of Success Hill. This activity caused the spring to flow and his continued presence guarantees this flow. Apart from water supplies, however, oral history also records that wilgie (ochre) was quarried 'from a hole in the bank under a big redgum tree' near the spring. This history also records that an attempt to defend this spring against Europeans who came upriver by boat, resulted in a battle and considerable loss of Aboriginal life.

Lieutenant Stirling is said to have been the leader of the European group, although Stirling's account does not agree (Historical Record of Australia 3.VI, Letter from Stirling to Governor Darling, April 1827).

Sacred stones were stored at Success Hill in the past, but were moved to the Mundaring area when European settlement of Bassendean and Guildford developed. Due to the presence of these objects, the area above and west of the spring was tabu to women. A corroboree ground was also located in this area. However, the extensive scrub clearing and landscaping that has been conducted here renders exact location of this ground impossible.

According to tradition, Success Hill region is an ancient Aboriginal camping area. Camps were also located there in the 1920s and 1930s, situated to the west and north of the present Reserve.

3.0 Sites of Significance in the Survey Area

3.1 Introduction

Following the discussion of significance in Chapter Two above, this section examines the existing and newly collected ethnographic data and lists Aboriginal areas of significance associated with wetlands and rivers in the survey area. It is important to note the status of these data; they are nor here presented as an exhaustive or total listing of ethnographic sites. Their status is that of a statement of knowledge up to the date of this report's compilation; much ethnographic material still remains to be collected. For ease of analysis, the material has been grouped into three sections as follows:

(i) Northern Metropolitan — from the northern boundary of the survey area to the northern bank of the Swan River;

(ii) Southern Metropolitan — from the Swan River to the northern bank of the Murray River;

(iii) Southern Rural — from the Murray River to the southern boundary of the survey area.

Figure 3 shows the location of these sites of significance.

3.2 Northern Metropolitan Sites

3.2.1 Yanchep National Park — Nyanyi–Yandjip; Also Wagardu Spring

Location and dimensions: Yanchep National Park is situated 51 kilometres north of Perth. Loch McNess, the central lake, is approximately 3.5 kilometres long (north/south axis) by 750 metres wide. On its western and southern sides it is fed by springs flowing from surrounding limestone hills. The southern and western lakeshores are a popular picnic and barbecue area for Perth residents. Much of the remaining Park area remains in its natural condition.

Three areas of significance were noted within the Park boundaries. Firstly, the Lake itself is a mythological site. Secondly, the level ground at the south–eastern corner of the Lake was identified as a traditional meeting, corroboree and ritual area. Attempts to establish boundaries to an Aboriginal site in an area such as this, where extensive landscaping and earthmoving have occured, are difficult and the results may not be fully accurate. However, the suggested boundary of this site is between the present McNess guest house to the north and the Loch Overflow Cave to the south, with the lakeshore forming the western boundary and a line drawn parallel to this shore at a distance of 100 metres from it forming the eastern. Wagardu Spring is thus central to this site. The third area of significance within the Park boundaries is Yonderup Cave, 2.75 kilometres East of the Lake, where Aboriginal skeletal material has been discovered.

Discussion: According to Aboriginal tradition a Waugal inhabits Loch McNess. It is through the activities of this Waugal that the springs which feed the Lake continue to flow. Should he be killed, according to tradition, Loch McNess would dry out completely. Nyanyi–Yandjip (literally 'pubic hairs') was the tribal name for this area, an allusion both to the reeds surrounding the Lake and to the Waugal's hairy mane (*Yandjip* is the Nyungar term for the reed *Typha angustifolia).*

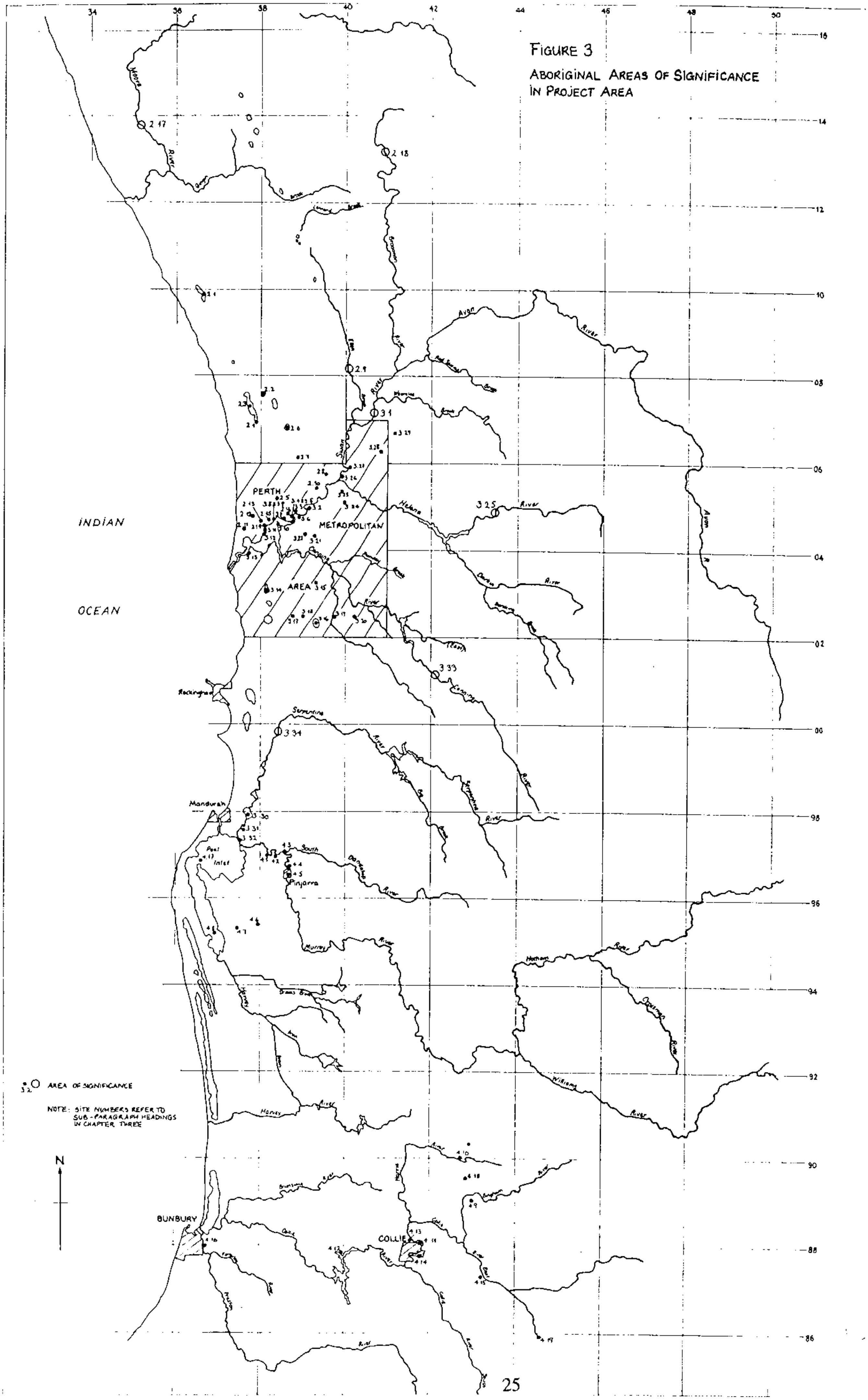
FIGURE 3
ABORIGINAL AREAS OF SIGNIFICANCE IN PROJECT AREA
INDIAN
OCEAN
PERTH
METROPOLITAN
AREA
Rockingham
Mandurah
Peel Inlet
Pinjarra
BUNBURY
COLLIE
AREA OF SIGNIFICANCE
NOTE: SITE NUMBERS REFER TO SUB-PARAGRAPH HEADINGS IN CHAPTER THREE
N

Yanchep was an important ritual and corroboree area in traditional times. Thither Aborigines from the Moore River area and from the Swan River came to hold tribal meetings, discuss tribal law matters and, in some cases, initiate young men into adulthood and its associated religious life. Central to this area was the spring known as Wagardu, which supplied fresh water for the gatherings. The old tribal owner of this area at the time of contact with Europeans, according to the late Mr Worrell of Moora took the name of Biggs. His tribal name was Wagardu, the name formerly held by the late Mr William Joseph Little (also known as Mr William Worrell) of Moora. Although the researchers could find no record of the matter in the European–Australian historical records, Aboriginal oral history states that a violent encounter between an Aboriginal tribal meeting and a group of early European explorers took place at Yanchep, resulting in an unspecified number of Nyungars being shot. It is the experience of one of the researchers (O'Connor), based on research in other parts of Western Australia, that not all such violent encounters were officially recorded; the oral history is therefore likely to be accurate.

North of Wanneroo, a chain of freshwater lakes stretches from Lakes Joondalup and Mariginiup to Yanchep National Park. In view of known patterns of Southwestern Aboriginal land use, and also in view of the historical record (e.g. Smithies cited in McNair and Rumley 1981 or Grey 1841), it seems reasonable to assume that these lakes were also Aboriginal camping and food-gathering areas. Because of this fact, and following the discussion in 2.1 above, although no ethnographic data attributing significance tothese wetlands has been collected to date, it seems reasonable to treat the following as potential areas of Aboriginal significance:

(i) Yonderup Lake;

(ii) Wilgarup Lake;

(iii) Pipindinny Swamp;

(iv) Beonaddy Swamp;

(v) Mindarie Lake;

(vi) Coogee Swamp;

(vii) Carabooda Lake;

(viii) Nowergup Lake;

(ix) Neerabup Lake.

With regard to the last-named, one site of mythological significance, whose physical manifestation is a hill/sand dune complex extending eastward from Waukalop Hill, is currently being dealt with by a consultant retained by Wanneroo City Council. This site, however, does not extend as far as the Western boundary of Neerabup National Park.

3.2.2 Lake Mariginiup

Location and dimensions: Lake Mariginiup is located approximately 400 metres east of Pinjar Road and 200 metres north of Caporn Street. It is roughly circular, with a diameter of approximately 1.25 kilometres. At present, it is surrounded by private property, both market gardens and horse paddocks.

Discussion: As with the other lakes in the region, Mariginiup is reported by Aboriginal people consulted to have been used as a tortoise and wildfowl hunting area.

3.2.3 Lake Joondalup

Location and dimensions: Located approximately three kilometres north of Lake Goollelal, and joined to it during winter rains by Beenyup Swamp and Creek, this large lake measures approximately seven kilometres on its north/south axis by 1.5

kilometres at its widest point. It is surrounded on all sides by swamplands and on the east and west by rising ground. Wanneroo Road is situated along the eastern rise.

Discussion: Lake Joondalup was reported by local Aborigines to have been a favoured camping area in traditional and more recent times. It was also a resource area where turtle and wildfowl were hunted.

A limestone cave system associated with a myth which was recounted to the authors by Mr Ken Colbung is situated in the rising ground to the west of the lake. The entrances to this cave system are due east of Wanneroo Hospital, some sixty metres from the lake's edge. As the roof has collapsed, the full extent of this system cannot be determined nowadays.

Bonorin Hill, which is nowadays located in Edgewater Housing Estate, is approximately one kilometre west of the southern end of Lake Joondalup. It was one of only two hills in the north of Perth mapped by Grey in 1841. The reason for this is obvious even today: Hilltop Park, although surrounded by modern housing, offers a commanding view of the countryside in all directions. According to Mr Ken Colbung, a cairn of stones, which was originally located on the highest point of Bonorin Hill, was originally placed there as a monument by Aborigines. Grey's early map does not mention this cairn, but the 1879 and 1890 Perthshire Town Plans do so, although they also mention the existence of a trig point thereon. Nowadays, trig point and cairn have passed into history, replaced by a children's playground.

3.2.4 Lake Goollelal

Location and dimensions: Lake Goollelal lies approximately 500 metres to the west of Wanneroo Road, bounded on the north by Hocking Road and on the south by Hepburn Avenue. The lake is approximately 1.75 kilometres long (north/south axis) by 600 metres at its widest point. Swamplands which are inundated during winter rains surround it on all sides. To the west, a new housing estate covers the rising ground. To the east, between the shoreline swamp and Wanneroo Road, vineyards and housing developments cover the rising ground. The lake itself and low lying shoreline are of significance to Aboriginal people, due to historical association. The area now covered by vineyards and housing developments to the east is of significance due to its association with the Wesleyan Aboriginal Mission.

Discussion: To the north of Dogswamp, the first major camping area in traditional times was Lake Goollelal, noted mainly for its abundant supply of turtle and wildfowl. In 1844, Rev J. Smithies founded a 'Native Experimental Farm' on a 56 acre block at the northern end of Goollelal, which he renamed 'Alder Lake' (McNair and Rumley, 1981:89). This block came to be known to early settlers of the region as the 'Mission Farm'. Children from the Wesleyan Mission School in Perth were moved to this farm and attempts were also made to attract Aborigines who worked for local settlers to camp there (ibid:110). The mission, however, did not prosper, and in 1851 Smithies moved operations to York. The Mission Block was eventually taken over by the Dartch family.

Mr Barney Duffy, a farmer from Ireland, settled on the block of land at the corner of the present Hepburn Avenue and Wanneroo Road in the 1860s. Between this block and the Mission Farm, the land was taken up by a Mr Gibbs, who married Mr Duffy's sister. Descendants of these settlers were interviewed by the researchers and it was discovered that local Aborigines had worked on these early farms and had maintained contact with the Lake and use of its resources. 'Black Georgie', who had settled near the Lake on Duffy's land is remembered by a number of residents of the area.

