

THE VERTEBRATE FAUNA
of the
GOSSE CROWN LAND
on
KANGAROO ISLAND

Pt. 1

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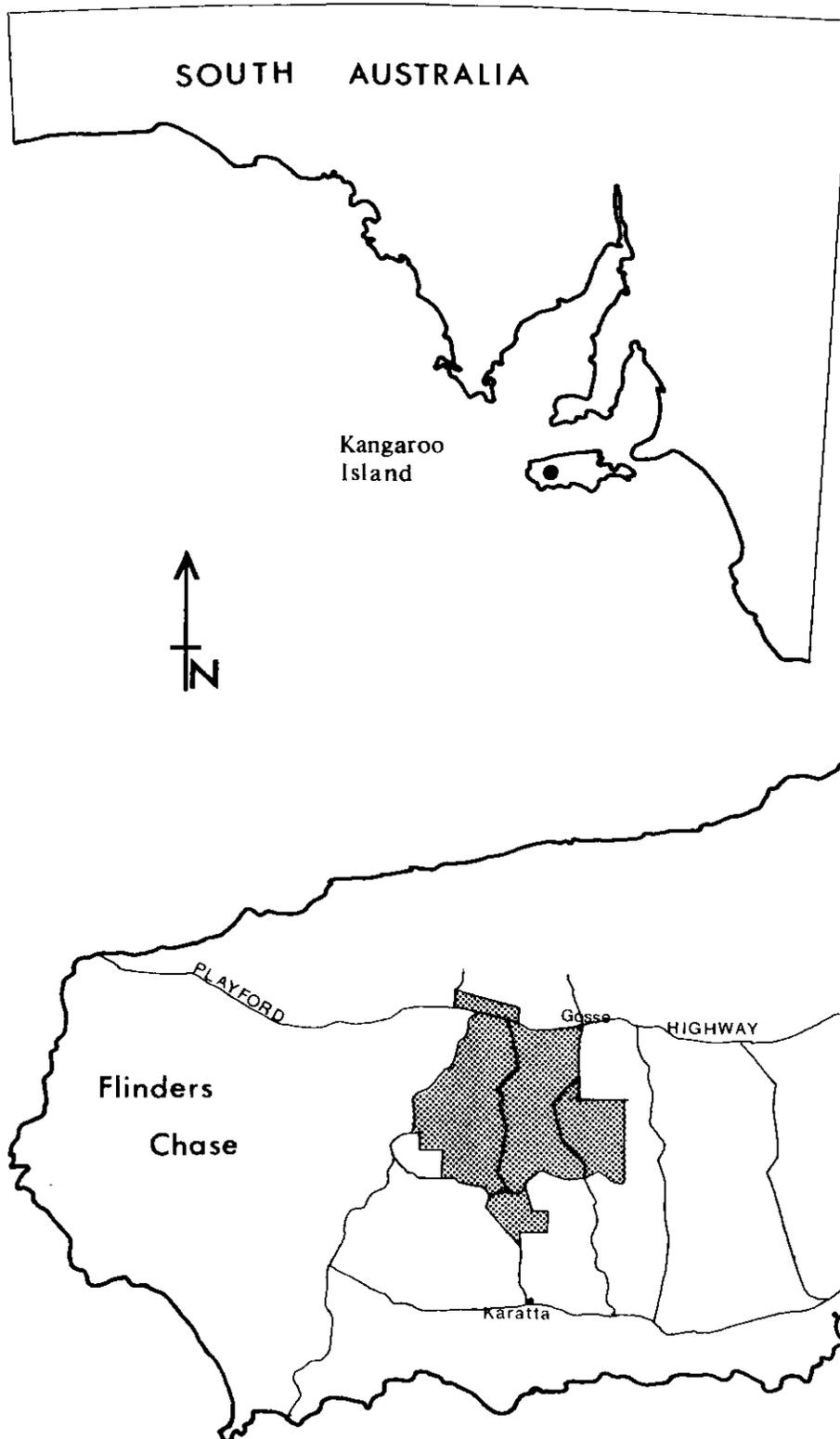


Fig.1. Location of the Gosse Crown Land

THE VERTEBRATE FAUNA
of the
GOSSE CROWN LAND
on
KANGAROO ISLAND

Part 1

DESCRIPTION OF VERTEBRATE FAUNA
HABITAT MAP
VALUES FOR FAUNA CONSERVATION

Results of a survey undertaken for
the NATURE CONSERVATION SOCIETY of
SOUTH AUSTRALIA
with a research grant from the
WILDLIFE CONSERVATION FUND

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CONTENTS

INTRODUCTION	2
Brief synopsis of the area	2
SUMMARY OF FINDINGS	3
MAMMAL FAUNA	5
Introduction	5
Indigenous species not recorded	5
Species Accounts	6
BIRD FAUNA	11
Introduction	11
Species not recorded	11
Species Accounts	12
REPTILE FAUNA	17
Introduction	17
Species not recorded	17
Species Accounts	17
FROG FAUNA	19
Introduction	19
Species Accounts	19
FISH FAUNA	21
Introduction	21
Species Accounts	21
HABITAT MAP	22
VALUES FOR CONSERVATION OF FAUNA	24
Presence of poorly conserved species	24
Presence of poorly conserved habitats	26
Value as a large area of high rainfall habitat	27
EXPLANATORY NOTES	29
References to locations	29
Terms used in the description of vegetation	29
Subspecies	29
Part 2 of survey report	29
Wanted - more field data	29
References	30
Acknowledgements	31

I N T R O D U C T I O N

The Gosse Crown Land covers about 15,000 ha adjacent to Flinders Chase National Park on the western end of Kangaroo Island.

In December, 1980 the Nature Conservation Society obtained a grant of \$4,300 from the Wildlife Conservation Fund to survey the vertebrate fauna of the Crown Land.

Two field trips were undertaken to the area, from 24.2 - 12.3.81 and from 8 - 21.4.81.

This section of the survey report describes the vertebrate fauna of the Crown Land, assesses the values of the area for fauna conservation, and includes a habitat map and key.

Brief synopsis of the area

On a broad scale there are two main topographic units in the Crown Land (see habitat map on page 22).

- (1) Undissected plateau - almost flat, poorly drained, with some areas subject to seasonal waterlogging, some small low lying areas subject to seasonal flooding, and perennial? Archway Lagoon.
- (2) Dissected plateau - a series of broad ridges and gullies - the result of stream erosion of the original plateau surface. There are some permanent and semi-permanent stretches of water in the major stream channels.

The boundary between the undissected and dissected plateau is diffuse and much of the vegetation on the two units is similar.

Forest-heath, woodland-heath, mallee-heath and heath are all prominent vegetation types.

The area includes the entire catchment of the North-West and part of the catchment of the North-East Rivers. Annual rainfall ranges from > 700 to > 900 mm (Burrows 1979).

S U M M A R Y O F F I N D I N G S

A total of 110 vertebrate species have been recorded from the Crown Land. These include 12 of the 16 indigenous resident land mammals of Kangaroo Island, 66 of some 85 non-coastal resident birds, all 6 frogs, 10 of the 20 reptiles and all 3 inland fish (Tyler et al 1979).

This represents a rich vertebrate fauna, and a notably high proportion of the Kangaroo Island fauna.

There is a wide range of sclerophyll habitats in the area. These include forest-heath, woodland-heath, mallee-heath and heath.

Habitats poorly represented or absent include open vegetation types - savannah and grassland, mallee on calcareous soils, open water, rocks and sand areas. Groups of species restricted to these habitats are likewise poorly represented or absent.

The area contains a diversity of wetland habitats which support at least 18 vertebrate species directly dependant on wetland.

Conservation values include

- (1) presence of a substantial group of species whose conservation status in South Australia or on Kangaroo Island may be at risk
- (2) presence of extensive areas of poorly conserved wetland and forest habitat
- (3) value as one of the very few large areas of high rainfall habitat remaining in South Australia.

Table 1a Mammal species recorded in the Crown Land. Taxonomy follows Aitken (1970).

