

DEPARTMENT OF CONSERVATION AND
LAND MANAGEMENT

INTERIM MANAGEMENT GUIDELINES

AVIFAUNA MANAGEMENT -

MANJIMUP DISTRICT

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1. INTRODUCTION

These Interim Management Guidelines are for the management of threatened birds within the Manjimup District.

These guidelines will have an approval duration of at least three years and a minimum of five years. An annual meeting will be held to review progress and direction of the works program reflected from these guidelines.

Birds within Australia that are more likely to be threatened are parrots and owls, birds of more than 500g, those that nest in hollows or on the ground and those with clutch sizes >4. Major threats or reasons for decline are clearance for agriculture, grazing, altered fire regimes, predation by exotic animals, hunting and trapping for the bird trade (Garnett 1992).

Up to sixty bird taxa have been recorded in the Karri forest west of Manjimup (Wardell-Johnson, Williams, Winchcombe 1995) and eighty four taxa at Perup forest east of Manjimup (Christensen, Annels, Liddelow and Skinner 1985).

These guidelines deal with avifauna classified into the four high conservation status categories:

1.1 Avifauna taxa in the Manjimup District

Four taxa declared as threatened, presently occur in the Manjimup District. These are:

Black Bittern (*Dupetor flavicollis gouldi*)
 Australasian Bittern (*Botaurus poiciloptilus*)
 Western Long-billed Corella (*Cacatua pastinator pastinator*)
 Crested Shrike-tit (*Falcunculus frontatus leucogaster*)

The Mallee fowl (*Leipoa ocellata*) may occur in the east of the District.

Five taxa of the Reserve List, presently occur in the Manjimup District. These are:

Little Bittern (*Ixobrychus minutus dubius*)
 Square-tailed Kite (*Lophoictinia isura*)
 Dusky Moorhen (*Gallinula tenebrosa tenebrosa*)
 Red-tailed Black Cockatoo (*Calyptorhynchus magnificus naso*)
 Masked Owl (*Tyto novaehollandiae novaehollandiae*)

Three other taxa may occur in the District. These are:

Hooded plover (*Charadrius rubricollis*)
 Barking Owl (*Ninox connivens*)
 Spotted Nightjar (*Caprimulgus guttatus*)

Taxa that require Special Protection against the bird trade, that occur in the Manjimup District are:

Peregrine falcon (*Falco peregrinus macropus*)
Baudin's Black Cockatoo (*Calyptorhynchus baudinii*)
Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*)
Red-eared Firetail (*Emblema oculata*)

One presumed Extinct taxon has previously been recorded in the Manjimup District. It is:

Lewin's Rail (*Rallus pectoralis clelandi*)

1.2 Fauna Management Areas

The Manjimup District has been divided into three areas for avifauna management. The areas to the east are regarded as a high priority. The three areas are:

1.2.1 Western Area

This receives greater than 900mm of rainfall each year on average. It consists of Jarrah/Marri, Karri, Marri and pure Karri forests. The understorey is medium to dense. Landform consists mostly of well formed streams and valleys, dissecting the lower end of the Darling Plateau.

1.2.2 Eastern Area

This area, east of South Western Highway, receives less than 900mm of rainfall and is largely vegetated with open Jarrah/Marri forest. Remnants of wandoo occur further to the east. Understorey is generally sparse to medium. The landform is generally undulating, comprising of headwaters of the major water courses.

1.2.3 Lakes Complex

The Muir/Unicup Lake complex lies in the south east corner of the District. These important wetlands are contained within a fragmented group of Nature Reserves. rushlands of *Baumea* within *Melaleuca* thickets, and rush beds (Jaensch 1984) occur on most of the wetlands, within a gently undulating landform.

1.3 Objectives

- 1.3.1 To identify the avifauna taxa present within the District and the habitat in which they occur.
- 1.3.2 To provide and maintain suitable habitat for native avifauna
- 1.3.3 To reduce the impact of exotic predators to a level that allows viability of native avifauna populations.
- 1.3.4 To measure long term population trends of avifauna populations in the District.
- 1.3.5 To promote public and departmental awareness, and involvement in the District's avifauna management program.

