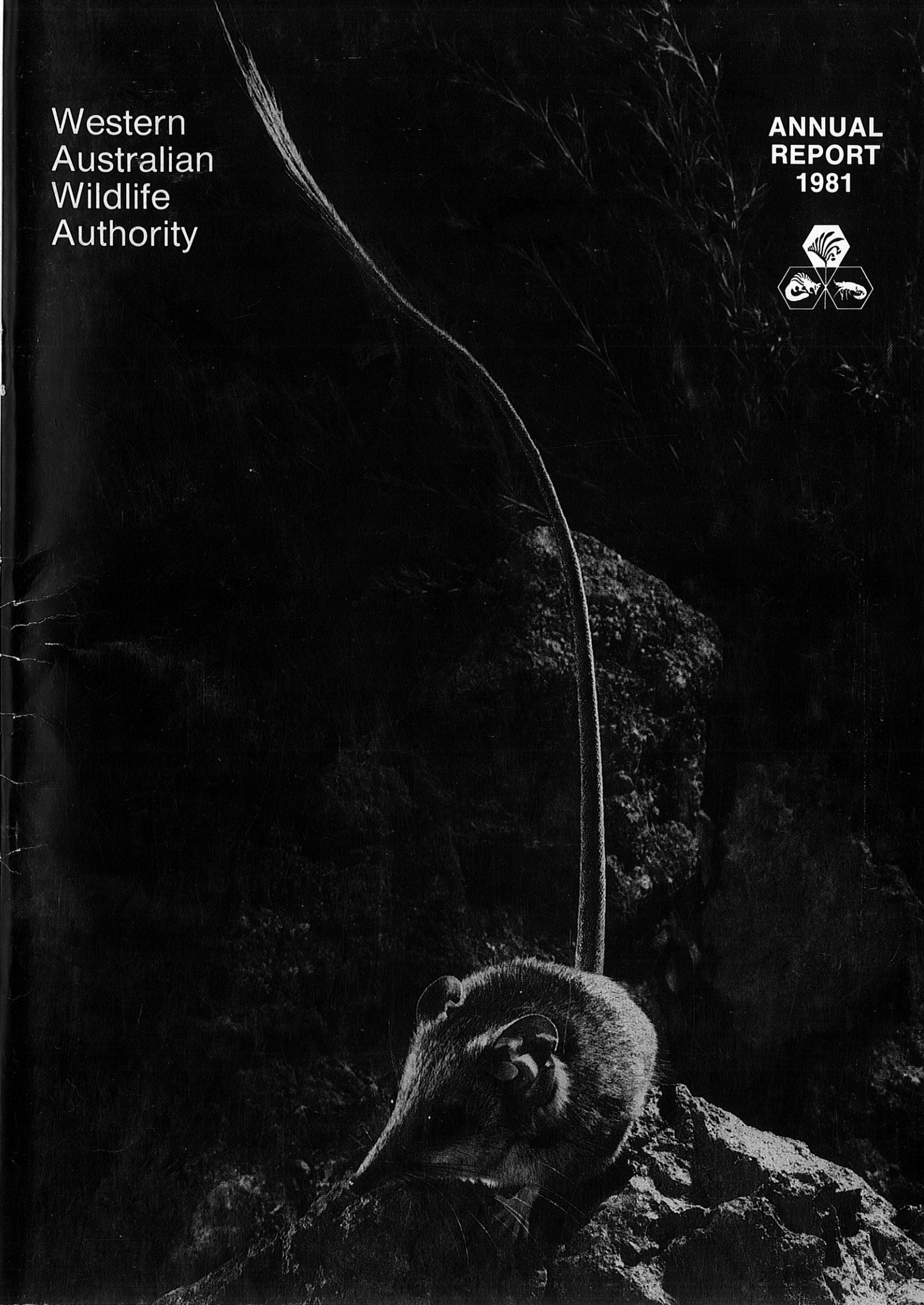
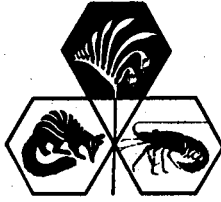


Western
Australian
Wildlife
Authority

ANNUAL
REPORT
1981



COVER PHOTO; The very rare Long-tailed Dunnart, *Sminthopsis longicaudata*, was found by a wildlife research team during 1981. (Photo Copyright- A.G.Wells)



DEPARTMENT OF FISHERIES AND WILDLIFE
108 Adelaide Terrace, Perth
Western Australia.

**Western Australian
Wildlife Authority**

ANNUAL REPORT

1981

Published by the Director of Fisheries and Wildlife, Perth, under the authority of
the Hon. Minister for Fisheries and Wildlife

DEPARTMENT OF FISHERIES AND WILDLIFE

108 ADELAIDE TERRACE

PERTH

The Honourable G.E. Masters M.L.C.
Minister for Fisheries and Wildlife

Sir,

In accordance with the requirements of Sub-section (5) of Section 7 of the Wildlife Conservation Act 1950, I have pleasure in submitting to you my report on the proceedings and work of the Western Australian Wildlife Authority for the period ending June 30, 1981, together with comments relating to the administration of this Act.

B.K. Bowen

B.K. Bowen
CHAIRMAN

Western Australian Wildlife Authority

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1 WESTERN AUSTRALIAN WILDLIFE AUTHORITY AND COMMITTEES

1. MEMBERSHIP

Names and Organisation

Ex officio Members -

Chairman - B.K. Bowen, Director, Department of Fisheries and Wildlife

Mr B.J. Beggs - Conservator of Forests
Deputy - Mr P.J. McNamara, Deputy Conservator

Mr A.W. Hogstrom - Chief Agriculture Protection Officer, Agriculture Protection Board

Mr A.J. Mearns - Conservator of Wildlife, Department of Fisheries and Wildlife

Appointed Members -

Mr R. Aitken - Retired School Teacher

Mr N.A. Beeck - Farmer

Dr P. Berry - Head of Division of Natural Sciences - Western Australian Museum

Dr S.J.J. Davies - Zoologist - Officer in Charge - CSIRO, Division of Wildlife Research

Dr J.W. Green - Botanist - Curator, Western Australian Herbarium

Mr H.G. Hall - Farmer

Mr W.H.B. Lacy - Pastoralist

Professor A.R. Main - Zoologist, University of Western Australia

Executive Officer

Mr D.W. Arnold - Administrative Officer, Department of Fisheries and Wildlife

Names of Committees

Reserves Committee

Bird Committee

Flora Committee

Membership

RESERVES COMMITTEE -

Chairman - Mr B.K. Bowen - Director, Department of Fisheries and Wildlife

Deputy Chairman - Mr A.J. Mearns - Conservator of Wildlife, Department of Fisheries and Wildlife

Mr N.A. Beeck - Authority Member

Dr A.A. Burbidge - Senior Research Officer, Western Australian Wildlife Research Centre

Dr I. Crook - Research Officer, Western Australian
Wildlife Research Centre
Dr E. Hopkins - Forests Department
Deputy - Mr J. Williamson
Dr D. Kitchener - Curator of Mammals, Western
Australian Museum
Executive Secretary - Mr R.J. Powell - Department
of Fisheries and Wildlife

BIRD COMMITTEE -

Chairman - Mr D.W. Arnold - Administrative
Officer, Department of Fisheries and Wild-
life
Mr N.A. Beeck - Authority Member
Mr B.A. Carmichael - Chief Wildlife Officer,
Department of Fisheries and Wildlife
Dr S.J.J. Davies - Officer in Charge, CSIRO,
Division of Wildlife Research, Helena
Valley
Deputy - Mr I. Rowley
Mr H.G. Hall - Authority Member
Mr A.W. Hogstrom - Chief Agriculture Protection
Officer, Agriculture Protection Board
Deputies - Mr A.J. Oliver
Mr J. Long
Mr J.A.K. Lane - Research Officer, Western
Australian Wildlife Research Centre
Mr J.R. Masters - Farmer (Ornithologist)
Dr D.L. Serventy - Zoologist
Mr T. Spence - Director, South Perth Zoological
Gardens
Dr G. Storr - Curator of Birds and Reptiles,
Western Australian Museum
Executive Secretary - Mr N.S. Press - Department
of Fisheries and Wildlife
(Vice - Mr L. Marrable)

