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SURVEY OF THE EASTERN GROUP ISLANDS OF THE RECHERCHE ARCHIPELAGO
(Funded Under the National Estate Program 1986/87/3)

Report Submitted to the W.A. Heritage Committee

August 1989

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Survey of the Eastern Group, Recherche Archipelago

1. In November 1986, the Western Australian Heritage Committee allocated a sum of \$4,000 to the Department of Conservation and Land Management on behalf of myself. The \$4,000 grant was made in early 1987, under the National Estate Grants Program for a natural and cultural resources survey on islands in the Eastern Group, Recherche Archipelago. This Southern Ocean group of islands lies off the Western Australian Coast between Cape Arid and Israelite Bay, some hundred kilometres east of Esperance. The grant was awarded to cover the costs of access to these remote islands from Esperance.
2. The expedition was undertaken between the 8th and 19th of June, 1988, and included a total of 9 days at sea: 9-17 June 1988.
3. It proved to be extremely difficult to procure an appropriate vessel for this relatively distant, long and somewhat hazardous voyage. In the end, Dr. Paul Lewis, scientist, sailor experienced in the Southern Ocean and owner of a 12 metre steel boat, *Gentoo*, was given a consultancy to arrange access to the islands.
4. The survey party comprised:

Mr. Q. Addison	Photographer, field hand	
Mr. A. Hopkins	Botanist	Dept. of CALM
Dr. M. Pearson	Archaeologist	Aust. Herit. Comm.
Dr. A. Robinson	Zoologist	S. Aust. NP & WS
Dr. A. Weston	Botanist	Botanical Consultant
5. Adverse weather and sea conditions during the expedition made landing on islands difficult, when not impossible, for most of the time. However, Cape Arid, Duke of Orleans Bay and the following islands were visited:

Middle Island	Goose Island	Bellinger Island
Daw Island	New Year Island	
6. Comprehensive biological observations were made on all islands visited. In addition, distributions and numbers of sea birds and seals were recorded throughout the voyage.
7. Dr. Pearson investigated old sealing and whaling sites on islands and at Cape Arid.



8. Apart from the basic flora and fauna data collected during the survey, information on vegetation and habitat were recorded in a manner compatible with survey work already carried out by Dr. Robinson on islands in the Nuyts Archipelago, off the coast of South Australia.
9. It is proposed to present final results of the biological survey work in a series of papers, some of which will describe the Eastern Group in the broader context of the Recherche Archipelago and in comparison with the Nuyts Archipelago.
10. The fee paid to Dr. Lewis for his consultancy was \$4,000. The entire amount has been paid directly to Dr. Lewis by the Department of Conservation and Land Management, and the Department is currently preparing an audited statement.

**REPORT ON THE
1988 BOTANICAL SURVEY OF THE EASTERN GROUP,
RECHERCHE ARCHIPELAGO**

BY ARTHUR S. WESTON, Ph.D. (Botany)

INTRODUCTION

The Recherche Archipelago comprises 76 or more continental granitic islands lying off the south coast of Western Australia roughly between Esperance and Israelite Bay (Fairbridge and Serventy 1954). On some of the islands the granitic rock is overlain by eolian deposits, including travertine-capped coastal limestone, and intruded by dolerite (Fairbridge and Serventy 1954).

The islands range in size and vegetative cover from small barren granite surfaces completely covered by water at high tide to forested islands covering several square kilometres. The largest island in the archipelago is well-vegetated Middle Island, with an area of approximately 11km².

The archipelago lies in a Mediterranean climatic zone, with weather patterns similar to those recorded on the nearby mainland, e.g. at Esperance and Thomas River (Hopkins, Trudgen and Weston 1984). The rainfall on the islands is, however, probably slightly higher than on the mainland and the temperatures more moderate.

The earliest published scientific descriptions of Western Australian plants were based upon the first botanical survey in the Recherche Archipelago, in 1792 (La Billardiere 1799). The only island on which plant collections were made during that expedition is Observatory Island, a few kilometres west of Esperance.

The only extensive botanical survey of the archipelago was undertaken by Jim Willis, during the Australian Geographical Society's Expedition to the Archipelago of the Recherche in November 1950 (Willis 1953). The route of the Expedition and the 20 islands visited are shown in Appendix 1 of this report. The expedition spent three to four days on some of the larger islands.

Willis (1953) and Weston, Trudgen and Hopkins (1984) discuss and list plant collections made by others in the archipelago. Appendix 1 to this report, a list of plant species collected in the Recherche Archipelago prior to 1982, makes references to these collections.

Vegetation on 20 islands visited by the Australian Geographical Society (AGS) Expedition is described by Willis (1953), who refers to nine groups of islands, plus three independent islands, botanised by him during the AGS Expedition. The only island in the Eastern Group referred to by Willis is Christmas Island, now called Daw Island. Daw Island, along with Salisbury Island, in the South-east Group, is the only island east of the Cape Arid Group botanised during the AGS Expedition. Salisbury Island was botanised by both Willis, in 1950, and West Australian Wildlife Research Centre (WAWRC) staff, in the early 1980s. Middle Island and Goose Island have been botanised by Willis (1953), WAWRC staff and others (Weston, Trudgen and Hopkins 1984). Reports of the WAWRC surveys are currently in preparation.

Five islands, including two not previously botanised, were botanised during the 1988 expedition partially funded by a grant from the Western Australian Heritage Committee. These islands are Middle Island, Goose Island, Bellinger Island, Daw Island and New Year Island. Bellinger Island and New Year Island had not been botanised previously.

METHODS

Middle Island, Goose Island, Bellinger Island, Daw Island and New Year Island were visited between the 9th and 17th of June 1988 by a five-member expedition of scientists and field assistant. The locations of these islands is indicated on the map in Appendix 1.

The vegetation on Bellinger, Daw and Goose Islands was systematically recorded using a technique developed by Dr. Robinson, of the South Australian National Parks and Wildlife Service, and supervised by him. On each island visited, expedition members walked transects along the island and recorded plant species observed, along with the cover and abundance of each, on vegetation record forms of the type included here in Appendix 3. The transects covered the full range of habitats on each island, and any species found that was not seen along the transects was also recorded.

Dr. Robinson transferred the data from the vegetation record forms into his South Australian National Parks and Wildlife Service computer island vegetation data bank in Adelaide. This data will be used in the future for comparing distributions of flora, vegetation, fauna and habitats across the discontinuous chain of islands off the southern coasts of Western Australia and South Australia.

Herbarium specimens were collected of plants not readily identifiable in the field. These were subsequently identified by comparing them with collections in the Western Australian Herbarium.

RESULTS

The species recorded during the June 1988 expedition are indicated in the last column in the table reproduced from Weston, Trudgen and Hopkins (1984) as Appendix 2. Symbols used to indicate the islands on which the species were recorded and if the identifications are not definite are:

B	Bellinger Island
D	Daw Island
G	Goose Island
?	Plant identification not definite

As the expedition took place during a time of the year when most species are not in flower, most of the plant identifications are based upon vegetative material and many are not definite.

Other columns in the table indicate whether each species has been recorded in the archipelago previously and, if so, who first recorded it.

DISCUSSION

Eight of the species recorded for Daw Island are definite new records. These species and their families are:

Caladenia sp.	ORCHIDACEAE
Caladenia sp.	ORCHIDACEAE
Parietaria debilis	URTICACEAE
Oxalis corniculata	OXALIDACEAE
? Dichondra repens	CONVOLVULACEAE
* Euphorbia paralias	EUPHORBIACEAE
Lavatera plebeia	MALVACEAE
Melaleuca lanceolata	MYRTACEAE

All except the last are herbaceous plants, and the first five are short-lived, seasonal plants, the above-ground parts of which have usually dried up and disappeared by the time the AGS Expedition visited the island. The '? Dichondra' is the only species with Dichondra-like leaves recorded for the island.

The Euphorbia is a South African weed which has spread widely through the archipelago and along the south coast of the mainland since Willis first recorded it in a limited area on Middle Island in 1950.

There appears to be only one stand of Melaleuca lanceolata on the island: a small, dense cluster of old, tall plants inland from the beach on the south side.

Eight of the species recorded for Goose Island are also new records for that island:

<i>Caladenia</i> sp.	ORCHIDACEAE
<i>Caladenia</i> sp.	ORCHIDACEAE
? <i>Eriochilus dilatatus</i>	ORCHIDACEAE
<i>Pterostylis nana</i>	ORCHIDACEAE
<i>Oxalis corniculata</i>	OXALIDACEAE
<i>Daucus glochidiatus</i>	APIACEAE
* <i>Solanum nigrum</i>	SOLANACEAE
* <i>Hypochoeris glabra</i>	ASTERACEAE

All are herbaceous plants, with relatively short-lived above-ground parts. All eight species have previously been recorded across Goose Island Bay on nearby Middle Island. However, the orchids are the first and only members of their families recorded for Goose Island.

All of the species recorded on Bellinger Island are, apparently, new. No plants are known to have been previously collected on Bellinger.

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- Weston, A. S., Trudgen, M. E. and Hopkins, A. J. M. (1984). The Vascular Flora of Middle Island. (unpubl. manuscript).
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APPENDIX 1

The Recherche Archipelago:
Map and Introduction
(from Willis 1953)

THE ARCHIPELAGO OF THE RECHERCHE

Part 3a—LAND FLORA, By J. H. WILLIS

Part 3b—MARINE ALGAE, By H. B. S. WOMERSLEY

Part 4—MAMMALS, By V. N. SERVENTY

The Australian Geographical Society's Expedition to the Archipelago of the Recherche, Western Australia ($33^{\circ}37'-34^{\circ}28'$ S. Lat.; $121^{\circ}30'-124^{\circ}10'$ E. Long.), took place during the month of November, 1950.

A map showing route and dates of landing on the various islands is appended to this paper. Periods of three or four days were spent on the larger islands.

The following islands and contiguous areas of the mainland were visited: Esperance, Figure of Eight (7.11.50), Boxer (9.11.50), Sandy Hook (10.11.50); Remark (11.11.50); Long (11.11.50); Pasco (12.11.50), Mondrain (12.11.50), Termination (18.11.50), Round (18.11.50); North Twin Peaks (19.11.50); South Twin Peaks (20.11.50), Cave (20.11.50), Wedge (21.11.50), Combe (21.11.50), Middle (21.11.50), Douglas (23.11.50), Goose (23.11.50), Salisbury (24.11.50), Israelite Bay (26.11.50), Christmas (28.11.50), Point Malcolm (28.11.50), Duke of Orleans Bay (29.11.50), Woody (30.11.50).

Expedition personnel was as follows:

John Béchervaise (Leader), J. H. Willis (Botanist), V. Serventy (Zoologist), R. Bean (Photographer), I. S. Wilson, M. Farrant. The expedition craft, a 35-ft. Diesel-powered fishing boat, schooner-rigged auxiliary sail, was in charge of Messrs. D. Mackenzie and A. Sanders.

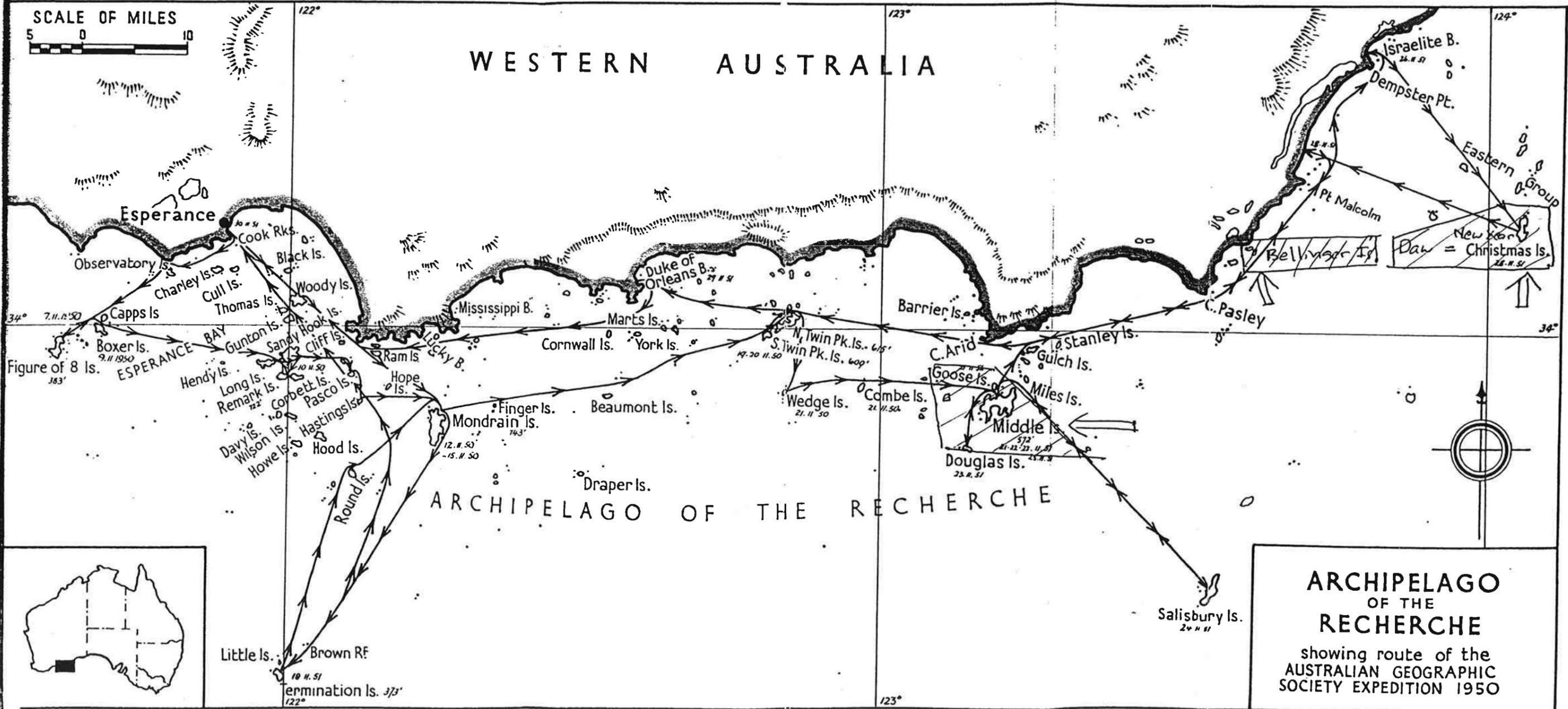
It is planned that the complete report (Report No. 1) of the expedition will be published in several parts, containing: Introductory, General and Historical, Physiography, Birds, Plants, Mammals, Reptiles, Shells, Insects and Spiders.