2. PREVIOUS AVIFAUNA MANAGEMENT

Manjimup District has not had a avifauna monitoring program. However, other sections within CALM and other organisations have, and are conducting surveys within the District. Summary of surveys are shown in Appendix 4

2.1 Gray Block

The Community Conservation Section of CALM's Research Division undertook a avifauna census of tall open Karri forest from 1982 to 1989. The census studied avifauna movements and abundance, prior to, during, and after harvest (BACI) of four different silvicultural treatments. The study yielded records of sixty species, four of which are dealt with in the plan.

2.2 Smithbrook Nature Reserve

In 1976 R and M Brown of the Middlesex Study Group started banding birds within and adjacent to the Reserve, after some years of surveys. They have studied the life history of the White-breasted Robin. In 1980 Dr I. Rowley of the CSIRO Division of Wildlife Research commenced research on the Red-winged Fairy-wren in the Reserve. The Brown's have continued this field work. Seventy one species of bird have been recorded in the Reserve, of which seven are threatened or need special protection.

2.3 Phillips Swamp

In the late 1980's, Mr E Phillips approached CALM enquiring whether a lake on his property, north of Manjimup, could be made a "Nature Reserve". The CALM Research Centre (SID) at Manjimup undertook biological surveys of the area. Seventy nine species were recorded during the survey in 1989. Four species are reserved or in need of special protection. The presumed extinct Lewin's Rail was recorded on the swamp in 1931 (Lodge 1989).

2.4 Kingston Block

In 1993 the Kingston Forest Block was set up for a research project conducted by the Forest Ecology Research Team (FERT) from CALM's Science and Information Division (SID). The project was designed to study the effect of timber harvesting on the Jarrah forest ecosystem. As a UWA Phd project, Mr M Craig is conducting the avifauna part of the study. District personnel have assisted during bird banding activities. Seven threatened or specially protected birds have been recorded up to present, in this ongoing study.

2.5 Perup

The Manjimup Research Station of the Forest Department surveyed flora and fauna on forested land to the south of the Blackwood River, between 1970 and 1982. The Perup forest was one area surveyed. Four threatened or specially protected birds were recorded during the survey.

2.6 Muir/Unicup Complex

During the early 1980's the RAOU was commissioned by CALM to study the numbers and distribution of water birds in Nature Reserves it managed in the south-west. Over 140 volunteer observers participated. Seven waterbodies were surveyed. Five taxa from the current threatened and reserve lists were recorded during the survey. Yarnup Swamp was a significant breeding area for Little Bitterns.

Further survey work was carried out at Unicup Lake in 1992 by Environmental Science students from Murdoch University. Two special protection taxa were recorded (Payne 1992)

3. PRIORITY SPECIES FOR MANAGEMENT

3.1 Black Bittern

3.1.1 **Background:**

In the south-west region an isolated population occurs in thicker vegetation, such as paperbark woodland surrounding running water or swamps. The Black Bittern is solitary and feeds on small fish and invertebrates. The south-west population has not been reported breeding since the 1901-50 period (Blackers, Davies and Reilly 1984). The Bittern has been recorded in the Perup Forest.

3.1.2 **Limiting factor**

Clearing for agriculture, burning regimes and stream salinity are the major factors in the Black Bitterns decline.

3.1.3 Management Requirements

The last known location of the Black Bittern in the Manjimup District requires field surveying to re-locate the population. Monitor population. After re-locating the population, burning master plans will be reviewed to take into account its restricted habitat refuge requirement.

3.2 Australasian Bittern

3.2.1 Background:

The Australasian Bittern has been recorded at Smithbrook and at five lakes in the Muir/Uncup complex. The Australasian Bittern inhabits shallow, vegetated, fresh to brackish swamps, usually dominated by reeds and sedges.

3.2.2 Limiting Factors

Drainage of habitat for agriculture, salinisation of swamps following catchment clearance and overgrazing of swamp vegetation are believed to be the main reasons for the Australasian Bitterns decline.

3.2.3 Management Requirements

Burning Master Plans to be reviewed to take into account habitat refuge requirements.
Encourage reporting of all sightings.

3.3 Little Bittern

3.3.1 Background:

The migratory Little Bittern has been recorded breeding at two lakes within the Muir/Uncup complex, and in Wilgarup swamp north of Manjimup. It inhabits the dense vegetation of the lakes. The mature beds of *Baumea* fringed with *melaleuca* thickets, are preferred.

3.3.2 Limiting Factors

Clearing of agricultural, salinisation of swamps and in adequate fire regimes are the threatening factors of the Little Bittern.