<u>Species</u>	<u>Common name</u>
<i>Tachyglossus aculeatus</i>	Spiny Anteater
? <i>Isoodon obesulus</i> +	Short-nosed Bandicoot
<i>Cercartetus concinnus</i>	Southern Pigmy Possum
<i>Trichosurus vulpecula</i>	Brush-tailed Possum
<i>Pseudocheirus peregrinus</i> ++	Ring-tailed Possum
<i>Macropus eugenii</i>	Dama Wallaby
<i>Macropus fuliginosus</i>	Western Grey Kangaroo
<i>Rattus fuscipes</i>	Bush Rat
<i>Rattus lutreolus</i>	Swamp Rat
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat
<i>Eptesicus spp.</i> +++	
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat
<i>Phascolarctos cinereus</i> *	Koala
<i>Felis catus</i> **	Domestic Cat
<i>Sus scrofa</i> **	Domestic Pig

Table 1b Resident Kangaroo Island land mammals (Inns et al 1979) not yet recorded in the Crown Land (excluding species thought to be extinct).

<u>Species</u>	<u>Common name</u>
<i>Sminthopsis murina</i>	Mouse Sminthopsis
<i>Cercartetus lepidus</i>	Little Pigmy Possum
<i>Tadarida australis</i>	White-striped Mastiff Bat
<i>Chalinolobus morio</i>	Chocolate Wattled Bat
<i>Ornithorhynchus anatinus</i> *	Platypus
<i>Mus musculus</i> **	House Mouse
<i>Rattus rattus</i> **	Black Rat
<i>Rattus norvegicus</i> **	Norway Rat
<i>Capra hircus</i> **	Goat
<i>Canis familiaris</i> **	Domestic Dog

* introduced native

** introduced exotic

+ 1981 road kill Playford Highway - R. Ellis (pers. comm.)

++ possibly an introduced native

+++ possibly 2 species recorded - final identification will await further taxonomic study.

M A M M A L F A U N A

Introduction

Of the 16 indigenous land mammals known to be resident on Kangaroo Island (Inns et al 1979) 12 were recorded in the Crown Land and at least 2 others are probably present. In addition 1 species of introduced native (Koala) and 2 feral species were found (Tables 1a and 1b).

The most significant records were *Rattus lutreolus* (Swamp Rat), *Phascolarctos cinereus* (Koala) and *Pseudocheirus peregrinus* (Ring-tailed Possum).

The Swamp Rat appears to be widely distributed in the Crown Land, living in the dense vegetation of gully floors and swamps. This species is in need of further conservation on mainland South Australia, and has been recorded at only two other localities on Kangaroo Island.

An interesting discovery was a substantial population of Koalas living in forest vegetation along the North-West River. These have presumably dispersed from a population in Flinders Chase.

Three Ring-tailed Possums were spotlighted, a significant find as there are very few records from Kangaroo Island. There is some doubt as to the origin of the present population on the Island. Individuals were released there in 1926 (Inns et al 1979), probably without adequate search for an indigenous population. A low density population restricted to forest vegetation could easily have been overlooked.

Indigenous species not recorded

4 species known to be resident on Kangaroo Island were not recorded in the Crown Land (Table 1b).

There are very few records of *Sminthopsis murina* and *Cercartetus lepidus* on the Island and extensive pitfall trapping beyond the means of this survey may be required to establish their status in the Crown Land. *Cercartetus lepidus* is likely to be present - the first recognised specimen from Kangaroo Island was from adjacent vegetation, in Section 4 Hundred of Ritchie (Aitken 1974).

Sminthopsis murina may be restricted to more open vegetation types not found in the Crown Land (Morton et al 1980).

Of the 2 bats at least *Chalinolobus morio*, a common and widespread species in southern South Australia, is probably present.

SPECIES ACCOUNTS

Tachyglossus aculeatus (Spiny Anteater)

7 sightings, in widely separated locations. Probably common and widespread.

Isoodon obesulus (Short-nosed Bandicoot)

No evidence of Short-nosed Bandicoots was observed during the survey.

Rex Ellis (pers. comm.) reported a road kill (1981) on the Playford Highway where it traverses the Crown Land, and Bandicoots are known to be present in Flinders Chase (C. Baxter pers. comm.) and in the vicinity of Parndana (P. Aitken and 'locals' pers. comm.).

It seems probable that there is a population in the Crown Land but this will need confirmation.

Cercartetus concinnus (Southern Pigmy Possum)

5 individuals were captured in pitfall traps on the undissected plateau. No significant pitfall trapping (the only reliable survey method for this species) was undertaken elsewhere. This species is probably widespread in the Crown Land.

Trichosurus vulpecula (Brush-tailed Possum)

Scattered widespread sightings, indicating that the species occurs throughout the Crown Land. Generally observed in or near tree formations rather than in heath or mallee-heath.

Pseudocheirus peregrinus (Ring-tailed Possum)

3 individuals were observed (2 in medium tree formation on the gully floor in squares 70-31 and 70-32, and 1 in low tree formation near the northern fringe of Archway Lagoon). None were seen in the mallee or low tree formations of the dissected plateau ridges despite extensive spotlighting.

These findings suggest that the species is present in low numbers and may be restricted to tree formations along gully floors and on the undissected plateau.

Macropus eugenii (Dama Wallaby)

Scattered sightings, up to 5 at one point inside the Crown Land and up to 7 in fringing pasture, indicating a wide distribution in low and locally moderate numbers.

Macropus fuliginosus (Western Grey Kangaroo)

Scattered sightings, generally of 1 or 2 animals, never more than 5, indicating a wide distribution, in low numbers, possibly more common adjacent pasture.

Rattus fuscipes (Southern Bush Rat)

Wheeler (1970) undertook an extensive study of this species in Flinders Chase, and the species has been trapped in the Crown Land (Department of Environment and Planning 1981 - pers. comm.). During the survey 1 probable individual was spotlighted and likely runs were seen, but no trapping was attempted. This species is probably widespread in the Crown Land.

Rattus lutreolus (Swamp Rat)

Runs and digs almost certainly of this species were recorded in swamps or streamside vegetation on tributaries of both the North-West and North-East Rivers, and members of the Department of Environment and Planning trapped the species at two locations (1981 - pers. comm.).

The field evidence suggests a wide distribution in the Crown Land, in the network of streams and swamps.

On Kangaroo Island this species has previously been recorded only on the Rocky River in Flinders Chase (Wheeler 1970) and at nearby "Brookland Park" (The Field Naturalists' Society of South Australia Mammal Club 1975).

Flinders Chase - Crown Land is by far the largest natural area which contains this species in South Australia.

Chalinolobus gouldii (Gould's Wattled Bat)

1 individual was mist-netted. The species is common and widespread in South Australia and may well be widespread in the Crown Land.

Eptesicus spp.

This genus has recently undergone revision with *Eptesicus pumilus* being divided into several species. Specimens of *Eptesicus* were captured on 7 occasions during the survey. They may be of two species but identification will await more detailed taxonomic work.

Nyctophilus geoffroyi (Lesser Long-eared Bat)

Individuals were mistnetted on 5 occasions and it is probably not uncommon in the Crown Land.

Phascolarctos cinereus (Koala)

Since a total of at least 10 individuals were observed at three widely separated sites along the North-West River, there appears to be a substantial population along this river.

These Koalas have presumably dispersed from Flinders Chase where they were released in 1923 to 1925 (Inns et al 1979).

No evidence of Koalas was observed along the short stretch of the North-East River which traverses the Crown Land. This river valley would support a substantial population as there are many fine *Eucalyptus huberana* trees on the valley floor.

Their range will probably be restricted to areas with *Eucalyptus huberana* (Inns et al 1979) - recorded along the North-West and North-East Rivers, and possibly occurring along some stretches of the largest tributaries.

It was noted that a number of smooth barked trees along the North-West River were severely defoliated or dead. As Koalas established elsewhere have been known to severely damage their food trees it would be worth while monitoring this population.

C. Baxter (pers. comm.) reported that a Koala had recently been seen at Gosse, possibly a wandering individual.

Felis catus (Domestic Cat) and Sus scrofa (Domestic Pig)

See page 28.