This section (Report No. 1, Parts 3 and 4—Archipelago of the Recherche: 3a. Land Flora, by J. H. Willis; 3b. Marine Algae, by H. B. S. Womersley, and 4. Mammals, by V. Serventy) is the second published (28th February, 1953). The few needful references to literature in 3a are interpolated for convenience within the text—not at the end of the paper, as is customary.

SCALE OF MILES



WESTERN AUSTRALIA



ARCHIPELAGO OF THE RECHERCHE
showing route of the AUSTRALIAN GEOGRAPHIC SOCIETY EXPEDITION 1950

APPENDIX 2

Vascular Plant Species of the Recherche Archipelago
(from Weston, Trudgen and Hopkins 1984)

TABLE 1. THE VASCULAR FLORA OF THE RECHERCHE ARCHIPELAGO

SPECIES	LOCALITY OF RECORD			1933
	Middle Island	Goose Island	Other Islands	
<u>PTERIDOPHYTA</u>				
ISOETACEAE				
† <i>Isoetes australis</i> S. Williams	AW			
DENNSTAEDTIACEAE				
<i>Pteridium esculentum</i> (Forst.f.) Cock.	A			
ADIANTACEAE				
† <i>Cheilanthes ^{austratenuifolia Quirk & Chambers} tenuifolia</i> (Burm.f.) Sw.	AW	AW	W	D
<u>GYMNOSPERMAE</u>				
CUPRESSACEAE				
† <i>Callitris preissii</i> Miq. ssp. <i>preissii</i>	AWB		W	
<u>ANGIOSPERMAE</u>				
POTAMOGETONACEAE				
† <i>Amphibolis antarctica</i> (Labill.) Sond. & Asch. ex Asch.	AW	W	W	
<i>Posidonia australis</i> Hook.f.	AW	W	W	
JUNCAGINACEAE				
† <i>Triglochin minutissima</i> F. Muell.	A	A		
<i>Triglochin procera</i> R.Br.	A			
<i>Triglochin striata</i> Rulz. & Pav.	A			
† <i>Triglochin trichophora</i> Nees	W	W	W	
<i>Triglochin aff. procera</i> R.Br.	A			
POACEAE				
<i>Agropyron scabrum</i> (Labill.) Beauv.			W	B?, D?
<i>Agrostis avenacea</i> Gmel.	AW	AW	W	
* <i>Aira caryophyllea</i> L.			W	
* <i>Aira praecox</i> L.			W	
* <i>Avena barbata</i> Link.			I	
* <i>Avena fatua</i> L.			W	D?
* <i>Briza minor</i> L.			W	
<i>Bromus arenarius</i> Labill.			W	
* <i>Bromus diandrus</i> Roth			W	
* <i>Bromus hordeaceus</i> L.			W	
* <i>Catapodium rigidum</i> (L.) C.E. Hubb. ex Dony			W	
* <i>Cynodon dactylon</i> (L.) Pers.			W	
<i>Danthonia caespitosa</i> Gaud.	AW		W	
<i>Danthonia ? setacea</i> R.Br.			I	
<i>Dichelachne crinita</i> (L.f.) Hook.f.		A	W	D
* <i>Ehrharta longiflora</i> Smith			W	
* <i>Hordeum "murinum"</i> (probably <i>H. leporinum</i> Link)			W	
* <i>Koeleria "phleoides"</i> (probably <i>Trisetaria cristata</i> (L.) Kerg.)			W	
* <i>Lagurus ovatus</i> L.			W	
* <i>Lolium "loliaceum"</i> (probably <i>L. rigidum</i> Gaud.)			W	
<i>Neurachne alopecuroidea</i> R.Br.			W	
* <i>Parapholis incurva</i> (L.) C.E. Hubb.			W	
* <i>Poa annua</i> L.			T	
† <i>Poa poiiformis</i> (Labill.) Druce	AW	AW	W	D?
† <i>Poa porphyroclados</i> Nees	A		X	
† <i>Poa sp.</i> ASW 8767	A			
* <i>Polypogon monspeliensis</i> (L.) Desf.			W	
* <i>Spartochloa scirpioidea</i> (Steud.) C.E. Hubb.			T	
<i>Spinifex hirsutus</i> Labill.	AW		W	B, D

- Sporobolus virginicus (L.) Kunth
- † Stipa flavescens Labill.
- * Vulpia bromoides (L.) S.F. Gray
- * Vulpia membranacea (L.) Dum.
- * Vulpia myuros (L.) Gmel.

AW	A	W	G
AW	W	W	B?, D?
AW	W	W	
	W	W	
		I	

CYPERACEAE

- Baumea juncea (R.Br.) Palla
- Gahnia trifida Labill.
- † Isolepis cernua (Vahl) R. & S.
- † Isolepis ? cyperoides R.Br.
- † Isolepis marginata (Thunb.) A.Dietr.
- † Isolepis nodosa (Rottb.) R.Br.
- † Lepidosperma angustatum R.Br.
- Lepidosperma gladiatum Labill.
- Lepidosperma leptostachyum Benth.
- Lepidosperma ? tuberculatum Nees
- Lepidosperma viscidum R.Br.
- Schoenoplectus ? supinus (L.) Palla
- Schoenus sculptus (Nees) Boeck.
- Schoenus ? subflavus Kukenth.
- Schoenus submicrostachyus Kukenth.

A		W	
AW		W	
AW	W	W	
A		W	
A	A	W	
AW	AW	W	D
AW		W	
AW		W	B
		W	
		G	
		W	
A			
A			
		I	
		W	

RESTIONACEAE

- Loxocarya flexuosa (R.Br.) Benth.

W

CENTROLEPIDACEAE

cephaloformis Reader ssp.

- Centrolepis drummondii (Nees) Walp.
- Centrolepis glabra (F. Muell. ex Sond.) Hieron.
- † Centrolepis murrayi (J.M. Black) P.A. Cooke
- Centrolepis polygyna (R.Br.) Hieron.
- Centrolepis strigosa (R.Br.) R. & S.

A			
AW			
		W	
AW	W	W	
AWB	W	W	C?

JUNCACEAE

- †*Juncus bufonius L.
- Juncus caespiticus E. Mey.
- † Juncus kraussii Hochst.

A	W	W
A		
AW		I

LILIACEAE (sens. lat.)

- Agrostocrinum scabrum (R.Br.) Baill.
- Borya nitida Labill.
- ⊕ Bulbine semibarbata (R.Br.) Haw.
- Dianella revoluta R.Br.
- Lomandra rigida Labill.
- Stypandra ? glauca R.Br.
- Stypandra imbricata R.Br.
- Thysanotus patersonii R.Br.
- Thysanotus dichotomus (Labill.) R.Br.
- † Wurmbea dioica (R.Br.) F. Muell.
- Xanthorrhoea preissii Endl.

		W	
A		W	
		W	
AW	⊕ AW	W	B, D
		W	
		G	
		W	
A		W	
		W	
AW		W	
		W	

IRIDACEAE

- Patersonia inaequalis Benth.

W

ORCHIDACEAE

- Acianthus reniformis (R.Br.) Schltr.
- Caladenia latifolia R.Br.
- Caladenia menziesii R.Br.
- Diuris longifolia R.Br.
- Diuris setacea R.Br.
- Eriochilus dilatatus Lindl.
- Microtis alba R.Br.
- Microtis unifolia (Forst.f.) Rchb.
- Prasophyllum sp.
- Pterostylis nana R.Br.

A				
	G?	W	D?, G?	
A	G?		D?, G?	
		W		
A				
A	G?	T	G?	
		W		
AW		W		
		G		
AW	G	W	G	

Pterostylis vittata Lindl.			T
† Thelymitra aristata Lindl.			W
Thelymitra fuscolutea R.Br.			W
† Thelymitra nuda R.Br.	A		
CASUARINACEAE			
Allocasuarina heugeliana (Miq.) L. Johns.			W
Allocasuarina trichodon (Miq.) L. Johns.	A		W
URTICACEAE			
Parietaria debilis Forst. f.	A	AW	W B, D
PROTEACEAE			
Banksia speciosa R.Br.			G
Dryandra nivea (Labill.) R.Br.			W
Dryandra longifolia R.Br.			W
Hakea clavata Labill.	AWB		W
Hakea suaveolens R.Br.	AWB		W
Hakea trifurcata (Smith) R.Br.			G
Isopogon formosus R.Br.			G
Isopogon trilobus R.Br.			G
Petrophile teretifolia R.Br.			G
SANTALACEAE			
Exocarpus sparteus R.Br.			W
Leptomeria empetrifomis Miq.			W
LORANTHACEAE			
† Amyema melaleuca (Miq.) Tiegh.	AWB		
POLYGONACEAE			
Muehlenbeckia adpressa (Labill.) Meisn.	AW	AW	W D, G
* Rumex crispus L.			I
CHENOPODIACEAE			
† Atriplex cinerea Poir.	AW	AW	W B?
Atriplex paludosa R.Br.ssp.baudinii (Moq.) Aellen	A		I
* Chenopodium murale L.	A		I
Chenopodium pumilio R.Br.			I
Enchylaena tomentosa R.Br.	AW	AW	W B
† Halosarcia halocnemoides (Nees) P.G. Wilson		AS	W B?
Rhagodia baccata (Labill.) Moq. ssp. baccata	AWB	A	W G
† Rhagodia candolleana Moq. ssp. candolleana	AW	AW	A G
Rhagodia crassifolia R.Br.	AWB	AW	W
Rhagodia preissii Moq.			I
† Rhagodia radiata Nees	AW	A	G
† Sarcocornia blackiana (Ulbr.) A.J. Scott	AW		W
† Sueda australis (R.Br.) Moq.	B		
Threlkeldia diffusa R.Br.	AW	AW	B
GYROSTEMONACEAE			
† Gyrostemon sheathii W.V. Fitzg.	A B		
AIZOACEAE			
† Carpobrotus aequilaterus (Haw.) N.E. Brown	AW	W	W
† Carpobrotus virescens (Haw.) Schwantes	AW	W	I B
† Disphyma crassifolium (L.) L. Bolus	AW	AW	W B
Tetragonia implexicoma (Miq.) Hook.f.	AW	AW	W B, D
PORTULACACEAE			
Calandrinia calyptrata Hook.f.	AW	W	W D?
† Calandrinia brevipedata F. Muell.	A		

† Calandrinia granulifera Benth. Calandrinia sp. ASW 9856	A A	W	
CARYOPHYLLACEAE			
* Cerastium glomeratum Thull.	A	A	W G?
* Polycarpon tetraphyllum (L.) L.			W
* Sagina apetala Ard.	A		
* Silene gallica L.			W
* Spergularia rubra (L.) J. Presl. & C. Presl.		W	W
* Stellaria media (L.) Villars			W G?
* Stellaria multiflora Hook.	A		
RANUNCULACEAE			
Clematis microphylla DC.	AW	AW	W
Clematis pubescens Hueg. ex Endl.	W		W
LAURACEAE			
† Cassytha pomiformis Nees	W		W
† Cassytha racemosa Nees	A		R
BRASSICACEAE			
†*Cakile maritima Scop.	A	A	W
†*Hymenolobus procumbens (L.) Nutt. ex Schinz & Thell.	A		W
Lepidium foliosum Desv.	A	W	W D?
DROSERACEAE			
Drosera glanduligera Lehm.			W
Drosera macrantha Engl.	A		W
Drosera peltata Thunb.			A
Drosera sp. ASW 8837	A		
CRASSULACEAE			
† Crassula colorata (Nees) Ostnf.	AW	?AW	W B?, D?
Crassula exserta (Reader) Ostnf.	A		
Crassula natans Thunb.		W	W
Crassula pedicellosa (F.Muell.) Ostnf.	A		
† Crassula peduncularis (Smith) Meigen			W
Crassula sieberiana (Schult. & Schult. f.) Druce	A		
† Crassula sp. ASW 9865	A		
PITTOSPORACEAE			
Sollya heterophylla Lindl.	AW		W
LEGUMINOSAE subfam. MIMOSOIDEAE			
Acacia acuminata Benth.	AW		
Acacia anceps DC. var. angustifolia Benth.	AW		T
Acacia cochlearis (Labill.) Wendl.			A
Acacia crassiuscula Wendl.			W
Acacia cyclops Cunn. ex. Don	AW	A	W B
† Acacia heteroclita Meisn.	W	W	W
† Acacia ligulata Cunn. ex Benth.		A	
Acacia myrtifolia (Smith) Willd.			W
† Acacia nigricans (Labill.) R.Br.	A R		W
Acacia nitidula Benth.	AWB		W
† Acacia rostelifera Benth.	AWB		
Acacia subcaerulea Lindl.	A R		I
† Albizia lophantha Benth.	A		W
Perisericantha	AWB		W D
LEGUMINOSAE subfam. CAESALPINIOIDEAE			
Labichea lanceolata Benth.			W
LEGUMINOSAE subfam. PAPILIONOIDEAE			