3.3.3 Management Requirements

Master Burning Plans to be reviewed to take into account the habitat refuge requirements.
Encourage reporting of all sightings.

3.4 Western Long-billed Corella

3.4.1 Background:

The CITES listed Western Long-billed Corella has been recorded from McAlinden, near Collie, to the main breeding areas between Tone Bridge and Lake Muir, in the Manjimup District. Its habitat is the woodland surrounding the main forest block in the south-west. Food consists of corms of native and introduced plants and grain from agricultural crops.

3.4.2 Limiting Factors

Shooting and poisoning by farmers who considered it as a major agricultural pest.. It also suffers from bird dealers, illegally taking fledglings for the bird trade.

3.4.3 Management Requirements

The population has been surveyed by the Agriculture Protection Board in 1990.
Encourage reporting of all sightings.

3.5 Crested Shrike-tit

3.5.1 Background:

The strictly arboreal, territorial Crested Shrike-tit has been recorded in all three management areas from tall dense Karri forest to open Jarrah/Marri woodland. Forages under loose bark for insects and spiders.

3.5.2 Limiting Factors

Unknown. Possibly changes to fire regimes. An increased frequency of dry season fires may affect the availability of invertebrates under peeling bark.

3.5.3 Management Requirements

Encourage Departmental staff and volunteers to report all sightings, including detail on habitat, possible threats and behaviour.

Integrate transects with other District works, prior to operations, to attain a broad picture of its range.

Modify harvesting and burning prescriptions to protect the Shrike-tit.

Assess fire effects on the species habitat.

3.6 Square-tailed Kite

3.6.1. Background:

Known as the uncommon nomad of the woodland, the Square-tailed Kite has been recorded in the Muir/Unicup complex. A specialist predator, it is often seen taking passerine nestlings during breeding season.

3.6.2 Limiting factors

Believed to have declined due to extensive clearing.

3.6.3 Management Requirements

Encourage reportings of all sightings.

3.7 Dusky Moorhen

3.7.1 Background:

An inhabitator of reed-lined pools of fresh water, the Dusky Moorhen is confined to the South-west land division. In Manjimup District, it has been recorded in the lakes at Wilgarup and at Smithbrook.

3.7.2 Limiting Factors

There is no evidence to suggest the Moorhen in declining.

3.7.3. Management Requirements

Encourage the reporting of all sightings.

3.8 Red-tailed Black Cockatoo

3.8.1 Background:

Found in Jarrah, Marri and Karri forests of the south-west of Western Australia, and is represented in all management areas in Manjimup District.

3.8.2 Limiting Factors

Speculated that nest sites have suffered destruction by logging and short rotation times in wood productions forests prevent the development of new nest sites.

3.8.3 Management Requirements

Encourage reporting of all sightings, especially possible nesting sites. Assist the Spring 1995 - Summer 1996 Departmental survey of the taxa (Appendix 6)

3.9 Baudin's Black Cockatoo

3.9.1 Background:

The CITES listed taxon inhabits the tall Jarrah Marri and Karri forests of the South-west. It also visits fruit orchards, extracting the seeds from the fruit. It has been recorded in two management areas.

3.9.2 Limiting Factors

Speculated threats include destruction of nest sites by logging and the prevention of the development of new nest sites by short rotations in wood production forests. Orchardists are thought to shoot them.

3.9.3 Management Requirements

Encourage reporting of all sightings, especially possible nesting sites.

3.10 Carnaby's Black Cockatoo

3.10.1 Background:

This taxa has been recorded in each management area. White-tail Black Cockatoos were recorded, not indicating whether Carnaby's or Baudin's. Carnaby's Black Cockatoo possibly occurs in its own right, in the east of the District.

3.10.2 Management Requirements

See requirements for Baudin's Black Cockatoo above.

3.11 Peregrine Falcon

3.11.1 Background:

An uncommon taxa occurring across the south-west. One of the most efficient hunting small to medium birds. Recorded in two management areas.

3.11.2 Limiting Factors

Reproductive capacity reduced by ingesting prey containing pesticide residues. Pigeons, their commonest prey, have been analysed containing DDT residues.

3.11.3 Management Requirements

Encourage reporting of sightings.

3.12 Red-eared Firetail

3.12.1 Background:

An inconspicuous bird endemic to the south-west, inhabiting streamside vegetation in Jarrah and Karri forest. Recorded in the western management area.

3.12.2 Limiting Factors

Clearing of streamside and swamp vegetation, and taking for the bird trade.