FLORA COMMITTEE -

Chairman - Mr B.K. Bowen - Director, Department of
Fisheries and Wildlife
Mr R. Aitken - Retired School Teacher
Mr D.W. Arnold - Administrative Officer, Department
of Fisheries and Wildlife
Mr B.J. Beggs - Conservator of Forests
Mrs M. Blackwell - Botanist
Dr J. Green - Botanist - Curator, Western
Australian Herbarium
Mr P.N. Hewett - Forest Department
Deputy - Mr F. Batini
Mr A.J. Hopkins - Research Officer, Western
Australian Wildlife Research Centre
Dr N. Marchant - Botanist - Western Australian
Herbarium
Mr A.J. Mearns - Conservator of Wildlife,
Department of Fisheries and Wildlife

Professor J.S. Pate - Officer in Charge, Department of Botany, University of Western Australia

Mr R. Shaw - Main Roads Department

Dr P.R. Wycherley - Director, Kings Park Board

Executive Secretary - Mr B. Martin - Department of Fisheries and Wildlife

Secretariat

Mr A.J. Goadby carried out the secretarial functions for the Authority and its various committees.

2. MEETINGS -

The Western Australian Wildlife Authority

The Authority met on six occasions during 1980/81.

Committees

Reserves Committee - met on two occasions during 1980/81.

Bird Committee - met on three occasions during 1980/81.

Flora Committee - met on one occasion during 1980/81.

II THE FAUNA

1. NUMBER OF INDIGENOUS SPECIES OF:

| | |
|---------------|-------|
| Birds | 475 |
| Marsupials | 63 |
| Other Mammals | 63 |
| Reptiles | 352 |
| Amphibia | 65 |
| | 1 018 |

2. LIST OF UNPROTECTED INDIGENOUS SPECIES AS AT 30.6.81

Mammals

Wild Dog (Dingo) *Canis familiaris dingo*

Reptiles

| | |
|-----------------------------|--------------------------------|
| Common Death Adder | <i>Acanthophis antarcticus</i> |
| Desert Death Adder | <i>Acanthophis pyrrhus</i> |
| Black Whip-snake | <i>Demansia atra</i> |
| Spotted-head Snake | <i>Demansia olivacea</i> |
| Papuan Whip-snake | <i>Demansia papuana</i> |
| Green Whip-snake | <i>Demansia reticulata</i> |
| Rosen's Snake | <i>Denisonia fasciata</i> |
| Little Spotted Snake | <i>Denisonia punctata</i> |
| Gould's Snake | <i>Denisonia gouldii</i> |
| Northern White-lipped Snake | <i>Denisonia suta</i> |
| Monk (or Hooded) Snake | <i>Denisonia monachus</i> |
| Crowned Snake or Werr | <i>Drysdalia coronata</i> |
| Bardick | <i>Echiopsis curta</i> |
| Tiger Snake | <i>Notechis ater</i> |
| Mulga (or King Brown) Snake | <i>Pseudechis australis</i> |
| Dugite | <i>Pseudonaja affinis</i> |
| Gwardar | <i>Pseudonaja nuchalis</i> |
| Five-ringed Snake | <i>Pseudonaja modesta</i> |

All Sea Snakes of the Family
Hydrophiidae

All invertebrate fauna other than Jewel Beetles of
the family Buprestidae and Ants of the genus *Nothomyrmecia*.

3. LIST OF SPECIES RARE OR OTHERWISE IN NEED OF SPECIAL PROTECTION AS AT 30.6.81

Birds

| | | |
|------------------------|----------------------------|-------------------|
| Red-tailed Tropic-bird | <i>Phaethon rubricauda</i> | <u>Government</u> |
| White (Mute) Swan | <i>Cygnus olor</i> | <u>Gazette</u> |
| | | 3.2.78 |
| | | " |

Birds (Cont.)

Government
Gazette

| | | |
|---|--|---------|
| Freckled Duck | <i>Stictonetta naevosa</i> | 3.2.78 |
| Cape Barren Goose | <i>Cereopsis novaehollandiae</i> | " |
| Burdekin Duck | <i>Tadorna radjah</i> | " |
| Crested Hawk | <i>Aviceda subcristata</i> | " |
| Red Goshawk | <i>Accipiter radiatus</i> | " |
| Peregrine Falcon | <i>Falco peregrinus</i> | " |
| Grey Falcon | <i>Falco hypoleucos</i> | " |
| Scrub Fowl | <i>Megapodius freycinet</i> | " |
| Lesser Noddy | <i>Anous tenuirostris</i> | " |
| Red-crowned Pidgeon | <i>Ptilinopus regina</i> | " |
| Green-winged Pidgeon | <i>Chalcophaps indica</i> | " |
| Partridge Pidgeon | <i>Geophaps smithii</i> | " |
| Mangrove Kingfisher | <i>Halycon chloris</i> | " |
| Alexandra (Princess) Parrot | <i>Polytelis alexandrae</i> | " |
| Naretha Bluebonnet | <i>Psephotus haematogaster narethae</i> | " |
| Ground Parrot | <i>Pezoporus wallicus</i> | " |
| Night Parrot | <i>Geopsittacus occidentalis</i> | " |
| Grass Owl | <i>Tyto longimembris</i> | " |
| Rufous Owl | <i>Ninox rufa</i> | " |
| Noisy Scrub-bird | <i>Atrichornis clamorus</i> | " |
| Cicadabird | <i>Coracina tenuirostris</i> | " |
| Western Whip-bird | <i>Psophodes nigrogularis</i> | " |
| Purple-crowned Wren | <i>Malurus coronatus</i> | " |
| Thick-billed Grass-wren | <i>Amytornis textilis</i> | " |
| Rufous Bristle-bird | <i>Dasyornis broadbenti</i> | " |
| Brown Bristle-bird | <i>Dasyornis brachypterus</i> | " |
| Lemon-breasted flycatcher | <i>Microeca flavigaster</i> | " |
| White-browed (Buff-sided) Robin | <i>Poecilodryas superciliosa</i> | " |
| Rufous Fantail | <i>Rhipidura rufifrons</i> | " |
| Shrike Tit | <i>Falcunculus frontatus</i> | " |
| Red-eared Firetail | <i>Emblema oculata</i> | " |
| Yellow-rumped Finch | <i>Lonchura flaviprymna</i> | " |
| Major Mitchell | <i>Cacatua leadbeateri</i> | " |
| Goulds Petrel | <i>Pterodroma leucoptera leucoptera</i> | 19.8.80 |
| Providence Petrel | <i>Pterodroma solandri</i> | " |
| Lord Howe Island Fleшы-Footed Shearwater | <i>Puffinus carneipes hullianus</i> | " |
| Abbot's Booby | <i>Sula abbotti</i> | " |
| Christmas Island Frigatebird | <i>Fregata andrewsi</i> | " |
| Plains Wanderer | <i>Pedionomus torquatus</i> | " |
| Lord Howe Island Woodhen | <i>Tricholimnas sylvestris</i> | " |
| Norfolk Island Parrot | <i>Cyanoramphus novaeseeland- iae cookii</i> | " |
| Coxens fig Parrot | <i>Cyclopsitta diopthalma coxeni</i> | " |
| Orange-bellied Parrot | <i>Neophema chrysogaster</i> | " |
| Golden-shouldered Parrot | <i>Psephotus chrysopterygius</i> | " |
| Hooded Parrot | <i>Psephotus dissimilis</i> | " |
| Paradise Parrot | <i>Psephotus pulcherrimus</i> | " |
| Norfolk Island Boobook Owl | <i>Ninox novaeseelandiae royana</i> | " |
| Christmas Island Owl | <i>Ninox squamipila natalis</i> | " |
| Plumed Frogmouth | <i>Podargus ocellatus plumiferus</i> | " |
| Dorothys Grass-wren | <i>Amytornis dorotheae</i> | " |
| Western Bristlebird | <i>Dasyornis longirostris</i> | " |