Aboriginal people who died while on the Mission Farm were buried on the high ground to the west of the Lake. The position of these graves was known to the last generation of the Dartch family, but the exact location is now no longer known. As a housing estate has recently been established in the area of the graves it is likely that they will never be located.

The mission block is now partly covered by the vineyards of Luisini Wines and partly by a housing development. A descendant of the Dartch family stated that the foundations and floor of the Mission building were still visible in his youth, but these have since disintegrated and could not be identified by the researchers. In the course of ploughing between the grapevines, employees of Luisini Wines uncovered what appears to be the garbage dump of the Aboriginal Mission — an extensive area of very old glass and crockery fragments. Nothing else remains today of this Aboriginal and European enterprise.

3.2.5 Dogswamp

Location and dimensions: The only area of significance that can be identified today is approximately 200 metres by 100 metres, bounded on the north and east by Farina Drive and on the west by Wanneroo Road.

Discussion: The area now known as Dogswamp is of significance to contemporary Aborigines for four reasons. Firstly, it was believed that the Waugal lived in the swamp. Secondly, Sam Broomhall, an Aboriginal man from Broome who had settled near Lake Claremont (see 2.2.1 above) quarried wilgie (red ochre) on the north-eastern side of the swamp. Thirdly, the fresh water pools were an occasional camp and water source in traditional times for people journeying to and from the meeting ground at Yanchep or hunting and foraging in the chain of fresh water lakes that lie alongside the present Wanneroo Road. Finally, Gilbert Harris and Bonnie Layland camped on the south–east side of Dogswamp, in the vicinity of the present Flinders Street/Wiluna Street junction until the 1940s. European–Australian houses, however, have been built on this camping area.

3.2.6 Gnangara Lake

Location and dimensions: This lake is situated approximately 400 metres north of Gnangara Road: bounded on the west by Sydney Road and on other sides by open parkland merging into medium density Banksia Scrub. Its dimensions are approximately 1.3 kilometres (north/south axis) by one kilometre at it widest point, although these dimensions can vary as a result of climatic conditions.

Discussion: Gnangara Lake is located on what Reverend J. Smithies (cited in McNair and Rumley, *op.cit.*: 88) referred to as:

> '... the chain of lakes which the natives use in coming to and fro from the northward and eastward to Perth.'

The Aboriginal track from the Swan River to Yanchep was thus crossed by an east–west track joining the Upper Swan Valley to the coast. It appears, however, that people did not camp at Gnangara Lake itself, as a dangerous Waugal was believed to inhabit it. One elderly informant named Gnangara Lake as a winnaitch (avoidance) area in traditional times. Although people may not have camped there, there is overwhelming evidence that they braved the Waugal to catch wildfowl in the Lake and hunt kangaroo in the surrounding scrub. In more recent times, Aborigines from the Beechboro/Guildford area have been accustomed to hunt kangaroo and occasionally emu in the Gnangara region.

3.2.7 Emu Swamp

Location and dimensions: Emu Swamp is a group of lakes and in the low-lying ground between Alexander Drive, Harrow Street and Weir Street in Ballajura. Housing development and associated drainage have also resulted in the nearby creation of four man-made lakes or drainage sumps within the Ballajura Lakes Estate; these should not be confused with the pre-existing swamplands which have not been impacted by development.

Discussion: In pre-contact times, Emu Swamp was a camping and tortoise-fishing point on the 'chain of lakes' referred to in 3.2.6 above.

The pattern encountered in other parts of the Metropolitan area, where fringe camps were established on or near traditional camping grounds, and where traditional resource use was continued by latter-day Aborigines occured also at Emu Swamp. An Aboriginal camp was located in the open Banksia scrub on the rising ground to the south–west of the swampy area from the early 1930s to the late 1960s. Cissy Gray lived there; as also did 'Old Cullycully', Jim Cooper and Iris Ledermann. People from Allawah Grove, Eden Hill and Beechboro also used it as an occasional camp, journeying there to hunt for turtle and to escape to the peace of the bush. This area of historical significance to Aboriginal people, however, has also disappeared under the preparations for the new housing estate.

3.2.8 Bennett Brook Site Complex

This area achieved a degree of notoriety during the protracted dispute between Aboriginal people and the State Energy Commission of Western Australia concerning the route of the High Pressure Gas Pipeline. However, Aboriginal interest in the area had been known long before this dispute occured (see, for example, Mc Connell and Dobson, 1976). These interests were focussed on the following aspects.

(i) Bennett Brook/Swan River confluence. This site is central to the Avon/Swan River Waugal saga. His central resting place is a cave in the deep, still water here. It is an area which, although not avoided, was treated with respect and caution by Aborigines.

(ii) Success Hill. See 2.3 above.

(iii) Bennett Brook. The Brook itself and also its banks on either side are an area of significance. It was formed by the creative activities of the Waugal, whose spiritual essence still exists there.

(iv) Pyrton Footbridge, which crosses Bennett Brook approximately 200 metres from its confluence with Swan River. This was believed to be the home of an evil and dangerous spirit.

(v) Bennett Brook Camping Area, Eden Hill. This site complex extends from Pyrton Footbridge to Esther Street in the south to Harper Street extension in the north. It is bounded on its western side by Lord Street. It thus partly overlaps with the site listed as (iii) above.

Members of several Aboriginal families stated that camping areas existed from the southern boundary of this site complex to Bennett Swamp in pre-contact times; that there is a tradition of digging wells for freshwater supplies in the western bank of Bennett Brook; and that a traditional fish trap located in the southern reaches of the Brook supplied food for these camps.

Living memory of habitation of this same region dates back approximately 100 years. Old Mary Bungbung (daughter of Mary Teresa) is remembered as one of the first women to come from New Norcia to camp there. A 72 year old informant described it thus:

'...my grandmother was over eighty when she died thirty years ago and she used to camp there. Also the Ninyets and then they stayed there, Old Jack married one of the Bennells you see. Those Nyungars used to come by camel, or horse and sulky, from York or Northam, or even from Katanning and stop there. Then Hamersley got the property, but he let them camp there – Clarksons, Parfitts, Andersons, Ryders. Fred Anderson dug a well there – Saddlers Well. That's sixty years ago.'

One of the researchers (C. Bodney) was accustomed to visit his grandparents (Mr and Mrs W. Armitage) for holidays during the period when he lived in Claremont camp. Their camp was located beside the footpath leading west from the Pyrton footbridge. Their well was in the bank of the

Brook at the highest point of the existing footpath. The clay through which this water seeped gave it a slightly bluish colour. Other families had their own wells, and each one prized their private source of fresh water.

The contemporary Aboriginal camp is located east of the Morley Drive/ Lord Street Junction. A traditional burial site, whose exact location is not known, is located approximately 100 metres north of this camp.

Another camping site, used in the 1930s and 1940s, is located on the eastern end of Grogan's Creek, near where it joins Bennett Swamp. A spring ('fresh water bubbling up through white sand') which supplied water for these camps, is now overgrown with wild roses and is totally inaccessible.

(vi) Bennett Brook Camping Area, Beechboro. This Aboriginal site complex has Benara Road as its southern boundary, Patricia Street extension as its northern boundary, Bennett Brook as its eastern boundary and Lord Street as a notional western boundary. It is no longer possible to establish the western limit of this camping area: in the 1930s to 1960s, Aboriginal camps spread across Lord Street into the area now occupied by a modern housing estate. Burials were also reported to have taken place, both between Benara Road and Widgee Road extension, and in the vicinity of the new housing estate. Their exact location, however, is not nowadays known.

(vii) Mussell Pool. This pool, in the upper reaches of Bennett Brook, is the feature area of Whiteman Park. Apart from its mythological significance (see (iii) above), it was also used as a seasonal camping area by families employed as pickers during the Swan Valley Grape Harvest.

3.2.9 Ellen Brook/Chandala Brook

This creek system is associated with a Waugal myth and has recently been the subject of a controversy between developers and Aboriginal people which achieved a degree of media publicity. The exact dimensions of this site have not yet been recorded.

3.2.10 Nyibra Swamp (Bayswater and Bassendean)

Location and dimensions: This site is bounded on the north by Broadway, on the south by Collier Road, on the east by Grey Street and on the west by Troy Street. Its approximate dimensions are 800 metres by 400 metres. The swamp has been drained into a small lake system, but scattered *Melaleuca* and *Leptospermum* growth still evidences its former size.

Discussion: Nyibra Swamp was used as a turtle and gilgie fishing area by Aborigines from the Bassendean and Eden Hill areas, from the 1920s until recent years. No evidence of mythological association was collected, although its position vis-a-vis Bennett Brook and some Aboriginal evidence suggests that ancient pre-contact usage occured. Due to extensive earthmoving and drainage projects in the area, it is virtually impossible to establish the original dimensions of the swamp. Aboriginal people who visited it with the author during a 1985 survey were baffled and disorientated by its changed appearance. The dimensions here given are approximately those of the cleared land between the named streets. They may overstate the dimensions of the original swamp.

3.2.11 Lake Claremont (See 2.2.10 above)

The focus of this report now moves to the northern part of the inner Perth Metropolitan area, an area from which the sites discussed in the preceeding section radiated outwards. The Lake Claremont site has been used as an example in 2.2.10 above and is thus extracted from the main text.

3.2.12 Perry Lakes (Floreat)

Location and dimensions: Due to landscaping and reduced water level, it is not possible to establish nowadays the exact area which Perry Lakes covered before the

arrival of Europeans in the region. The area of significance today is probably therefore best described as the Lakes themselves and the swamps and shorelines surrounding them.

Discussion: As with other parts of the Perth Metropolitan area, a pattern of land and resource usage, which predates the era of the fringe camps, was maintained by camp residents. Perry Lakes have seen long-term use as a source of turtle meat. According to oral history remembered by a large number of Perth Aborigines and collected by Bodney and O'Connor in 1985, the swamps surrounding these Lakes originally covered a larger area and were noted for the prodigious numbers of turtles that lived there. Nyungar women would wade through these swamps, feeling for turtle with their feet, or else swim along the reeds carrying a bag into which they put their prey. This usage was continued by Aboriginal people from the camps mentioned in 2.2.1 and 2.2.2 above, and occasionally by people from further afield. It was common for families to camp in the open scrub surrounding the Lakes in the 1920s, 1930s and 1940s for holidays, and to live off the natural food available there.

3.2.13 Jolimont Swamp — 'Mabel Talbot Reserve' (Jolimont)

Location and dimensions: Jolimont Swamp is in a low-lying area bounded on the north by Jolimont Terrace, on the east by Jersey Street, on the west by Peel Street and on the south by Roseberry and Lansdowne Streets. Open space (approximately 400 metres by 150 metres) surrounds the central lake on all sides. The original area of significance extended beyond the outer limits of this open space, but has now been covered by roadway and housing development.

Discussion: This area was described as 'a central turtle, mudfish and gilgie area'; a resource used by Aboriginal people from the Claremont area and also by others from Bassendean and Guildford. The present lake is a relatively recent result of development, although it appears to have been preceded by a swampy region. A permanent freshwater spring was originally located to the south–west of the present lake, but this no longer exists. Mrs Clara Layland (known to Nyungars as 'Daglish Granny') had a permanent camp near this spring. Mrs Bodney and Mrs Annie Morrison were accustomed to stay there for long periods to make use of the nearby supply of fresh meat.

3.2.14 Shenton Park Lake — 'Dyson's Swamp' (Shenton Swamp)

Discussion: Although Shenton Park Lake was used as a camping site in the 1850s and 1860s by Perth Aborigines (Kennedy, 1927; cited in Brown, 1983), the researchers were unable to find any record of people camping there or using it as a resource in more recent times. Knowledge of this area is very limited among the present Aboriginal population of Perth; a very few older people were aware of its former use as a camping ground. Neither stories relating to the Lake, nor names of people who camped there were available, nor was there any knowledge of the original dimensions or location of the campsite.

3.2.15 Lake Monger — also 'Monger's Swamp' or Nyungar 'Kalup' or 'Keiermulu' (Leederville)

Location and dimensions: As with Perry Lakes, it is no longer possible to determine the original dimensions of this Aboriginal site. The present day area of significance is probably best described as the Lake itself and the open space surrounding it between Gregory Street to the west, Powis Street to the north, Mitchell Freeway to the east and Lake Monger Drive to the south. It should, however, be noted that this omits from consideration a large but unidentifiable area of surrounding swampland which has disappeared under bitumen and concrete.

Discussion: Aboriginal oral history records Lake Monger as an ancient camping, fishing and mythological site. The oral history also agrees with the written record by placing Yellowgonga's camp there (Hammond, *op.cit.*:11). Kwiyamarra, an

Aboriginal man from the Victoria Plains region, who, according to family history related by one of his grandsons, was given the European name of Alfred Taylor by Bishop Salvado, moved to Perth and set up camp there in the 1860s. In the early decades of settlement, people from Crawley Point, Kings Park, 'White City' and other camps used Lake Monger as a source of supply for turtle, mudfish, gilgies and wildfowl. In this period, according to two 70 year old Aboriginal men consulted, Aboriginal camps were on the rising ground on the Western and Southern sides of the Lake, in the area where Harbourne and George Streets and Lake Monger Drive and Kavanagh Street are now located.