3.12.3 Management Requirements

Encourage reporting of sightings. Integrate surveys with other operations in likely areas.

3.13 Masked Owl

3.13.1 Background:

A rarely observed, sparsely distributed bird that inhabits eucalypt forests. Prey varies from insects to mammals and birds.

3.13.2 Limiting Factors

Thought to be due to the decline of native mammals since European settlement. Often confused with the more common Barn Owl.

3.13.3 Management Requirements

Encourage reporting of sightings. Control competition from exotic predators (ie fox) from areas of known occurrence.

3.14 Lewin's Rail

3.14.1 Background:

The presumed extinct Rail was last observed at Phillips Swamp in 1932. The bird inhabits dense vegetation along drainage areas and river flats, feeding on invertebrates in mud and soft soil. The Eastern taxon is often taken by cats.

3.14.2 Limiting Factors

Attributed to grazing by domestic stock and frequent firing of habitats.

3.14.3 Management Factors

Encourage other organisations (ie RAOU) to survey likely habitats. Assess the possibility of undertaking exotic predator control in likely areas.

4. AVIFAUNA MANAGEMENT STRATEGIES

4.1 Knowledge of Fauna

4.1.1 Train District personnel in the identification of avifauna recorded within the District.

4.1.2 Maintain a District avifauna database which includes:

- * Taxa (including photos)
- * habitat details
- * recorded sightings
- * harmful agents

4.1.3 Ensure District database records are available for inclusion and updating of Departmental records.

4.1.4 Train at least two persons within the District to be familiar with the trapping, handling and surveying of avifauna, whilst assisting other groups (eg SID).

4.1.5 Incorporate transects with other District works, to attain a broad picture of the population ranges (eg lignotuber surveys, fuel sampling).

4.1.6 Provide support and maintain good communication with SID on the management of avifauna within the District.

4.1.7 Prepare a user-friendly identification sheet to aid reporting of the District's threatened avifauna.

4.2 Impact of Exotic Predators

Predation by foxes and cats on ground-nesting avifauna is likely to occur through predation on eggs, nestlings, incubating adults and brooding adults. It is unknown whether predation is a limiting factor of the taxa associated with these guidelines. It is considered that predator control could be useful.

4.2.1 Maintain the existing fox control program around wetlands already baited.

4.2.2 Check unbaited wetlands for predator numbers and possible impacts. Refine control program as required.

4.3 Management Practices

- 4.3.1 Ensure all operations, when planned, give adequate consideration to their impact on avifauna.
- 4.3.2 Review the master burn plan for potential adverse impacts on threatened avifauna.
- 4.3.3 Liaise with and actively contribute to, groups managing wetlands and/or other known avifauna habitat (ie re-direction of saline drainage lines through known Bittern habitats)

4.4 Public Awareness

- 4.4.1 Utilize volunteers, public and school groups to assist with avifauna records and management.
- 4.4.2 Liaise with adjacent landowners and CALM estate users to enhance their awareness of the conservation of threatened avifauna.

5. MONITORING

The success of the avifauna management program will be assessed by taxon and population monitoring.

The monitoring undertaken will be standardized to keep results comparable. The following will apply:

- * A designated route will be driven for monitoring the Cockatoo's, Corella and raptors.
Success will be measured by sightings per hundred kilometres.
- * Variable line transects will be conducted for monitoring the water birds, over a pre-determined route.
Success will be measured by sightings per hours searched.
- * Point counts/transects will be used to monitor the Shrike-tit and Fire-tail, at pre-determined sites.
Success will be measured at sightings per - hour for point counts
- line for transects.
- * Listening for night calls at designated points around swamps.

Monitoring sessions will be conducted at least twice per year. One to be in autumn and one in spring. Water quality sampling of wetlands will be undertaken at each time.

Monitoring of the Eastern and Lakes Management Areas, will take priority.

6. MANAGEMENT TEAM

A District Fauna Management Team will be established. The team will meet at least once a year.

6.1 Responsibility of Management Team

Apart from birds, the Team will be responsible for all Endangered animals recorded within the District, including mammals, reptiles, frogs, fish and invertebrates.

The Team will:

- * Schedule management operations, including the identification of staff and budget requirements.
- * Assess monitoring results on the success of the operation and techniques.
- * Consider reports on the operation including any problems, successes, need for assistance etc.
- * Prepare a report to be passed to the Director of Nature Conservation by the end of each calendar year, on the operation of the program.
- * Make amendments to the program which may be identified during its operation through monitoring and practical management experience.