| | | <u>Government Gazette</u> |
|--|--|-------------------------------|
| <u>Birds (Cont.)</u> | | |
| Eastern Bristlebird | <i>Dasyornis brachypterus</i> | 19.8.80 |
| Rufous Bristlebird | <i>Dasyornis broadbenti littoralis</i> | " |
| Lord Howe Island Currawong | <i>Strepera graculina crissalis</i> | " |
| Forty-spotted Pardalote | <i>Pardalotus quadragintus</i> | " |
| Norfolk Island Silvereye | <i>Zosterops albogularis</i> | " |
| Helmetted Honeyeater | <i>Lichenostomus melanops cassidix</i> | " |
| Black-eared Miner | <i>Manorina flavigula melanotis</i> | " |
| Northern Scrub Robin | <i>Drymodes superciliaris colcloughi</i> | " |
| <u>Mammals</u> | | |
| Barrow Island Euro | <i>Macropus robustus isabellinus</i> | 3.2.78 |
| Crescent Nail-tailed Wallaby | <i>Onychogalea lunata</i> | " |
| Spectacled Hare-Wallaby | <i>Lagorchestes conspicillatus</i> | " |
| Western Hare-Wallaby | <i>Lagorchestes hirsutus</i> | " |
| Banded Hare-Wallaby | <i>Lagostrophus fasciatus</i> | " |
| Brush-tailed Rock Wallaby | <i>Petrogale penicillata</i> | " |
| Woolie | <i>Bettongia penicillata</i> | " |
| Boodie | <i>Bettongia lesueur</i> | " |
| Broad-faced Potoroo | <i>Potorous platyops</i> | " |
| Gilbert's Potoroo | <i>Potorous tridactylus gilberti</i> | " |
| Rock-haunting Ringtail | <i>Petropseudes dahli</i> | " |
| Marl | <i>Perameles bougainville</i> | " |
| Pig-footed Bandicoot | <i>Chaeropus ecaudatus</i> | " |
| Dalgyte | <i>Macrotis lagotis</i> | " |
| Rusty Numbat | <i>Myrmecobius fasciatus rufus</i> | " |
| Dibbler | <i>Antechinus apicalis</i> | " |
| Long-tailed Dunnart | <i>Sminthopsis longicaudata</i> | " |
| Ingram's Planigale | <i>Planigale ingrami</i> | " |
| Pygmy Marsupial-Mouse | <i>Planigale maculata</i> | " |
| Big-eared Hopping-Mouse | <i>Notomys megalotis</i> | " |
| Long-tailed Hopping Mouse | <i>Notomys longicaudatus</i> | " |
| Dusky Hopping Mouse | <i>Notomys fuscus</i> | " |
| Stick-Nest Rat | <i>Leporillus conditor</i> | " |
| White-tipped Stick-Nest Rat | <i>Leporillus apicalis</i> | " |
| Shark Bay Mouse | <i>Pseudomys praeconis</i> | " |
| Gould's Native Mouse | <i>Pseudomys gouldii</i> | " |
| Shortridge's Native Mouse | <i>Pseudomys shortridgei</i> | " |
| Dugong | <i>Dugong dugon</i> | " |
| <u>Reptiles</u> | | |
| Salt-water Crocodile | <i>Crocodylus porosus</i> | " |
| Fresh-water Crocodile | <i>Crocodylus johnstoni</i> | " |
| Western Swamp (Short-necked) Tortoise | <i>Pseudemys umbrina</i> | " |
| Leathery Turtle | <i>Dermochelys coriacea</i> | " |
| Lancelin Island Skink | <i>Ctenotus lancelini</i> | " |
| Linked Skink | <i>Lerista lineata</i> | " |
| Carpet Snake | <i>Python Spilotus</i> | " |
| <u>Amphibians</u> | | |
| Round Frog | <i>Arenophryne rotunda</i> | " |

4. OPEN SEASONS

Open Seasons declared in 1980/81

Government
Gazette

Finch Trapping Season - 1 September to
15 November 1981

26.6.81

Waterfowl Hunting Season (Kimberley,
North-west and Eastern Land Divisions)
1 January to 31 December 1981

5.12.80

Management of populations of Red Kangaroo
(*Megaleia rufa*) and Euro (*Macropus robustus*)

21.11.80

Management of populations of Emu
(*Dromaius novaehollandiae*)

21.11.80

Management of Sulphur-crested Cockatoos
(Eastern sub-species) (*Cacatua galerita
queenslandica*, *Cacatua galerita rosinae*,
Cacatua galerita melvillensis, *Cacatua
galerita interjecta*)

22.5.81

Management of Agile Wallabies (*Macropus agilis*)

21.11.80

Management of populations of Grey Kangaroo
(*Macropus fuliginosus*)

21.11.80

Existing Open Seasons

Hunting Season - Brown Quail (*Synoicus
ypsilophorus*) and Stubble Quail (*Coturnix
pectoralis*). 1 January to 30 June each year

25.6.71

Management of Black Cormorants (*Phalacrocorax
carbo*) and Pied Cormorants (*Phalacrocorax varius*)

16.6.78

Management of certain species of birds of
prey, parrots, cockatoos, crow species and
Silvereyes in various Shires

16.6.78

5. IMPORTATION AND KEEPING OF MONKEYS AND OTHER PRIMATES

By notice in the *Government Gazette* on 5 January 1979, the
Hon. Minister for Fisheries and Wildlife prohibited the
import into Western Australia and the keeping of any animal
of the order 'Primates', unless specific authorisation is
obtained.

6. SPECIES DECLARED TO BE FAUNA UNDER SECTION 6(2) OF THE
WILDLIFE CONSERVATION ACT

(Notice in *Government Gazette* on 23 November 1979)

White Swan *Cygnus olor*
Peafowl and Pheasants of the genera *Pavo* and *Phasianus*
respectively on Rottnest Island.

III THE FLORA

The following classes of flora are declared to be protected flora. (Government Gazette 18 April 1980)

Pteridophyta (ferns and fern allies)
Gymnosperms (conifers and cycads)
Angiosperms (flowering plants)

Protected flora of the taxa listed below growing in a natural state and not in a domesticated or cultivated state are declared to be rare throughout Western Australia. (Government Gazette 14 November 1980)