Table 2a Bird species recorded from the Crown Land, including species recorded during this survey, and by C. Baxter (1981) (unpublished field observations), and by the South Australian Ornithological Association (1981) (unpublished field observations). All recorded species are listed by Ford (1979) as known to be resident on Kangaroo Island unless one of the following symbols appears after the species name: R? - resident status in doubt, C - common visitor, U - uncommon visitor, V - vagrant (Ford 1979). '?' before a species indicates an unconfirmed record. Taxonomy follows South Australian Ornithological Association (1980).

<u>Common name</u>	<u>Species</u>
White-faced Heron	<i>Ardea novaehollandiae</i>
Pacific Black Duck	<i>Anas superciliosa</i>
Musk Duck	<i>Biziura lobata</i>
Black-shouldered Kite (U)	<i>Elanus notatus</i>
Brown Goshawk	<i>Accipiter fasciatus</i>
Collared Sparrowhawk	<i>Accipiter cirrhocephalus</i>
Wedge-tailed Eagle	<i>Aquila audax</i>
Marsh Harrier	<i>Circus aeruginosus</i>
Brown Falcon	<i>Falco berigora</i>
Australian Kestrel	<i>Falco cenchroides</i>
Painted Button-quail	<i>Turnix varia</i>
?Lewin's Rail (U)	<i>Rallus pectoralis</i>
Spotless Crake (R?)	<i>Porzana tabuensis</i>
Black-tailed Native-hen (U)	<i>Gallinula ventralis</i>
Dusky Moorhen	<i>Gallinula tenebrosa</i>
Purple Swamphen	<i>Porphyrio porphyrio</i>
Common Coot	<i>Fulica atra</i>
Southern Stone-curlew	<i>Burhinus magnirostris</i>
?Masked Lapwing	<i>Vanellus miles</i>
Common Bronzewing	<i>Phaps chalcoptera</i>
Brush Bronzewing	<i>Phaps elegans</i>
?Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>
Yellow-tailed Black-Cockatoo	<i>Calyptorhynchus funereus</i>
Gang-gang Cockatoo* (V or R?)	<i>Callocephalon fimbriatum</i>
Galah	<i>Cacatua roseicapilla</i>
Little Corella (U)	<i>Cacatua sanguinea</i>
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>
Rainbow Lorikeet	<i>Trichoglossus haematodus</i>
Purple-crowned Lorikeet	<i>Glossopsitta porphyrocephala</i>
Crimson Rosella	<i>Platycercus elegans</i>
Elegant Parrot (R or V)	<i>Neophema elegans</i>
Fan-tailed Cuckoo	<i>Cuculus pyrrhophanus</i>
Horsfield's Bronze-Cuckoo	<i>Chrysococcyx basalis</i>
Shining Bronze-Cuckoo (U?)	<i>Chrysococcyx lucidus</i>
Southern Boobook	<i>Ninox novaeseelandiae</i>
Australian Owlet-nightjar (R?)	<i>Aegotheles cristatus</i>
Swift sp. (U or C)	<i>Apus sp. or Hirundapus sp.</i>

Table 2a / continued

<u>Common name</u>	<u>Species</u>
Welcome Swallow	<i>Hirundo neoxena</i>
Tree Martin	<i>Cecropis nigricans</i>
Richard's Pipit	<i>Anthus novaeseelandiae</i>
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>
White's Thrush	<i>Zoothera dauma</i>
Scarlet Robin	<i>Petroica multicolor</i>
Golden Whistler	<i>Pachycephala pectoralis</i>
Grey Shrike-thrush	<i>Colluricincla harmonica</i>
Restless Flycatcher	<i>Myiagra inquieta</i>
Grey Fantail	<i>Rhipidura fuliginosa</i>
Western Whipbird	<i>Psophodes nigrogularis</i>
Little Grassbird	<i>Megalurus gramineus</i>
Superb Fairy-wren	<i>Malurus cyaneus</i>
Southern Emu-wren	<i>Stipiturus malachurus</i>
White-browed Scrubwren	<i>Sericornis frontalis</i>
Shy Hylacola	<i>Sericornis cautus</i>
Brown Thornbill	<i>Acanthiza pusilla</i>
Striated Thornbill	<i>Acanthiza lineata</i>
Red Wattlebird	<i>Anthochaera carunculata</i>
Little Wattlebird	<i>Anthochaera chrysoptera</i>
White-eared Honeyeater	<i>Lichenostomus leucotis</i>
Purple-gaped Honeyeater	<i>Lichenostomus cratitius</i>
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>
Crescent Honeyeater	<i>Phylidonyris pyrrhoptera</i>
New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>
Tawny-crowned Honeyeater	<i>Phylidonyris melanops</i>
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>
Yellow-rumped or Spotted Pardalote (R or V?)	<i>Pardalotus xanthopygus</i> or <i>Pardalotus punctatus</i>
Striated Pardalote	<i>Pardalotus striatus</i>
Silvereye	<i>Zosterops lateralis</i>
European Goldfinch**	<i>Carduelis carduelis</i>
Red-browed Firetail	<i>Emblema temporalis</i>
Beautiful Firetail	<i>Emblema bellum</i>
Common Starling**	<i>Sturnus vulgaris</i>
Dusky Woodswallow	<i>Artamus cyanopterus</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Grey Currawong	<i>Strepera versicolor</i>
Australian Raven	<i>Corvus coronoides</i>
Little Raven	<i>Corvus mellori</i>

* introduced native

** introduced exotic

Table 2b Non-coastal birds known to be resident on Kangaroo Island (Ford 1979) but not recorded in the Crown Land by the three sources listed in Table 2a. Symbols are as for Table 2a.

<u>Common name</u>	<u>Species</u>
Emu*	<i>Dromaius novaehollandiae</i>
Hoary-headed Grebe	<i>Podiceps poliocephalus</i>
Australasian Grebe	<i>Tachybaptus novaehollandiae</i>
Black Swan	<i>Cygnus atratus</i>
Cape Barren Goose*	<i>Cereopsis novaehollandiae</i>
Australian Shelduck	<i>Tadorna tadornoides</i>
Grey Teal	<i>Anas gibberifrons</i>
Chestnut Teal	<i>Anas castanea</i>
Maned Duck	<i>Chenonetta jubata</i>
Whistling Kite	<i>Haliastur sphenurus</i>
Australian Brush-turkey*	<i>Alectura lathamii</i>
Stubble Quail	<i>Coturnix novaezelandiae</i>
Baillon's Crake (R?)	<i>Porzana pusilla</i>
Australian Crake (R?)	<i>Porzana fluminea</i>
Banded Lapwing	<i>Vanellus tricolor</i>
Feral Pigeon**	<i>Columba livia</i>
Glossy Black-Cockatoo	<i>Calyptorhynchus lathamii</i>
Tawny Frogmouth (R?)	<i>Podargus strigoides</i>
Laughing Kookaburra*	<i>Dacelo novaeguineae</i>
Skylark**	<i>Alauda arvensis</i>
Blackbird**	<i>Turdus merula</i>
Willie Wagtail (U or R)	<i>Rhipidura leucophrys</i>
Brown Songlark	<i>Cinclorhamphus cruralis</i>
Singing Honeyeater (R?)	<i>Lichenostomus virescens</i>
White-fronted Chat	<i>Ephthianura albifrons</i>
House Sparrow**	<i>Passer domesticus</i>
Magpie Lark	<i>Grallina cyanoleuca</i>

* Introduced native

** Introduced exotic

B I R D F A U N A

Introduction

A total of 76 species have been recorded from the Crown Land including species recorded by C. Baxter (1981) and by the South Australian Ornithological Association (1981). This list will undoubtedly be extended with further observation.

The list includes most of the non-coastal resident birds of Kangaroo Island, with the exception of some species which inhabit open vegetation types or areas of open water.

Of particular interest are records of several species whose status on Kangaroo Island is in doubt (Ford 1979). These include the Australian Owlet-nightjar, Spotless Crane, Lewin's Rail (if presence confirmed) and Gang-gang Cockatoo.

Other species of significance include the Southern Stone-curlew, Western Whip-bird, Beautiful Firetail, Shy Hylacola, Southern Emu-wren and White's Thrush.