6.2 Management Team Composition

2 District Representatives
1 Regional Representative
1 SID Representative
1 Wildlife Branch Representative

7. RELEVANT CALM POLICIES AND ADMINISTRATIVE INSTRUCTIONS

Several Departmental Policy Statements and Administrative Instructions, and District Plans and Guidelines are relevant to the implementation of this Avifauna Management Program.

Policy No. 33	Conservation of Threatened and Specially Protected Fauna in the Wild (May 1991)
Policy No 44	Wildlife Management Programs (May 1992)
Admin Instruction No 44	Protection of Endangered and Specially Protected Fauna in Departmental Operations (1990)
Admin Instruction No 48	Animal Experimentation Ethics Committee (February 1992)
Manjimup District Draft Fauna Management Plan (1994)	

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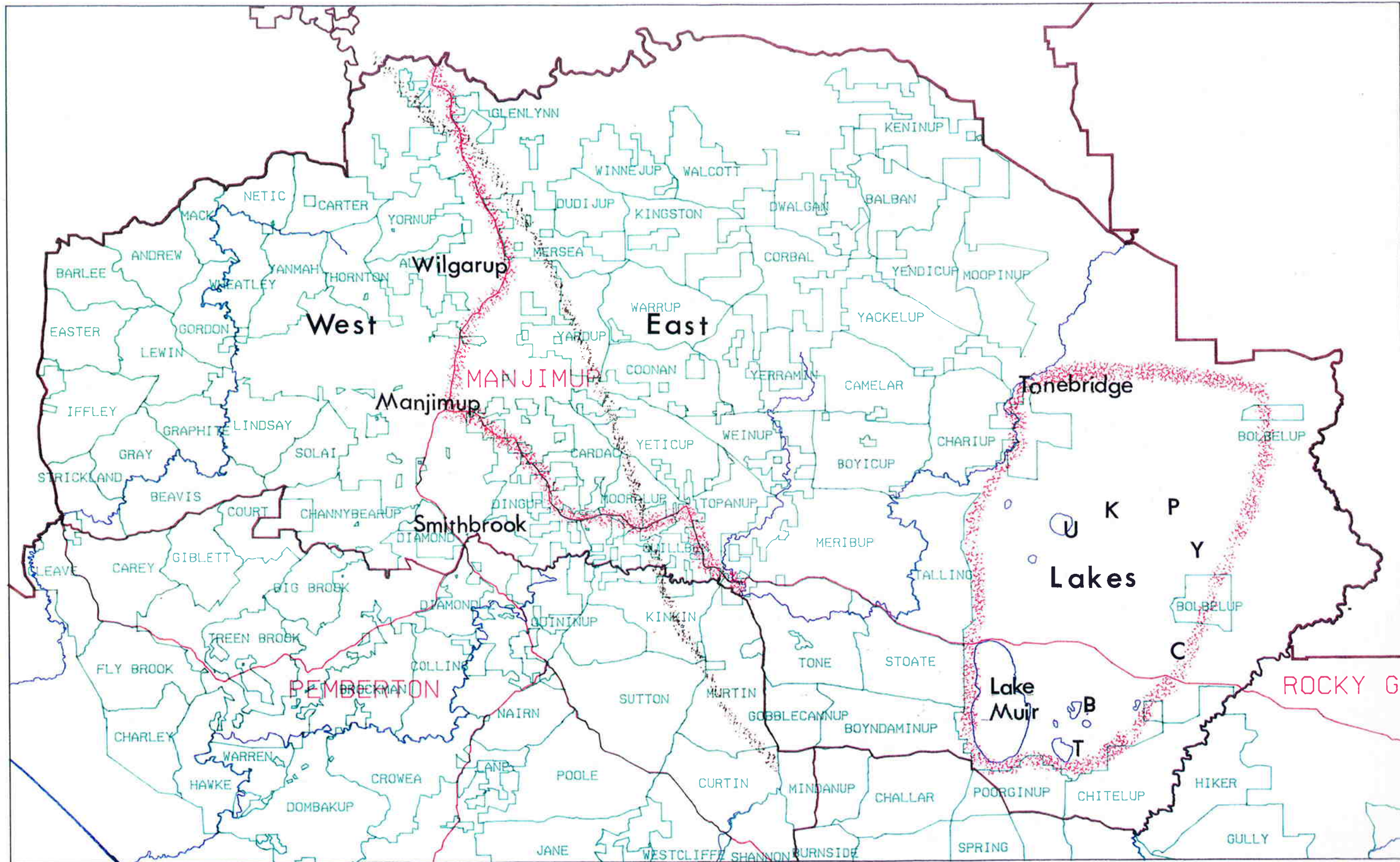
9. APPENDICES