In 1884, Lake Monger was gazetted as a wildfowl reserve and, in the latter decades of the nineteenth century, its Southern shore became a popular picnic area for European–Australian townspeople. This hunting restriction and increased European–Australian use (the latter factor being accentuated in 1902 by the construction of a convent for the Good Shepherd Sisters between Ruislip and Kavanagh Streets), caused the Aboriginal residents to move. Although a bush camp still existed near its north–western shore in the vicinity of the present Dodo and Powis Streets in 1923, and although there are records of the Good Shepherd Sisters supplying food and clothing to Aborigines early in the twentieth century, the Lake was eventually abandoned by Aboriginal people. The last remembered consistent usage was by Bonny Layland, son of 'Daglish Granny', who regularly travelled from his camp near Dogswamp in the 1940s to fish for turtle there.

Hammond (*op. cit.* : 11) writes of:

> '...Jimmy Corrall...(who) died in the 'seventies, and was buried in the native burying ground in a sandhill on the N.W. side of Leederville. I am unable to locate this burying ground exactly today — the whole suburb is thickly built over — but I can remember the general position of it.'

Aboriginal oral history locates this burial ground on the hill now occupied by the Home of the Good Shepherd. The interesting story that these graves were disturbed by Metropolitan Water Board workmen in the past during construction of pipeline trenches is also told. However, it has not been possible to verify this story and locate these burials exactly.

The mythology of Lake Monger ties it with the main Swan River Waugal saga. In the course of a journey to the sea, Waugal, it is told, deviated from his route and rose from the ground, thereby forming Lake Monger. On re-entering the ground, he cut a subterranean tunnel from the Lake to Melville Water. This tunnel, according to tradition, still exists today. An Aboriginal man in his late 70s suggests that it may open into the Swan River between the present Quarry Point and the old Swan Brewery, near where an egg-shaped stone was located in pre-contact times. The following recorded interview details an encounter with this Swan River outlet:

> '...I don't know whether it was ever filled in; but years and years ago there was a hole — there was a hole in there — when Bondemurra (Mindemurra?) was swimming round in there, see... he found this cave and when he went in to have a look, he could feel the suction of the water going down. If its still there, like now, I wouldn't like to say. Must have been the suction from that Waugal hole from Monger's Lake. One of them blowholes.'

3.2.16 Hyde Park and nearby inadequately located areas (Perth City)

Location and dimensions: The present Hyde Park is bounded on the north by Vincent Street, on the south–east by William Street and on the south–west by Glendower Street. Although the present park bears little resemblance, either in size, vegetation or appearance to its pre–1850 condition, current Aboriginal wishes are that both Park and Lakes should be recorded as areas of significance.

Discussion: Within the Northern Section of the Perth City Postal District, two areas of significance were recorded by researchers. Aboriginal oral history records the

existence of a swamp where Perth Central Railway Station now stands. The late Ollie Worrell, who was said to have been born between 1850 and 1870, was the main transmitter of this information, which tells of ducks, turtles and gilgies being caught among the reeds in this well watered area. According to one informant, a Waugal was known to inhabit this swamp.

Near where the Perth Mosque is currently located in William Street, at the side of a seasonal creek, a pre-contact Aboriginal camping ground was located. The 65 year old Aboriginal man who supplied this information had been told by his grandparents that a 'sacred' area lay alongside this creek, but the exact location and nature of this site was unknown to him. The creek in question flowed under the present Brisbane, Ruth, Edith, Bulwer and Glendower Street to Hyde Park. It was discovered in the course of this survey that recent home extension construction by a private house owner in Ruth Street has uncovered the bed of this creek, which is now dry, following extensive drainage programmes in the area. Hyde Park, however, still remains. Gazetted in 1897 as 'public gardens', its swamps are now scenic recreational lakes and its reeds and paperbarks are replaced by landscaped lawns and geometrically planned flowerbeds. It is an interesting comment on its altered classification that a group of Aboriginal men who, in 1978, had lit a fire to cook turtles which they had caught from the lakes, were moved on by a police patrol on the grounds that they were behaving in a disorderly fashion in a public place. A century earlier, Hyde Park, in the words of one elderly informant, was:

> '...a main camp years ago. An olddays living ground. Meeting place. People from York, Northam, right back through the hills came there to camp. Used to follow food and caught plenty of turtle there.'

Bates (cited in Brown, *op. cit.*) gave Boodjamooling as the Nyungar name for Hyde Park. The names Bidjabooling and Bidjabunda were suggested to the authors by informants during a 1985 survey.

3.2.17 Moore River

Because of the existence of the Moore River (Mogumber) Mission, traditional knowledge concerning this river has been passed on from generation to generation by Aboriginal people. The best current source of this information is Mr Ned Mippy of Moora. The information can be summarised as follows:

(i) Many of the pools are associated with a Waugal story — these include Long Pool, P.C. Pool, Round Pool, Blue Pool, Diamond Pool, Rocky Crossing Pool, Stockyard Pool, Elbow Pool, Budjara Pool, Karli Pool, Wilgie Mia Pool, and Cundaration Swamp;

(ii) A number of Aboriginal burials have taken place on the banks of Moore River, for example, beside P.C. Pool, Elbow Pool and Saddle Hill;

(iii) The river's pools have been extensively used, both as camping grounds, and as food resources in the pre-contact and historical periods.

All of these areas, however, are north of the survey area shown on the W.A. Water Resources Council map of 'Water Resources in the Perth/ Bunbury Region', on which this present work is based. Nonetheless, their importance to Aboriginal people justifies their inclusion here in summary form.

3.2.18 Brockman River

The Brockman River, which flows roughly south from the Wannamal region to join the Avon River near South Chittering is associated with a Waugal myth. Of special importance are Wannamal Swamp (also known as Wannamal Lake), Goyamin Pools and Yallawarra Pool.

3.3 Southern Metropolitan Sites

3.3.1 Swan River Sites (Millendon)

Location and dimensions: 450 metres due north of the point where the Standard Gauge Railway crosses Cathedral Avenue, the land slopes steeply into a large pool, measuring 550 metres (north–west/south–east axis) by 200 metres at its widest point. This lagoon is the nucleus of a mythological site, whose notional boundaries are the high ground on its western and southern sides; the Swan River to the north and the edge of the seasonal swampland to the east. The site thus measures 550 metres on its northern perimeter by 730 on its eastern. 1.5 kilometres upstream from this site, the course of the Swan River bends around the southern slopes of Mount Mambup. The prominent bald hill on the southern bank of the River here is also a site featuring in the same myth as the lagoon. A further 600 metres upstream, the rocks immediately beneath and south of the footbridge which here spans the River, are also included in the myth.

Discussion: According to the myth collected, as Waugal moved downstream along the bed of the Swan River, he scratched the scales from his underside. These are now metamorphosed into the rocks below and south of the footbridge. Continuing downstream, he scratched more scales from his body; thereby forming the bald hill mentioned above. Continuing downstream, he urinated, thereby forming the large lagoon described. From here, he disappeared underground.

3.3.2 Ascot Racecourse Swamp (Belmont)

Location and dimensions: This area has been drained during development and landscaping of the racecourse facilities. The small swamp beside the four furlong peg is all that remains of this Aboriginal site.

Discussion: Although this swamp was a known source of turtle and gilgies, it has not been used for a considerable length of time.

3.3.3 Bardon Park (Maylands)

Location and dimensions: Bardon Park, which measures approximately 300 metres by 200 metres, lies between Fourth Avenue East, Riverside Avenue and the Swan River.

Discussion: All sheltered sections of the River foreshore from Clarkson Reserve, Maylands, to the W.A.T.A. track at Gloucester Park, East Perth, have been used as Aboriginal camping areas at times during the past one hundred years. However, as with such camps mentioned in Guildford/Caversham/Swan Valley, many of these were transient and short-lived, and could not reasonably be termed areas of significance to Aboriginal people. Research conducted in 1985 by O'Connor, Bodney and Little attempted to identify those areas which had attracted large-scale and long-term occupation, and are thus the focus of Aboriginal interest through their historical associations. The first of these is Bardon Park, where up to 30 people at a time camped between the early 1930s and early 1960s.

3.3.4 Claise Brook Camp (East Perth)

Location and dimensions: This site extends from Claise Brook in the north to Nile Street in the south. Its eastern boundary is the Swan River and in the west it extends up to the limits of European–Australian habitation. Camps were and are generally tucked into the recesses and nooks along the upper banks of the River.

Discussion: As recently as 1985, two families of Aboriginal visitors to Perth were camping east of Arden Street, in an area that had been similarly used at least since the 1930s. A freshwater spring which flows from the riverbank nearby was then still in use. In this corner of the City, that is rarely used by European–Australians,

Aboriginal occupation has escaped and continues to escape the notice of the majority of Perth residents. Residents of the present Boomerang House maintain contact with this region.

3.3.5 Haig Park (East Perth)

This area, known to old residents of East Perth as the 'Bull Paddock' was, according to oral history, an Afghan camel teamsters' resting area. In 1985 some informants thought that there may have been old Aboriginal camps there, but the researchers did not receive sufficient information to warrant recording a historic camping site in the area. The W.A. Museum, however, has recently registered Haig Park as an Aboriginal site.

3.3.6 Burswood Island (Rivervale)

Location and dimensions: One definitely identified camping area on Burswood Island was west of Goodwood Parade and the Perth–Armadale Railway Line, at a point 650 metres north–west of the Riversdale Road/Goodwood Parade junction. The camp covered an area of approximately half an acre.

Discussion: The identification of areas of significance on Burswood Island was an almost impossible task for two reasons: firstly, because of the large scale earthmoving and construction projects that have been carried out there, and secondly, the entire peninsula has seen occasional camps since at least the 1920s. One Aboriginal man recalled that:

> '...during the Depression, poor wadyullahs used to camp there in old shacks with us. All over the Island. There was one somewhere near the Racecourse too (i.e. Belmont Park). Old Horry Morton got sick there and died.'

Another woman recalled:

> '...back in the thirties, people from up North — Wilsons they were — used to light tyres they got off the dump and dance around them to make rain. Lizzie and Frank Ugle camped there but there were lots of others around.' (O'Connor, Bodney and Little, *op. cit.*).

The camping area delineated was recalled by Mr Worrell from Moora, whose family camped in Rivervale nearby, and who attended Rivervale Primary school in the 1920s.

3.3.7 Perth City

According to Aboriginal tradition, a spring and a traditional camping place were located in the grounds of Government House, near the junction of Governor's Avenue and Terrace Road, Perth City. As this area is entirely built over, there is little likelihood of identifying this site.

One informant recalls his grandparents telling him of early camps along the Esplanade between Barrack and William Streets (O'Connor, Bodney and Little, *op.cit*). Again, these sites have long since disappeared under concrete and bitumen, leaving no opportunity for exact mapping and delineation.

Green (1984) noted the existence of Dyeedyallup, 'a favoured camp site', which was located in the vicinity of the present A.B.C. studios.

Similar comments must be made concerning the Aboriginal camp and water-source at Spring Street. This camp, which was known to its residents as 'White City' and was used mainly by Gingin and Moore River Aborigines, appears to have been in the area where the now–abandoned Emu Brewery stands (Green, *op.cit.* locates it under the present Bishop's Palace). The topography of this area suggests an earlier replica of the discrete, tucked away camps found near Claise Brook. It is interesting that in this earlier period the Aboriginal campers were also visitors to Perth.

3.3.8 Mount Eliza (Kings Park)

Location and dimensions: Mount Eliza occupies the western edge of Kings Park. From its plateau, the land slopes steeply to the Swan River in the south and the Narrows Interchange, built on reclaimed land, in the east. 'White City', mentioned above, nestled under its Western slopes, near the original riverbank; an Aboriginal spring and camping area, used by Perth Aborigines before contact with Europeans and later by 'people from the North–West', occupied the level land to the south. Land reclamation, road construction and landscaping have changed this area greatly, making it difficult to translate human memory into acreage and identify the old camping ground. The spring, however, still remains at the side of Mounts Bay Road, and the camping area was adjacent to and west of this watersource. The level ground now occupied by barbecue facilities and by the now demolished Swan Brewery stables was identified in 1985 by one informant as the old camping site and this agrees with other evidence received. The site thus described extends from the Swan River shoreline to the end of the level ground in the north, and from the spring to the original western boundary of the Swan Brewery stables in the west.

A traditional story regarding a large round stone which had religious significance to Nyungars due to its association with the Waugal, and which lay near the water's edge in the vicinity of the old Swan Brewery, was recorded by O'Connor, Bodney and Little in 1985.

3.3.9 Kings Park Waugal Site (Kings Park)

Location and dimensions: The Pioneer Women's Memorial beside Forrest Drive is partly supplied by water from a natural spring located approximately 120 metres to the south–east. This spring was reported to be an area of mythological significance.

Discussion: According to Aborigines consulted, Waugal established and continues to inhabit this spring. As with other areas of this nature, the flow of the water is believed to depend on his presence.

3.3.10 Foreshore Camping Ground (South Perth)

Location and dimensions: From the Swan River shoreline on the southern side of the Narrows to Richardson Street, was an important fishing ground and occasional camp for Perth Metropolitan Aborigines. The area of usage was approximately 1.6 kilometres of foreshore and spread approximately 150 metres into the bushland to the east.