| | | | |
|--------------------------------|--------------------------|-----------------------------------|------------------------------|
| <i>Acacia anomala</i> | Chattering Grass Wattle | <i>Grevillea baxteri</i> | Cape Arid Grevillea |
| <i>Acacia aphylla</i> | Leafless Rock Wattle | <i>Grevillea cirsiifolia</i> | Varied-leaf Grevillea |
| <i>Acacia argutifolia</i> | East Barrens Wattle | <i>Grevillea drummondii</i> | Drummond's Grevillea |
| <i>Acacia depressa</i> | Echidna Wattle | <i>Grevillea dryandroides</i> | Phalanx Grevillea |
| <i>Acacia guinetii</i> | Guinet's Wattle | <i>Grevillea inconspicua</i> | Cue Grevillea |
| <i>Acacia simulans</i> | Barrens Kindred Wattle | <i>Grevillea infundibularis</i> | Fan-leaf Grevillea |
| <i>Adenanthos cunninghamii</i> | Albany Woollybush | <i>Grevillea involucrata</i> | Lake Varley Grevillea |
| <i>Adenanthos detmoldii</i> | Yellow Jugflower | <i>Grevillea prostrata</i> | Pallarup Grevillea |
| <i>Adenanthos dobagii</i> | Fitzgerald Woollybush | <i>Grevillea rhipicola</i> | Collie Grevillea |
| <i>Adenanthos ellipticus</i> | Oval-leaf Adenanthos | <i>Grevillea saccata</i> | Pouched Grevillea |
| <i>Adenanthos eyrei</i> | Toolinna Adenanthos | <i>Hakea aculeata</i> | Column Hakea |
| <i>Adenanthos ileticos</i> | Club-leaf Adenanthos | <i>Hakea megalosperma</i> | Lesueur Hakea |
| <i>Adenanthos pungens</i> | Spiky Adenanthos | <i>Hibbertia bracteosa</i> | Porongurups Hibbertia |
| <i>Adenanthos velutinus</i> | Velvet Woollybush | <i>Hibbertia miniata</i> | Orange Hibbertia |
| <i>Aponogeton hexatepalus</i> | Stalked Water-Ribbons | <i>Hydrocotyle lemnoides</i> | Aquatic Pennywort |
| <i>Asplenium obtusatum</i> | Shore Spleenwort | <i>Kennedia beckxiana</i> | Cape Arid Kennedia |
| <i>Banksia brownii</i> | Feather-leaf Banksia | <i>Kennedia glabrata</i> | Northcliffe Kennedia |
| <i>Banksia goodii</i> | Good's Banksia | <i>Kennedia macrophylla</i> | Augusta Kennedia |
| <i>Banksia tricuspis</i> | Pine Banksia | <i>Lambertia echinata</i> | Prickly Honeysuckle |
| <i>Caladenia lavandulacea</i> | Lavender Spider Orchid | <i>Lambertia orbifolia</i> | Round-leaf Honeysuckle |
| <i>Casuarina fibrosa</i> | Woolly Sheoak | <i>Lambertia rariflora</i> | Green Honeysuckle |
| <i>Conostylis misera</i> | Grass Conostylis | <i>Lasiopetalum bracteatum</i> | Helena Velvet Bush |
| <i>Cooperookia georgei</i> | Mauve Cooperookia | <i>Lechenaultia pulvinaris</i> | Cushion Lechenaultia |
| <i>Darwinia acerosa</i> | Fine-leaved Darwinia | <i>Lechenaultia superba</i> | Barrens Lechenaultia |
| <i>Darwinia carnea</i> | Mogumber Bell | <i>Leucopogon obtectus</i> | Hidden Beard-heath |
| <i>Darwinia collina</i> | Yellow Mountain Bell | <i>Melaleuca baxteri</i> | Albany Paperbark |
| <i>Darwinia macrostegia</i> | Mondurup Bell | <i>Pentapeltis silvatica</i> | Southern Pentapeltis |
| <i>Darwinia masonii</i> | Mason's Darwinia | <i>Pityrodia augustensis</i> | Mt Augustus Foxglove |
| <i>Darwinia meeboldii</i> | Cranbrook Bell | <i>Pomaderris bilocularis</i> | Tutanning Pomaderris |
| <i>Darwinia squarrosa</i> | Fringed Mountain Bell | <i>Pomaderris grandis</i> | Large Pomaderris |
| <i>Dodonaea hackettiana</i> | Perth Hop Bush | <i>Ptychosema pusillum</i> | Dwarf Pea |
| <i>Drosera occidentalis</i> | Minute Pygmy Sundew | <i>Rhizanthella gardneri</i> | Underground Orchid |
| <i>Drummondita hassellii</i> | Peak Charles Drummondita | <i>Ricinocarpus trichophorus</i> | Barrens Wedding Bush |
| var. <i>longifolia</i> | | <i>Roycea pycnophylloides</i> | Saltmat |
| <i>Dryandra comosa</i> | Wongan Dryandra | <i>Spirogardnera rubescens</i> | Spiral Bush |
| <i>Dryandra pulchella</i> | Sprawling Dryandra | <i>Stachystemon axillaris</i> | Leafy Stachystemon |
| <i>Eremophila denticulata</i> | Fitzgerald Eremophila | <i>Stawellia dimorphantha</i> | Arrowsmith Stilt-lily |
| <i>Eremophila virens</i> | Campion Eremophila | <i>Stylidium coroniforme</i> | Wongan Triggerplant |
| <i>Eucalyptus aquilina</i> | Mt Le Grand Mallee | <i>Stylidium expeditionis</i> | Tutanning Triggerplant |
| <i>Eucalyptus burdettiana</i> | Burdett Gum | <i>Stylidium galioides</i> | Yellow Mountain Triggerplant |
| <i>Eucalyptus caesia</i> | Caesia | <i>Synaphea pinnata</i> | Helena Synaphea |
| <i>Eucalyptus calcicola</i> | Hamelin Bay Mallee | <i>Tegicornia uniflora</i> | Mat Samphire |
| <i>Eucalyptus carnabyi</i> | Carnaby's Mallee | <i>Urocarpus phebaloides</i> | Gairdner Range Starbush |
| <i>Eucalyptus coronata</i> | Crowned Mallee | <i>Verticordia helichrysantha</i> | Barrens Featherflower |
| <i>Eucalyptus desmondensis</i> | Desmond Mallee | <i>Verticordia staminosa</i> | Wongan Featherflower |
| <i>Eucalyptus exilis</i> | Boyagin Mallee | <i>Villarsia calthifolia</i> | Mountain Villarsia |
| <i>Eucalyptus insularis</i> | Twin Peak Island Mallee | | |
| <i>Eucalyptus johnsoniana</i> | Johnson's Mallee | | |
| <i>Eucalyptus kruseana</i> | Bookleaf Mallee | | |
| <i>Eucalyptus pendens</i> | Badgingarra Mallee | | |
| <i>Eucalyptus rhodantha</i> | Rose Mallee | | |
| <i>Eucalyptus steedmanii</i> | Steedman's Gum | | |
| <i>Franklandia triaristata</i> | Plumed Lanoline Bush | | |
| <i>Gastrolobium appressum</i> | Scale Leaf Poison | | |
| <i>Gastrolobium glaucum</i> | Wongan Poison | | |

IV NATURE RESERVES

1. INTRODUCTION

The Wildlife Conservation Act defines a Nature Reserve as "an area of land which is vested in the Crown and which the Governor, subject to such conditions and limitations as he thinks fit, reserves to Her Majesty or disposes of in the public interest pursuant to the provisions of paragraph (g) of sub-section (1) of section twenty-nine of the Land Act, 1933, for the conservation of indigenous flora or fauna".

Prior to the Act being amended in 1975, Nature Reserves were known as Wildlife Sanctuaries and included only reserves set aside for the conservation of fauna.

2. TABLE OF RESERVES

| Year 30 June | Total Number | Area (ha) | Vested in the W. A. Wildlife Authority | |
|-----------------|-----------------|--------------|---|-----------|
| | | | No. | Area (ha) |
| 1969 | 278 | 2 342 966 | 127 | 818 442 |
| 1970 | 315 | 2 100 318 | 156 | 867 362 |
| 1971 | 359 | 4 955 893 | 213 | 4 415 595 |
| 1972 | 404 | 5 077 224 | 242 | 4 533 944 |
| 1973 | 440 | 5 013 287 | 265 | 4 607 266 |
| 1974 | 454 | 5 033 935 | 281 | 4 626 617 |
| 1975 | 491 | 5 103 037 | 320 | 4 713 482 |
| 1976 | 918 | 5 339 947 | 351 | 4 747 403 |
| 1977 | 946 | 7 520 839 | 385 | 6 927 627 |
| 1978 | 995 | 8 398 648 | 412 | 8 086 314 |
| 1979 | 1016 | 8 536 654 | 493 | 8 205 197 |
| 1980 | 1036 | 9 065 634 | 555 | 8 805 310 |
| 1981 | 1062 | 9 883 231 | 620 | 9 663 637 |

3. SUMMARY OF NATURE RESERVES - JUNE 30, 1981.

| | | |
|-------------------------------|----------------------|----------------------------|
| As at June 30, 1980 | 1036 reserves | 9 065 634.5813 ha |
| New Reserves 1980/81 | 38 reserves | +814 191.5176 ha |
| Amendments 1980/81 | 18 reserves | + 7 306.4555 ha |
| Cancelled Reserves 1980/81 | 12 reserves | - 3 901.1371 ha |
| TOTAL | 1062 reserves | = 9 883 231.4174 ha |

4. NATURE RESERVES VESTED IN WESTERN AUSTRALIAN WILDLIFE AUTHORITY - JUNE 30, 1981.

| | | |
|-------------------------------------|---------------------|----------------------------|
| As at June 30, 1980 | 555 reserves | 8 805 310.5195 ha |
| New reserves 1980/81 | 24 reserves | 797 466.9197 ha |
| Amendments 1980/81 | 14 reserves | 4 322.4255 ha |
| Existing reserves vested 1980/81 | 41 reserves | 56 537.1687 ha |
| TOTAL | 620 reserves | = 9 663 637.0334 ha |