Bossiaea dentata (R.Br.) Benth.	AWB		W	
Chorizema aciculare (DC.) C.A. Gardn.			W	
Chorizema ilicifolium Labill.			L	
Dillwynia pungens (Sweet) McKay	AW			
Eutaxia obovata (Labill.) C.A. Gardn.	AW		W	
Gastrolobium bilobum R.Br.	AW		W	
Gompholobium knightianum Lindl.			W	
Kennedia nigricans Lindl.	AW		W	
* Medicago polymorpha L. (= M. hispida)			W	
* Melilotus indica (L.) Allion			W	
Pultenaea obcordata (R.Br.) Benth.	AW		W	
Templetonia retusa (Vent.) R.Br.			W	
* Trifolium campestre Schreb.			G	
* Trifolium glomeratum L.			W	
* Trifolium tomentosum L.			G	
GERANIACEAE				
* Erodium cicutarium (L.) L'Her.			I	
† Geranium solanderi Carolin			W	D?
Pelargonium australe Willd.	AW		W	
Pelargonium litorale Hueg.	A			
OXALIDACEAE				
Oxalis corniculata L. (sens. lat.)	AW	G	W	D, G
ZYGOPHYLLACEAE				
† Nitraria billardieri DC.	B?	AWB	W	B
Zygophyllum aff. ammophilum F. Muell.	A			
Zygophyllum billardieri DC.	AWB	W	W	B(w?)
† Zygophyllum cf. glaucum F. Muell.	AW			
Zygophyllum sp. ASW 9874	A			
RUTACEAE				
Boronia alata Smith	AW		W	
Boronia albiflora R.Br. ex Benth.	AW		W	
Boronia scabra Lindl.			W	
Boronia tetrandra Labill.	A			
Nematolepis phebalioides Turcz.			A	
Phebalium rude Bartl.	AWB	A	I	
† Rhadinothamnus euphemiae (F. Muell.) P.G. Wilson	AW			
POLYGALACEAE				
Comesperma confertum Labill.	A		W	
Comesperma volubile Labill.	A		W	
EUPHORBIACEAE				
Adriana quadripartita (Labill.) Gaud.			T	
Beyeria viscosa (Labill.) Miq.	AW		W	
† Euphorbia paralias L.	AW		I	B, D
† Phyllanthus calycinus Labill.	AWB		W	
Phyllanthus scaber Klotzsch	AW	AW	W	
Poranthera microphylla Brongn.	AW		W	
STACKHOUSIACEAE				
† Stackhousia huegelii-Endl. <i>monogyne</i> Labill.	AWB		W	D
SAPINDACEAE				
† Dodonaea oblongifolia Link.	AWB	AW	W	G
RHAMNACEAE				
Pomaderris myrtilloides Fenzl	AWB		W	
Pomaderris oraria F. Muell. ex Reiss.	W			
Spyridium globulosum (Labill.) Benth.	AWB		W	

Spyridium spadiceum (Fenzl) Benth.	M		W	
† Trymalium floribundum Steud.	A		G	
MALVACEAE				
Alyogyne hakelfolia (Giord.) Alef.	A B			
† Alyogyne huegei (Endl.) Fryx.	A B		W	
Lavatera plebeia Sims		W	W	D
* Malva parviflora L.			W	
Sida hookeriana Miq.	A		W	
STERCULIACEAE				
Laslopetalum discolor Hook.	AW		W	
Laslopetalum quinquenervium Turcz.			W	
† Rulingia corylifolia Grah.	A			
† Rulingia cygnorum (Steud.) C.A. Gardn.	A			
† Rulingia grandiflora Endl.			W	
DILLENIACEAE				
† Hibbertia cuneiformis (Labill.) Smith	A B			
Hibbertia racemosa (Endl.) Gilg	AW			
Hibbertia sp. aff. acerosa (R.Br. ex DC.) Benth.	A		W	
FRANKENIACEAE				
Frankenia tetrapetala Labill.	AWB	AW	W	β, D
THYMELEACEAE				
Pimelea argentea R.Br.	AWB		W	
Pimelea clavata Labill.	AWB		W	
Pimelea ferruginea Labill.	AW	A	W	
MYRTACEAE				
Agonis marginata (Labill.) Schau.	AWB		W	
Astartea fascicularis (Labill.) DC.	AWB		W	
Calothamnus quadrifidus R.Br.	AW		W	
Calothamnus villosus R.Br.			T	
Calytrix tetragona Labill.			X	
† Eucalyptus angulosa Schau.	AW		W	
† Eucalyptus conferruminata Carr & Carr	AW		W	
Eucalyptus conglobata (R.Br. ex Benth.) Maiden	AW		W	
Eucalyptus cornuta Labill.			W	
Eucalyptus insularis Brooker	AW		W	
Eucalyptus platypus Hook. var. heterophylla Blakely			H	
Eucalyptus sp.	AWB		W	
† Eucalyptus sp. ASW 8880	A		G	
† Eucalyptus sp. ASW 8895	A			
† Kunzea baxteri (Klotzsch) Schau.	AWB		W	D
Leptospermum sericeum Labill.			W	
Melaleuca brevifolia Turcz.	AW			
Melaleuca elliptica Labill.			W	
Melaleuca globifera R.Br.	AW	AW	W	G
† Melaleuca lanceolata Otto	AW		W	D
Melaleuca pentagona Labill.	AW		W	
Melaleuca radula Lindl.			I	
Thryptomene saxicola (Cunn. ex Hook.) Schau.	AR			
Verticordia minutiflora F. Muell.			W	
ONAGRACEAE				
Epilobium billardierianum Ser.	A			
HALORAGACEAE				
† Gonocarpus scordioides (Benth.) Orch.	AW	A	W	G?
Haloragis acutangula F. Muell.	AW		W	
† Haloragodendron racemosum (Labill.) Orch.	AW		W	D
† Myriophyllum ? petraeum - Orch.	A			

APIACEAE

annuum Short

† Aplium prostratum Labill. ex Vent.	AW	AW	W	B, D
Daucus glochidiatus (Labill.) Fisch., Mey. & Avé-Lall.	A	G	W	B?, G
Hydrocotyle alata Rich.	A		W	
Hydrocotyle hispida Bunge	A			
Hydrocotyle medicaginoidea Turcz.	AW		W	
† Hydrocotyle trachycarpa F. Muell.	A			
Platysace compressa (Labill.) Norman			W	
Trachymene pilosa Smith	AW		W	

EPACRIDACEAE

Acrotriche cordata (Labill.) R.Br.	AW			
Acrotriche aff. ramiflora R.Br.			I	
Andersonia sprengelioides R.Br.			W	
Leucopogon apiculatus R.Br.	AWB		I	
Leucopogon interruptus R.Br.	AWB		W	
Leucopogon ? gnaphalloides Stscheql.			W	
Leucopogon parviflorus (Andr.) Lindl.	AW	W	W	
† Leucopogon revolutus R.Br.	AW	AW	W	D, G
Leucopogon rotundifolius R.Br.	AWB		W	

PRIMULACEAE

* Anagallis arvensis L.				
Samolus repens (Forst. & Forst.f.) Pers.	AWB	AW	W	

LOGANIACEAE

Logania vaginalis (Labill.) F. Muell.	A		W	
Mitrasacme paradoxa R.Br.	A		W	

GENTIANACEAE

†*Centaurium erythraea Rafn.	AW	AW	W	
† Centaurium spicatum (L.) Fritsch			R	
Sebaea ovata (Labill.) R.Br.			W	

MENYANTHACEAE

Villarsia parnassifolia (Labill.) R.Br.	A B			
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APOCYNACEAE

Alyxia buxifolia R.Br.	AWB			
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CONVOLVULACEAE

Dichondra repens Forst. & Forst. f.	A	A		D?
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BORAGINACEAE

Myosotis australis R.Br.	A			
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LAMIACEAE

Westringia dampieri R.Br.	AW	AW	W	
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SOLANACEAE

† Anthocercis littorea Labill.	B			
Anthocercis genistoides Miers	AW			
Anthocercis viscosa R.Br.	AWB		W	
*Lycium ferocissimum Miers			W	
†*Lycopersicon lycopersicum (L.) Karst.	A			
*Solanum nigrum L.	A	G	W	G
Solanum simile F. Muell.	A B		W	

SCROPHULARIACEAE

* Dischisma arenarium E. Meyer			W	
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Glossostigma ? diandrum (L.) Kuntze	A			
Glossostigma drummondii Benth.	AW		W	
† Limosella aquatica L.	W	W		W
* Limosella australis R.Br. (= L. aquatica L.)	AW		W	
MYOPORACEAE				
† Myoporum insulare R.Br.	AW	AW	W	B?
Myoporum parvifolium R.Br.	B			
Myoporum tetrandrum (Labill.) Domin	AW		G	
PLANTAGINACEAE				
† Plantago drummondii Decne.	A		W	
RUBIACEAE				
* Galium aparine L.			W	
† Galium migrans Ehrend. & McGilliv.	A	A		G
†* Galium tenerum Schleich.			W	
Opercularia hispidula Endl.	A		W	
CAMPANULACEAE				
Wahlenbergia gracilentia Loth.	A		W	
LOBELIACEAE				
Isotoma scapigera (R.Br.) Don	AWB			
† Lobelia alata Labill. var. alata	AWB	W	W	B?, D?, G?
Lobelia heterophylla Labill.			L	
Lobelia ? rhombifolia De Vr. in Lehm.			W	
GOODENIACEAE				
Dampiera ? coronata Lindl.			G	
Dampiera fasciculata R.Br.			W	
Dampiera lavandulacea Labill.			W	
Dampiera prostrata De Vr.			W	
Goodenia scapigera R.Br.			W	
Lechenaultia formosa R.Br.			W	
Scaevola aemula R.Br.	A B			
Scaevola calendulacea (Andr.) Druce	A			
Scaevola crassifolia Labill.	AW			G? (see Myoporaceae)
Scaevola linearis R.Br.			W	(ASW 17-2)
STYLIDIACEAE				
Levenhookia pusilla R.Br.			W	
Stylidium adnatum R.Br.	AWB	AW	W	D?, G?
Stylidium brachyphyllum Sond.			W	
† Stylidium calcaratum R.Br.	A		W	
Stylidium corymbosum R.Br.			W	
Stylidium glandulosum Salisb.	AW		W	
Stylidium inundatum R.Br.	A			
Stylidium pilosum Labill.			W	
† Stylidium perpusillum Hook.f.	AM			
† Stylidium sp. ASW 8904	A			
† ASTERACEAE				
† Angianthus humifusus (Labill.) Benth.	A		W	
Angianthus preissianus (Steetz) Benth.	A		W	
† Angianthus tenellus (F.Muell.) Benth.			W	
†* Arctotheca calendula (L.) Levyns	A		W	
* Arctotheca populifolia (Berg.) Norl.	A		G	
† Athrixia nivea (Steetz) Druce	A		W	D
Brachycome eyrensis G.L. Davis	A		W	
Calocephalus brownii (Cass.) F. Muell.	AWB	W	W	D
* Carduus tenuiflorus Curt.		AW	W	
* Cirsium vulgare (Savi) Ten.			I	
* Conyza bonariensis (L.) Cronq.	A			
	A			

Cotula australis (Sieb. ex Spreng.) Hook.f.	A		W	
* Cotula bipinnata Thunb.	A			
Cotula coronopifolia L. (dwarf form)	AR		W	
Cotula cotuloides (Steetz) Druce			W	
†*Dittrichia graveolens (L.) W. Greuter			I	
†*Gnaphalium candidissimum Lam.			I	
Gnaphalium indutum Hook.f.	A	W	W	
†*Gnaphalium luteo-album L.	AW	AW	W	B?
† Gnaphalium sphaericum Willd.	AW	W	W	
* Hypochoeris glabra L.		G	W	D, G
Ixiolaena viscosa Benth.			W	
Olearia axillaris (DC.) F. Muell.	AWB	AW	W	B, G?
†*Picris hieracioides L.			W	
† Podotheca angustifolia (Labill.) Less.	AW		W	
Quinetia urvillei Cass.			I	
Rutidosis multiflora (Nees) Robinson	A			
Senecio glossanthus (Sond.) Belcher			A	
Senecio lautus Forst. f. ex Willd.	AW	AW	W	B, D
Senecio minimus Poir. var. picridioides (Turcz.) Belcher	A			
* Sonchus asper Hill ^{var. filifolius (Benth.) Ostenfeld}	A	AW	W	D?
† Sonchus megalocarpus (Hook.f.) Black	A		W	
* Sonchus oleraceus L.	AW		W	B
Stuartina muelleri Spnd. ex Schlecht.			W	
† Vittadinia australasia (Turcz.) N.T. Burb.			W	
Waitzia citrina (Benth.) Steetz	AW		W	

FAMILY INDET

† ASW 8911

(A 122)

A
A

SYMBOLS

* Established Alien Species

† Commented upon in commentary section

M.I. - Middle Island

G.I. - Goose Island

R.A. - Other Islands in the Recherche Archipelago

A - collected by Hopkins, Trudgen or Weston

B - collected by Robert Brown (see Willis 1959)

G - recorded by Goodsell et al. (1976)

H - recorded by M.I.H. Brooker (1974)

I - recorded by Abbot and Black (1978)

L - recorded by La Billardiere (1904)

M - collected by Maxwell (1863, 1875)

R - collected by Royce (1960)

S - collected by D. Serventy (1948)

T - collected by Tingay and Tingay

W - recorded by Willis (1953)

X - new records from ^{Salisbury Island?} Salisbury Island by Tingay in 1982.