Discussion: Information collected in 1985 showed that this area had been used in pre-contact and early historical times. Among others, Parfitt and Pickett families lived here in the 1930s and 1940s. Other Aboriginal families visited the area and camped there for extended periods to catch prawns, crabs and fish.

3.3.11 Matilda Bay — Crawley Point (Crawley)

Location and dimensions: An Aboriginal camp and freshwater source were located in the 1860s in the vicinity of Pelican Point. A fish (possibly mullet) increase site was also located nearby. The exact location of these sites cannot be established nowadays.

Discussion: A series of pools resulting from drainage of the swampy area during landscaping of the present Matilda Bay Reserve contain fresh water and appear to be fed from a spring. This was the area indicated to O'Connor, Bodney and Little in 1985 as the freshwater source, with the swamp located inland from it, probably in the vicinity of the present Hackett Drive, or in the south–eastern corner of the grounds of the University of Western Australia.

The fish increase site was near Pelican Point (also Point Currie) and was centred on a prominent cluster of limestone rocks. These rocks have apparently been moved, perhaps during construction of the nearby buildings.

3.3.12 Nedlands Foreshore (Nedlands/Dalkeith)

Oral history records that traditional Aboriginal wells tapped a freshwater supply in the vicinity of the present Nedlands/Dalkeith foreshore. The limestone cliffs above the foreshore in this area lend credence to the tradition. the amount of land-movement and reclamation that has been carried out in this area renders exact location of these sites impossible.

3.3.13 Blackwall Reach (Bicton and Mosman Park)

A similar record exists of traditional freshwater sources in the vicinity of limestone cliffs on both sides of Blackwall Reach. Again, however, the exact location of the Aboriginal sites is not known.

3.3.14 North Lake and Bibra Lake (Coolbellup and Bibra Lake)

Location and dimensions: Bounded by Bibra Drive to the south and east, by Farrington Road to the north and Gilbertson Road to the west; these two large lakes cover an area of 3.1 kilometres (north–south axis) by 1.2 kilometres at the widest point.

Discussion: The chain of freshwater lakes joining Perth to Yanchep National Park is replicated in the southern region by a similar chain joining the Swan River to the Murray River. Unlike the northern region of this survey, little ethnographic evidence exists for what Hammond (*op. cit.*:17) referred to as:

> '...a native pad...to where North Fremantle is today. There was very shallow water for more than halfway across the River and only a short distance to swim. The pad continued from this crossing to Bibra lake, and through Rockingham to Mandurah and then pads led up both sides of the Murray River to the ford over the River, above the present site of Pinjarra.'

Bibra Lake and North Lake, however, were the exception to this disappointing lack of data. The legend that a Waugal inhabits these Lakes and maintains the flow of the springs that feed them is widely known. One informant, in 1985, suggested that the spectacular limestone pinnacles, which have been recently exposed during the construction of the Adventure World Playground beside Forrest Road, are a secret-sacred rainmaking site. This story was related to him by old initiated men who were visiting Perth from the Western Desert region and is based upon a similarity between the limestone formations and certain Desert rainmaking *sacra*.

Recent Aboriginal camping areas were situated on the southern side of Hope Road, close to the north–eastern edge of Bibra Lake and also along its southern shore. Christine Coomer, Peter Jackson and Freddy Jackson lived in this latter camp.

Along with their mythological status and use as a camping ground, the Lakes were also a widely–known source of turtle and wildfowl. Aborigines from Pinjarra, Mandurah and Armadale reported that they and their parents occasionally camped there for extended periods to harvest these resources.

3.3.15 Gosnells Golf Club Site (Canning Vale)

Location and dimensions: Gosnells Golf Club is located between Ranford and Warton Roads in Canning Vale. The area of current significance is a landscaped pool immediately south–west of the Club–House.

Discussion: The existing pool has resulted from the draining and landscaping of the golf course. It is built on the site of a swamp which was fed by a perennial spring.

That spring, according to Aboriginal people from the Armadale region, was maintained by a Waugal who inhabited the swamp.

3.3.16 Lake Forrestdale (Forrestdale)

Location and dimensions: Lake Forrestdale is a large marshy area south of Forrest Road and east of Nicholson Road. It measures approximately 1.75 kilometres (North/South axis) by 800 metres.

Discussion: According to tradition, Lake Forrestdale is the home of a powerful Waugal who is associated with rain. Disturbance of the reeds around its verge was forbidden, as this could unleash his destructive power.

Apart from its mythological status, however, the Lake is a source of turtle, and this resource has been used by Aboriginal people from Pinjarra, Mandurah and Armadale for at least as long as living memory. Seasonal camps were usually set up at the north–western edge, under the shelter of the surrounding Melaleuca scrub. Some people (among them Cyril Indich) made semi-permanent camps for extended periods here.

3.3.17 Bartram Swamp

This extensive wetland system is dissected by Bartram Road and located immediately east of the Bartram Road/Boronia Road intersection in Banjup. According to Aborigines consulted in a recent W.A.W.A. survey, it was an area visited annually to harvest yugoyne and wildfowl. Among the people known to have used this area were Wandi, Nipper and Black Paddy.

3.3.18 Mather Reserve

Two kilometres west of Bartram Swamp, Bartram Road dissects Mather Reserve. Springs in this wetland area are said by the Aboriginal people consulted to be maintained by the creative actions of a Waugal. The swampland was also used as a source of yugoyne. As with Bartram Swamp, the entire Reserve is seen as a site of significance by the Aborigines.

3.3.19 Neerigen Brook (Armadale)

Location and dimensions: Neerigen Brook has its source in the Darling Range, in the area north of Albany Highway and south of the Canning River. It flows west through Armadale and joins the Wungong Brook less than 100 metres south of Armadale Road, Forrestdale, to form the Southern River.

Discussion: Neerigen Brook, according to Armadale people, was formed by the creative actions of a Waugal, who still inhabits it and thus guarantees the flow of water. This continued presence is seen as necessary to sustain the flow of the Brook.

3.3.20 Neerigen Brook Camping Area (Armadale)

Location and dimensions: On leaving Armadale, the Albany Highway continues east for some 500 metres and then swings sharply south. The camping area was in the angle formed by this bend, and extended approximately 100 metres into the Eucalypt scrub that still borders the highway. Some private houses have now been constructed on Onyx Road, at the south–western corner of this site.

Discussion: A number of Aboriginal families, including Harts and Nannups, lived here from the 1930s to 1970s, relying on nearby Neerigen Brook for freshwater supplies. The remains of these camps (discarded roofing iron and cooking utensils) are still visible in the scrub. Following a death in the camp, the residents moved; some to Mandurah, others into Perth City. A belief among local Aborigines that a malignant spirit haunts the Western end of the Pioneer Village complex may be related to this death.

3.3.21 Tomato Lake (Kewdale)

Location and dimensions: Tomato Lake measures approximately 350 metres (north–west/south–east axis) by approximately 80 metres. It is located in a recently landscaped park between Oats Street, President Street and Kambalda Way.

Discussion: As far as could be ascertained, no permanent camps were located in recent times in the vicinity of the swamp which has been drained and landscaped to form the existing lake. It was, however, a favoured turtle-fishing site for Aboriginal people from the Guildford area and was visited frequently for that purpose.

3.3.22 Rivervale Camp (Rivervale)

Location and dimensions: This camping area was in the north–western section of the present Wilson Park, located between Francisco Street, Surrey Road and Campbell Street.

Discussion: This camp was occupied between 1910 and 1920. It is of particular interest, because Ollie Worrell, who was responsible for passing on so much traditional Nyungar beliefs and information to succeeding generations, lived there. Other residents were Willy and Chitty Hedland, and Maitland Sandy. Mr William Worrell of Moora, who contributed much of his vast store of traditional information to the O'Connor, Bodney and Little 1985 survey, spent his early childhood there. He attended the nearby Rivervale Primary School from this camp.

3.3.23 Soldier Swamp (South Guildford)

Location and dimensions: Soldier Swamp is situated between Queens Road and Kalamunda Road, north–east of Short Street.

The swamp occupies most of the block between Queens and Kalamunda Roads and stretches for approximately 200 metres from the south–eastern end of Kidman Avenue.

Discussion: This was a favorite turtle-fishing area for Guildford Aborigines. During the dry season, turtles dig into the damp mud below the surface of the ground and a degree of skill is required to identify the tell tale marks of these subterranean refuges. Two old ladies, Ollie Worrell and Lottie Harris, were recognised experts in this matter and used Soldier Swamp as a natural schoolground in which they passed their skill on to Guildford children. Ms Violet Mippy and Mrs Gladys Pickett (nee Parfitt), who were taught the art of turtle tracking and fishing by Mrs Worrell, have in turn passed this information on to their grandchildren.

3.3.24 Munday Swamp (Perth Airport)

Location and dimensions: This extensive swamp and lake system is situated against the north-eastern perimeter fence of Perth Airport, south–west of King Road and west of the Forrestfield/ Kewdale Railway Yards.

Discussion: Munday Swamp was an area of ancient Aboriginal usage. Knowledge that it had been used as a turtle-fishing ground in pre-contact times was handed on to the present generations by Mrs Ollie Worrell, who appears to have been the last living person who knew the ritual invocation specific to the area. As one Aboriginal man explained:

> '...she used to call out in Nyungar before fishing the turtle there...to apologise to the spirits and to ensure a good catch.' (O'Connor, Bodney and Little, *op.cit.*).

The same person recalled that when turtle had been cooked in hot ashes, it was required that they should be prepared for eating in a special way: the sharp piece of shell from the front of the breastplate was broken off and the flesh carved with this. A stone or steel knife should not be used for this purpose.

The Melaleuca scrub at the north–western end of this peaceful area offered summer shade and coolness to turtle fishers, who occasionally camped there for extended periods. As was the case with Bennett Brook, the trees surrounding Munday Swamp offered a supply of paperbark for bark painting in more recent years.

At present, Munday Swamp lies on private property beside Perth Airport's perimeter fence. Concern that permission had to be sought to gain access to this ancient Aboriginal resource was expressed by most informants who spoke of the area. Another cause for concern was that the water level in the lakes had risen steeply in recent years, perhaps due to new drains being laid in the extended Airport precinct. This higher water level may threaten the continued existence of the turtle population.

3.3.25 Helena River

Location and dimensions: The Helena River rises in the Darling Range on the western side of York and flows in an approximately western course to join the Darkin River in the present Helena River Reservoir. From here, it follows a meandering western course through Paulls Valley and Darlington, turning north–westward through Helena Valley and Hazelmere, before turning again approximately westward, to flow into the Swan River at Guildford. Two sections of a myth, collected separately, link the Swan River with Mundaring (Nyungar:Mundjallina) through the Helena River and also link Mundaring with York by the same means.

Discussion: The swamp and pools known as Mundjallina, according to tradition, were located in the deep valley that has been inundated as a result of the construction of Mundaring Weir. As with Lake Forrestdale, a powerful Waugal associated with rainmaking lived here. Disturbance of the swamp reeds at Mundjallina resulted in cyclonic winds and rain. So feared was this potency, that children were not allowed into the vicinity of the swamp. According to one old Aboriginal male, a corroboree ground was located nearby, and also a storage cache for *sacra*.

One myth recounts the journey of this Waugal up the course of the Helena River to its source. From here, he travelled the 18 kilometres overland to York, forming the region's rocky hills as he went. Although the version of this myth collected does not mention it specifically, the story implies a meeting with the Swan/Avon River Waugal in York.

Another myth records that Waugal formed the course of the Lower Helena River as he moved from Mundjallina to Guildford, thereby completing a circuit and, more importantly, opening a line of communication between Aboriginal groups. In 1985 it was specifically stated by an informant that the course of the Helena River was a 'main run' for people going to and from Guildford.

There is also a tradition that a corroboree ground existed near the confluence of the Swan and Helena Rivers, but its exact location is not nowadays known.

3.3.26 Blackadder Creek

Location and dimensions: Blackadder Creek rises in Swanview, in the vicinity of Midland Cemetery and flows to the north of Midvale and Midland, to join the Swan River at West Midland Pool.

Discussion: Blackadder Creek was formed through the creative activity of the Waugal, who still lives there. A corroboree ground was located on the eastern bank of the Swan River, near its junction with Blackadder Creek. Although the former existence of this site is still known by a number of people, its exact location is not.

3.3.27 Jane Brook

Location and dimensions: Jane Brook, which rises in John Forrest National Park, and is joined by tributaries which flow from Parkerville and from the winnaitch area around Red Hill, follows a serpentine route through the Swan Valley vineyards to

join the Swan River north of Middle Swan Road and close to Bandyup Prison. The Brook itself is a mythological site, but is also the focal point of three scattered camping areas. The first, of very indeterminate dimensions, was a seasonal grapepickers' camp locatedsouth of Dale Road, Middle Swan and near the point where Jane Brook joins the Swan River. A related, occasional camp was located in the vicinity of Middle Swan Bridge. A second camp was located between Bishop Road and Jane Brook, west of the present Searle Street. A third camp was located near Toodyay Road Bridge. The central, permanent nucleus of this last-named was on the northwestern side of Toodyay Road, in the angle formed by that Road and Jane Brook. Other families and individuals, however, camped occasionally in areas through the bushland on the northern side of Talbot Road.

Discussion: Regional mythology posits the existence of a creative Waugal in Jane Brook. The upper reaches of the tributaries that flow from Red Hill, moreover, were winnaitch areas, avoided because of the evil influence of *wurdaatjis*.