5. NEW RESERVES 1980/81

| NO. | NAME | AREA | VESTING | GAZETTED |
|-------|------|----------|----------------|--|
| 36608 | | 80.6128 | - | 24.04.80 (Omitted from 1979/80 Report) |
| 36719 | | 88.9441 | W.A.W.A. | 04.07.80 |
| 30430 | | 120.3257 | W.A.W.A. | 18.07.80 |
| 21429 | | 252.0484 | W.A.W.A. | 01.08.80 |
| 35291 | | 4.6284 | - | 22.08.80 |
| 36742 | | 403.8328 | W.A.W.A. | 12.09.80 |
| 36827 | | 18.8707 | W.A.W.A. | 12.09.80 |
| 26508 | | 16.1874 | W.A.W.A. | 26.09.80 |
| 36918 | | 13 750. | - | 10.10.80 |
| 23321 | | 26.7450 | Min. for Water | 10.10.80 |
| 36913 | | 6090 | W.A.W.A. | 24.10.80 |
| 36915 | | 4352 | W.A.W.A. | 24.10.80 |
| 2070 | | 202.3482 | W.A.W.A. | 07.11.80 |
| 13230 | | 258.9988 | Min. for Water | 07.11.80 |
| 17655 | | 244.5060 | Min. for Water | 07.11.80 |
| 20530 | | 637.3799 | Min. for Water | 07.11.80 |

| NO. | NAME | AREA | VESTING | GAZETTED |
|---------|------|------------|----------------|----------|
| 36942 | | 64.7497 | W.A.W.A. | 07.11.80 |
| 9234 | | 258.9988 | Min. for Water | 21.11.80 |
| 16907 | | 116.0601 | W.A.W.A. | 21.11.80 |
| 36967 | | 145.8710 | W.A.W.A. | 21.11.80 |
| 29027 | | 1 251.9721 | W.A.W.A. | 28.11.80 |
| 32549 | | 1 773.7661 | W.A.W.A. | 28.11.80 |
| 30541 | | 265.8405 | Min. for Water | 12.12.80 |
| 3042 | | 121.4057 | W.A.W.A. | 16.01.81 |
| 37010 | | 4.0469 | W.A.W.A. | 16.01.81 |
| 37016 | | 1.7503 | W.A.W.A. | 16.01.81 |
| 37034 | | 1 117.0750 | W.A.W.A. | 16.01.81 |
| 14906 | | 385.3607 | Min. for Water | 30.01.81 |
| 16560 | | 45.7295 | W.A.W.A. | 13.02.81 |
| B 36957 | | 780 883. | W.A.W.A. | 13.02.81 |
| 37060 | | 134.0066 | W.A.W.A. | 13.02.81 |
| 21827 | | 166.7027 | W.A.W.A. | 10.04.81 |
| 29249 | | 317.1124 | Min. for Water | 10.04.81 |
| 16136 | | 15.7777 | W.A.W.A. | 08.05.81 |
| 16479 | | 77.1837 | Min. for Water | 08.05.81 |
| 16144 | | 80.4490 | W.A.W.A. | 09.05.81 |
| 11717 | | 36.4217 | Min. for Water | 26.06.81 |
| 16776 | | 380.8092 | Min. for Water | 26.06.81 |

TOTAL : 38 New Reserves 814,191.5176 ha

TOTAL of New Reserves Vested in W.A.W.A. = 24

TOTAL Area of New Reserves Vested in W.A.W.A. = 797 466.9197

6. OTHER CHANGES

(i) Amendments to Area 1980/81

| NO. | NAME | VESTING | OLD AREA | NEW AREA | DIFFERENCE | DATE |
|---------|------------------|----------|------------|-------------|-------------|----------|
| 28940 | | | 1 375.1218 | 4 367.8179 | +2 992.6961 | 04.07.80 |
| 31128 | Kundip | W.A.W.A. | 2 137.6407 | 2 170.1964 | +32.5557 | 04.07.80 |
| 16346 | | W.A.W.A. | 40.5873 | 44.3636 | +3.7763 | 18.07.80 |
| A.24556 | Toolibin Lake | W.A.W.A. | 236.7411 | 351.3220 | +114.5809 | 18.07.80 |
| 28313 | | W.A.W.A. | 888.4899 | 928.9585 | +40.4686 | 18.07.80 |
| 16245 | | | 260.6302 | 259.1542 | -1.476 | 01.08.80 |
| 33174 | Thevenard Island | W.A.W.A. | 574.3056 | 543.6160 | -30.6896 | 15.08.80 |
| 31781 | Nilgen | W.A.W.A. | 4 561.9161 | 4 545.7302 | -16.1859 | 29.08.80 |
| 20526 | Mt Hampton | W.A.W.A. | 376.2945 | 594.4870 | +218.1925 | 26.09.80 |
| 24891 | Marbellup | W.A.W.A. | 66.0549 | 103.6680 | +37.6131 | 28.11.80 |
| 31675 | | W.A.W.A. | 9 283.9643 | 11 137.5000 | +1 853.5360 | 12.12.80 |
| 35168 | | W.A.W.A. | 1 058.6675 | 1 111.2766 | +52.6091 | 16.01.81 |
| 33254 | | | 19.6873 | 9.4731 | -10.2142 | 27.02.81 |
| 22058 | | W.A.W.A. | 14.1640 | 17.1106 | +2.9466 | 27.03.81 |
| 34522 | Lake Ace | W.A.W.A. | 1 403.7402 | 2 391.8402 | +988.1000 | 27.03.81 |
| 32993 | | | 40.5597 | 43.5838 | +3.0241 | 10.04.81 |
| 31781 | Nilgen | W.A.W.A. | 4 545.7302 | 5 569.0245 | +1 023.2943 | 24.04.81 |
| 30132 | | W.A.W.A. | 30.0660 | 31.6939 | +1.6279 | 24.04.81 |