The area is rich in honeyeaters, with all 9 known residents on Kangaroo Island recorded. This may reflect the wide range of vegetation types from heath to forest, and the abundance of nectar producing plants.

There are few breeding records to date as no significant observations have yet been undertaken in the main breeding season.

Generally the majority of species seem to favor forest and woodland with fewer species likely to be seen in *Eucalyptus remota* mallee-heath and heath formations.

A small group of species - Southern Emu-wren, Shy Hylacola and Tawny-crowned Honeyeater - demonstrated a strong preference for heath, mallee-heath, and the more open areas of low tree-heath.

Species not recorded

Two groups of birds poorly represented in the Crown Land are species with a strong preference for open vegetation types such as savannah and grassland, and species generally requiring areas of open water.

The former group includes the Magpie-lark, Willie Wagtail, Brown Songlark, Laughing Kookaburra and Stubble Quail (none of these were recorded). Others in this group apparently utilise the Crown Land for roosting and nesting, and feed predominantly in the surrounding farmland, including the Australian Magpie, Galah, and Little Raven.

The latter group includes several species of duck, the Black Swan, and grebes and cormorants.

Native species not indigenous to Kangaroo Island but successfully introduced into Flinders Chase - the Emu, Cape Barren Goose and Australian Brush-turkey - were not recorded in the Crown Land.

Exotic species established on Kangaroo Island but not recorded in the Crown Land are the Feral Pigeon, House Sparrow, Skylark (probably no suitable habitat for these) and the Blackbird. The habitat may well be suitable for the Blackbird and it will be interesting to see if it invades the area.

SPECIES ACCOUNTS

These are brief summaries of species records, based on the survey results - referred to as '(1)', and on Baxter (1981) - referred to as '(2)', and on South Australian Ornithological Association (1981) - referred to as '(3)'. Not all records from each source are included. Nomenclature follows South Australian Ornithological Association (1980).

White-faced Heron Occasional sightings at Archway Lagoon and roadside perimeter (2).

Pacific Black Duck Small numbers seen on Archway Lagoon (2).

Musk Duck A male seen once on Archway Lagoon (2).

Black-shouldered Kite Several observations (1 - 3). 1 seen over north-west corner (2).

Brown Goshawk 1 seen soaring over north-east sector (2).

Collared Sparrowhawk 1 record (2).

Wedge-tailed Eagle Several observations of birds soaring over area (1) (2) (3).

Marsh Harrier A resident pair observed at Archway Lagoon and several other sightings (2).

Brown Falcon Several sightings on the west side and 1 sighting near Archway Lagoon (2). 2 sightings (3).

Australian Kestrel Several sightings around perimeter (2).

Painted Button-quail A pair seen on undissected plateau (on track and in adjacent low tree corridor) (1). 1 seen on track south-west of Gosse Hall (2). Known habitat preferences suggests there may be a substantial population in the Crown Land.

Lewin's Rail A bird which may have been a Lewin's Rail was sighted on a tributary of the North-West River (square 74-29), confirmation of presence required (1). Recently recorded on Rocky River in Flinders Chase (C. Baxter pers. comm.). Suitable habitat and hence range may extend along the North-West and North-East Rivers and parts of major tributaries.

Spotless Crake Observations on gully floor of North-West River in square 70-31 (1) (3). Range may be similar to that of Lewin's Rail.

Black-tailed Native-hen Several observed around Archway Lagoon on one occasion (2).

Dusky Moorhen 1 seen on Archway Lagoon fringe (1).

Purple Swamphen Small numbers observed at Archway Lagoon (2).

Common Coot Small numbers observed at Archway Lagoon (2).

Southern Stone-curlew 2 individuals seen on a ridge crest just inside the far southern boundary, and 1 individual seen on a track in undissected plateau habitat (1).

Masked Lapwing Calls heard at night (1) (3).

Common Bronzewing Several observed in perimeter scrub opposite pasture (2).

Brush Bronzewing 4 sightings - 2 on tracks and 2 on ground in tall shrub thickets of *Acacia retinodes* (1). Several sightings each visit; widespread. This species is common in Flinders Chase (2).

Glossy Black-Cockatoo No confirmed sightings. There appear to be no significant stands of *Casuarina stricta* trees on which the birds are dependant for food (L. Joseph pers. comm.). The *Eucalyptus cladocalyx* forest vegetation may be suitable breeding habitat and this will be investigated.

Yellow-tailed Black-Cockatoo Common during the survey, with up to 80 or more birds seen feeding or flying over a wide area of the Crown Land (1). A breeding record from the valley floor of the North-West River (2). Breeding in the area will be further investigated.

Gang-gang Cockatoo During the survey a pair were seen flying in square 70-31 and vicinity (1) (3) and once landing briefly (1). They are probably descendants of birds released in Flinders Chase in 1940 (Ford 1979).

Galah Scattered sightings at widely spaced locations (1) (2) (3). May nest and roost in the area and feed outside.

Little Corella 1 observation (3).

Sulphur-crested Cockatoo 1 seen in *Eucalyptus cladocalyx* forest on far southern boundary (1).

Rainbow Lorikeet Common and widespread during the survey. Often seen feeding on the undissected plateau and less commonly on dissected plateau ridges (*Banksia*, *Eucalyptus cosmophylla*). Pairs seen in and around medium tree hollows in forest vegetation (1). Common and breeding record (2). Common (3).

Purple-crowned Lorikeet Scattered sightings during survey, including one observation of about 25 birds in undissected plateau vegetation (1). Numerous sightings through late spring - summer months (flowering mallee). Very few sightings during winter (2).

Crimson Rosella Moderately common, seen mainly in forest and woodland (1) (3). Moderately common (2).

Elegant Parrot Several sightings in west side scrub (near road) in summer (2).

Fan-tailed Cuckoo Reasonably common spring - summer (migrant). More often heard calling (2).

Horsfield's Bronze-Cuckoo 1 observed in mallee scrub south of Gosse Oval (spring - summer migrant to Kangaroo Island) (2).

Shining Bronze-Cuckoo 1 calling in south-west corner in summer 1979 (spring - summer migrant to Kangaroo Island) (2).

Southern Boobook Seen and heard on several occasions (1) (2). 3 individuals heard calling together on one occasion. 1 flushed from roosting site on gnarled *Xanthorrhoea* trunk (1).

Tyto sp. A possible sighting (3).

Australian Owlet-nightjar Calls heard on several nights (1 - 3). 1 spotlighted on track on undissected plateau (1).

Swift sp. 4 seen flying over North-West River valley forest (1).

Welcome Swallow Small numbers in general. Can become quite numerous over Archway Lagoon in spring and summer (30 birds over lagoon on one visit) (2). A few observations (3).

Tree Martin Small numbers spring and summer over Archway Lagoon and along forested creeks (breeding records in tree hollows along creeks in Flinders Chase) (2). A few sightings (3).

Richard's Pipit Sightings on perimeter (2) (3).

Black-faced Cuckoo-shrike At least 3 sightings (1). Occasional sightings (2).

White's Thrush Scattered sightings (amalgamating (1) (2) (3)). Seen in gully floor vegetation, on a track through swamp vegetation, in a low tree thicket on the undissected plateau, near Archway Lagoon, and in *Eucalyptus cladocalyx* forest vegetation (1).

Scarlet Robin Many sightings, quite common, mainly seen in forest and woodland and rarely on dissected plateau ridges (1). Several sightings (2) (3).

Golden Whistler Scattered sightings, seen in forest, woodland, mallee and heath (1). Moderately common (2).

Grey Shrike-thrush Scattered records (1) (2).

Restless Flycatcher 4 sightings, all in gully tree formations (3 in *Eucalyptus cladocalyx* vegetation) (1). 1 sighting (2).

Grey Fantail Scattered sightings, the majority in forest (1). Several sightings (2) (3).

Western Whipbird 1 individual seen (1). Not seen, but heard regularly, particularly in late winter and spring (territorial song) (2).

Little Grassbird Several seen each visit in reeds and sedges at Archway Lagoon (2).

Superb Fairy-wren Common and widespread, mainly in forest and woodland (1). Common (2) (3).