APPENDIX 3

Sample of Vegetation Record Form

REPORT ON LICENCE TO TAKE FAUNA FOR SCIENTIFIC
PURPOSES No. SF85

A number of islands in the Recherche Archipelago Nature Reserve were visited between 10-15 June 1988 as part of an expedition led by Dr. Angus Hopkins of the Department of Conservation and Land Management. Observation and collection of vertebrates was only carried out of five islands: Middle, Goose, Bellinger Daw and New Year. In addition seals were observed while sailing past Arid Island. All mammal and reptile specimens collected were killed and liver samples removed and stored in liquid nitrogen for future electrophoretic examination. Both the tissue samples and the bodies preserved in formalin were lodged in the collections of the Western Australian Museum.

The attached W.A. Museum computer printouts give details of all vertebrate specimens collected.

The following annotated lists of mammals, birds and reptiles observed on the four islands visited supplement the as yet unpublished observations of Alan & Susan Tingay in their paper on "The Vertebrate Fauna of the Archipelago of the Recherche.

Middle Island

10-11 June 1988, 10 hours on island, 75 Elliot traps set for 1 night - no captures

MAMMALS

Macropus eugenii Tammar

Only two sighted but runs and faecal pellets common. 12 skulls collected.

BIRDS

Diomedea melanophrys Black-browed Albatross

Several seen at sea between Rob & Middle Islands

Morus serrator Australasian Gannet

One seen at sea between Rob & Middle Islands

Haliaeetus leucogaster White-bellied Sea Eagle

One juvenile bird seen overhead

Haematopus fuliginosus Sooty Oystercatcher

2 pairs on main beach

Larus novaehollandiae Silver gull

Three in Goose Bay

Larus pacificus Pacific Gull

Three in Goose Bay including 1 sub adult

Sterna bergii Crested Tern

Three flying over Goose Bay

Phaps egegans Brush Bronzewing

Common in dense vegetation, at least 10 flushed while walking over island

Hirundo neoxena Welcome Swallow

Two overhead near Lake

Pachycephala pectoralis Golden Whistler

One heard in dense vegetation behind main beach.

Sericornis frontalis White-browed Scrubwren

One seen in Eucalyptus angulosa regrowth

Phylidonyris novaehollandiae New Holland Honeyeater

Four feeding on flowering Albizzia lophantha

Corvus coronoides Australian Raven

Three flying

REPTILES

Underwoodisaurus millii Thick-tailed Gecko

Two from under sheet of iron near ruined fishermans hut

Ctenophorus ornatus Ornate Dragon

One juvenile observed around exfoliating granite below fishermans hut.

Varanus rosenbergi Southern Bungarra

Tracks in sand dunes behind beach and an individual seen

Egernia kingii King's Skink

Two large all black individuals from burrow system beneath sheet of iron near fishermans hut

Egernia multiscultata bos

Single individual dug from burrow on fore dune behind main beach NEW
RECORD (WAM 99617)

Hemiergis peronii

Two from litter beneath sheet of iron

Tiliqua rugosa Bobtail

One seen

GOOSE ISLAND

13 June 1988 5 hours on island, no trapping

MAMMALS

Arctocephalus forsteri New Zealand Fur-seal

Two individuals on rocks of NW point
NEW RECORD

Oryctolagus cuniculum Rabbit

Rabbit burrows and scats in deeper soil areas on island but only one
animal sighted. It was black.

BIRDS

Pterodroma macroptera Great-winged Petrel

A large nesting colony mainly on eastern and southern parts of island.
Egg laying had just begun and some burrows were occupied by pairs of
birds and no eggs others by a single incubating bird. There were already
some freshly broken and eaten eggs on the surface.

Leucorcarbo fuscescens Black-faced Shag

Two on rocks at waters edge
NEW RECORD

Ardea novaehollandiae White-faced Heron

One on east point
NEW RECORD

Accipiter fasciatus Brown Gashawk

One flushed from dense vegetation on NE point
NEW RECORD

Falco peregrinus Peregrine Falcon

One flushed from island peak
NEW RECORD

Haematopus fuliginosus Sooty Oystercatcher

One pair

Larus novaehollandiae Silver Gull

Eight roosting here

Larus pacificus Pacific Gull

Single bird on north east point

Sterna bergii Crested Tern

Group of approx 30 roosting on NE point

Phaps elegans Brush Bronzewing

Single bird flushed from dense vegetation on northern part of island
NEW RECORD

Neophema petrophila Rock Parrot

At least two small groups of approx 5 birds

Hirundo neoxena Welcome Swallow

One overhead

Lichenostomus virescens Singing Honeyeater

Common all over island

Corvus coronoides Australian Raven

Four on NE point

REPTILES

Egernia kingii Kings Skink

Common round petrel burrows, much browner than Middle Island individuals
none collected.

Notechis coronatus Crowned Snake

Two seen one collected (WAM 99618)

ARID ISLAND

14 June 1988. Sail past only

MAMMALS

Neophoca cinerea Australian Sea-lion

Six individuals, two bulls and four subadults or cows
NEW RECORD

BELLINGER ISLAND

14-15 June 1988, 3 hours on island, 75 elliot traps set for 1 night

MAMMALS

Rattus fuscipes Bush Rat

Common on island, one sighting at night with spotlight, 5 males and 7 females caught in traps (10 collected). No evidence of breeding, no tests descended in males and no perforate vaginas or enlarged nipples in females
NEW RECORD

BIRDS

Cereopsis novaehollandiae Cape Barren Goose

Droppings common on island but only two pairs of birds seen and one nest with four eggs found.
NEW RECORD

Haematopus fuliginosus Sooty Oystercatcher

Four present
NEW RECORD

Larus novaehollandiae Silver Gull

Five present
NEW RECORD

Larus pacificus Pacific Gull

Single bird
NEW RECORD

Neophema petrophila Rock Parrot

Common, a number of flocks of 20 + birds
NEW RECORD

Hirundo neoxena

Welcome Swallow

Six overhead
NEW RECORD

Lichenostomus virescens

Singing Honeyeater

Common
NEW RECORD

DAW ISLAND

15-16 June 1988, 8 hours on island, 75 Elliot traps set for 1 night

MAMMALS

Isoodon obesulus

Southern Brown Bandicoot

Single sighting on lower slopes of S. peak

Rattus fuscipes

Bush Rat

Common on island, 7 males and 5 females caught in traps (10 collected)
Males all had descended testes and the females vaginas were perforate but
there was no evidence of suckled nipples indicating presence of young.

Neophoca cinerea

Australian Sea-lion

Approximately 50 individuals one 1-1.5m long juvenile was observed
suckling

Arctocephalus forsteri

New Zealand fur-seal

150-200 individuals with good numbers of 1-1.5m long juveniles scattered
through the rookery.

BIRDS

Cereopsis novaehollandiae Cape Barren Goose

Approximately 5 pairs of birds scattered over the island, only one nest with 6 eggs found.

Haliaeetus leucogaster White-bellied Sea Eagle

A pair of adults seen over S. peak

Rattus philippensis Buff-banded Rail

Two flushed from central shrubland

Larus pacificus Pacific Gull

Two in bay

Neophema petrophila Rock Parrot

Small flock on south ridge

Hirundos neoxena Welcome Swallow

Two overhead

Anthus novaeseelandiae Richards Pipit

Common, at least four individuals in central shrubland

Zosterops lateralis Silvereye

Common in Nitraria shrubland above beach

REPTILES

Phyllodactylus marmoratus Marbled Gecko

Two individuals from under exfoliating granite

Egernia kingii Kings Skink

One individual (WAM 99620) collected under exfoliating granite

Egernia napoleonis

Appeared to be common, three collected

NEW RECORD

Acanthophis antarcticus Death Adder

Two seen basking on NE side of N. peak

Notechis coronatus Crowned Snake

One seen in shrubland near centre of island.

NEW YEAR ISLAND

15 June 1988 2 hours on island, no trapping.

MAMMALS

Neophoca cinerea Australian Sea-lion

11 individuals, most on the higher central part of the island with only 2 or 3 round edge

NEW RECORD

Arctocephalus forsteri New Zealand fur seal

Approximately 60 individuals round the island edge

NEW RECORD

THE ARCHIPELAGO OF THE RECHERCHE
HISTORICAL AND ARCHAEOLOGICAL RECONNAISSANCE

Michael Pearson
Assistant Director (Historic Environment)
Australian Heritage Commission

1. INTRODUCTION

The following report arises from a reconnaissance of parts of the Recherche Archipelago undertaken between June 9 and 19, 1988, as part of a continuing survey of the natural environment of the Archipelago organized by Arthur Weston utilizing National Estate Grants Programme funding.

The report attempts to present a brief outline of various aspects of the history of the Recherche, and a description and explanation of the various man-made remains located on several of the islands and adjacent mainland within that historical context. Some earlier work has formed a valuable resource for this report: a brief history of the Archipelago was compiled following the 1950 Australian Geographical Society Expedition (Bechervaise 1954); a history of Middle Island was compiled by Hopkins, Trugden and Weston (1987) as part of a study of that island; and a limited survey of whaling sites on the mainland was undertaken in 1987 (McIlroy 1987). These reports should be referred to by anyone following up this topic.

This report is based on a very brief review of the primary and secondary documentary sources. A comprehensive survey of this literature would necessitate extensive work with early press and government sources which was not possible as part of this study. The extent of the survey of the physical remains was also severely limited by adverse weather, and only Middle, Goose and Daw Islands, Barrier Anchorage at Cape Arid, and part of Duke of Orleans Bay were visited. Bellinger Island was also visited briefly, but at night when the search for sites was impossible.

The report is divided by historical topic, rather than geographically, so that the context for each site is established and the framework can be used for future research in the Archipelago. The sections covered are:

- 2.1 Sealing history
- 2.2 Sealing archaeology
- 3.1 Whaling history
- 3.2 Whaling archaeology
- 4 Settlement and land exploitation
 - 4.1 Pastoralism and agriculture
 - 4.2 Salt
 - 4.3 Guano

5 Conclusion

2.1 Sealing History

The first sealers in Western Australia were almost certainly Americans. American sealers and those of other nationalities were sealing in the sub-Antarctic islands of the Indian and Atlantic Oceans from the late 18th century. They were at Amsterdam and St Paul Islands by at least 1791, at Kerguelen by 1792, and at the Crozets by 1802 (Busch 1985, p.27-29). These islands were also known to the British, the Hillsborough, a convict transport ship returning from a voyage to NSW in 1800 visiting Kerguelen and sealing there for 8 months (Busch 1985, p.27). American sealing vessels such as the Boston based Fairy in 1793 and Otter in 1796 visited Sydney en-route from the Indian Ocean to the Pacific North-West sea otter grounds or the Chinese seal skin markets (Busch 1985, p.29; Collins 1975, Voll, pp.268-269).

The route around the south of Australia was well known and used by sealers, and the sealers were exploiting the islands of the Bass Strait as early as 1798 (Cumpston 1973, pp.3-4). The Enderby's ship Britannia went sealing to Dusky Sound in New Zealand in 1792, and the islands south and east of New Zealand were discovered and exploited over the next two decades: the Antipodes Islands in 1804, the Chathams in the same year (Richards 1982, p.6), and Campbell and Macquarie Islands in 1810 (Cumpston 1968, p.4).

Thus there is ample evidence that there was active sealing occurring in the decades between 1790 and 1810 throughout the sub-Antarctic Islands, New Zealand, and the Bass Strait. What of south western Australia? Vancouver visited the South West and published his account in 1789, causing much interest with its references to the numbers of fur seals seen in the area (Wace and Lovett, p.9). The first confirmed visit by a ship exploiting this area was in fact a whaleship reported by Matthew Flinders in 1801. Flinders found a garden plot (it has also been described as a grave) at Oyster Harbour in King George's Sound, in which was a piece of copper bearing the inscription "August 27 1800, Chr Dixon - Ship Elligood" (Hicks, p.2; Cumpston 1970, pp.3-5).