Total - = -58.5657
 Total + = +7 365.0212
 Total area amended = +7 306.4555

Total 18 W.A.W.A. Reserves amended = +4 322.4255

(ii) Existing Reserves Vested 1980/81

| NO. | NAME | VESTING | AREA (ha) | DATE |
|------------------------------|------------------|----------------|------------------|----------|
| 31128 | Kundip | W.A.W.A. | 2 170.1964 | 04.07.80 |
| 1703 | | W.A.W.A. | 8.0937 | 18.07.80 |
| 13051 | | W.A.W.A. | 169.9680 | 18.07.80 |
| A.13594 | | W.A.W.A. | 40.8732 | 18.07.80 |
| 28313 | | W.A.W.A. | 928.9585 | 18.07.80 |
| 13565 | | W.A.W.A. | 365.6410 | 15.08.80 |
| 30469 | | W.A.W.A. | 9.3331 | 29.08.80 |
| 12017 | | W.A.W.A. | 6.6268 | 29.08.80 |
| 31754 | Cheadanup | W.A.W.A. | 6 813.0000 | 12.09.80 |
| 25546 | | W.A.W.A. | 16.1874 | 26.09.80 |
| 32128 | Beaumont (Group) | W.A.W.A. | 444.5446 | 10.10.80 |
| 18381 | | W.A.W.A. | 16.1975 | 10.10.80 |
| 23321 | | Min. for Water | 26.7450 | 10.10.80 |
| 28004 | | W.A.W.A. | 228.2427 | 10.10.80 |
| 27283 | | W.A.W.A. | 1 347.4242 | 10.10.80 |
| 28940 | | W.A.W.A. | 4 367.8179 | 10.10.80 |
| 29326 | | W.A.W.A. | 8.4352 | 10.10.80 |
| 6798 | | W.A.W.A. | 18.7167 | 07.11.80 |
| 13797 | | W.A.W.A. | 36.0170 | 07.11.80 |
| 14510 | | W.A.W.A. | 161.8743 | 07.11.80 |
| 16493 | | W.A.W.A. | 54.4302 | 07.11.80 |
| 20066 | | W.A.W.A. | 23.8082 | 07.11.80 |
| 20095 | | W.A.W.A. | 99.5881 | 07.11.80 |
| 30618 | | W.A.W.A. | 346.0441 | 07.11.80 |
| 14194 | | W.A.W.A. | 65.0532 | 21.11.80 |
| 4313 | | W.A.W.A. | 43.7060 | 28.11.80 |
| A.23313 | | W.A.W.A. | 115.9854 | 28.11.80 |
| A.24781 | Forrestdale Lk | W.A.W.A. | 243.6208 | 16.01.81 |
| 35163 | | W.A.W.A. | 6.1614 | 30.01.81 |
| 36918 | | W.A.W.A. | 13 750.0000 | 30.01.81 |
| 31755 | Munglinup | W.A.W.A. | 824.5622 | 13.02.81 |
| A.22482 | | Con.of Forests | 10.2032 | 23.02.81 |
| 36445 | | W.A.W.A. | 22 797.0000 | 27.02.81 |
| 36608 | | W.A.W.A. | 80.6128 | 23.02.81 |
| A.25039 | Emu Hill | W.A.W.A. | 89.0308 | 13.03.81 |
| 20986 | Marinda | W.A.W.A. | 70.6606 | 27.03.81 |
| 22058 | | W.A.W.A. | 17.1106 | 27.03.81 |
| 24539 | | W.A.W.A. | 161.9224 | 27.03.81 |
| 26687 | | W.A.W.A. | 303.2893 | 27.03.81 |
| 30132 | | W.A.W.A. | 31.6939 | 24.04.81 |
| 32142 | | W.A.W.A. | 191.2040 | 29.05.81 |
| 893 | Chapman River | W.A.W.A. | 15.0221 | 26.06.81 |
| 24072 | Wurgabup | W.A.W.A. | 48.5144 | 26.06.81 |
| TOTAL = 43 Reserves | | | = 56 574.1169 ha | |
| TOTAL = 41 W.A.W.A. Reserves | | | = 56 537.1687 | |

(iii) Existing Reserves Made Class "A" or "B" 1980/81.

| NO. | NAME | VESTING | AREA (ha) | GAZETTED |
|----------------------|------------------|--------------|-------------|----------|
| A.23313 | Gt. Sandy Island | W.A.W.A. | 115.9854 | 28.11.80 |
| B.33831 | | W.A.W.A. | 25.8064 | 13.02.81 |
| A.17732 | | W.A.W.A. | 92.9613 | 10.04.81 |
| A.25681 | | W.A.W.A. | 1601.8900 | 26.06.81 |
| TOTAL Made Class "A" | | = 3 reserves | = 1810.8367 | |
| TOTAL Made Class "B" | | = 1 reserve | = 25.8064 | |

(iv) Existing Reserves, Change of Purpose 1980/81.

| NO. | NAME | VESTING | FROM | TO | AREA | GAZETTED |
|-------|--------|----------|-------------------------------|---|------------|----------|
| 31128 | Kundip | W.A.W.A. | Cons. of Flora & Fauna | Cons. of Flora & Fauna & Water | 2 170.1964 | 04.07.80 |
| 1703 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 8.0937 | 18.07.80 |
| 13051 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 169.9680 | 18.07.80 |
| 28313 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 928.9585 | 18.07.80 |
| 13565 | | W.A.W.A. | Pres. of Timber & Flora | Cons. of Flora & Fauna | 365.6410 | 15.08.80 |
| 30469 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 9.3331 | 29.08.80 |
| 12017 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 6.6268 | 29.08.80 |
| 25546 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 16.1874 | 26.09.80 |
| 18381 | | W.A.W.A. | Cons of Flora | Cons. of Flora & Fauna | 16.1975 | 10.10.80 |
| 28004 | | | Cons. of Flora | Cons. of Flora & Fauna | 228.2427 | 10.10.80 |

| NO. | NAME | VESTING | FROM | TO | AREA | GAZETTED |
|----------|----------|----------|--------------------------------|------------------------------|----------|----------|
| 6798 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 18.7167 | 07.11.80 |
| 13797 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 36.0170 | 07.11.80 |
| 16493 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 54.4302 | 07.11.80 |
| 30618 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 346.0441 | 07.11.80 |
| 14194 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 65.0532 | 21.11.80 |
| 4313 | | W.A.W.A. | Cons. of Nat. Veg. | Cons. of Flora & Fauna | 43.7060 | 28.11.80 |
| A. 23313 | | W.A.W.A. | Prot. of Flora | Cons. of Flora & Fauna | 115.9854 | 28.11.80 |
| 35163 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 6.1614 | 30.01.81 |
| 36608 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 80.6128 | 27.02.81 |
| A. 25039 | Emu Hill | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 89.0308 | 13.03.81 |
| 20986 | Marinda | W.A.W.A. | Flora & Fauna | Cons. of Flora & Fauna | 70.6606 | 27.03.81 |
| 22058 | | W.A.W.A. | Prot. of Flora (Boronia) | Cons. of Flora & Fauna | 17.1106 | 27.03.81 |
| 24539 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 161.9224 | 27.03.81 |
| 26687 | | W.A.W.A. | Cons. of Flora | Cons. of Flora & Fauna | 303.2893 | 27.03.81 |

(v) Existing Reserves Cancelled 1980/81

| RESERVE NO. | PREVIOUS PURPOSE | AREA (ha) | DATE GAZETTED |
|-------------|--|-----------|---------------|
| 23137 | Conservation of Flora | 8.9031 | 15.08.80 |
| 26243 | Water, Conservation of Flora & Propagation of Marron | 391.2298 | 28.11.80 |
| 18536 | Protection of Boronia | 52.6091 | 16.01.81 |
| 33830 | Conservation of Flora and Fauna | 45.4193 | 13.02.81 |
| 33903 | Conservation of Flora and Fauna | 42.3225 | 13.02.81 |
| 35826 | Conservation of Flora and Fauna | 36.1290 | 13.02.81 |

TOTAL Reserves cancelled = 6

Area = 576.6128

(vi) Existing Reserves Purpose Changed to Outside Interests 1980/81

| RESERVE NO. | PURPOSE CHANGED TO | AREA (ha) | DATE GAZETTED |
|-------------|----------------------|------------|---------------|
| 24885 | Parkland | 6.2853 | 29.08.80 |
| 15815 | Parks and Recreation | 3 161.4735 | 29.08.80 |
| B.4244 | Parklands | 147.0000 | 12.09.80 |
| 26853 | Parklands | 4.5147 | 10.10.80 |
| 26030 | Parkland | 2.1271 | 30.01.81 |
| 27306 | Parkland | 3.1237 | 10.04.81 |

TOTAL of Existing Reserves Purpose Changed
to Outside Interests = 6

Area = 3 324.5243

7. CLASSIFICATION

The Wildlife Conservation Act allows Nature Reserves to be classified into various access categories (Section 12A). As at 30.6.81 the following reserves were subject to classifications:

(a) Prohibited areas

| <u>Reserve No.</u> | <u>Name</u> | <u>Local Authority</u> | <u>Comment</u> |
|--------------------|------------------------|------------------------|----------------------------|
| A.23187 | Nangeen Hill | Bruce Rock | |
| A.24869 | Bernier & Dorre Is. | Carnarvon | Dorre I. only |
| A.25113 | Lake Magenta | Kent, Lake Grace | excludes protected road |
| 27164 | Prince Regent | West Pilbara | |
| A.27956 | Two Peoples Bay | Albany Shire | part only |

(b) Limited Access Areas

| | | | |
|---------|------------------------|---------------------------|----------------------------|
| A.15556 | Thomsons Lake | Cockburn | excludes boundary strip |
| 23586 | Yorkrakine Rock | Tammin | |
| A.24556 | Toolibin Lake | Wickepin | |
| A.24869 | Bernier & Dorre Is. | Carnarvon | Bernier I. only |
| 25886 | Modong | Serpentine- Jarrahdale | excludes boundary strip |
| A.27620 | Ellen Brook | Swan | |
| A.27621 | Twin Swamps | Swan | |
| A.27956 | Two Peoples Bay | Albany Shire | part only |
| A.30191 | Moondyne | Toodyay | |