Southern Emu-wren Scattered sightings, indicating the species is widespread, in mallee-heath and heath (1). Several widespread records of 2 - 3 individuals, in mallee-heath (2). Several records (3).

White-browed Scrubwren Several probable sightings (1). Several sightings near Archway Lagoon each visit and along watercourses (thick understorey) (2). A few sightings (3).

Shy Hylacola Scattered sightings, mainly in mallee-heath (1). Moderately common (mallee areas); flushed out of *Casuarina muellerana* (mallee areas) along tracks by vehicle (2). Moderate number of observations (3).

Brown Thornbill Moderately common in undergrowth (2).

Striated Thornbill Moderately common, widespread; in stringybark forest (upper foliage of tall eucalypts) (2).

Red Wattlebird Common to abundant and widespread (1). Common (2). Abundant (3).

Little Wattlebird Several sightings (1) (3). On 7.1.81 several seen and heard around Archway Lagoon (*Eucalyptus baxteri*) (2).

- White-eared Honeyeater Several seen or heard in tree formations of *Eucalyptus cladocalyx* (1). Several seen and heard each visit, in taller eucalypts (upper foliage) (2). Several observations in *Eucalyptus remota* (3).
- Purple-gaped Honeyeater Several sightings in mallee scrub (1 record from riverine forest); common in coastal mallee in Flinders Chase (2). Two records (3).
- Brown-headed Honeyeater Scattered sightings (mallee, woodland, forest) (1). Several sightings, small flocks flying from tree to tree (mallee and tall forest) (2). Breeding record (3).
- Crescent Honeyeater Common, widespread, almost all sightings in forest vegetation (1). Common (forest areas) (2). Breeding records (1) (3).
- New Holland Honeyeater Common to abundant and widespread, seen in most habitats (1). Common, widespread (2). Breeding record (3).
- Tawny-crowned Honeyeater At least locally common, seen in mallee-heath, heath and open low tree-heath formations (1). Common in open heathy areas (2). Common in heath and mallee-heath (3).
- Eastern Spinebill Scattered widespread sightings (1). Quite common, widespread (2). Moderately common, breeding record (3).
- White-fronted Chat 4 seen in a cleared paddock approximately 5 m outside the far southern boundary of the Crown Land (1).
- Yellow-rumped or Spotted Pardalote Several calls and sightings from mallee areas (2). Identified by call at 2 locations (3).
- Striated Pardalote Seen and heard several times (tall forest). Regular spring breeder in Flinders Chase (small holes and spouts in tall trees) (2).
- Silvereye Scattered widespread sightings, often in flocks (1). Moderate numbers seen (3). Several sightings, perimeter scrub (2).
- European Goldfinch 2 seen at eastern perimeter scrub, opposite pasture (2).
- Red-browed Firetail 1 sighting of a small group near Archway Lagoon (2). 2 observations (3).
- Beautiful Firetail Several observations (1). Numerous sightings in *Casuarina muellerana* in which they feed (fallen seeds) (2). Several observations (3).
- Common Starling Several sightings throughout, tall creek timber (2). Approximately 20 seen near northern margin of scrub (3).
- Dusky Woodswallow Scattered sightings, generally of several birds, maximum number seen about 25 on eastern perimeter (1). Small numbers present all year, although most noticeable in spring and summer (2).
- Australian Magpie Several sightings near perimeter. No territories seen wholly within the Crown Land (1). Several birds around perimeter each visit (2). Observed at perimeter (3).
- Grey Currawong Many sightings, generally of single birds, never more than 4 together, mainly in tree formations, also recorded from mallee (1). Moderately common (2). Common (3).
- Australian Raven 1 record (identified by call only) (1). Several seen in forest areas (2).
- Little Raven Scattered records (identified by call only) (1). Seen on the east side opposite pasture (2). Small numbers recorded (3).

Table 3a Reptile species recorded in the Crown Land. Taxonomy follows Houston et al (1979).

<u>Species</u>	<u>Common name</u>
<i>Austrelaps sp.</i>	Small Copperhead Snake
<i>Notechis sp.</i>	Tiger Snake sp.
<i>Varanus gouldii</i>	Gould's Goanna
<i>Egernia whitei</i>	White's Skink
<i>Hemiergis peronii</i>	Four-toed Skink
<i>Leiolopisma entrecasteauxii</i>	
<i>Leiolopisma guichenoti</i>	Garden Skink
<i>Lerista bougainvillii</i>	Bougainville's Skink
<i>Underwoodisaurus milii</i>	Thick-tailed Gecko
<i>Aprasia striolata</i>	Lined Worm Lizard

Table 3b Indigenous reptile species known to be resident on Kangaroo Island (Houston 1979) but not yet recorded in the Crown Land.

<u>Species</u>	<u>Common name</u>
<i>Pseudechis porphyriacus</i>	Red-bellied Black Snake
<i>Unechis flagellum</i>	Little Whip Snake
<i>Amphibolurus decresii</i>	Tawny Dragon
<i>Egernia multiscutata</i>	
<i>Hemiergis decresiensis</i>	Three-toed Skink
? <i>Leiolopisma delicata</i>	
<i>Leiolopisma trilineata</i>	
<i>Lerista frosti</i>	
<i>Morethia obscura</i>	
<i>Phyllodactylus marmoratus</i>	Marbled Gecko

REPTILE FAUNA

Introduction

A total of 10 reptile species were recorded in the Crown Land (Table 3a).

3 species were fairly widely recorded and appear to be moderately common in the area: *Varanus gouldii*, *Egernia whitei* and *Leiolopisma guichenoti*.

Snakes were rarely encountered, over the two field trips only 8 individuals were seen. Of particular interest was *Austrelaps* sp. (Little Copperhead Snake), a species only presently being described (T. Schwaner pers. comm.).

A single specimen of *Leiolopisma entrecasteauxii* was encountered, a species reported by Houston et al (1979) as known from the Island only by a literature record.

Only limited reptile survey work was possible on the two field trips because of the generally cold conditions prevailing.

The paucity of records of several of the recorded species may reflect this rather than their true abundance.

Species not recorded

It is likely that additional species will be found in the area. These may include *Pseudechis porphyriacus* (Red-bellied Black Snake), *Uroechis flagellum* (Little Whip Snake), *Phyllodactylus marmoratus* (Marbled Gecko), and more skinks.

The Kangaroo Island reptile fauna is notable for the paucity of dragons. Only 1 species is known to occur there - *Amphibolurus decresii* (Tawny Dragon). The strongly preferred habitat of this species is areas with rocky outcrops or surface stones. Such habitat is extremely limited in the Crown Land, and although searches were made in the most likely areas (principally rock outcrops on gully slopes in square 74-21 and vicinity) no dragons were seen.

Tiliqua scincoides (Common Blue-tongue) and *Trachydosaurus rugosus* (Sleepy Lizard) have been released in Flinders Chase but neither were seen in the Crown Land. Large skinks and dragons were conspicuously absent on the many vehicle and foot traverses of the fauna survey.

Houston et al (1979) quotes a single report in the literature of a Water Skink *Sphenomorphus quoyii* in 1927 without a confirming specimen. The habitat along the North-West River appears to be suitable for this genus, and a search was made primarily in square 72-24 without success. This search would be worth continuing in hot weather.

SPECIES ACCOUNTS

Austrelaps sp. (Small Copperhead Snake)

There were 2 confirmed and 1 probable sighting on the undissected plateau and one probable sighting on a ridge of the dissected plateau.

Notechis sp. (Tiger Snake)

There was 1 sighting of a Tiger Snake on the undissected plateau and at least 1 probable sighting on the valley floor of the North-West River. The taxonomy of the Tiger Snake is presently under review (T. Schwaner pers. comm.).

Varanus gouldii (Gould's Goanna)

At least 9 individuals were observed (most often on tracks) in widely separated locations, on gully slopes and floors, rocky stream bed, undissected plateau and dissected plateau ridge.

Egernia whitei (White's Skink)

At least 6 individuals were recorded and there were other probable sightings. They appear to be widespread and not uncommon. The species was invariably seen near or in a burrow system, most commonly in the artificial mounds of soil and dead vegetation along track verges (the only locations recorded on the dissected plateau) but also on undisturbed ground on the undissected plateau.