The first confirmed report of a sealer in the South West was in 1803, when Baudin in le Geographe met the snow Union, Captain Pendleton, out of New York, sealing at Two Peoples Bay. While there is no record of Pendleton sealing further east into the Recherche Archipelago, it is possible that he did so as he proceeded eastward to seal at Kangaroo Island and onwards to the Bass Strait (see Cumpston 1970, pp.26-8). The earliest definite report of sealers in the Recherche was in 1824 when the brig Belinda, Captain J.Lee, was wrecked on Middle Island, presumably while sealing there. The crew was

rescued five months later by the brig Nereus. The Nereus was on a sealing voyage which took in Kangaroo Island, and obviously extended as far west as the Recherche, during which voyage the ship gained 3,500 seal skins (Cumpston 1977, pp.249&156; Bateson 1972, p.66). This reference to the Nerius demonstrates that it is difficult to be sure of the extent of colonial whaling in the Recherche; the Nerius is recorded in the Sydney shipping records as having Kangaroo Island as its only destination. If it had not been involved in the rescue of the Belinda crew we would not have known of her visit to the Recherche.

In 1827 Lockyer, the founder of Albany settlement, found crews from the Hobart ships Governor Brisbane and Hunter in the vicinity of King George's Sound, where they had also been seen by d'Urville in the Astrolabe the previous year. Lockyer rounded up the crews, and found that they had been sealing in the Recherche at Mondrain Island. The ship had also been sealing at Kangaroo Island, and the Hunter had left two men to seal on Amsterdam Island in the Indian Ocean, from which they were subsequently rescued by the Palmira (Cumpston 1970, pp.87-94).

While W.N. Clark (1842) claimed as early as 1842 that the first sealers in the Recherche had island hopped from Tasmania, there is strong circumstantial evidence to suggest that American sealers may have visited the islands much earlier than the Belinda, Governor Brisbane or Hunter, and possibly even earlier than the Union's visit to King George's Sound in 1803. As Nigel Wace and Betsy Lovett put it, "it would be strange and out of keeping with the Yankee sealer's audacity, if they had not investigated the southern coasts of Australia before the first recorded sealing activities in 1803" (Wace and Lovett 1973, p.9). When one looks at the extent of the exploitation of the Southern Ocean islands, Tasmania and New Zealand at this time, and considers the lengths to which sealers went to locate and utilize seal-rich localities, it is inconceivable that they would ignore Vancouver's published remarks about South Western Australia and its abundance of seals. It is true that Flinders in 1802 down-played the sealing potential of the Recherche: "all the islands seem to be more or less frequented by seals; but I think not in numbers sufficient to make a speculation from Europe advisable on their account; certainly not for the China market, the seals being mostly of the hair kind, and the fur of such others as were seen was red and coarse." (Cumpston 1970, p.7). however such remarks were not likely to deter sealers, engaged in island hopping across the Indian Ocean enroute to China via the Bass Strait or New Zealand sealing grounds, from topping up their cargoes of skins at the Recherche.

While it is likely that the Recherche was exploited early in the history of Australia, it does not appear to have ever been a major source of fur seals compared with other

sealing grounds in the region. This assessment would seem to be born out by the paucity of relics and sites in the islands which can be clearly attributed to sealing activities (accepting that sealing often left few remains anywhere). By far the most frequent references to sealing in the islands of the Archipelago point to small-scale enterprises, often conducted by shady characters, reminiscent of the references to the Bass Strait and Kangaroo Island sealing activities in the period after the boom era of greatest exploitation and returns. By the third decade of the 19th century this pattern of small-scale activities was well established in the Recherche.

The first detailed account, already referred to, was by Lockyer in 1827. The Hunter and the Governor Brisbane, both out of Hobart, arrived at the Recherche Archipelago via Kangaroo Island in 1826, and dropped two sealing parties totalling 20 people. The party included three Aboriginal women, four black men, of whom at least two were Aboriginal, and a "New Zealander" presumed to be a Maori. Each crew had two whale boats and three months provisions. By the time Lockyer arrived to settle at Albany in January 1827 the parties were in need of relief, and had been engaged in a series of depredations against the local Aboriginal population, carrying off two Aboriginal Women, marooning four men on Michaelmas Island, and murdering a man on Green Island. Lockyer apprehended the whole party, and found that they had 700 seal skins on an island near Mondrain Island in the Recherche. Lockyer also referred to men going in open boats from Kangaroo Island around Cape Leeuwin to the Swan River with no difficulty (Cumpston 1970, pp87-95).

It was the activities of crews such as those of the Governor Brisbane and Hunter which led to the dread with which local Aboriginal groups regarded the sealers. Clark, writing in 1842 of the South West reported that the sealers "frequently made inroads into the territory of the Aborigines, and endeavoured to carry off the women, which infringement on their natural rights roused the natives to fury, and several collisions between the blacks and whites took place. Even now, in talking of these marauders, the natives describe them with symptoms of loathing and innate hatred" (Clark 1842).

The best known episode in the history of sealers of dubious repute in the Recherche is that of 'Black Anderson' and his crew. John Anderson, described as a 'black man', possibly an American negro, was sealing at Kangaroo Island in 1834. Anderson, together with his boats, took passage in January 1835 in the cutter Mountaineer, and left the ship at Middle Island in the Recherche. The Mountaineer continued on her way but was wrecked at Thistle Cove near Cape Le Grande. Her master and 8 crew and passengers went by boat back to Middle Island, where some joined Anderson's sealing crew, sealing on Middle and the nearby islands. After disputes with Anderson over alleged missing money, two youths,

Newell and Manning, were set ashore opposite Middle Island to walk to King George's Sound, a trip which took them from June 23 to August 9 1835 (Cumpston 1970, pp.119-122; Rintoul 1964, pp.13-14). Black Anderson apparently met his death at the hands of his crew later in the decade (Clark 1842).

Other sealers in this period would appear to have been a bit more reputable than Anderson. Captain Hart in the schooner Elizabeth cruised on behalf of the Henty brothers in search of seals as far as Cape Leeuwin in 1834 (Cumpston 1970, p.109), and one Williams of King George's Sound was referred to as a "lucky sealer", having with his boat Fanny earned between 1,000 and 1,500 pounds in the trade before 1842 (Clark 1842). Most of the sealers in this period were said to exist by hunting kangaroos in the winter to supply American and French ships, in exchange for biscuit, flour, and salted pork. Others acted as pilots to the bays for visiting ships (Clark 1842).

Sealing continued sporadically throughout the rest of the 19th century. There are few written references to it, one of the few being the reminiscences of T.C. Andrews, who worked on Middle Island as a boy in 1889. Andrews (1959) recalls a small sealing vessel from Albany calling at the island in that year and leaving ashore for a week's recuperation a sealer who had been wounded by a mother seal. Andrews also refers to a special tree, the roots of which made good sealing clubs and was therefore sought by the sealers. Andrews believed he was the first to inhabit Middle Island for 40 years.

Sealing was sporadic in the 20th century. The most notable episode was 1919, when A.T. Scott's party of six spent one month sealing and took 498 fur seals and 400 hair seals (sea lions). Scott claimed that it had been 22 years since the Recherche had been last sealed (ie.1897), and that "this catch may have made great inroads upon the supply of furs, but could not to any appreciable extent affect the supply of hair seals". He estimated that with a powered boat he could get 1,750 hair seals in two months, intending to take their oil and use their carcasses as fertilizer, to be produced at a fertilizer works proposed for Middle Island. In the early 1920s, and at regular intervals throughout that decade, Scott put to the Government proposals for a major development of the Recherche, part of which was this proposal to extend sealing. The State's Council for Industrial Development turned down his request for grant assistance to get his scheme off the ground (Scott Correspondence, Battye Library ACC.477 43/20 (AN 108/4)). Scott's enterprise was the last exploitation of seals in the Archipelago, subsequent small-scale collection of seals being for zoological display only.

2.2 SEALING ARCHAEOLOGY

Sealing for fur seals, as it was carried out in most parts of the world, left very few physical remains. Scott's 1919 expedition is pretty typical of the techniques used in the previous century: Scott's party of six travelled around the islands in a small boat, two men landing where seals were seen, to kill and skin as many as they could, while the boat and other men stood by to take the sealers and skins off. The boiling down of seals for their oil produced remains very similar to those of shore-based whaling establishments, with small try-works and shelters, but they were usually used for a much briefer time-span than were whaling sites, being moved-on as nearby sealing grounds were worked out. Both approaches to sealing might entail sealers living in the islands, in which case hut remains, wells, and the other more lasting relics of occupation would survive. However such remains would, in the absence of other evidence, be impossible to distinguish from occupation sites resulting from other activities in the islands.

No remains of the sealing industry itself were identified during the current survey. It is possible that some of the remains of hut sites on Middle Island were built by, or used by, sealers in the 19th century, but there is no clear evidence to support this attribution.

3.1 WHALING HISTORY

South-western Western Australia has a long history of whaling, much of which has been documented by Ian Heppingstone. American whalers in particular had a major role to play in the development of the South West, some 260 American whalers visiting W.A. before 1890 (Heppingstone 1969, p.39).

The earliest recorded whaler in the South West was the Elligood in 1800, referred to in the last section. However the logs of most of the vessels involved in the industry in the early 1800s no longer exist, so it is impossible to determine if the Recherche itself was whaled in this period. American whalers became more common in the late 1820s. The Lucy Ann of Boston, for example visited King George's Sound in 1828, and by the 1830s and 40s Americans were frequent visitors (Hicks 1966; Heppingstone 1969). At this time it seems that they began to be seen as a serious threat to colonial whalers, and were made less welcome than they had previously been.

Perhaps the most famous incident involving a whaleship in the vicinity of the Recherche Archipelago was the meeting between the explorer Edward John Eyre and the French whaleship Mississippi in Rossiter Bay near Cape Le Grande in 1841. The Mississippi had set up gardens in which peas and potatoes were growing well, and pigs, sheep and tortoises were kept on an offshore island (Rintoul 1964, p.21).

Locally whaling was carried out in the same small-scale way as was sealing. An example was the enterprise of Thomas Sherratt, who, with William Lovett, from 1835 operated a whaling and sealing operation in King George's Sound and to the eastward (ie towards the Recherche). Sherratt's main whaling station was at Barker Bay, opposite Albany, while he operated another "to the eastward" as did George Cheyne (Stephens 1963). Sherratt's son (also Thomas) operated a station near Cape Arid opposite Middle Island at a place called Thomas Fishery, in the 1860s until 1872 (McIlroy 1987, p.55-58).

Another party whaling in the Recherche was that of John Thomas, who engaged an eight-man party to whale from Middle Island in 1862 (McIlroy 1987, p.58, quoting Government Gazette of 29/7/62). Thomas is referred to also as an Albany whaler as early as 1856 (Western Australian Biographical Index, Batty Library). T.C. Andrews, who lived on Middle Island in 1899, claims that Middle Island was first settled by sealers, then by "a band of honest men and their families" from across the Great Australian Bight, and that the island became the "Right whale station of the Bight". It is to this period that Andrews attributes the ruins now visible on Middle Island (Andrews 1959).

A.C.Scott, that most optimistic of developers, proposed to add whaling from Middle Island to his raft of development proposals for the Recherche in the 1920s, but this, like most of Scott's proposals, came to nothing.

Based on the admittedly sparse historical record, it would appear that the Recherche was an area of foreign and probably colonial ship-based whaling from the early 19th century, until at least the 1840s. It then became an area of local colonial shore-based whaling in the 1860s and 70s. There is as yet no record of whaling in the Recherche Archipelago after the Thomas Fishery closed in 1872.

3.2 WHALING ARCHAEOLOGY

Unlike sealing, shore-based whaling required the sorts of constructions that have often survived to this day. Survey work in 1988 indicated a number of sites, and suggested that other islands and coastal headlands and harbours may well show these features on close examination (which was not possible on this trip). Jack McIlroy carried out a survey of shore-based whaling sites for the National Trust (W.A.) in 1987. A number of whaling sites were located along the south west coast, one of them on the mainland opposite the islands of the Recherche. This was Thomas Fishery, the station of Thomas Sherratt located about six kilometres east of Cape Arid. McIlroy could locate no whaling remains at the site, but a former resident could recall a try-works fireplace, a

hut chimney ruin, and whalebones in the area. These may now be covered in undergrowth or may have been destroyed over recent years (McIlroy 1987. p55-57). A try-pot from this site was removed to Moonginettee Station on Thomas River at some time, where it still survives. McIlroy also refers to Middle Island as a likely location of a whaling station, but was unable to visit the island.

During our 1988 visit to the area, remains thought to be associated with whaling activities were located on Middle Island, Goose Island, and at Barrier Anchorage behind Cape Arid.