The permanent camp beside Toodyay Road Bridge was home to a number of families who earned a living cutting timber for contractors supplying the brickworks in Midland and Caversham. Among them were the Indich family, Moodies and Picketts.

3.3.28 Red Hill (Swan)

Location and dimensions: 4.1 kilometres west of the Toodyay Road/O'Brien Road junction, a deep pool is visible some 200 metres to the south. The hills slope steeply upwards behind the pool into medium density Eucalypt bushland. The hill behind this pool was a traditional source of good quality *wilgie* (ochre). 50 metres to the West, a source of white wilgie has been quarried by European–Australians in recent years.

Discussion: The entire Red Hill region is a winnaitch area: avoided in traditional times because of the existence there of Wurdaatji (also Wudjaardi), spirits who live in the jarrah forests and who assume a small human-like form and can be dangerous to humans if aroused. Although Aboriginal woodcutters worked right through the area in historical times, they were people of the coastal plains and earned their living under constant fear of the Wurdaatji. It is probably difficult for domesticated urban European–Australians who have never had reason to live alone for extended periods in the stillness of the bush to understand such fears, but for those who have lived thus, they are understandable and very real. The researchers were told by a number of sometime-woodcutters of humans and dogs being subjected to constant surveillance by Wurdaatji; of dogs being killed at night; and of woodcutters camps being subjected to barrages of abuse, stones and even large rocks at night.

In other parts of Aboriginal Australia where similar dangers occur, ritual precautions can be taken by suitably initiated persons to protect themselves. It is likely, therefore, that ochre miners in traditional times used such precautions. This would explain the apparent contradiction involved in having an ochre source in an avoidance area.

The permanent pool beside the ochre source is of significance to Aborigines also, as a traditional freshwater source. No myths specific to this pool were related to the researchers.

3.3.29 O'Brien Road Waugal Site (Gidgegannup)

Location and dimensions: At 2.5 kilometres along the O'Brien Road, north of its junction with Toodyay Road; an entrance on the western side leads into Lot 3, property of P.S. and K.M. Williamson. Approximately 1.6 kilometres west of this gateway, the land slopes steeply down into a swampy area, at the centre of which is located a permanent freshwater pool, measuring approximately 10 metres by 15 metres.

Discussion: This pool, the surrounding swamp and the springs which supply its water are the home of a Waugal. According to Aborigines, the fact that the pool is still in existence and its water still potable means that the Waugal is still there.

3.3.30 Goegrup Lake/Willys Lake Sites

Location and dimensions: The northern shore of Goegrup Lake (known to local Aborigines as 'Willys Lake') was a traditional camping area. The site extends for 400 metres along the northern lake shore and reaches from the lake's edge to Lakes Road. The narrow creek joining Goegrup Lake to the smaller lake at its south–eastern side was originally blocked by an Aboriginal fish trap and camps spread approximately 200 metres to the south–west and north–east of this trap. The area was known as Nambeelup, a name which has been incorrectly applied to a pool over one kilometre away to the east.

Discussion: This area was used traditionally as a fishing and camping ground. It has also been used more recently by Aborigines, and is still an important source of food for people from the Pinjarra/Mandurah area.

3.3.31 Barragup Fish Trap

Location and dimensions: 60 metres south–west of the present Barragup Bridge, the Serpentine River forks. The site of the fish trap was stated by Aboriginal people from Pinjarra to have been on the eastern arm of the River, approximately 30 metres downstream from the bifurcation. Camps were located on level ground nearby, but their exact location and dimensions are unknown.

Discussion: The Aboriginal fish trap and surrounding camping area are described by Hammond (1933: 26 and 46). According to the informants who guided researchers to the area in 1985, the remains of the trap were visible until recent years. One elderly European–Australian stated that they were still in use in the period 1900–1910 (see archaeological section regarding the possible discovery of part of this fishtrap).

3.3.32 Coodanup Camping Areas

Location and dimensions: The tip of Coodanup Peninsula was a traditional camping area. The site was on the eastern side, facing the Serpentine River. It covered an area of approximately 250 metres along the riverbank by 100 metres. A second camping area occupied the entire angle of land between the mouth of the Serpentine River and the Wargoorloop branch of the Murray River, stretching approximately 300 metres inland.

Discussion: These camping sites were bases from which fishing expeditions were mounted. One elderly informant recalled how, in his youth, the branches of trees which overhung the Murray and Serpentine Rivers had the bark worn away, where generations of people had edged out along them to obtain a vantage point from which to spear fish passing below.

3.3.33 Peel Inlet

The existence of a freshwater spring bubbling up through the salt water of the Peel Inlet was mentioned by a number of people, but its exact location is no longer known.

3.3.34 Canning River

Aboriginal oral history records that the course of the Canning River was also a useful track through the Darling Range. A bald hill near the confluence of the Canning River East and the Canning River is marked with footprint-shaped depressions and is a site of significance to living people. A nearby rocky outcrop, which was originally a bald hill, but is now normally beneath the water surface, is also associated with this site. Turtle Pool, outside the existing reservoir system, is a site

of significance with an associated Waugal belief — according to tradition, this pool is fed by permanent springs. The area between Turtle Pool and the present Canning Reservoir is 'an important Waugal place', due to the number of springs which feed the numerous pools and swamps there.

3.3.35 Serpentine River

This river system is believed to have been created and maintained by a Waugal. Of especial importance to Aboriginal people is the region where the river flows from the Darling Range, which is believed to have been a winnaitch or avoidance area.

3.4 Southern Rural Sites

3.4.1 Waugal Cave Avoidance Area

Location and dimensions: This site is located at Joweelingup, a bend in the Murray River, 1.6 kilometres upstream from Ravenswood Bridge. The site takes in the entire River bend, and 50 metres upstream and 50 metres downstream therefrom.

Discussion: According to Pinjarra Aboriginal tradition, there is an underwater cave at this bend in the River, which is inhabited by the Waugal. The water is extremely cold here, and the area is avoided even today by the Aboriginal people.

3.4.2 Adam Road Camping Areas

Location and dimensions: 750 metres north-east of the Pinjarra–Mandurah Road, Adam Road reaches the Murray River and turns to skirt its southern bank. This was a favoured Aboriginal camping area, centred around a freshwater soak which drains into the River. The site extends 1.2 kilometres upstream along the southern bank of the River from the bend in Adam Road.

Discussion: A further 1.1 kilometres upstream, at a prominent bend in the River, which is presently spanned by two power transmission lines, another soak is located near the southern bank. This also was a camping area, occupying the 225 metres between the existing power lines.

3.4.3 Waugal Swamp

Location and dimensions: 500 metres upstream from the point where the Dandalup River empties into the Murray River, the land on the northern bank levels into an extensive swamp system, measuring 700 metres by 200 metres.

Discussion: This swamp is a resting place of the Waugal who inhabits the Murray River and is avoided by local Aboriginal people. It is believed that a dangerous mudhole or quicksand deposit is located near its centre. Some informants called it 'Devil Swamp'.

3.4.4 Waugal Site

Location and dimensions: 200 metres upstream from Beamalup, the bend encountered in the Murray River is an avoidance area. The site extends another 100 metres upstream from this point.

Discussion: This area, which was avoided by local Aboriginal people, is also an area of influence of the Murray River Waugal. Any who did stray near there threw dust on the water to let him know that they were passing. This area is the furthest inland Waugal site on the Murray River.

3.4.5 Battle of Pinjarra Site

Location and dimensions: The Battle of Pinjarra site extends from the present Pinjarra Bridge just behind St. John's Anglican Church to the public open space south of the Murray District Hospital, where Oakley Brook flows into the Murray River.

Discussion: This Nyungar account thus disagrees with European–Australian records and claims that the battle actually covered a greater area than officially recorded. According to Nyungars, the Battle was actually a 'running fight', which spread down along the River bank. Aboriginal accounts also suggest that approximately 150 men, women and children died in the fight.

A wooden plaque commemorating the Battle was nailed to a large jarrah tree near the riverbank by Aboriginal people over 10 years ago. Unfortunately, the plaque, which was made from soft timber, was destroyed in a bush fire. Only the nails which attached it to the tree now remain.

3.4.6 Mills Road Site

Location and dimensions: This site is a swamp which forms a rough circle of approximately 125 metres diameter, and is located in the angle formed by the Old Bunbury Road and Mills Road.

Discussion: This swamp was used as a turtle, gilgie and wildfowl hunting area by Aboriginal people in traditional times, and is still an area of significance to local Aboriginal people.

3.4.7 Nine Mile Lake

Location and dimensions: This Lake is roughly circular, having a diameter of approximately 375 metres. It is located in the angle formed by Old Bunbury Road and Herron Point Road.

Discussion: According to local Aboriginal tradition, a Djingga marlu, or devil kangaroo, inhabited this lake. It was an area avoided by children.

3.4.8 Egg Island

Location and dimensions: This is a small island located between Herron Point and the west bank of Harvey Estuary, approximately 800 metres off the eastern shore.

Discussion: According to Aboriginal tradition, this island was the site of a ceremonial ground, the focal point of which was a white egg-shaped stone a little larger than an emu egg. The island is south of a crossing of the Estuary formerly marked by a line of poles. The crossing was discovered by settlers on horseback who were pursuing an Aboriginal fugitive and saw him ford the Estuary at this point.

The egg stone was reputedly moved by two European–Australians, but was returned when they fell ill. Its power is so great that a person falls ill if his or her shadow crosses it. The stone, although still on the island, is not nowadays visible, as it has been covered by sands in the winter winds.

3.4.9 Bolton's Pools

The river systems which come together to form the Collie River have been associated with both mythological and domestic areas of significance in the past. One of these, Bolton's Pools on the Bingham River, was an avoidance site where the influence of the Waugal could cause persons who strayed too close to fall ill.

3.4.10 Wuridjong Pool

This pool, on the upper reaches of the Harris River, was also a winnaitch or avoidance area, due to its association with the Waugal.

3.4.11 Telfer's Pool

This pool, on the eastern edge of Collie townsite, was also associated with the Waugal. A corroboree ground was located nearby.

3.4.12 Wellington Dam

A pool, now inundated by the reservoir above Wellington dam, also contained the Waugal's spiritual essence.

3.4.13 Collie Aboriginal Reserve

This Reserve was situated to the west of the Collie–Tallanalla Road near where the existing water pipeline crosses the roadway. Wells were dug by the Reserve dwellers into the creek which passes to the north.

3.4.14 Boronia Gully

This area contained Aboriginal camps up until the 1930s. it is located to the east of the Williams–Collie Road, on the fringe of Collie township.

3.4.15 Collie River East Camp

During the 1920s, another Aboriginal camp was situated on the Western bank of the Collie River East Branch, at the point where the old Williams–Collie Road crossed the river. An occasional camp was situated at a spring 2.8 kilometres upstream from here.

3.4.16 Preston River Camp, Picton

An Aboriginal camp was situated at Picton, on the north–eastern bank of the Preston River between the railway line and the main road. Liza Nettle and Jimmy Isaacs lived in a paperbark mia-mia there.

3.4.17 Peel Inlet/Harvey Estuary

Warrangup Spring, Stony Point, Herron Point and Island Point are known to have been Aboriginal camping grounds. An intensive study of this area, however, has not yet been conducted, and it is therefore likely that a number of ethnographic sites have yet to be recorded there.

3.4.18 Lake Yourdamung

This lake, on the Upper Bingham River, is a traditional camping ground and water source. Both the lake and the springs that feed it are associated with a Waugal myth.

3.4.19 Lake Ngartiminny

This lake, on the upper reaches of the Collie River East, was a favorite summer camping ground for Aboriginal people due to the abundance of food available in its environs.

4.0 DISCUSSION

4.1 Introduction

A number of patterns concerning the association of rivers and wetlands with the Aboriginal areas of significance in the survey region emerged in the course of this research. These patterns are identified and developed in this section of the report.

4.2 The Ubiquitous Waugal Myth (see also O'Connor and Bennell, 1987)

Waugal (also Wagal, Wagyl or Uocol[1]) is the dreaming ancestor who, according to local tradition, created the Murray and Serpentine River systems, and still retains a presence in some deep pools in the area. Waugal beliefs, widespread throughout the South-West, refer to a water-creative spiritual force with a serpentine physical manifestation. In some cases, the spiritual aspect is emphasised, in others, the physical. In some cases, the Waugal is seen as ubiquitous (described by one person as 'a bit like God' — i.e. the Christian Deity) or at least multi-locational; in others, as purely local and associated with a particular spring or creek. This religious philosophy is not unique to the South-West: Maddock (1982: 114–115) describes a similar system in Arnhem land, as does Kingsford (1982) in the Murchison–Gascoyne region.

Nor are Waugal beliefs a latter day phenomenon: they were noted and recorded by early settlers. George Fletcher-Moore in 1885 wrote of the Waugal as a 'huge winged serpent' who lived in deep dark waters. Salvado (1977 trans.:128) wrote of the Waugal as follows:

> '...they dread even more going near large pools of water, in which they believe there lurks a great serpent called "Uocol", who kills them if they dare to drink there or draw water during the night. A large number of natives came to me one evening asking for water. The first ones took all I had and drank it, the others, about fifteen of them, asked me to go to a pool nearby and get some for them. I showed them the bucket and told them to go themselves. They all fell silent, and no-one dared take the bucket, or tell me what they were afraid of, until, about an hour later, one of them said respectfully: "n-alla cape uoto, chetchet cuaragn nunda uoto quaraga inad" (if we go and take water, very soon we will be killed, but if you go you will be alright) ... however much the natives of both sexes like to swim "dog paddle" style in summer, they will never go into water that is dark and deep, because they say the serpent Uocol is there, and they are afraid of him even during the day time.'