Hemiergis peronii (Four-toed Skink)

1 individual was flushed from a 5 - 6 cm diameter hollow log in forest vegetation on the undissected plateau.

Leiolopisma entrecasteauxii

1 individual of this species was recorded, seen climbing in the base of a low shrub in the dry bed of a seasonal swamp on the undissected plateau.

Leiolopisma guichenoti (Garden Skink)

There were scattered records of this species, most often seen scuttling amongst litter in forest vegetation. The species appears to be common and widespread and probably occupies most habitats where litter accumulates.

Lerista bougainvillii (Bougainville's Skink)

1 individual was dug from a man-made stony ridge on a track verge on a steep upper slope of the North-West River valley.

Underwoodisaurus milii (Thick-tailed Gecko)

1 individual was spotlighted crossing a track on a dissected plateau ridge, and 1 was excavated from a man-made stony ridge on a track verge on a steep upper slope of the North-West River valley.

Aprasia striolata (Lined Worm Lizard)

1 individual was excavated from a low man-made ridge of earth and dead vegetation on a track on a dissected plateau ridge slope.

F R O G F A U N A

Table 4 Frog species recorded in the Crown Land (includes all species recorded on Kangaroo Island). Taxonomy follows Houston and Tyler (1979).

<u>Species</u>	<u>Common name</u>
<i>Litoria ewingi</i>	Brown Tree Frog
<i>Limnodynastes dumerili</i>	Bull Frog
<i>Limnodynastes tasmaniensis</i>	Marbled Frog
<i>Neobatrachus pictus</i>	Painted Frog
<i>Pseudophryne bibroni</i>	Bibron's Toadlet
<i>Ranidella signifera</i>	Brown Froglet

Introduction

All 6 species of frogs recorded on Kangaroo Island were found in the Crown Land, and on the available evidence and knowledge of frogs there may be substantial breeding populations of all 6 species.

The Crown Land provides a wide variety of breeding sites including the streams of the dissected plateau, and the various seasonal swamps and depressions of the undissected plateau, and Archway Lagoon.

The field trips were undertaken in the driest season of the year and little breeding activity was recorded. Tadpoles were noted at only isolated locations.

There was little significant vocal activity, with two exceptions. *Limnodynastes dumerili* and *?Ranidella signifera* were calling vigorously in Archway Lagoon when inspected on 9.3.81. Subsequent to over 75 mm of rain at the end of February - beginning of March, vigorous calling of *Pseudophryne bibroni* was recorded.

This rain and showers on subsequent days encouraged frogs to emerge at night and many were spotlighted on tracks or caught in pitfalls. But overall field data collected was limited because of the seasonal inactivity of the frogs.

SPECIES ACCOUNTS

Litoria ewingi (Brown Tree Frog)

There were a number of records of this species on the undissected plateau (notably in low tree formations). 12 were captured on one night in a pitfall line. The species was also recorded at several locations in gullies of the dissected plateau. It is probably common and widespread in the Crown Land.

Limnodynastes dumerili (Bull Frog)

A number were spotlighted or trapped in pitfalls (maximum of 6 in one night) on the undissected plateau, and in the vicinity of the North-West River.

The species was calling vigorously in Archway Lagoon when inspected on 9.3.81.

Surprisingly it was not heard calling elsewhere, for example no calls were heard along the North-West River although several frogs were seen. Possibly the

presence of native fish deters breeding in the perennial stream habitat. The species would appear to be quite common in the Crown Land.

Limnodynastes tasmaniensis (Marbled Frog)

Only 1 individual was encountered - spotlighted on the track in square 70-31 on the edge of the valley floor of the North-West River. There are several reasons why this may be apparent rather than real scarcity and the species may well be widespread in the Crown Land.

Neobatrachus pictus (Painted Frog)

6 individuals were recorded on the undissected plateau (spotlighting and pitfalls).

Pseudophryne bibroni (Bibron's Toadlet)

Following heavy rains at the end of February and beginning of March this species called vigorously for the remaining period of the field trips, enabling breeding sites to be determined. These were diverse and widespread.

They included seasonal stream channels, seasonally flooded depressions on gully floors, seasonally flooded depressions on the undissected plateau, part of the fringe of Archway Lagoon, and artificial depressions on tracks.

Ranidella signifera (Brown Froglet)

This species was encountered at several locations and may be common in the Crown Land.

F I S H F A U N A

Table 5 Fish species recorded in the Crown Land. Taxonomy follows McDowall (1980).

<u>Species</u>	<u>Common name</u>
<i>Galaxias olidus</i>	Mountain Galaxias
<i>Galaxias maculatus</i>	Common Jollytail
<i>Galaxias brevipinnis</i>	Climbing Galaxias

Introduction

Fish traps were set at five locations to sample representative stretches of stream habitat.

3 species of *Galaxias* (native trout) are found on Fleurieu Peninsula and Kangaroo Island (McDowall and Frankenburg 1981, Glover 1979). These may be the only native fish found in upstream habitats in these two regions. All 3 species were recorded in the Crown Land.

SPECIES ACCOUNTS

Galaxias olidus (Mountain Galaxias)

This species was found at three survey sites on the North-West River, with over 20 being captured on one occasion (capture sites were in squares 70-31, 72-24, and 75-21 or 75-22).

Galaxias maculatus (Common Jollytail)

6 individuals were captured, at three locations, in both the North-West and North-East Rivers (capture sites were in squares 72-24, 75-21 or 75-22, and 81-28).

Galaxias brevipinnis (Climbing Galaxias)

This species was found in a tributary of the North-West River (43 captured on one occasion), and in the North-East River (capture sites were in squares 74-29 and 81-28).