3.2.1 Middle Island

On Middle Island the most obvious remains are:

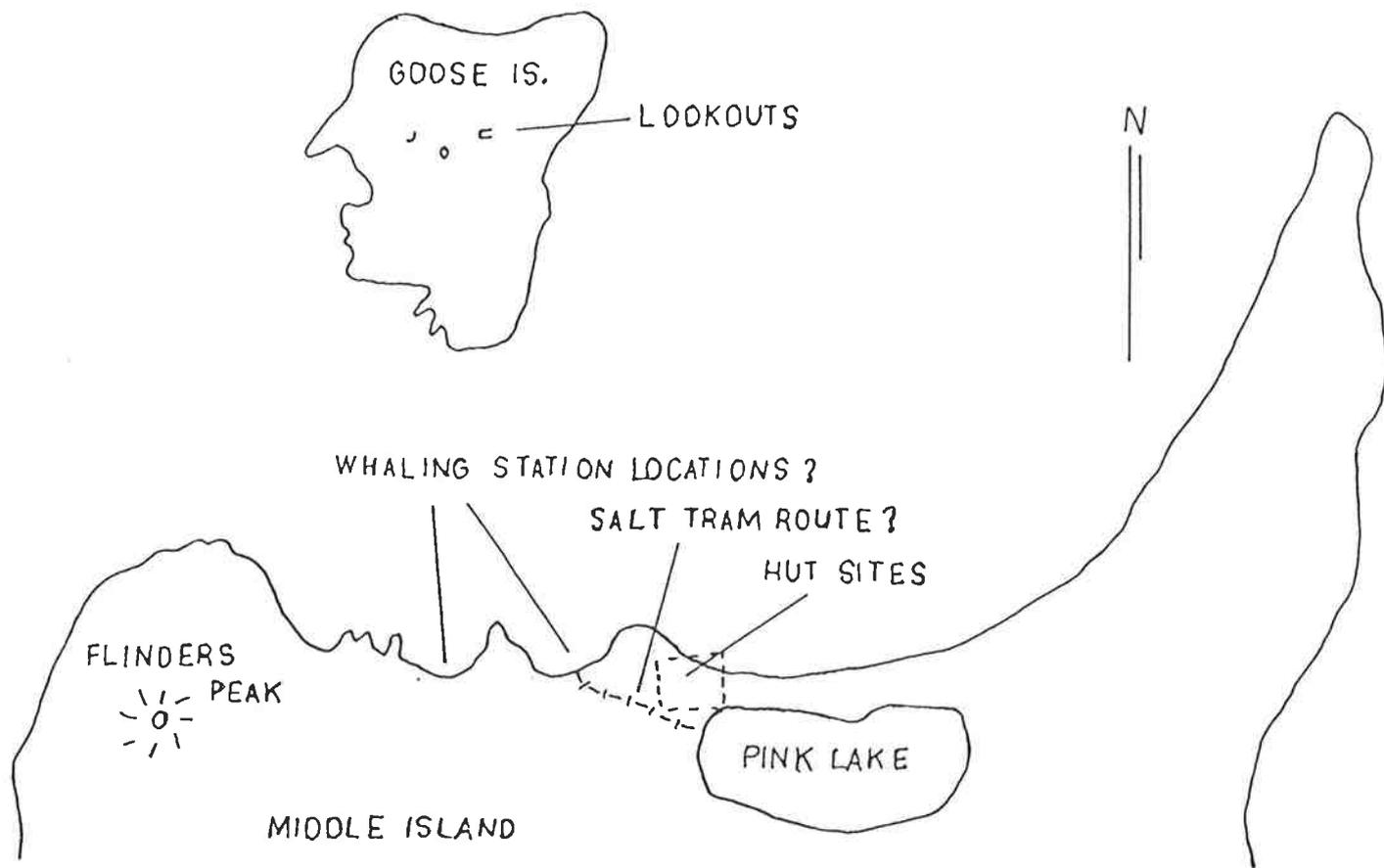
- two stone chimney bases, standing to about one metre in height;
- a rectangular stone floor, 230 X 290 cm, with stone walls up to a height of 50 cm;
- a rectangular hut base, with collapsed stone walls, approximately two metres square;
- a stone lined well.

These are located to the west of Lake Eellier (Pink Lake), immediately south of the beach hind dune, and to the east of the edge of a granite outcrop which forms a headland at one end of Belinda Beach.

One chimney had mortared stones, and in the base were glass fragments including the base of a Nitall and Co. English beer bottle, which was produced between 1872 and 1913. The other chimney base is located about 100 metres to the south west, and contains a bread oven or oven niche on one side of the fireplace. Andrews(1959), referring to his stay on the Island in 1889, recollected that they made their camp near the fresh-water well, where there was a good stone oven "which we turned to good account", and also a stone chimney which they turned into a pig-sty. It may be that the two surviving chimney bases are the ones which pre-date Andrews and therefore likely to be associated with whaling or sealing activities. Andrew's own hut was made of split jarrah slabs put together with nuts and bolts, and afterwards dismantled and rebuilt as an annex to a baker's shop in Albany. Andrews recalls burning lime on the island to produce mortar with which to build a stone chimney for his hut, so it is possible that the surviving mortared chimney base is in fact the one that Andrews built, while the earlier "sty" chimney has collapsed and was either identified by us as the hut ruin, or was not located at all due to scrub regrowth.

MIDDLE and GOOSE ISLANDS

(NOT TO SCALE)

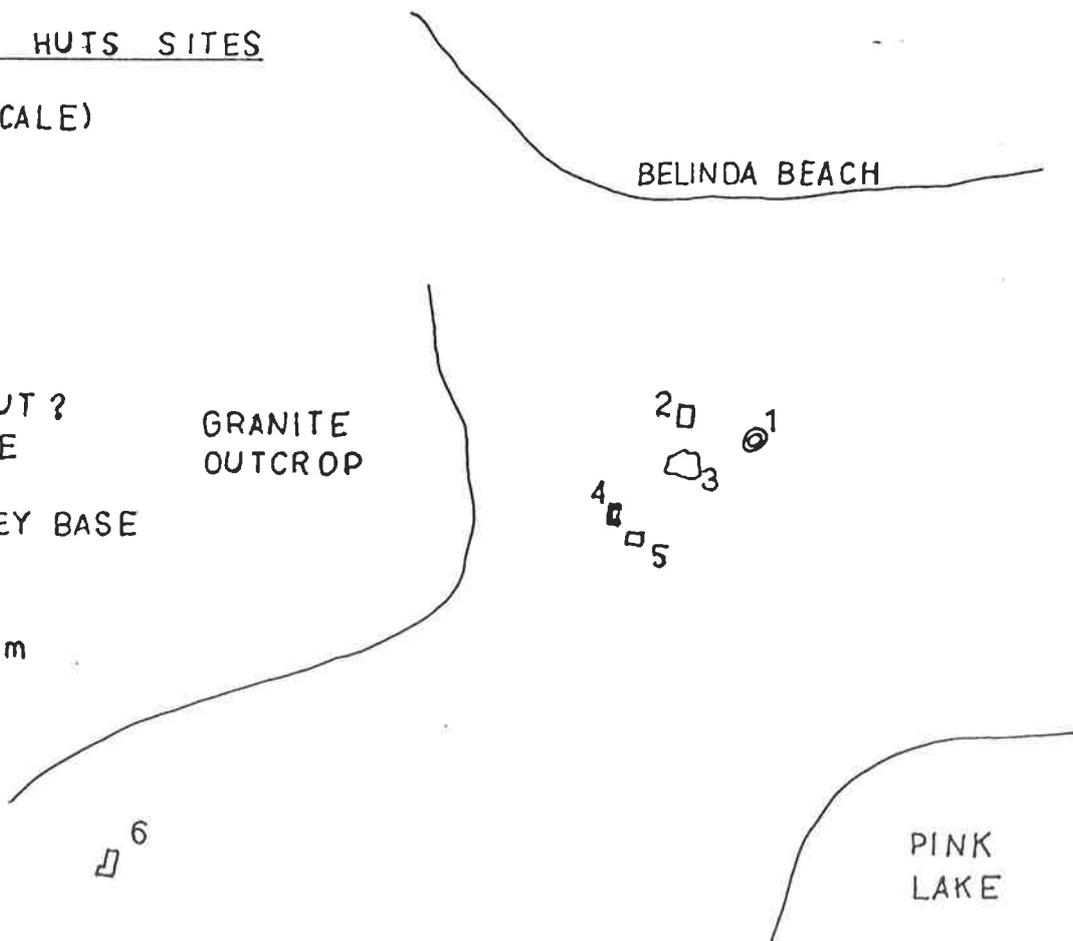


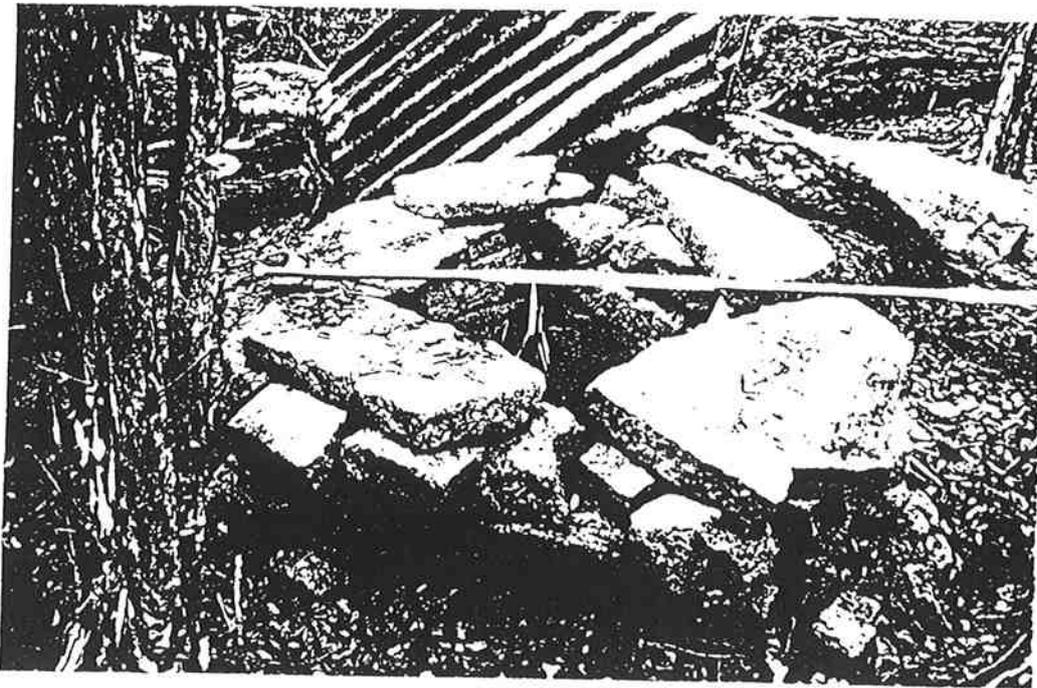
MIDDLE ISLAND HUTS SITES

(NOT TO SCALE)

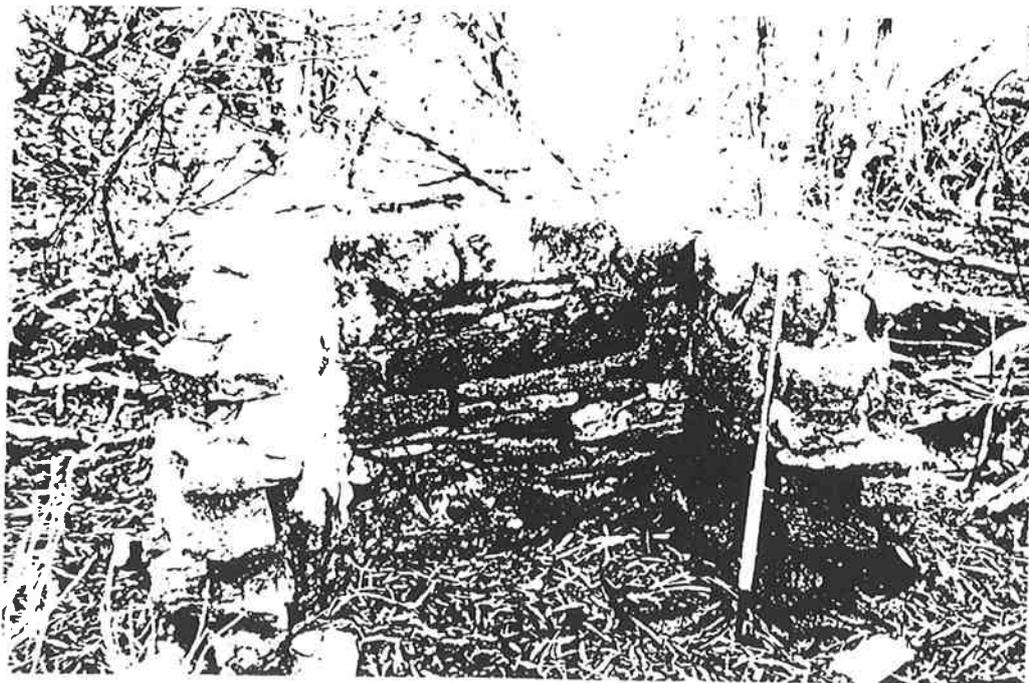
- 1 WELL
- 2 STONE FLOOR
- 3 COLLAPSED HUT ?
- 4 CHIMNEY BASE
- 5 ROOM BASE
- 6 OVEN CHIMNEY BASE

0 20 40 m
APPROX





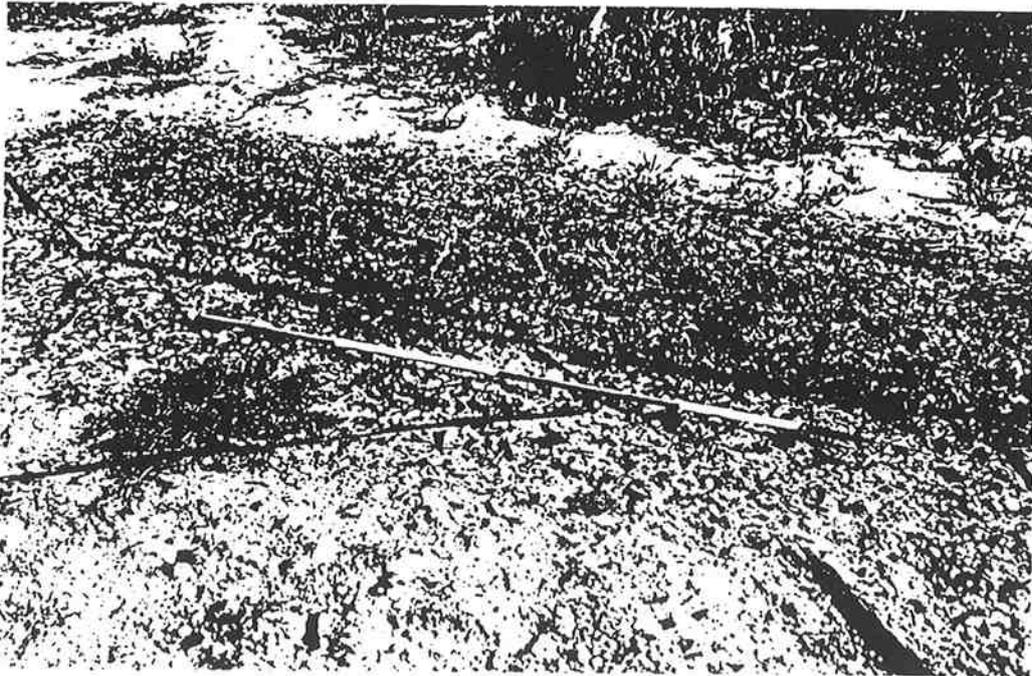
1. Middle Island. Well at living area.