Most of the major rivers which drain the Darling Range, and a great many smaller creeks, springs, pools, swamps and lakes on the Swan Coastal Plain are associated with Waugal beliefs.

Waugals are not *just* a species of python living in the vicinity of water sources, although the Aboriginal account sometimes suggests them to be such, especially the commonly encountered assertion that the Waugal dies when a water source dries up (the reverse form of this assertion — also sometimes encountered — that when a

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1. The variation in pronunciation of this word is as great as the variation in spelling in anthropological literature. In some cases, a falling dipthong is followed by a retroflex velar stop; in others, a rising dipthong is followed by a palatal stop. A possibility of regional variation is suggested, but this cannot be verified at this late stage.

Waugal is shot or otherwise killed the water source dries up, is not so easily analysed). The Waugal is not *just* a mythic serpent, an Australian version of the Loch Ness Monster. The Waugal is not *just* a totemic ancestor. The Waugal is not *just* a spiritual being, a semi-deity. The Waugal is indeed all of these but is, more fundamentally, a personification, or perhaps more correctly *animalization*, of the vital force of running water (the term *tjilla*, the Great Sandy Desert equivalent of Waugal, has oft-times been translated to the author by Aborigines as both 'water-snake' and 'living water'). As such, the paradox of Waugal as both singular and plural mentioned above and addressed pensively by Maddock (1982:114) when he mused:

> '...the word (bolung – a regional equivalent) is often used as a singular term, that is, to mean a singular entity only (c.f. God, Julius Caesar), but is also used as a general term, that is, to mean any one of an indefinite number of entities...'

is resolved. As such also, the question 'does this permanent river (or creek, or spring, or other water source) have (or belong to, or be associated with) a Waugal (or the Waugal) becomes, from an Aboriginal viewpoint, meaningless and condescending. The presence of 'living water' bespeaks Waugal immanence. The imputation of religious significance to water sources is at least as old as the recorded history of humankind, probably vastly older; its occurrence in a developed form in an arid land is not in the least remarkable. It is for this religious significance that Aboriginal people seek respect in multicultural Australia — a search that is of central relevance both to this report and to the Statutory Authority responsible for provision and preservation of water resources.

4.3 Wetlands and Rivers as Aboriginal Resources

The description of Perry Lakes, Munday Swamp and Soldier Swamp Aboriginal Sites in Chapter Two above sets the scene for this section of the report. On November 30th, 1838, George Grey's journal contains the following item:

> '...about 5 pm we reached a lake distant about fifteen miles from Perth (the present Lake Joondalup – R.O'C), and called by the natives Mooloore: we halted here for the night. The horses were scarcely tethered and our fire made, when four more natives joined the party; their names were Moogongoo, Kurral, Jeebar and Dudemurry; they brought us a present of twenty–seven freshwater tortoises, the average weight of each was half a pound. They said, that although the lake was called Mooloore, the name of the land we were sitting on was Doondalup.'

A further item in the same journal records Grey's meeting with Perth Nyungars at Lake Goollelal on his return from Gantheaume Bay as follows (April 20th, 1839):

> '...the women were soon called up, bark baskets of frogs opened for us, by-yu nuts roasted, and as a special delicacy, I obtained a small fresh-water tortoise. "Now friend, sleep whilst I cook", said Imbat, and lighting a fire he made me lie down and try to slumber, whilst he roasted some frogs, and the turtle for me.'

O'Connor, Bodney and Little (1985), O'Connor and Bennell (1987) and O'Connor, Quartermaine and Bodney (1989) have previously noted the importance of the survey region's rivers, lakes and swamps as Nyungar food resources. Of particular importance were the long-necked tortoise (Nyungar: yugoyne) which were regarded as a delicacy. As noted in sections of Chapter Two, use of these resources is an ongoing Nyungar activity.

4.4 Waterways as access tracks; wetlands as campsites

As was the case in much of Aboriginal Australia, before the arrival of Europeans Nyungar family groups did not have permanent or fixed places of habitation, but

rather moved according to a set pattern within a designated tract of territory. Historical sources (e.g. McNair and Rumley, *op.cit.* and Hammond, *op.cit.*) and the information gathered in Chapter Two above suggests that this movement tended to be either along major river systems, or along chains of other freshwater sources. In the survey region, evidence suggests that these 'runs' included the following:

(i) The chain of freshwater lakes/creeks leading from Goollelal, through Emu Swamp and Bennett Brook to Upper Swan.

(ii) The Avon/Swan river system, leading from the York region, through the Darling Range to the Swan Coastal Plain.

(iii) The Helena River, leading also from York, through the Darling Range to the Swan Coastal Plain.

(iv) The chain of freshwater lakes leading from Fremantle, through North and Bibra Lakes to the Serpentine/Murray System.

(v) The Serpentine/Murray system and the Peel Inlet/Harvey Estuary.

(vi) The Brunswick/Collie River system.

The information concerning the Moore River dates largely from the period of occupation of Mogumber (originally Moore River Mission), a fact evidenced by the predominance of Anglo-Saxon rather than Nyungar place names. However, this extensive river system is also likely to have been an access route from the interior and the scarp to the coast in pre-contact times. No concrete information regarding Nyungar usage of the Preston River was collected; however, it is likely in this case also that it was used as an access track.

At favoured points along these access tracks, Aboriginal families camped — generally in the vicinity of a freshwater spring or a reliable food resource. In some cases, either the location of the pre-contact campsite has been retained in oral history (e.g. Lake Joondalup, Yanchep or Coodanup), or else the original camping area was replaced by a post-contact fringe camp (e.g. Lake Claremont, Bennett Brook, or Pinjarra Aboriginal Reserve). In cases where the location of the campsites are no longer known to today's Aborigines, they may still be discovered by archaeological research. The access routes listed above are thus chains of **known** Aboriginal sites and chains of **potential** Aboriginal sites.

4.5 Moore, Swan, Murray and Collie Rivers

These rivers, and their tributaries, are associated with Waugal sagas. Each river is therefore of religious significance to the Aboriginal people. However, each river also has several specific areas where the Waugal performed a particular action, or with which he is especially associated. All of these sites are included in Chapter Two above. However, as an illustration, the Waugal sites on the Murray River are here listed (the list is not presented as a final statement — other unrecorded sites may exist).

(i) Within the Battle of Pinjarra site, the deep pool beside the confluence of Oakley Brook and Murray River is a resting place of the Waugal. The corroboree ground situated in the area where the Pinjarra Senior High School is now built, was associated with that site.

(ii) Two hundred metres upstream from Beamalup, the bend in the Murray River was avoided by Aborigines because of its association with the Waugal.

(iii) Five hundred metres upstream from the confluence of the Dandalup and Murray Rivers, the 'Devil Swamp' on the Murray's northern bank is a resting place for the Waugal, also avoided by Aboriginal people.

(iv) At the bend in the Murray River known as Joweelingup, 1.6 kilometres upstream from Ravenswood Bridge, Aboriginal tradition locates a deep underwater cave. This is inhabited by the Waugal and is therefore avoided by Aboriginal people. These major rivers are therefore significant from both a 'domestic' and 'spiritual' viewpoint. They also, however, have historical importance, a matter to which the next chapter of this report now turns.

5.0 Historical Material

5.1 Introduction

History and ethnography are complementary social sciences; in a study of the present type it is not always clear where the **historical** data end and the **ethnographic** data begin. For this reason, no attempt has been made to separate these two sets of data from each other in the catalogue of Aboriginal sites incorporated into this report as Chapter Two. The practical benefit of this methodology can be clearly seen by rereading Section 2.2.1 on Lake Claremont above. A full understanding of the significance of such a site to today's Aborigines can only be achieved by viewing its changing status diachronically. This has led to the identification of a number of patterns which have been noted and discussed in other parts of this report, namely:

(i) the continued use of pre-contact camping sites, during the later period of the Aboriginal fringe camps — often the fringedwellers were unaware that they were camping on their ancestor's homes;

(ii) the continued use of traditional Aboriginal food resources — generally, this was concentrated on flesh-foods rather than vegetable foods;

(iii) the continued contact with the land and its sacred associations.

Consideration of these three factors shows that it is now necessary for history and ethnography to separate, in order to establish the epistemological basis for the Aboriginal site information. Specifically, two questions need to be addressed:

(i) given the last turbulent one hundred and fifty years of Nyungar history, how can any traditional information have survived?

(ii) who has the right to identify and delineate Aboriginal sites in any given area in the survey region?

5.2 Nyungar History: An Overview

The Aboriginal inhabitants of the south–western corner of this State appear to have been a distinct socio-cultural group in pre-contact times (Howard, 1980:90). Linguistic variation occurred, and was used by them to delineate and identify sub-groups within this larger collectivity. These labels probably identified different dialectal units of a common south–western language, although they were taken by early settlers to signify separate 'tribal' (i.e. political) groups (Berndt, 1980:81–82). An attempt to reconstruct these 'tribal' boundaries is reproduced in Figure 4.

At a different level of analysis, a number of early observers attempted to map what they saw as 'Aboriginal tribal districts' in the Perth region (for example, Lyon, 1833, and Armstrong, 1836). In general, these bear as little relationship to each other as they do to the regional 'system' mentioned above. Given this variation it is impossible to know if any of these reconstructions is even marginally accurate.

It is the author's belief that this attempt to delineate hard-and-fast 'boundaries' to the 'lands' of Aboriginal tribal and sub-tribal groups stems from the imported European notions of 'property' and 'frontier' and is thus, ultimately, an example of anthropological naivety. Firstly, the time-depth is too great and the records too scant to allow anything but speculation. Secondly, whatever the attraction of this notion from the viewpoint of identifying and plotting the geographic spread of Aboriginal societies, it tends to put a false construction on the structure of Aboriginal societies and their relationship to land. Nowhere in Aboriginal Australia, it seems, did dialect or language units function as land-owning corporations. While it is true, as Berndt

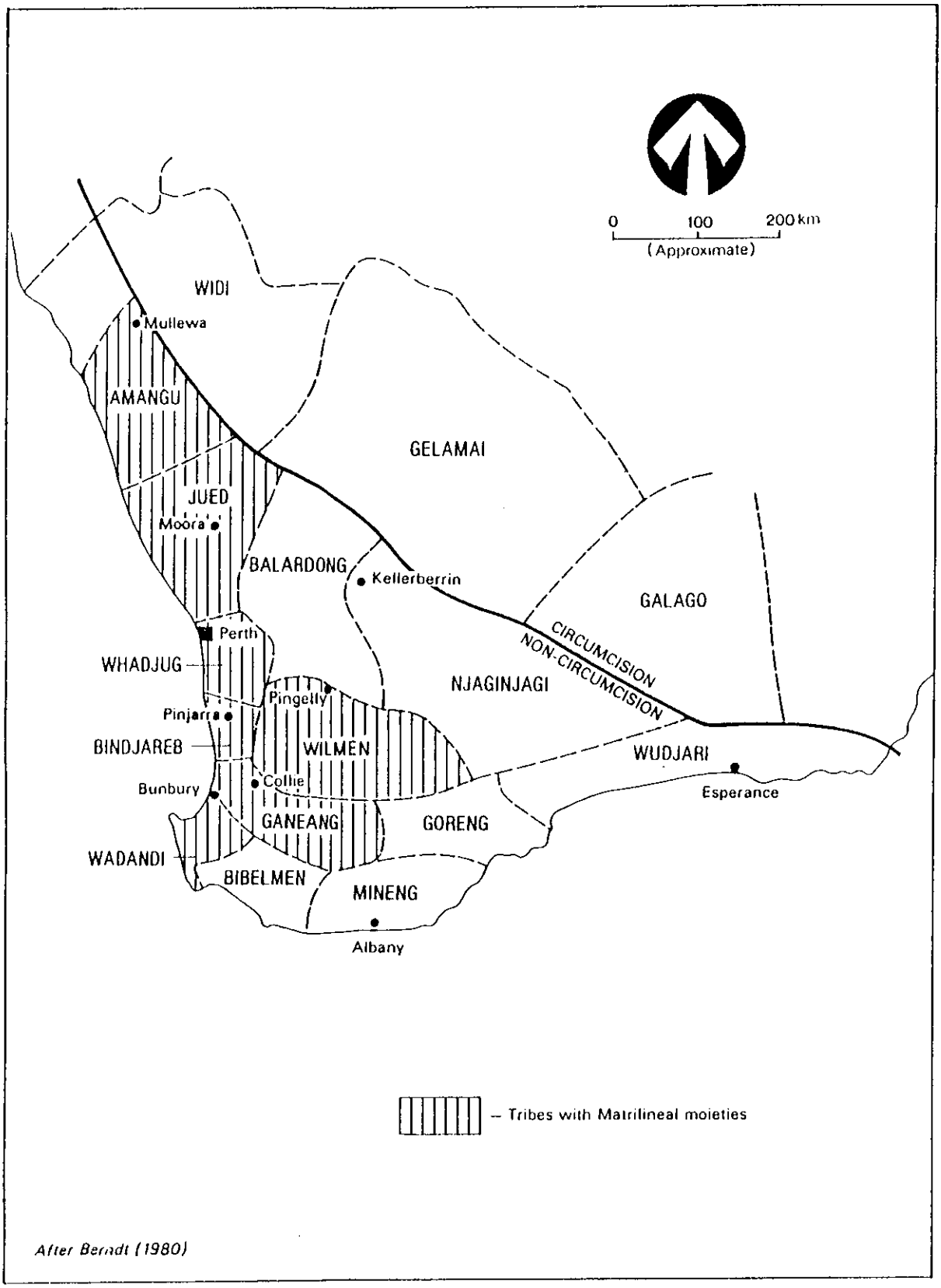

Figure 4 **Tribal Boundaries of the South West**

(1976:145) has noted, that Aborigines often maintain a generalised association with the land by virtue of membership of dialect units, it is not true that such membership is a criterion of 'ownership'. Concepts of land-ownership have little to do with dialect units as such, but rather are framed at a lower level. Definitions or assertions of dialect unit territory are fundamentally contingent upon these other criteria at this lower level and shift in line with their variable application. Speaking of the Western Desert 'social and cultural bloc', Berndt (1976:139) has referred to 'considerable dialect-territory variation'.