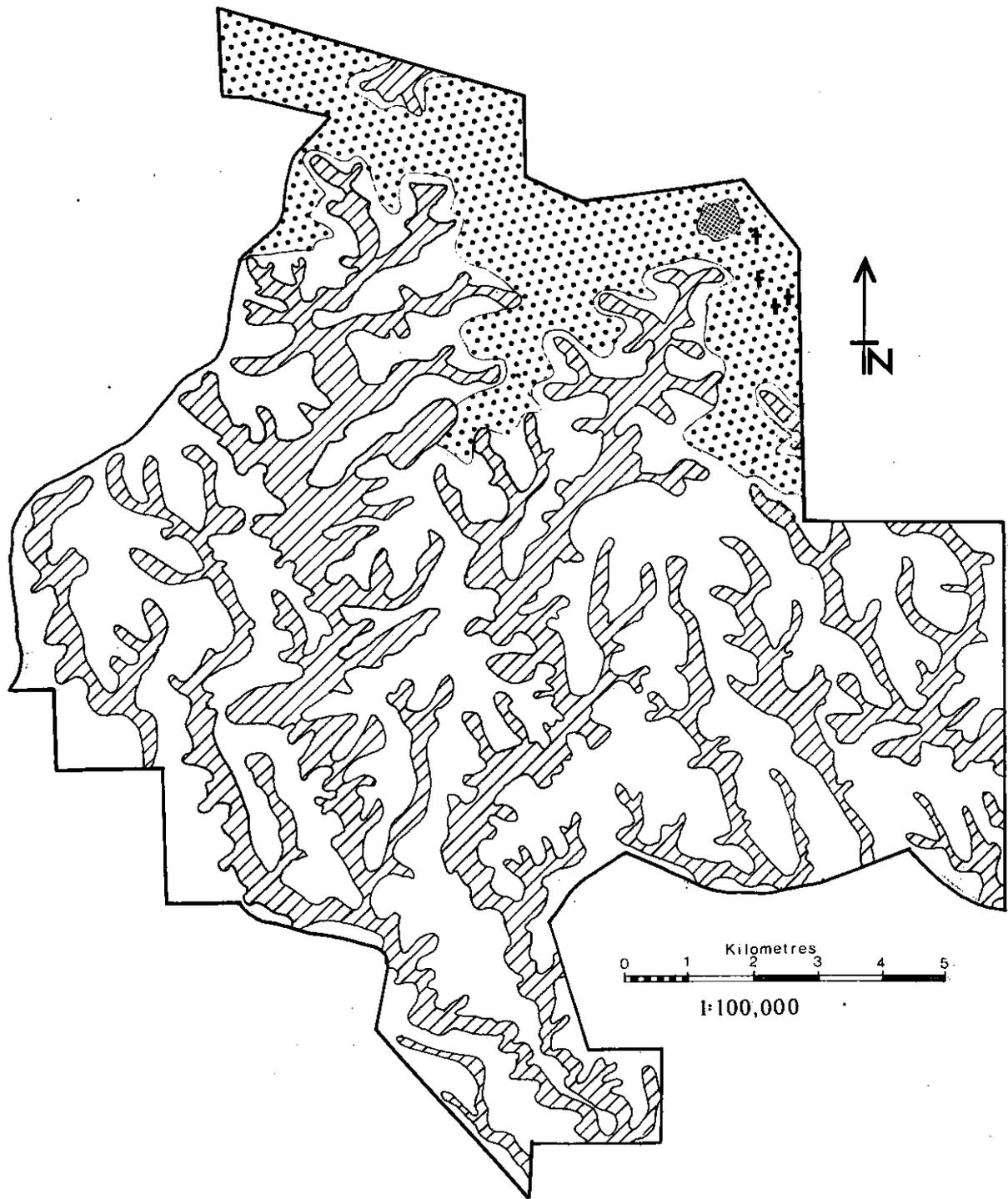


Figure 2 Broad scale habitat map of the Gosse Crown Land.

Key to figure 2

DISSECTED PLATEAU



Flat topped and rounded ridges or hills.

The vegetation is mainly mallee formations of *Eucalyptus remota* and/or *E. baxteri* with a heath understorey, and some patches of low shrub formations (heath). There are isolated patches of low trees (mainly *E. baxteri*) over heath.

Gullies - floors and generally lower slopes with seasonal and locally perennial streams (and small hanging swamps, and streamside slopes subject to seasonal waterlogging).



The vegetation is mainly medium and low tree formations (forest and woodland) of *Eucalyptus obliqua* and *E. baxteri* (with or without *E. leucoxylon*, *E. huberana*, *E. cosmophylla*, *E. cladocalyx*). There are isolated pockets with *E. cladocalyx* the dominant tree. The understorey is variable - often dense almost impenetrable heath, sometimes more open. On hanging swamps and slopes subject to waterlogging the vegetation is typically a low or tall shrub formation, often virtually impenetrable, with some thickets of tall shrub *Acacia retinodes*.

UNDISSECTED PLATEAU

Gently undulating plateau. Poorly drained, with lower lying areas subject to seasonal waterlogging, and some small areas subject to seasonal inundation.



The vegetation is a mosaic of (a) mallee formations of *Eucalyptus remota* and/or *E. baxteri* over heath, typically with *Caustis pentandra* prominent; (b) low and locally medium tree formations (woodland and forest) of *E. baxteri* and *E. obliqua* (with or without *E. cosmophylla*) with heath understorey or rarely with a more open understorey; (c) low shrub formations (heath) of variable composition, typically with tussock sedge *Caustis pentandra* and shrub *E. cosmophylla* prominent.



Seasonally flooded swamps.

Vegetation mainly low and tall shrub formations of variable composition (with *Leptospermum*, *Hakea* and *Melaleuca*).



Archway Lagoon - perennial? lagoon.

The vegetation on the lagoon proper is a uniform mid dense sedge formation (*Juncus kraussii*). Near the shoreline there are patches of shrubs over open water or mud. The lagoon is backed by low trees over heath.

VALUES FOR CONSERVATION OF FAUNA

Presence of poorly conserved species

A number of species recorded from the Crown Land are not adequately conserved in South Australia or on Kangaroo Island. Preservation of the area would substantially improve the long term conservation of this group of species.

These species are briefly discussed below, with the proviso of two general considerations that apply to all vertebrate groups.

- Accurate assessment of the conservation status of many species awaits more field data on distribution and abundance.
- Recent research into island biogeography has disturbing implications for conservation of fauna - many species not presently considered at risk may be in long term danger of extinction in southern South Australia.

For example, Ford and Howe (1980) have predicted that between 35 and 50 species of birds breeding in the Mount Lofty Ranges at the time of European settlement could eventually become extinct in the region because of habitat clearance and fragmentation.

Species more or less confined to areas of natural habitat (e.g. Southern Emu-wren, Beautiful Firetail, Short-nosed Bandicoot) may be especially at risk.

BIRDS

There is concern for the conservation in South Australia of at least the following species recorded in the Crown Land (Reid and Vincent 1979 - further research into their conservation status is indicated in most cases): Southern Stone-curlew, Lewin's Rail (if presence confirmed), Spotless Crake, White's Thrush, Beautiful Firetail, Painted Button-quail, Southern Emu-wren, Western Whipbird, Yellow-tailed Black-Cockatoo (breeding sites).

The Southern Stone-curlew, White's Thrush and Gang-gang Cockatoo are cited in the National Parks and Wildlife Act, 1972-1981 as threatened species (Ninth Schedule).

The Western Whipbird is cited as a rare species (Eighth Schedule), although Parker and Reid (1979) stated that "Although still poorly known, the Western Whipbird can no longer be considered rare and endangered ..".

Significant numbers of Yellow-tailed Black-Cockatoos may breed in the forest vegetation of the Crown Land and this will be further investigated.

At least the following species recorded from the Crown Land may be inadequately conserved on Kangaroo Island: Australian Owlet-nightjar, Spotless Crake and Lewin's Rail. The only survey records from reserves of the Southern Stone-curlew noted by Reid and Vincent (1979) are from Flinders Chase ("moderate numbers").

There is very limited conservation of inland lagoon habitat on Kangaroo Island (the only significant area is Murray Lagoon which will eventually be added to Cape Gantheaume Conservation Park). This suggests that waterbirds utilising this habitat (including those species recorded at Archway Lagoon) may be inadequately protected on the Island.

Reid and Vincent (1979 - South Australian Ornithological Association survey of

birds of South Australian reserves)"The survey results show a dearth of water-bird records, even for some fairly common species, suggesting an urgent requirement for the addition of sizeable areas of wetlands to the parks system".

Preservation of the Crown Land would add significantly to the total area of wetland habitat conserved in the State, and would provide a substantial addition to the area of stream habitat, a habitat of crakes and rails.

MAMMALS

At least two species recorded in the Crown Land are thought to be poorly conserved in South Australia - the Swamp Rat and the Short-nosed Bandicoot (if presence confirmed).

The Swamp Rat is confined in South Australia to restricted areas of freshwater wetland habitat - on Fleurieu Peninsula, the lower River Murray and Lakes, the South-East and Kangaroo Island. The species is inadequately conserved on the mainland, and on Kangaroo Island has been recorded from only two other locations.

As the species appears to be widespread in the Crown Land, preservation of the area would substantially improve the conservation status of the Swamp Rat in South Australia and on Kangaroo Island.

On the South Australian mainland the Short-nosed Bandicoot has an extremely limited distribution - in the densest scrubs of lower Fleurieu Peninsula, the Lower South-East and isolated sites on Eyre Peninsula. Its range has declined drastically since European settlement.

The present stronghold of the species is on Kangaroo Island, where it is reported to be common (Inns et al 1979). This may in part reflect an absence of foxes.

Unless its decline on the mainland is arrested its long term conservation in South Australia will depend on successful conservation on Kangaroo Island. It is known to occur in Flinders Chase (C. Baxter pers. comm.) and may occur in other reserves on the Island. Conservation of any populations in the Crown Land would consolidate its long term conservation prospects. Further research is indicated.

3 individuals of the Ring-tailed Possum were recorded in the Crown Land, indicating a low density population probably restricted to tree formations.

The few records from Kangaroo Island suggest that the species is uncommon and may be restricted to limited areas of forest or woodland on the western half of the Island.

It has been recorded from only one reserve - Flinders Chase - hence it may be in need of further conservation on the Island (the species is common on the southern mainland). Further research on both the origin of the population and its conservation status are needed (see Introduction to Mammal Fauna section).