2. Middle Island. Mortared chimney base.



3. Chimney base with "oven", Middle Island.



4. Corroded rails on edge of Pink Lake, Middle Island.

A pile of timber, stone and roofing iron near the well may be the remains of the hut built by the salvors of the Penguin in 1926 and seen standing by the 1950 Australian Geographical Society Expedition (Andrews 1959; Hopkins, Trugden and Weston 1987).

A stone floored hut (?) ruin, 290 x230 cm, is built of unmortared stone, and may be a low tent wall rather than a hut site. Within the walls an as yet undated Linseed Compound bottle base was located. A similarly sized low-walled area was found near one of the chimneys.

The stone-lined well has a stone wall, circular in plan, standing to a height of 40 cm above ground level. The well opening is 80 cm across. Another well was reported during an earlier visit, but could not be located on this occasion, perhaps being hidden under dense scrub, or having collapsed into itself and now being a low soak area which was located near the "oven" chimney.

If whaling stations existed on Middle Island, then the most likely locations for the try-works sites are in the two bays to the west of Belinda Beach. The western ends of these beaches provide sheltered locations with good pull-out areas for boats and flensing whales. At just such a location on the eastern most of the two beaches were found several eroded whale bone protruding from the beach and in the rocks.

3.2.2 Goose Island

On Goose Island, immediately north of these potential whaling sites on Middle Island, more remains were found. Goose is a small island, 32 metres high at its highest point. At this high point is a cylindrical stone cairn, 1.5 metres in diameter and 1.5 metres high. Twenty five metres to the north west of the cairn is a semi-circular freestanding dry-stone wall of granite slabs, about two metres long and one metre high. This obviously man-made structure opens onto a wide view of the islands and passages to the west, and would provide an observer with shelter from easterly winds. Some fifteen metres away is a fresh water pool which appears to have been artificially enlarged to increase the amount of water it can hold.

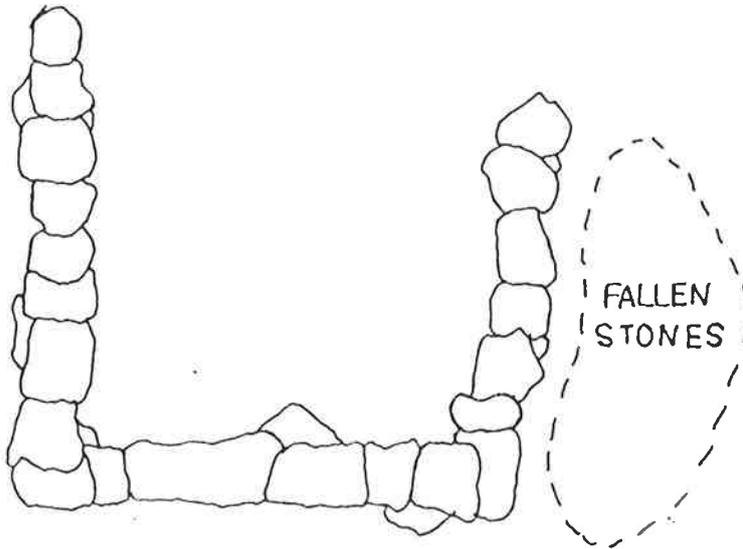
About fifty metres north east of the central cairn is another dry-stone structure, an open rectangular construction 2.6 metres long and 2.5 metres wide, standing to a height of up to 60 centimetres. The open end of this structure faces towards the north east, giving an excellent view of all the passages and islands in the eight kilometres between Middle Island and the mainland. The structure would provide shelter from winds in the westerly quarter.

These two simple stone structures may have provided shelter to the lookouts attached to the whaling station

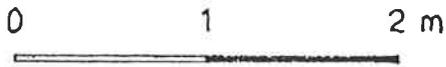
WHALING LOOKOUT SHELTERS

GOOSE ISLAND

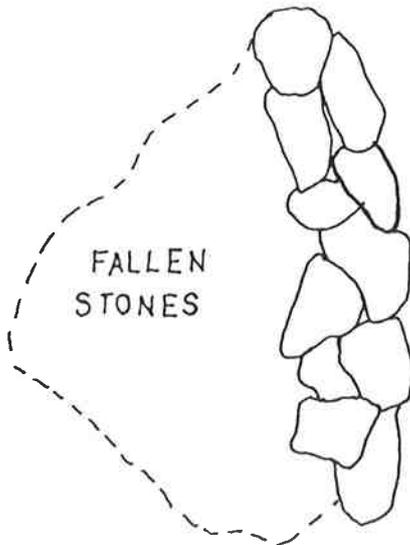
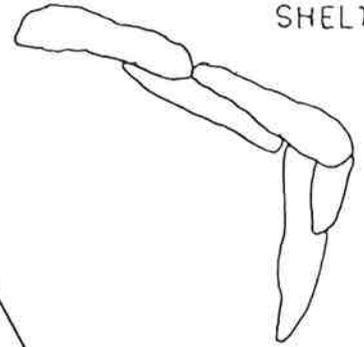
(SKETCH PLAN)



EASTERN SHELTER



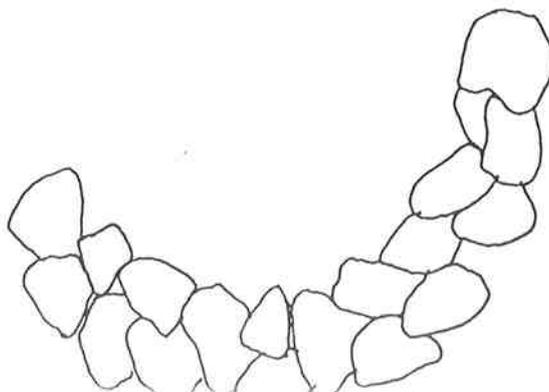
WESTERN SHELTER

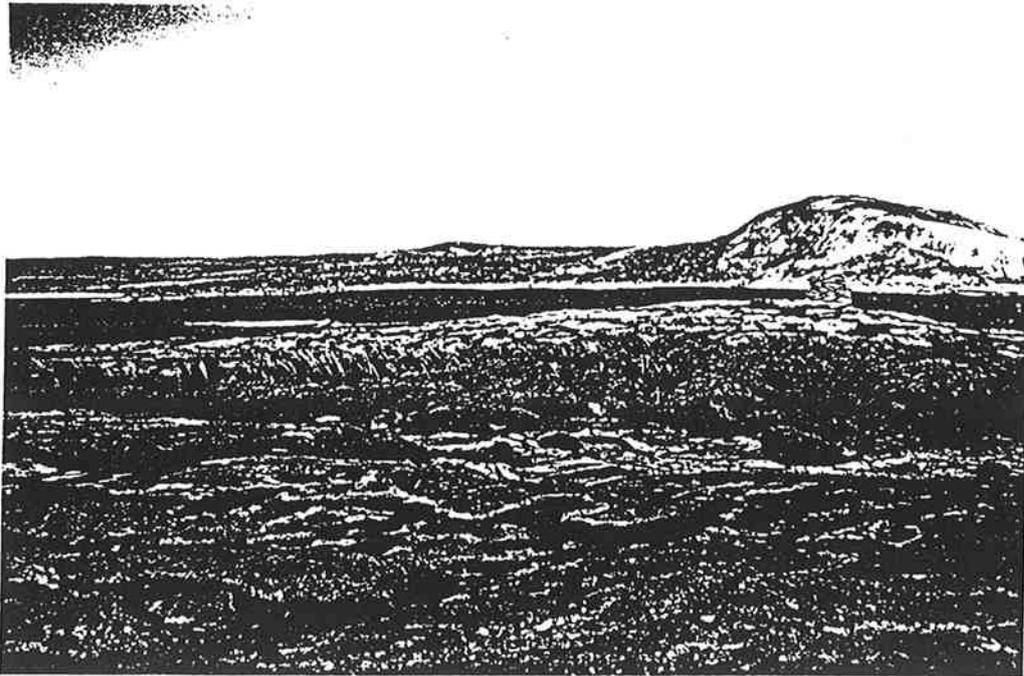


WHALING SHELTER

BARRIER ANCHORAGE

(SKETCH PLAN)

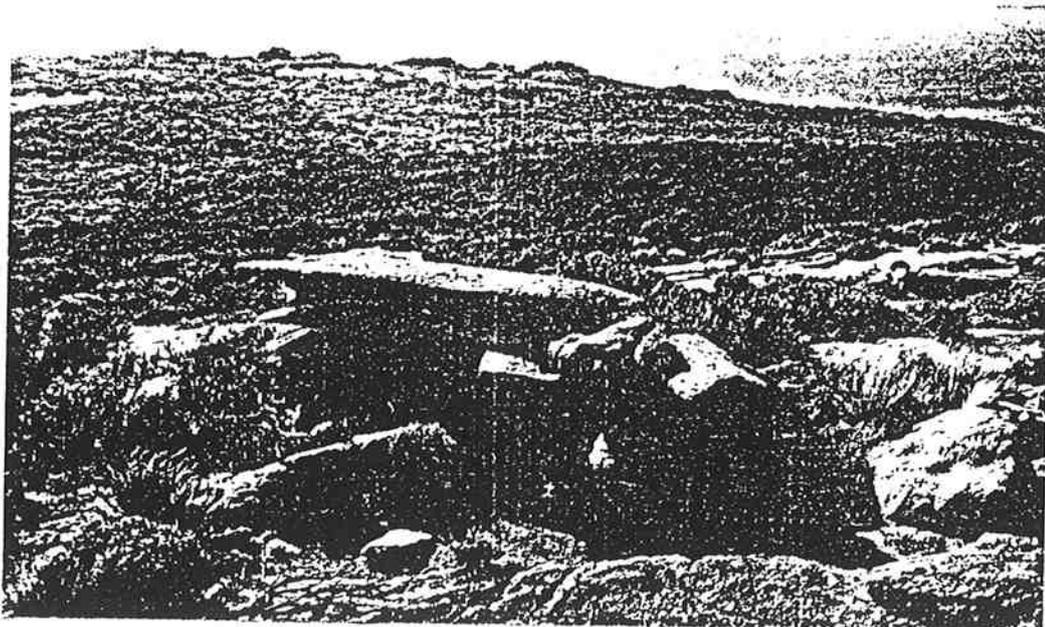




5. Goose Island, looking south past the summit cairn to the two possible whaling sites on Middle Island.



6. Goose Island, whaling lookout shelter to the north-west of summit cairn.



7. Goose Island, whaling lookout shelter to north-east of summit cairn, looking to the n.e..



8. Goose Island, whaling lookout shelter to the north-east of the summit cairn, looking to the n.w..

on Middle Island, the most likely locations of which (as suggested in the last section) are within clear view little over a kilometre to the south. Visual signalling would have been a simple matter. While no artefacts were located on the surface near either structure, their similarity to that located at Barrier Anchorage (see 3.2.3), and the absence of other reasons for such structures being built, leads me to suggest that they are whaling lookout points dating from the 19th century.

The lowland areas of Goose Island are very disturbed by burrowing birds and rabbits, and heavily overgrown, making for poor ground visibility and making it unlikely that other remains would be located intact or in situ. One area of building remains was located on the south west point of the island which may relate to later survey activities on the site, but this is conjectural as no datable material was found.

3.2.3 Barrier Anchorage - Cape Arid

Adjacent to John Cale's fishing hut at the northern end of Barrier Anchorage in Arid Bay, north of Cape Arid, Mr Cale pointed out several remains of whaling activity.