- 9.1 Glossary
- 9.2 Management Areas
- 9.3 Survey Areas
- 9.4 Taxa in Surveyed Areas
- 9.5 Fox Baiting Areas.
- 9.6 Red-Tailed Black Cockatoo Survey Sheet

GLOSSARY



Avifauna	Any bird found in a given area.
BACI	Before and After Control Impact - method of assessing changes in relative abundance of individual taxa
Baumea	A group of rushes favoured by Bitterns for habitat
CITES	Convention on International Trade in Endangered Species of wild fauna and flora - Australia is a signatory
Declared	Under Section 14(2)(ba) of the Wildlife Conservation Act, The Minister gives notice through the Government Gazette.
Endangered	Taxon in danger of extinction and whose survival in the wild is unlikely if casual factors continue operating.
Extinct (Presumed)	Taxon not located in the wild over the last 50 years despite thorough searching in all known and likely habitats.
Habitat	The place or type of site where a bird naturally or normally lives or grows.
Passerine	Bird families grouped in the order Passeriforms - the perching or song birds
RAOU	Royal Australasian Ornithologists Union - Australia's foremost bird group.
Reserve List	A List of birds that have recently been removed from the Declared list; or for which there is insufficient information; or those that have a restricted or uncommon distribution.
SID	Science and Information Division within CALM. Formerly Research Division.
Special Protection	Taxon likely to be taken due to high commercial value or are uncommon with commercial or intrinsic value
Taxon (plural Taxa)	Any of the levels or categories into which living organisms are classified (eg. genus, species, sub species).
Threatened	Taxon that are naturally rare or geographically restricted, or have become so as a result of human activities, and are in danger of declining further, or becoming extinct, unless adverse factors acting upon them can be identified and ameliorated.

MANAGEMENT AREAS



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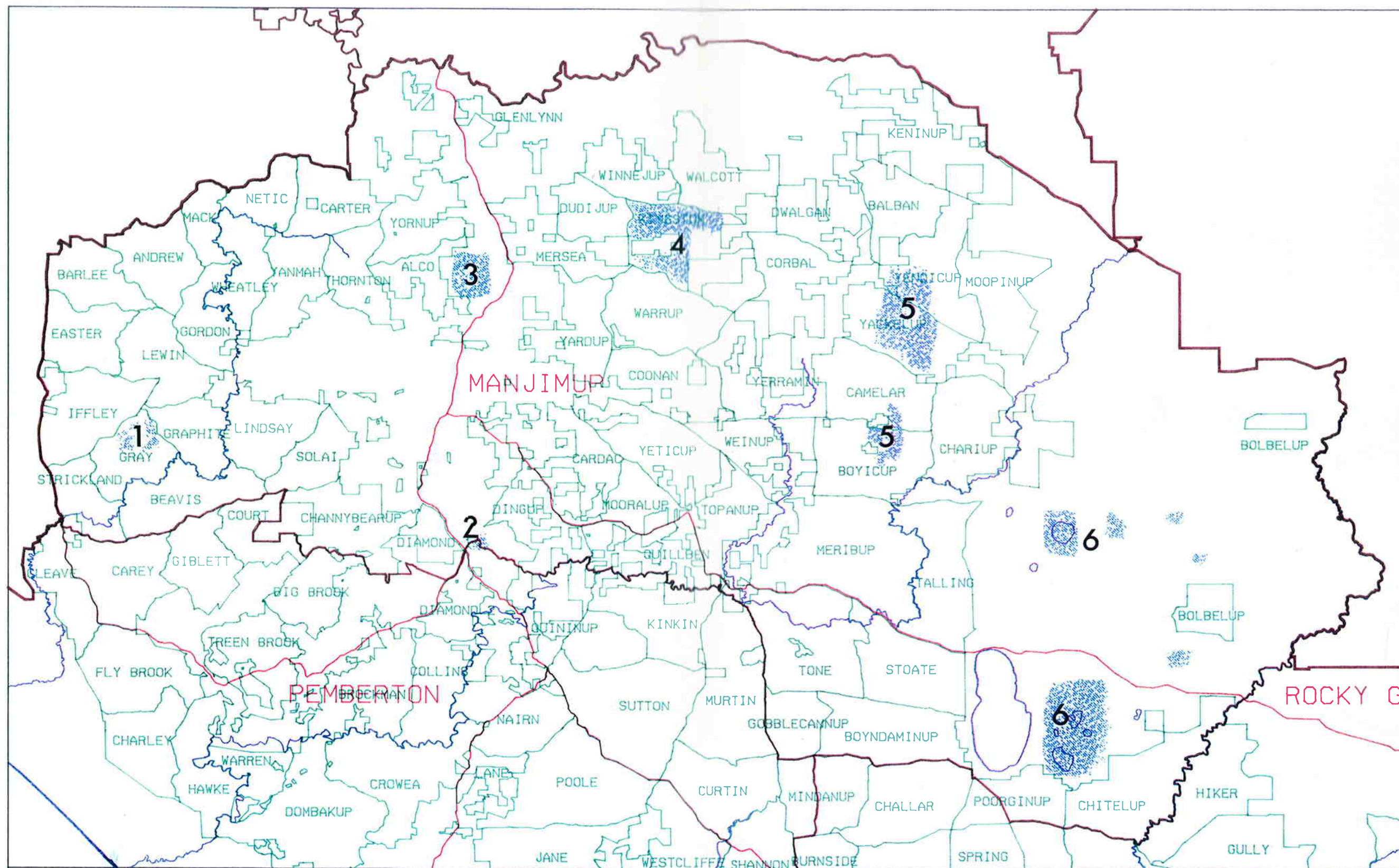
LEGEND