The Koala is cited in the National Parks and Wildlife Act, 1972-1981 as a threatened species (Ninth Schedule). There is a significant population in the Crown Land, although the species is not indigenous to Kangaroo Island.

The conservation status of southern mammal communities is poor in South Australia, in part because of the paucity of large representative reserves. Preservation of the Crown Land with its relatively rich mammal fauna would substantially improve this situation.

REPTILES

None of the recorded species are cited as rare or threatened in the National Parks and Wildlife Act, 1972-1981.

Houston et al (1979) indicated that all but *Leiopisma entrecasteauxii* are common or occur widely on the Island (all occur on mainland South Australia).

He reported that *Leiopisma entrecasteauxii* was known only from a literature record on the Island. This species was recorded once in the Crown Land but until further survey work is undertaken no conclusions can be drawn (the species occurs on mainland south-eastern Australia and in Tasmania - Cogger 1975).

Austrelaps sp. (Little Copperhead Snake) occurs only on Kangaroo Island and the southern Mount Lofty Ranges (Houston et al 1979) and its conservation status will need to be assessed.

FROGS

There is no indication that any species is endangered on Kangaroo Island (Houston and Tyler 1979) or on the South Australian mainland.

In South Australia there is relatively poor conservation of southern frog communities in large areas of natural habitat and in this respect preservation of the Crown Land would contribute substantially to their conservation.

FISH

There is no published account of the conservation status of the 3 recorded species on the South Australian mainland or on Kangaroo Island.

It may be significant that there are few substantial lengths of stream habitat conserved in southern South Australia, and in the larger streams there is widespread invasion by introduced fish which may displace the indigenous species (McDowall and Frankenburg 1981).

The Crown Land includes the largest stretch of truly natural stream habitat in southern South Australia outside Flinders Chase. As all three *Galaxias* spp. known from Kangaroo Island and Fleurieu Peninsula are found in the Crown Land its preservation may be of considerable value for the conservation of these species.

Presence of poorly conserved habitats

Wetland habitat is known to be poorly conserved in South Australia (Jones 1978, Reid and Vincent 1979).

The Crown Land contains the entire catchment area of the North-West River and part of the catchment of the North-East River (with some stretches of perennial stream) and its preservation would substantially improve the over-all conservation status of stream habitat in South Australia. (Table 6 on page 27 highlights the poor conservation of stream habitat in southern South Australia).

Preservation of the undissected plateau wetland habitat (Archway Lagoon and seasonal swamps) would also contribute significantly towards wetland conservation.

There are substantial areas of medium tree forest habitat in the Crown Land. It is almost certain that this habitat type is poorly conserved in South Australia. In the Crown Land they are typically areas of high biological diversity.

Value as a large area of high rainfall habitat

The preservation of large representative areas of natural habitat is essential if long term conservation of faunal communities is to be assured.

In Table 7 on page 28 the Crown Land is compared for area and rainfall with the eleven National Parks and Wildlife reserves over 5,000 ha within the 450 mm isohyet (a substantial proportion of the State's vertebrate fauna is found inside this rainfall zone).

A review of the habitats in these reserves shows that while some coastal habitats, and habitats associated with dune systems of coastal origin, are quite well represented, other major habitats are generally poorly represented or absent.

Preservation of the Crown Land would be a valuable addition to this latter category and would greatly increase the habitat conserved at the wettest end of the rainfall spectrum.

Table 6 National Parks and Wildlife reserves in southern South Australia > 2,000 ha which include substantial areas of stream habitat, with the Gosse Crown Land for comparison.

<u>Reserve</u>	<u>Area (ha)</u>	<u>Stream habitat present</u>
Flinders Chase National Park	59,003	Includes entire catchment area of Rocky and Breakneck Rivers and most of the catchment of Ravine des Casoars. Some perennial stream present.
Gosse Crown Land	~15,000	Includes entire catchment area of the North-West River and part of the catchment of the North-East River. Some perennial stream present.
Mount Remarkable National Park	8,648	Includes majority of the catchment area of Mambray Creek. Some perennial stream present?
Kelly Hill Conservation Park	6,307	Includes over 6 km of the South-West River, (some in cleared land) where it crosses near coastal lowlands (without tributaries) and forms an estuary.
Deep Creek Conservation Park	2,455	Includes both seasonal and perennial stream habitat.
Western River Conservation Park	2,364	Includes several km of the Western River (probably in part perennial) and some smaller streams and tributaries.

Table 7 All National Parks and Wildlife reserves in South Australia over 5,000 ha inside the 450 mm annual rainfall isohyet, and including the Gosse Crown Land for comparison.

Reserve	Area (ha)	Annual rainfall is between					
		1,000-900	900-800	800-700	700-600	600-500	500-450 mm
Flinders Chase N.P.	59,003	+	+	+	+		
Gosse Crown Land	~15,000	+	+	+			
Canunda N.P.	9,086			+			
Mount Remarkable N.P.	8,648				+	+	
Kelly Hill C.P.	6,307				+	+	
Cape Gantheaume C.P.	20,805					+	
Coorong N.P. and G.R.	44,070					+	+
Messent C.P.	12,245					?	?
Part of Ngarkat C.P.	~15,000						+
Mount Rescue C.P.	28,385						+
Lincoln N.P.	17,083						+
Innes N.P.	9,141					?	+

MAMMAL SPECIES ACCOUNTS (cont. from page 7)

Felis catus (Domestic Cat)

Cats were spotlighted at two locations. One was semi-tame and had to be actively discouraged from visiting camp. More observations are needed to establish if they are feral.

Sus scrofa (Domestic Pig)

There was widespread evidence of feral pig activity in the form of droppings and digs, mainly along gully floors and on the undissected plateau around Archway Lagoon, and in the low tree formations.

However they were seen or heard on only three occasions. 1 adult was seen in daylight ambling down the central north-south track towards camp, and on sensing human presence it veered into a nearby low tree corridor. A piglet was seen on the fringe of Archway Lagoon. At no time were herds of pigs encountered.

They would appear to be widespread but not in large numbers. Locally they root up extensive areas of ground (for example around the fringes of Archway Lagoon). An assessment of the significance of pigs to the ecology of the area would require more detailed work.

EXPLANATORY NOTES

References to locations

Topographic maps of the area, notably the 1:100,000 series R 641 'Borda' and 'Vivonne', and the 1:50,000 maps 'Snug Cove', 'Grainger' and 'Vivonne' are divided by a universal metric grid into 100 ha squares.

In this report locations are given by reference to the 100 ha square in which they occur.

Squares are identified by giving the reference numbers of first the vertical line on the western side and second the horizontal line on the southern side.

For example, the northern fringe of Archway Lagoon is in square 77-36 (note that only the reference numbers in large print are used).

Terms used in the description of vegetation

'Forest' refers to vegetation with a top stratum of trees with canopy cover greater than 30%, and 'woodland' to vegetation with a top stratum of trees with canopy cover less than 30% (following Specht 1972).

The terminology below follows Mowling et al (1981).

<u>Life form categories and strata names</u>	<u>Height class (metres)</u>
Medium tree	10 - 30
Low tree	below 10
Mallee tree	generally below 10
Mallee shrub	generally below 8
Tall shrub	above 3
Low shrub	0.5 - 3
Dwarf shrub	0.0 - 0.5
Tussock sedge	0.0 - 2
Sedge	0.0 - 1

Subspecies

Subspecies and races, and their conservation, have not been considered in this report.

Part 2 of survey report

Part 2 will include description and discussion of habitats, and appendices with aims and methods of the survey and field data.

WANTED - MORE FIELD DATA

Further field data would be valuable, particularly breeding records in any species (especially birds), and records of species not recorded or poorly recorded in the Crown Land, and records of poorly conserved species in South Australia or on Kangaroo Island.

Any records forwarded to the author (M. Barritt, 6 Berry Crescent, Burnside, Adelaide, 5066) can be included with due acknowledgement in an updating paper.

Suitable field maps for the area are the 1:100,000 topographic map 'Borda' (and 'Vivonne' for the far eastern fringe), or the 1:50,000 topographic maps 'Snug Cove' and 'Grainger' (and 'Vivonne' for the far eastern fringe).

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