(c) Shooting or Hunting Areas

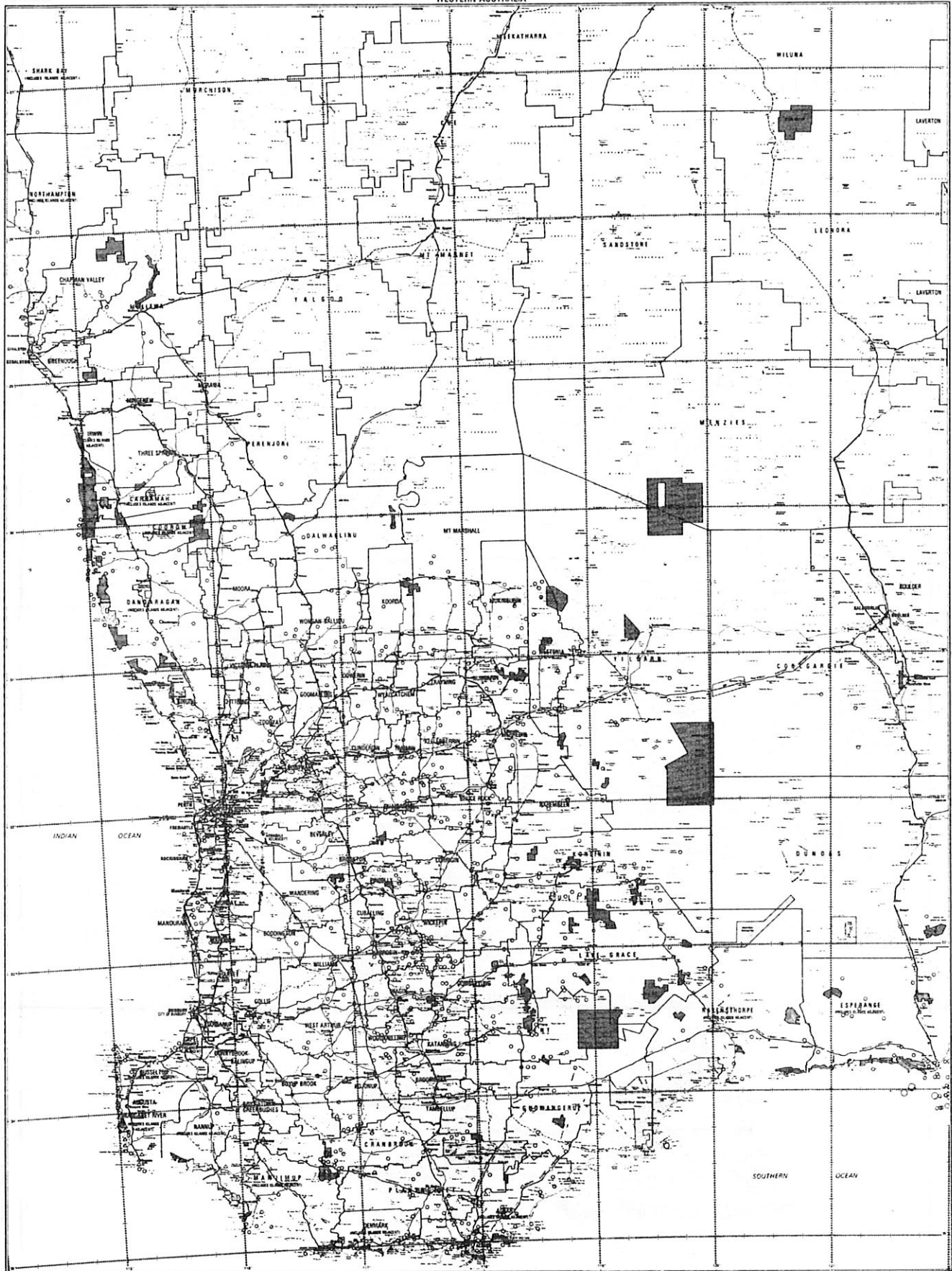
| | | | |
|---------|-----------------------------------|-----------------------------------|--|
| A.15107 | Lake Pleasant View | Albany | |
| 12398 | Lake Mears | Brookton | |
| 28088 | Channel Lakes | Brookton, Beverley, Quairading | |
| 31837 | Beverley Lakes | Beverley | |
| 25210 | Pinjarrega Lake | Coorow | |
| 24428 | Nonalling and Whitewater Lakes | Corrigin | |
| 18468 | Lake Balicup | Cranbrook | |
| A.25798 | Lake Unicup | Cranbrook | |
| A.26160 | Lake Jebarjup | Cranbrook | |
| A.26161 | Camel Lake | Cranbrook/ Gnowangerup | |
| 26687 | Lake Kulunilup | Cranbrook | |
| 26679 | Lake Pindicup | Cranbrook | |
| 26680 | Lake Noojubup | Cranbrook | |
| 26682 | Pinticup Swamp | Cranbrook | |

| <u>Reserve No.</u> | <u>Name</u> | <u>Local Authority</u> | <u>Comment</u> |
|--------------------|-----------------------------|------------------------|--|
| 26681 | East Penticup Swamp | Cranbrook | |
| 26901 | Yarnup Swamp | Cranbrook | |
| 30018 | Lake Mordalup | Cranbrook | |
| 27393 | Eneminga Brook | Dandaragan | |
| 27394 | Eneminga Brook | Dandaragan | |
| 5999 | Lake Dumbleyung | Dumbleyung | |
| 26664 | Lake Dumbleyung | Dumbleyung | |
| A.25133 | Cobline Flats | Dumbleyung | |
| A.25134 | Cobline Flats | Dumbleyung | |
| 10472 | Coomelberrup Lk | Dumbleyung | |
| 32339 | Lake Shaster | Esperance, | |
| | | Ravensthorpe | |
| A.15231 | Woody Lake | Esperance | |
| A.23825 | Mullet Lake | Esperance | |
| 4182 | - | Esperance | |
| A.32419 | Lake Gore | Esperance | |
| 9676 | Bootine Swamp | Gingin | |
| A.9838 | Wannamal Lake | Gingin | |
| A.17186 | Walyormouring Lake | Goomalling | |
| 34811 | Benger Swamp | Harvey | |
| A.7535 | Carrolup Rd Swamp | Katanning | |
| A.25136 | Cobline Flats | Katanning | |
| A.28552 | Lake Coyre cup | Katanning | |
| 26020 | Lake Coyre cup East | Katanning | |
| 9508 | Arthur River Flats | Narrogin | |
| 26788 | Arthur River Flats | Narrogin | 8. LAND PURCHASES |
| 26789 | Arthur River Flats | Narrogin | During the 1980\81 financial year, a total of 1000 was on the purchase of land near Shackleton and to provide additional areas for two existing Narrogin, and 1000 near Moomber for the creation of a new reserve. |
| 9550 | Lake Taarblin | Narrogin | |
| 10631 | Lake Taarblin | Narrogin | |
| 20692 | Lake Taarblin | Narrogin | |
| 9552 | Lake Lukin | Narrogin | |
| 9628 | Billy Lake | Narogin | |
| 9629 | Ibis Lake | Narrogin | |
| 10016 | South of White Lake | Narrogin | |
| 9551 | Lake Bokan | Narrogin | |
| 17339 | between Bokan & Nomans Lake | Narrogin | |
| 26785 | Nomans Lake | Narrogin | |
| 21284 | White Lake | Narrogin | |
| 26786 | west of White Lake | Narrogin | |

| <u>Reserve No.</u> | <u>Name</u> | <u>Local Authority</u> | <u>Comment</u> |
|--------------------|--------------------------|------------------------|----------------|
| 24789 | Brown & Campion Lakes | Nungarin | |
| 28286 | Jerdacuttup River | Ravensthorpe | |
| 26162 | Three Swamps | Tambellup | |
| 10313 | Lake Nooriying | Tammin | |
| 24373 | Gundaring Lake | Wagin | |
| 2085 | east of Wagin Lake | Wagin | |
| 2086 | east of Wagin Lake | Wagin | |
| 2087 | east of Wagin Lake | Wagin | |
| 2088 | east of Wagin Lake | Wagin | |
| 9098 | - | Wagin | |
| A.10733 | Parkeyerring Lake | Wagin | |
| 1740 | Wild Horse Swamp | West Arthur | |
| A.5456 | Dead Man's Swamp | West Arthur | |
| A.9617 | Lake Dulbinning | Wickepin | |
| A.14396 | Lake Walbyring | Wickepin | |
| A.27286 | Wild Dog Swamp | Wickepin | |
| A.27026 | Lake Ninan | Wongan-Ballidu | |
| 17055 | Lake Martinup | Woodanilling | |
| 27609 | Flagstaff Lake | Woodanilling | |
| 17257 | Murapin Lake | Woodanilling | |

8. LAND PURCHASES

During the 1980/81 financial year, a sum of \$73 500 was spent on the purchase of land near Shackleton and Benger to provide additional areas for two existing Nature Reserves, and land near Mogumber for the creation of a new reserve.