At the back of a sloping granite shore about 100 metres south of Cale's hut are the remains of a try-works site, the fireplaces where the cast iron try-pots were located to boil down the whale blubber. The exact arrangement of the site is not clear, due to dense shrub growth over much of the site. The try-works appears to stretch along the shore for about five metres, and to contain three or possibly four try-pot places along that length. The central pot location was dug out by Mr Cale at some stage, and he said that it contained ash and charcoal, as would be expected. The try-works is demarked by granite stones arranged to form a slight bench, the front of which has been eroded slightly by storm surges. Along the rocky shore and beach area there are many weathered whale bones, but no other evidence of early occupation was located in the brief time ashore.

Above the try-works site and to its west rises a hill which protects the anchorage. On top of this hill (about 50 metres high) is a dry-stone structure, shaped like a "J", 5 metres long and 2,8 metres across at its end. The structure is collapsed to some extent, and may have been a more complete semi-circular shape opening to the north. The wall now stands to a maximum height of 70 cm, and given the amount of stone on the site, could not have been much higher when first built. The location gives excellent views from the western end of Middle Island to the south, right round the islands and channels to the bay to the west of Cape Arid. The structure would give protection from westerly and southerly winds. Around the stone structure were a number of pieces of broken clay

GOOSE ISLAND WHALING LOOKOUTS

(SKETCH PLAN)

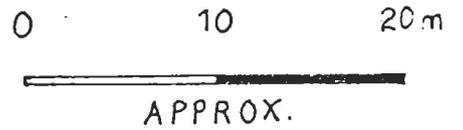


□ FRESHWATER POOL

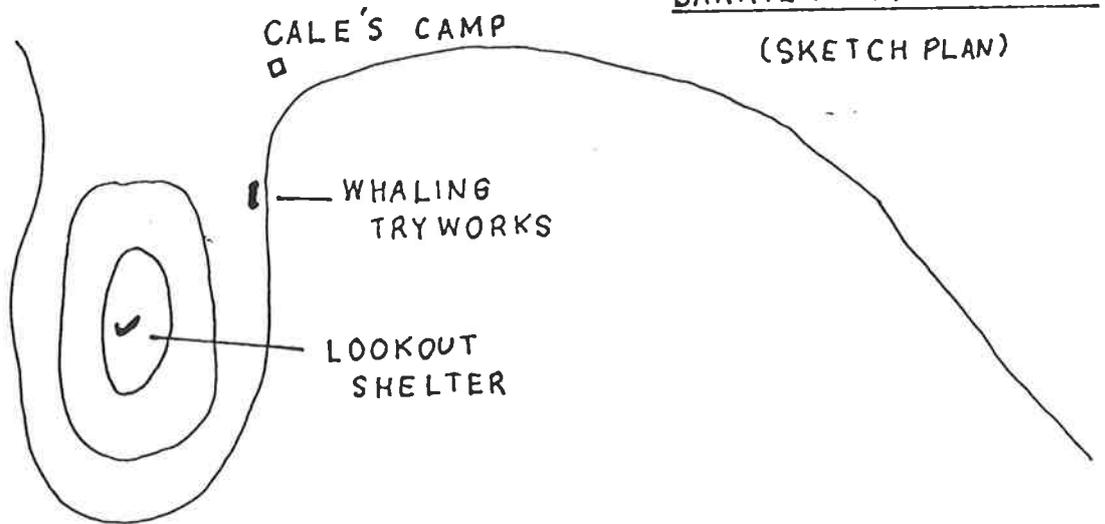
EASTERN SHELTER

└ WESTERN SHELTER

○ SUMMIT CAIRN

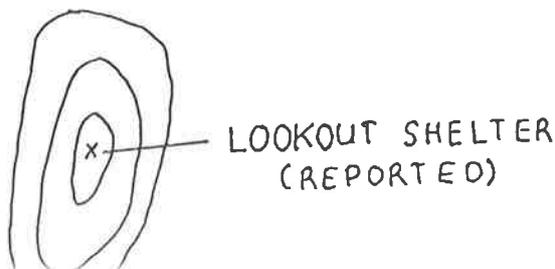


BARRIER WHALING SITES
(SKETCH PLAN)



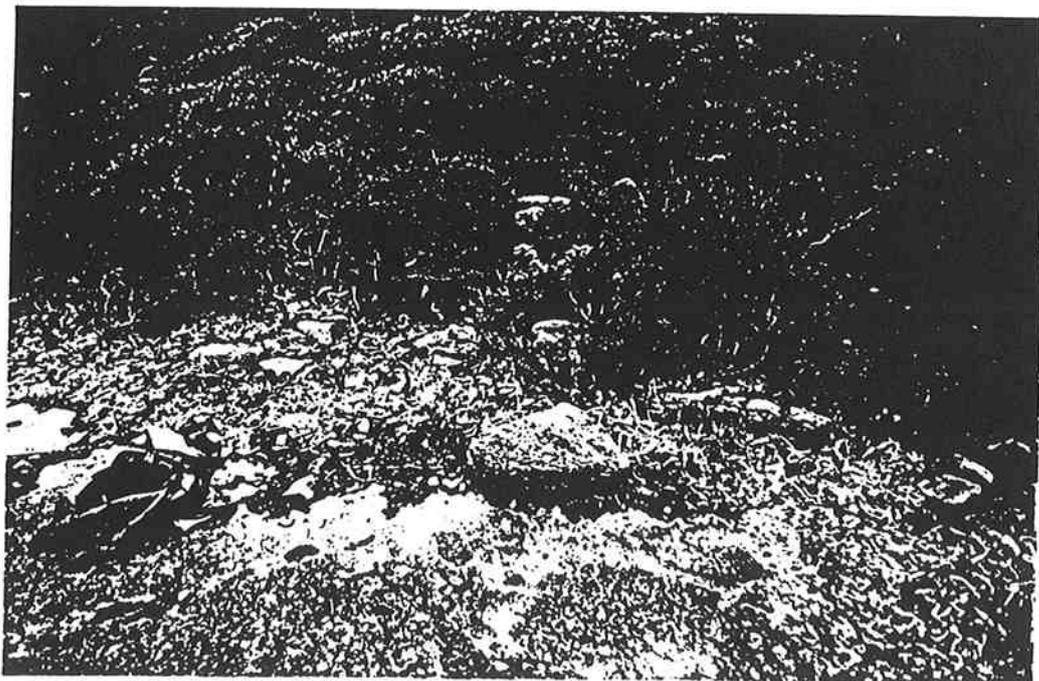
ARID BAY

NOT TO SCALE





9. Barrier Anchorage, Cape Arid. Whaling lookout shelter, looking south-west.



10. Barrier Anchorage, Cape Arid. Try-works site, with try-pot fireplaces in the scrub, and ash eroding from the exposed edge.

smoking pipe, none of which bore datable features, and many fragments of glass.

The location of this structure above the try-works site leads to the conclusion that it was a whaling lookout site. It is similar in construction, location and general form to the structures on Goose Island. John Cale claims that similar structures are located on the island immediately to the south of the anchorage, and on the high ground behind Cape Arid, but these places were not visited during our trip.

3.2.4 Other Locations

Other locations visited were Daw Island and the island off the south point of Duke of Orleans Bay on the mainland. Despite an extensive search, no lookouts or other remains of whaling sites were located in either location.

However, it would appear that the mainland and islands around Cape Arid and Middle Island may well repay further survey. Andrews may have been quite right to identify this area as the "Right whale station of the Bight".

4. SETTLEMENT AND LAND EXPLOITATION

The Recherche has had a long history of land exploitation, some of it accompanied by settlement. The main aspects of this were pastoralism, and salt and guano extraction.

4.1 Pastoralism and agriculture.

The sealers and whalers of the 19th century dug gardens on the mainland and the islands to supply fresh vegetables to help balance their diet of meat and preserved rations. Flinders found a garden (or alternatively a grave) left by ship Elligood at King George's Sound in 1800. The Mississippi, found by Eyre at Rossiter Bay, had a garden of peas and potatoes, and ran pigs, sheep and tortoises on an offshore island (Rintoul 1964, p.21)

T.C. Andrews recalled that during his stay on Middle island in 1889 he noticed that the garden areas of earlier whalers and sealers had been taken over by spinifex. He also states that a number of years after his stay two young men were put on the island to grow vegetables for the goldfields market (Andrews 1959).

Thus, in terms of agriculture, the Archipelago has had a long history of sporadic, small-scale, and localized vegetable production. There was a proposal by A.C.Scott, as part of his major redevelopment idea in the 1920s, to introduce sheep raising and farming on the islands, but

this never eventuated (Scott Correspondence). Scott claimed that Miles, Goose, and Gulch Islands would carry 3,000 sheep year round. "A large eaglehawk is very troublesome at lambing time, but these are very easily poisoned" (Scott 1920).

W.E. Dempster in a letter to the Western Australian in 1950 claimed that the Dempster Brothers (the settlers of Esperance) had tested the grazing potential of the islands for twenty years. Feed was abundant on Figure of Eight Island, and Cape Barren Geese had flourished on it until the survey vessel Waterwitch nearly exterminated them. Dempsters fattened sheep on for three months on both Figure of Eight and Thomas Islands. Woody Island had good grass, but most of it was scrub containing heart leaf poison. Observatory, Charles and Gull Islands had plenty of water and were all most satisfactory for fattening sheep and depasturing rams after the breeding season. In the early days of Esperance, Connolly had a party clearing scrub on Sandy Hook Island, but gave up because of death adders (Dempster Western Australian 15/11/1950).

These pastoral enterprises were all confined to the western end of the Archipelago, within easy reach of Esperance.

4.2 Salt

The brine lake on Middle Island was discovered by Flinders in 1802, and revisited by him in 1803, when the lake was named Lake Hellier after a seaman buried on the Island. It is also called Pink Lake due to its colour. Salt was a requirement of sealing, as it was used to cure and pack skins for transport to market. The lake may have been exploited by sealers earlier, but the first reference to salt gathering is in 1834 when the schooner Elizabeth (Capt. Hart) landed during a sealing expedition and gathered 20 tons of salt in three days. (Cumpston 1970, p.109). "Old Capt Sherratt" was said to have bagged salt at Middle Island to be sent to Albany (Dempster 1950), and one can only assume that the date was in the 1860s or 70s.

The best documented salt gathering activities were those of the Andrews brothers in 1889. T.C. Andrews was thirteen when he, his younger brother, and his father went to Middle Island to test the prospects of a salt industry. After three months work the father returned with a load of salt to Albany, promising to return in a few weeks. He was gone five months, leaving the boys to fend for themselves on the Island.

The area where Andrews set up camp has already been described (see 3.2.1). The Andrews collected salt on the edge of the lake, barrowed it into heaps which were covered with dry scrub and fired, the heat melting the surface into a three-inch crust which helped to protect

the heap from the rain until it could be bagged. The brothers also gathered 72 Tamar wallaby skins, but overall the venture was a failure (Andrews 1959).

The visionary A.C. Scott included salt production at Middle Island in his raft of proposals in 1920. He estimated that 10 tons of salt per day per man could be extracted, to be a means of absorbing labour temporarily left unemployed by other seasonal activities (Scott correspondence). The proposal came to nothing.

Archaeologically there are a few remains associated with the salt industry on Middle Island. Two areas of decayed iron tramway rails were located, one pile of them in the sand dune behind the beach west of Belinda Beach, and the other a pile on the western shore of Pink Lake, where there was also the rusted remains of tram wheels and iron ware from wagons. It is assumed that a tramway was either intended or actually constructed to link the lake with the beach for the export of salt. However it is not known when this occurred, as none of the documentary sources refer to such a transport system.

4.3 Guano

Interest in the value of sea bird guano as a phosphate source grew in the mid-19th century. Ships investigated the Recherche Islands from as early as 1852 in search of guano, and in 1904 Capt. James Sale brought back samples of high grade phosphate rock from Daw Island (then called Christmas Island). Interest in Daw continued, and it was geologically mapped by the Government Geologist in 1908, but mining never took place. A resurvey in 1943 indicated that the deposit was not economically viable (Bechervaise 1954, p.6).

A.C. Scott's development plans of the 1920s included the exploitation of Salisbury Island for phosphate rock, the island having 50,000,000 tons in Scott's estimate, as well as similar proposals for Daw and South-East Islands (Scott Correspondence).

On Daw Island the phosphate rock was restricted to the area of the western beach, and no signs of phosphate extraction were noted during our visit to that island.

5 CONCLUSION

The Archipelago of the Recherche has an interesting history, and as even this brief survey has shown, contains physical evidence of that history which is of considerable significance. The whaling sites located in the Cape Arid/Middle Island area suggest that further survey might locate more sites which represent a poorly documented era of Australian history, that of colonial shore-based whaling.

The sites located in this reconnaissance are small-scale impacts on the natural landscape which are often difficult to locate and decipher, but which are also very fragile. They need to be identified by the management body for this area (CALM) so that they can be protected from inadvertent destruction. On the whole they are not sites which could readily withstand increased visitor pressure, not that this is likely to occur in the Recherche anyway. Neither, however, do most of the sites require active conservation works, so the cost of protection should be minimal. The main threats seem to be natural erosion (in the case of try-works sites), scrub encroachment, and casual vandalism, either intentional or unintentional. The monitoring of these threats should be one of the responsibilities of the management authority, which could be carried out as one aspect of the broader management task for the area.

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