-  900MM RAINFALL ISOHYET
-  MANAGEMENT BOUNDARY
- Tone** LOCAL AREA

LAKES COMPLEX

B	Byenup Lagoon	P	Bokarup Swamp
C	Cobertup Swamp	T	Tordit-Garrup Lagoon
K	Kulunilup Swamp	U	Unicup Lake
		Y	Yarnup Swamp

SURVEY AREAS



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SURVEY AREAS	
1.	Gray Forest Block
2.	Smithbrook Nature Reserve
3.	Phillips/Wilgarup Swamps
4.	Kingston Forest Block
5.	Perup Forest
6.	Muir/Unicup Lakes Complex

TAXA IN AREAS SURVEYED WITHIN MANJIMUP DISTRICT.

SURVEY AREAS	GRAY	SMITHBROOK	PHILLIPS	KINGSTON	PERUP	LAKES
TAXA						K,Y,P
Little Bittern					X	
Black Bittern						B,T,K,Y,C
Australasian Bittern		X		X		K
Square-tailed Kite			X	X		
Peregrine Falcon			*			
Lewin's Rail						Y
Dusky Moorhen		X	X			U
Red-tailed Black Cockatoo	X	X	X	X	X	
Baundin's Black Cockatoo	X			X		
White-tailed Black Cockatoo		X	+	X	+	+, U
Masked Owl				#		
Shrike-tit	X	X		X	X	B
Red-eared Firetail	X	X	X			

* Previous record documented in survey report

+ Observations recorded prior to the White-tailed Black Cockatoo being published as to distinct taxa

Recorded outside survey area

Muir/Unicup Complex

- U Unicup Lake
- T Tordit-Garrup Lagoon
- K Kulunilup Swamp
- Y Yarnup Swamp
- C Cobertup Swamp
- B Byenup Lagoon
- P Bokarup Swamp

RED-TAILED BLACK COCKATOO SURVEY SHEET

SURVEY OF DISTRIBUTION SPRING 1995 - SUMMER 1996

1. Reporter [your name, please print]
2. Region/District/Research Centre
3. Locality
[provide precise distance
from prominent landmark eg town,
intersection of major roads,
CALM map reference]
4. Type of forest
[eg jarrah, karri]
5. Position in landscape
[eg ridge, valley]
6. Basis of identification
[circle one]

A.	Red tail feathers clearly seen
B.	Call heard
C.	Both of the above
7. How many birds in flock?
8. Were any immature birds present?
9. Date of observation [D/M/Y]

Please return completed sheet to: Ian Abbott
CALM
CRAWLEY