Finally, on the subject of traditional land tenure and social organisation, Berndt (1980:82), as noted above, has attempted an analysis of the pre-contact situation, based upon Radcliffe-Brown (1930) and the writings of early observers. This tentative analysis, which divides the South-Western 'tribes' into those with matrilineal moieties, patrilineal moieties and those with alternating generation levels, has been subsequently taken up by a number of authors as *established historical fact.* This transposition from tentative reconstruction to historical fact totally ignores Berndt's caveat that 'for information on traditional Aboriginal life in the South-West of this state, we must rely on records which are not detailed and are anthropologically unsatisfactory.'

Such academic discussions and tentative reconstructions, therefore, afford only an internally inconsistent and foundationless base for a discussion of Aboriginal sites of significance in South-Western Australia. For an analysis of the current political and social issues involved in Aboriginal Site protection, it is necessary to consider the post-contact historical situation, to which this report now turns.

5.3 Post Contact Population Movements

Salvado wrote in 1846 that:

> '... an individual risks his life whenever he leaves the district where he was born, or where his friends assure his safety... nothing would convince them (to accompany him from New Norcia to Perth)... fear, amounting to panic, of being killed by other natives, forced them to turn back...' (trans. Stormon, 1977:57)

Also Nairn (1976:8) quotes records from the Western Australian Historical Society as revealing that:

> '... the local natives were annoyed at the Murray River tribesmen for "trespassing" on Swan River territory. The raiders had also stolen flour which could well have been taken by the Swan River natives; they identified several of the raiders by footprints left in the spilt flour.'

It would appear, therefore, that a degree of territorial separation existed between Aboriginal political units at the time of European contact. As is discussed in 5.2, it is the nature of these political units that is uncertain.

This territorial separateness, however, disappeared soon after contact. Thus, Salvado noted in 1848 that:

> '... the emnity between natives from widely separated parts disappeared so that they could be trusted to take letters for distances of more than a hundred miles.' (*op.cit.*:85)

Berndt (1980:81) points out that the merging of social units occurred when people of different dialectal units were forced to live in mixed-membership Aboriginal settlements; a practice initiated in the very early years of the foundation of Perth City with the establishment of the Mount Eliza Aboriginal Reserve (see 3.3.8 above). This mingling occurred at a formal level with the gathering of children from disparate backgrounds into institutions, such as that set up in 1844 by Rev. J. Smithies at Lake Goollelal (see 3.2.4 above), and at an informal level with the movement of 'rural' Aborigines to the camps which grew on the fringe of nascent European-

Australian towns, such as when Kwiyamarra from the Victoria Plains region moved to Yellagonga's camp at Lake Monger in the 1860s (see 3.2.15 above). In later years, settlements such as those at Carrolup or at Moore River were to become instrumental in forging a South–Western Aboriginal identity; a widely scattered population of mixed-ethnic background who live in the South–West of this State see themselves as sharing a common identity and refer to themselves as *Nyungars*. For example, Colbung (1980:100) writes that:

> '... my particular country is the territory of the Nyungars located in the South–West of Western Australia.'

Migration from other regions of Aboriginal Australia into the South–West (and, conversely, from the South–West to other regions) continued through the early decades of this century and, indeed, continues to the present day. Often this migration was localised, and arose in response to specific labour needs. For example, the expanding timber industry in the Collie region in the 1920s and 1930s resulted in a influx of migrant Aboriginal labourers from the Murchison/Gascoyne and Kimberley regions. As most of these migrants were males, those who settled there tended to marry Aboriginal women from the South–West. It is thus not unusual to find Nyungars whose parentage stems from the North–West, but whose matriline is local.

Given such a scenario, the cross-generational transfer of cultural knowledge becomes problematic. The report now turns to consider this transfer.

5.4 Pivotal Culture Transmitters

The critical period when Nyungar traditional knowledge of the land, its sacred associations, water sources, camping sites, and food resources could have passed out of folk memory began in the 1890s. The colony was forty years old; the impact of European settlement on Nyungars had been devastating; the local full-blood Aboriginal population was on the decline and facing the possibility of extinction, and a part-Aboriginal population was developing. Into this critical arena was born what the author elsewhere has termed a 'pivotal generation of culture transmitters' (O'Connor and Bennell, 1987).

Often, these people were the children of full-blood Aboriginal mothers, and were thus immersed in Nyungar traditional culture from an early age. Others, who were born outside this region, migrated here at an early age and were thus in contact with the last of the traditional Nyungars. In this way, the chain of communication was not broken, the ritual cross-generational link made, and traditional cultural knowledge flowed through to the present. The names of these transmitters continually reoccur in the ethnographic literature — Old Collie Paddy (also Paddy Cullamunga) in Collie; George Windjan and Kitty (survivors of the Battle of Pinjarra) in Pinjarra and Mandurah; 'King Billy' and 'Queen Jinny' in Claremont and Nedlands; Ollie Worrell and Lottie Harris in Guildford and Midland; Alfred Taylor in the North Metropolitan Area; Black George in Wanneroo; and Maitland Sandy, Chitty Hedland, Daglish Granny, Sam Broomhall, Herbert Dyson, Bulyil, Wandi and Nyinda Brophoin other parts of the Metropolitan Area. For example, Ollie Worrell's son died at an advanced age in 1986; the author has had the privilege of working with him and recording his reminiscences and stories on several occasions between 1982 and 1985. Thus, despite dispossession, displacement and dwindling numbers, Aboriginal people in the survey region have retained a contact with the traditional past.

5.5 Current Spokespersons

In most parts of Aboriginal Australia, the answer to the question 'who has the right to discuss Aboriginal sites in this region?' will be framed in the terms of the category 'traditional owner.' This category can be variously defined at local level, but usually includes membership of a small group based on the family and on:

(i) place of birth;

(ii) patrilineal inheritance (the matrilineal link is usually less important);

(iii) initiation into the region's religious lore.

Clearly, such a category no longer exists at local level in the present survey region. Nonetheless, specific persons in most areas are seen by their fellow Nyungars as 'the right ones to talk about Aboriginal sites' in their area. For example, persons enquiring about Aboriginal sites in the Collie region will be directed, among others, to Joe and Cathy Northover (nee Meares), Loretta Cockey and Shirley Wynne. The question to be addressed here is 'on what basis are these people given the role of spokespersons?'

The answer to this question is given in a satirical tabi song of the Tallanji at Minderoo Station near Onslow. Singing of a newly arrived migrant to their country they say:

> '... poor ol' fella. **Never knew country.** Nose like a hawk and a flat forehead. Poor ol' fella. **Never knew country.**' (trans. Algy Patterson)

A spokesperson must have long term association with country, must know it thoroughly and must demonstrate this knowledge. The bases of this knowledge are many, but can include the following.

(i) Long-term association as a young person with a member or members of the privotal generation of culture transmitters. In the authors opinion this is a crucial factor which can overrule all others. Thus, the persons mentioned above for the Collie region often preface remarks regarding Aboriginal sites with reminiscences of Old Collie Paddy, and appear to be transmitting **his** information.

(ii) An ability to demonstrate a knowledge of the region's resources — its hunting and camping grounds and its water sources. Usually, this information is held and transmitted within the family group. Persons may have been born and lived in an area, but, if they are not privy to this information, they are unlikely to be seen by their fellow Nyungars as 'truly from that country'.

(iii) Political activity — in some cases, people from outside a specific region have established themselves by political action as 'spokespersons' and are accepted as such by their fellow Nyungars. Generally, people from this category will have worked hard over a long period to collect to themselves traditional cultural information. As such, they are a valuable resource to be worked with.

6.0 Recommendations

6.1 Introduction

Conflicts such as that associated with the crossing of Bennett Brook by the High Pressure Gas Pipeline or the 'redevelopment' of the Old Swan Brewery are socially divisive and financially costly. Therefore, this section of the report brings finally together the threads which have been woven in the preceeding chapters, by isolating potential areas of conflict and framing recommendations aimed at mitigating against such conflict. The report in general, and specifically this chapter, are based upon three premises, as follows:

(i) Aboriginal advancement in education, economic life and community development will be best achieved in a stable and peaceful nation where mutual respect among ethnic and other special-interest groups is fostered by peaceful means.

(ii) Public availability of knowledge regarding location of Aboriginal sites is necessary. This is particularly so in the survey region. The present author contributed in 1985 to a survey which listed many of the important areas of significance in the Perth–Pinjarra region; the report on this survey is not yet publicly available (e.g. in the State Public Library System).

(iii) Against this background of cooperation rather than confrontation and knowledge rather than ignorance, consultation with Aboriginal groups in advance of major developments will serve to avoid future conflict.

6.2 Urban/Industrial and Rural/Irrigation Water Resources Use

The wording of the *Aboriginal Heritage Act* is quite specific in regard to Aboriginal site disturbance — 'a person who ... in any way alters any Aboriginal site ... commits an offence.' Alteration can arise from **direct** or **indirect** causes. From the point of view of the usages which are the subject of this section, the likeliest direct alterations are:

(i) the damming of creeks or rivers to develop water reservoirs;

(ii) the alteration of their courses to facilitate other development;

(iii) the draining of swamplands.

By contrast, the likeliest indirect alterations are:

(i) the destruction of riverine habitat and consequent alteration of flora and fauna through depletion of water flow following damming;

(ii) the destruction of wetland environments through introduction of drain carried pollutants and/or increased water levels as a result of urban or industrial development;

(iii) the alteration of wetland environments through radical lowering of water level arising from development of borefields, with consequent effects on flora and fauna.

Aboriginal objections to these direct and indirect alterations are likely to centre on the following aspects:

(i) Direct impact on sites of ritual or mythological significance through dam wall construction, inundation following damming or the drying of significant pools following damming or course alteration;

(ii) Destruction of springs which are associated with Waugal beliefs through dam wall construction or inundation;

(iii) Destruction of springs or swamps which are associated with Waugal beliefs through drainage programmes;

(iv) Indirect effects on springs or swamps associated with Waugal beliefs through drainage programmes or borefield development;

(v) Effect on availability of food resources through the introduction of pollutants into wetlands following urban/industrial development;

(vi) Effect on availability of food resources through the drying out of swamps or other wetlands following drainage programmes or borefield development; and

(vii) Direct impact on old campsites (this is not a common type of complaint).

6.3 Wildlife Habitat and Recreational Uses

As noted above, in 1884 Lake Monger was gazetted as a wildfowl reserve and, in the latter decades of the nineteenth century, its southern shore became a popular picnic area for European–Australian townspeople. This pattern has been repeated over and over since then in the survey region. Aboriginal people commonly complain that, not only has the type of development reviewed in 6.2 denied them access to customary fishing and hunting grounds, by either altering or destroying these, but also that the involvement of the Department of Conservation and Land Management and the development by local authorities of recreational facilities in the vicinity of wetlands have placed traditional foods beyond their reach. There is thus a potential conflict between Aboriginal wishes to engage in what they consider traditional food-gathering behaviour and the recreational and scientific/conservation needs of the wider community.

6.4 Recommendations

(1) In view of the fact that a great deal of ethnographic data has yet to be collected in the survey area, it is recommended that any further development which could have either a direct or indirect effect on the region's wetlands should be preceded by an ethnographic survey. This would best be conducted in conjunction with archaeological work, as outlined in Part One of this report.

(2) The Aboriginal Sites listed in this report, and others yet to be documented, are covered by the provisions of the Aboriginal Heritage Act, in accordance with which it is an offence to disturb them unless prior Ministerial permission has been received. It is therefore recommended that Water Authority of Western Australia personnel be notified of the known sites of significance in their regions, of the possible existence of not yet recorded sites, and of the provisions of that Act.

(3) Aboriginal people in the Swan Valley have shown on a number of occasions in 1988 and 1989 that they consider a thirty metre (30 m) buffer zone on either side of the rivers and creeks in the region (with the exception of Bennett Brook[1]) sufficient to protect the integrity of those waterways associated with Waugal beliefs. It is recommended that this thirty metre buffer zone be considered a standard feature of Aboriginal site protection in the Swan Valley.

(4) It is important that Aboriginal people should be involved in preserving wildlife habitats and developing recreational facilities in the vicinity of the wetlands. The discussion and debate arising from such involvement will serve to defuse the potential conflict arising from Aboriginal aspirations and those of the wider community. This involvement would be best sought through the local community organisations listed in Section One, Part Two of this report.

(5) In summary, therefore, it is the authors' opinion that prior consultation and discussion, and involvement of Aboriginal people in decision making, will serve to avoid the potential conflicts which could arise over the usage of the survey region's wetlands and rivers for urban/industrial, rural/irrigation, wildlife habitat and recreational uses.

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[1] There is no inconsistency here — the Bennett Brook site incorporates pre-contact, historical and current camping grounds and other important aspects as well as the Brook itself (see 3.2.8 above).

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Table 4:
Schedule of Areas of Significance Listed in Report

Site Name	Report Paragraph No.	WA Museum (also figure 2 Ref No.)
Yanchep	2.1	S2189
Lake Marginiup	2.2	S2188
Lake Joondalup	2.3	S2187
Lake Goollelal	2.4	S2186
Dogswamp	2.5	S2185
Gnangara Lake	2.6	S2165
Emu Swamp	2.7	S2190
Bennett Brook	2.8	Several
Ellen Brook	2.9	To be registered
Nyibra Swamp	2.10	S2198
Lake Claremont	2.11	S2155
Perry Lakes	2.12	S2182
Jolimont Swamp	2.13	S2183
Shenton Park Lake	2.14	S2133
Lake Monger	2.15	S2127
Hyde Park	2.16	S2131
Moore River	2.17	To be registered
Brockman River	2.18	To be registered
Swan River Millendon	3.1	Several
Ascot Racecourse Swamp	3.2	S2200
Bardon Park	3.3	S0696
Claisebrook Camp	3.4	S2160
Haig Park	3.5	S2259
Burswood Island	3.6	S2201
City Foreshore Sites	3.7	Several
Mount Eliza	3.8	S2126
Kings Park Site	3.9	S2204
Foreshore Camp	3.10	S2205
Crawley Point	3.11	S2130
Nedlands Foreshore	3.12	S2206
Blackwall Reach	3.13	Site not registered, exact location unknown
North/Bibra Lakes	3.14	S2209
Gosnells Golf Course	3.15	S2212
Lake Forrestdale	3.16	S2213
Bartram Swamp	3.17	Not yet registered
Mather Reserve	3.18	Not yet registered
Neerigen Brook 1	3.19	S2214
Neerigen Brook 2	3.20	S2215
Tomato Lake	3.21	S2216
Rivervale Camp	3.22	S2217
Soldier Swamp	3.23	S2218
Munday Swamp	3.24	S2219
Helena River	3.25	S2148
Blackadder Creek	3.26	S2220
Jane Brook	3.27	S2149

Table 4:
Schedule of Areas of Significance Listed in Report (Cont.)

Site Name	Report Paragraph No.	WA Museum (also figure 2 Ref No.)
Red Hill	3.28	S2221
Waugal Site	3.29	S2222
Goegrup Lake	3.30	S2225
Barragup	3.31	S0210
Joondanup	3.32	S2227
Waugal Cave	4.1	S2228
Adam Road Camp	4.2	S2229–30
Waugal Swamp	4.3	S2231
Waugal Site	4.4	S2232
Battle Site	4.5	S2125
Mills Road Site	4.6	S2236
Nine Mile Lake	4.7	S2237
Egg Island	4.8	S2239
Bolton's Pools	4.9	S2108
Wuridjong Pool	4.10	Not yet registered
Telfer's Pool	4.11	Not yet registered
Wellington Dam	4.12	Not yet registered
Collie Reserve	4.13	Not yet registered
Boronia Gully	4.14	Not yet registered
Collie River Camp	4.15	S2105–6
Preston River Camp	4.16	Not yet registered
Canning River	3.33	Not yet registered
Serpentine River	3.34	Not yet registered
Peel Inlet	4.17	Not yet registered
Lake Yourdamung	4.18	Not yet registered
Lake Ngartiminny	4.19	Not yet registered

Appendix 1

Obligations Relating to Sites Under the Aboriginal Heritage Act, 1972–1980

Report of Findings

'15. Any person who has knowledge of the existance of anything in the nature of Aboriginal burial grounds, symbols or objects of sacred, ritual of ceremonial significance, cave or rock paintings or engravings, stone structures or arranged stones, carved trees, or of any other place or thing to which this Act applies or to which this Act might reasonably be suspected to apply shall report its existance to the Trustees, or to a police officer, unless he has reasonable cause to believe the existance of the thing or place in question to be already known to the Trustees.'

Excavation of Aboriginal Sites

'16.

(1) Subject to Section 18, the right to excavate or to remove any thing from an Aboriginal site is reserved to the Trustees.

(2) The Trustees may authorise the entry upon and excavating of an Aboriginal site and the and the examination or removal of any thing on or under the site in such manner and subject to such conditions as they may direct.'

Offences Relating to Aboriginal Sites

'17. A person who:

(i) Excavates, destroys, damages, conceals or in any way alters any Aboriginal site; or

(ii) In any way alters, damages, removes, destroys, conceals, or who deals with in a manner not sanctioned by relevant custom, or assumes the possession, custody or control of, any object on or under an Aboriginal site, commits an offence unless he is acting with the authorisation of the Trustees under Section 16 or the consent of the Minister under Section 18.'

Consent to Certain Uses

'18.

(1) For the purposes of this section, the expression "the owner of any land" includes a lessee from the Crown, and the holder of any mining tenement or mining privilege, or of any right or privilege under the Petroleum Act, 1967, in relation to the land.

(2) Where the owner of any land gives to the Trustees notice in writing that he requires to use the land for a purpose which, unless the Minister gives his consent in this Section, would be likely to result in a breach of Section 17 in respect of any Aboriginal site that might be on the land, the Trustees shall, as soon as they are reasonably able, form an opinion as to whether there is any Aboriginal site on the land, evaluate the importance and significance of any such site, and submit the notice to the Minister together with their recommendations in writing as to whether or not the Minister should consent to the use of the land for that purpose, and, where applicable, the extent to which and the conditions upon which his consent should be given.

(3) When the Trustees submit a notice to the Minister under subsection (2) of this section he shall consider their recommendation and having regard to the general interest of the community shall either:

(i) Consent to the use of the land the subject of the notice, or a specified part of the land, for the purpose required, subject to such conditions, if any, as he may specify; or

(ii) Wholly decline to consent to the use of the land the subject of the notice for the purpose required, and shall forthwith inform the owner in writing of his decision.

(4) Where the owner of any land has given to the Trustees notice pursuant to the subsection (2) of this section and the Trustees have not submitted it with their recommendation to the Minister in accordance with that subsection the Minister may require the Trustees to do so within a specified time, or may require the Trustees to take such other action as the Minister considers necessary in order to expedite the matter, and the Trustees shall comply with any such requirement.

(5) Where the owner of any land is aggrieved by a decision of the Minister made under subsection (3) of this section he may, within the time and in the manner prescribed by the rules of court, appeal from the decision of the Minister to the Supreme Court which may hear and determine an appeal.

(6) In determining an appeal under subsection (5) of this section the Judge hearing the appeal may confirm or vary the decision of the Minister against which the appeal has been made or quash the decision of the Minister, and may make such order as to the costs of the appeal as he sees fit.

(7) Where the owner of the any land gives notice to the Trustees under subsection (2) of this section, the Trustees may if they are satisfied that it is practicable to do so, direct the removal of any object to which this Act applies from the land to a place of safe custody.

(8) Where consent has been given under this section to a person to use any land for a particular purpose nothing done by or on behalf of that person pursuant to, and in accordance with any conditions attached to, the consent constitute an offence against the Act.'

Appendix 2

Notes on the Recognition of Aboriginal Sites

There are various types of Aboriginal Sites, and these notes have been prepared as a guide to the recognition of those types likely to be located in the survey area. An Aboriginal Site is defined in the Aboriginal Heritage Act, 1972–1980, in Section 5 as:

'(a) Any place of importance and significance where persons of Aboriginal descent have, or appear to have, left any object, natural or artificial, used for, or made for or adapted for use for, any purpose connected with the traditional cultural life of the Aboriginal people, past or present;

(b) Any sacred, ritual or ceremonial site, which is of importance and special significance to persons of Aboriginal descent;

(c) Any place which, in the opinion of the Trustees is or was associated with the Aboriginal people and which is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the state;

(d) Any place where objects to this Act applies are traditionally stored, or to which, under the provisions of this Act, such objects have been taken or removed.'

Habitation Sites

These are commonly found throughout Western Australia and usually contain evidence of tool-making, seed grinding and other food processing, cooking, painting, engraving or numerous other activities. The archaeological evidence for some of these activities is discussed in details under the appropriate heading below. Habitation sites are usually found near an existing or former water source such as a gnamma hole, rock pool, spring or soak. They are generally in the open, but they sometimes occur in shallow rock shelters or caves. It is particularly important that none of these sites be disturbed as the stratified deposits which may bè found at such sites can yield valuable information about the inhabitants when excavated by archaeologists. Seed Grinding

Polished or smoothed areas are sometimes noticed on/near horizontal rock surfaces. The smooth areas are usually 25 cm wide and 40 or 50 cm long. They are the result of seed grinding by the Aboriginal women and indicate aspects of past economy. Habitation Structures Aboriginal people sheltered in simple ephemeral structures, generally made of branches and sometimes of grass. These sites are rarely preserved for more than one occupation period. Occasionally rocks were pushed aside or used to stabilise other building materials. When these rocks patterns are located they provide evidence for former habitation sites.

Middens

When a localised source of shellfish and other foods has been exploited from a favoured camping place, the accumulated ashes, hearth stones, shells, bones and other refuse can form mounds at times several metres high and many metres in diameter. Occasionally these refuse mounds or middens contain stone, shell or bone tools. These are most common near the coast, but examples on inland lake and river banks are not unknown.

Stone Artefact Factory Sites

Pieces of rock from which artefacts could be made were often carried to camp sites or other places for final production. Such sites are usually easily recognisable because the manufacturing process produces quantities of flakes and waste material which are clearly out of context when compared with the surrounding rocks. All rocks found on the sandy coastal plain, for example, must have been transported by human agencies. These sites are widely distributed throughout the State.

Quarries

When outcrops of rock suitable for the manufacture of stone tools were quarried by the Aborigines, evidence of the flaking and chipping of the source material can usually be seen in situ and nearby. Ochre and other mineral pigments used in painting rock surfaces, artefacts and in body decoration are mined from naturally occurring seams, bands and other deposits. This activity can sometimes be recognised by the presence of wooden digging sticks or the marks made by these implements.

Marked Trees

Occasionally trees are located that have designs in the bark which have been incised by Aborigines. Toeholds, to assist the climber, were sometimes cut into the bark and sapwood of trees in the hollow limbs of which possums and other arboreal animals sheltered. Some tree trunks bear scars where section of bark or wood have been removed and which would have been used to make dishes, shield, spearthrowers and other wooden artefacts. In some parts of the state wooden platforms were built in trees to accommodate a corpse during complex rituals following death.

Burials

In the north of the state it was formerly the custom to place the bones of the dead on a ledge in a cave after certain rituals were completed. The bones were wrapped in sheets of bark and the skull placed beside this. In other parts of Western Australia the dead were buried, the burial position varying according to the customs of the particular area and time. Natural erosion, or mechanical earthmoving equipment occasionally exposes these burial sites.

Stone Structures

If one or more stone are found partly buried or wedged into a position which is not likely to be the result of natural forces, then it is probable that the place is an Aboriginal site and that possibly there are other important sites nearby. There are several different types of stone arrangements ranging simple cairns or piles of stones to more elaborate designs. Low weirs which detain fish when tides fall are found in coastal ares. Some rivers contain similar structures that trap fish against the current. It seems likely that low stone slab structures in the south west jarrah forests were built to provide suitable environments in which to trap some small animals. Low walls or pits were sometimes made to provide a hide or shelter for a hunter. Elongated rock fragments are occasionally erected as a sign or warning that a special area is being approached. Heaps or alignments of stones may be naturalistic or symbolic representations of animals, people or mythological figures.

Paintings

These usually occur in rock shelters, caves or other sheltered situations which offer a certain degree of protection from the weather. The best known examples in Western Australia occur in the Kimberley region but paintings are also found through most of the states. One of several coloured ochres as well as other coloured pigments may have been used at a site. Stencilling was a common painting technique used throughout the state. The negative image of an object was created by spraying pigment over the object which was held against the wall.

Engravings

This term described designs which have been carved, pecked or pounded into a rock surface. They form the predominant art form of the Pilbara region but are known to occur in the Kimberleys in the north to about Toodyay in the south. Most engravings occur in the open, but some are situated in rock shelters. Caches

It was the custom to hide ceremonial objects in niches and other secluded places. The removal of objects from these places, or photography of the places or objects or any other interference with these places is not permitted. Ceremonial Grounds

At some sites the ground has been modified in some way by the removal of surface pebbles, or the modeling of the soil, or the digging of pits and trenches. In other places there is not noticeable alteration of the ground surface and Aborigines familiar with the site must be consulted concerning its location. Mythological Sites Most sites already described have a place in Aboriginal mythology. In addition there are many Aboriginal sites with no man-made features which enable them to be recognised. They are often natural features in the landscape linked to the Aboriginal Account of the formation of the world during the creative 'Dreaming' period in the distant past. Many such sites are located at focal points in the creative journeys of mythological spirit beings of the Dreaming. Such sites can only be identified by the Aboriginal people who are familiar with the associated traditions.