DEPT. OF FISHERIES AND WILDLIFE

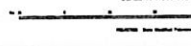
SCALE 1:100 000

LOCAL AUTHORITY BOUNDARIES



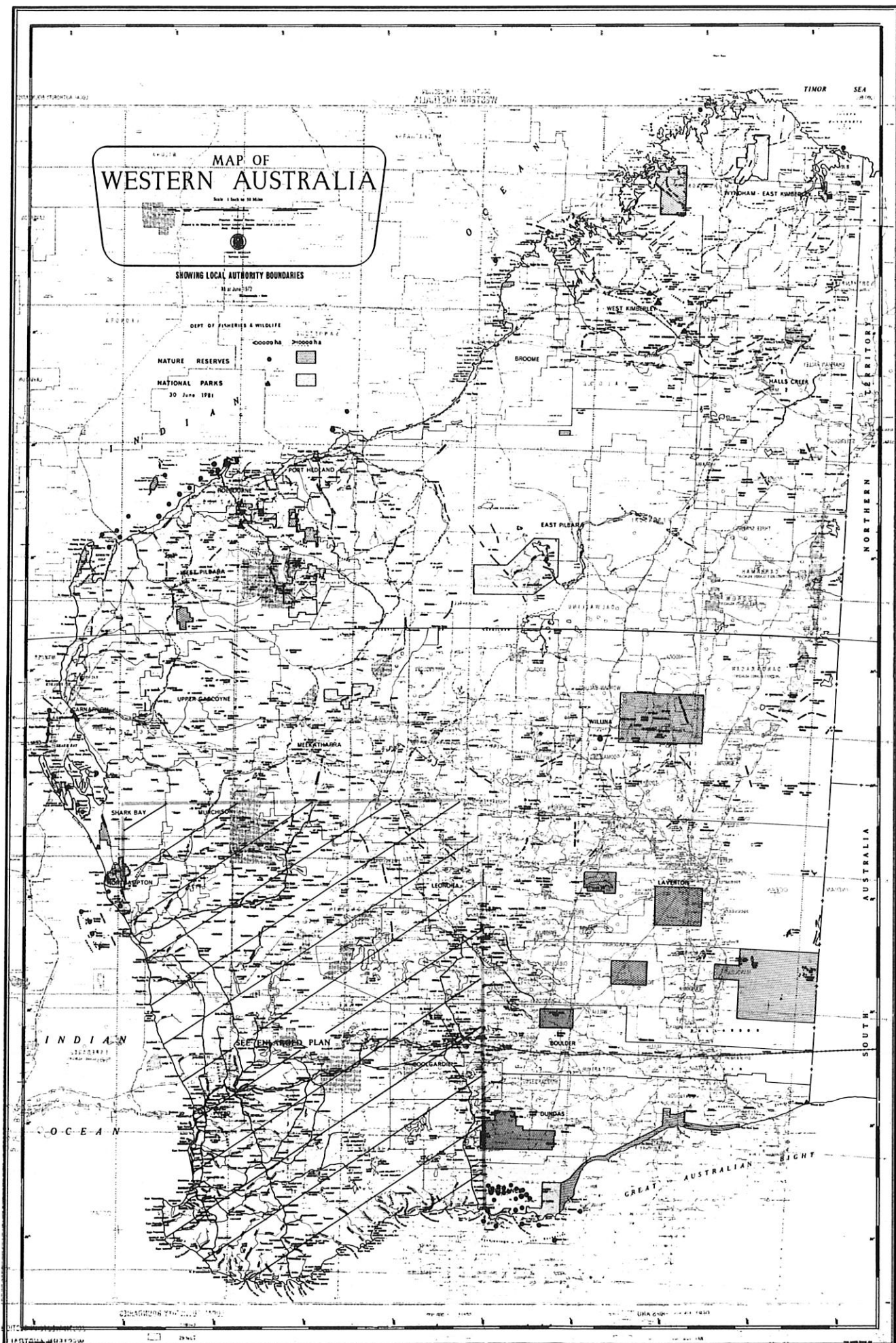
Approved by the National Survey Commission, Canberra, Australia
 Printed by the National Survey Commission, Canberra, Australia
 Edition 1978

NATURE RESERVES
 NATIONAL PARKS
 RIVER BRIDGE
 See also page 101



SHORES
 TOWNS
 See also page 101

SOUTH WESTERN SECTION
WESTERN AUSTRALIA



V RESERVE MANAGEMENT

1. INTRODUCTION

The continued delay in appointing rural-based Nature Reserve Management Teams is a cause for considerable concern. The Authority and the Department made commitments for work on Nature Reserves in country areas which have not been met and it is becoming increasingly difficult to react positively to reasonable requests for reserve management work from local authorities and adjoining landholders.

Western Australia is developing a system of Nature Reserves of which it can be proud. It is vital that these reserves are properly managed in order to maintain the resource they were created to protect. Management need not be expensive - proper planning and the cooperation of various parts of the community can ensure that nature conservation does not make excessive demands on public funds. The success of the first country Management Team, based at Pingelly, shows what can be achieved at minimal cost. This team manages 250 reserves in 16 local authority districts, and in the three years it has been operational it has demonstrated that a small group of expert and dedicated people can effectively manage quite large areas of natural bush.

2. MANAGEMENT PLANNING

The management planning process, designed during 1980-81, was finalised this year, and the first three plans to be developed using the process were approved by the Hon. Minister for Fisheries and Wildlife, and put into operation. A fourth plan, for the Lake Magenta Nature Reserve, a most important, large reserve of mallee habitats in the eastern wheatbelt, was published during the year in its "draft" form for public comment.

The finalised planning process has the following main features:

1. Provision for a number of Nature Reserves, either of similar type or in the same general area, such as within a single local authority district to be planned for in the one operation;
2. Provision for intensive consultation with local Government authorities in whose districts the reserves occur;

3. Provision for full consultation with the public and for promotion of draft plans to encourage public comment;
4. Special provision for consultation with reserve neighbours and members of the public resident in the districts in which the subject reserves occur;
5. Procedures for the assessment of the plans themselves together with responses of the public by the Wildlife Authority;
6. Procedures to fulfil the statutory requirements for management planning embodied in Section 12D (1) and (2) of the Wildlife conservation Act.

A new series of publications has been instituted by the Department of Fisheries and Wildlife to expedite the planning process. Called the "Western Australian Nature Reserve Management Plan" series, provision is made for each number in the series to be published firstly as a "Draft" then as a "Revised Draft" for Wildlife Authority and Ministerial approval and finally in its approved form. In this final stage the published document as the operational plan for management constitutes a Working Plan for the Nature Reserve concerned in terms of the Wildlife Conservation Act.

To assist the deliberation of the Authority and the Hon. Minister, and to provide essential feedback to the public who have made contribution and submissions in the draft stage of each plan, a further public document, subtitled the "Audit of Public Submissions and Amendments to the Draft Plan" is produced as part of the "Management Plan" series.

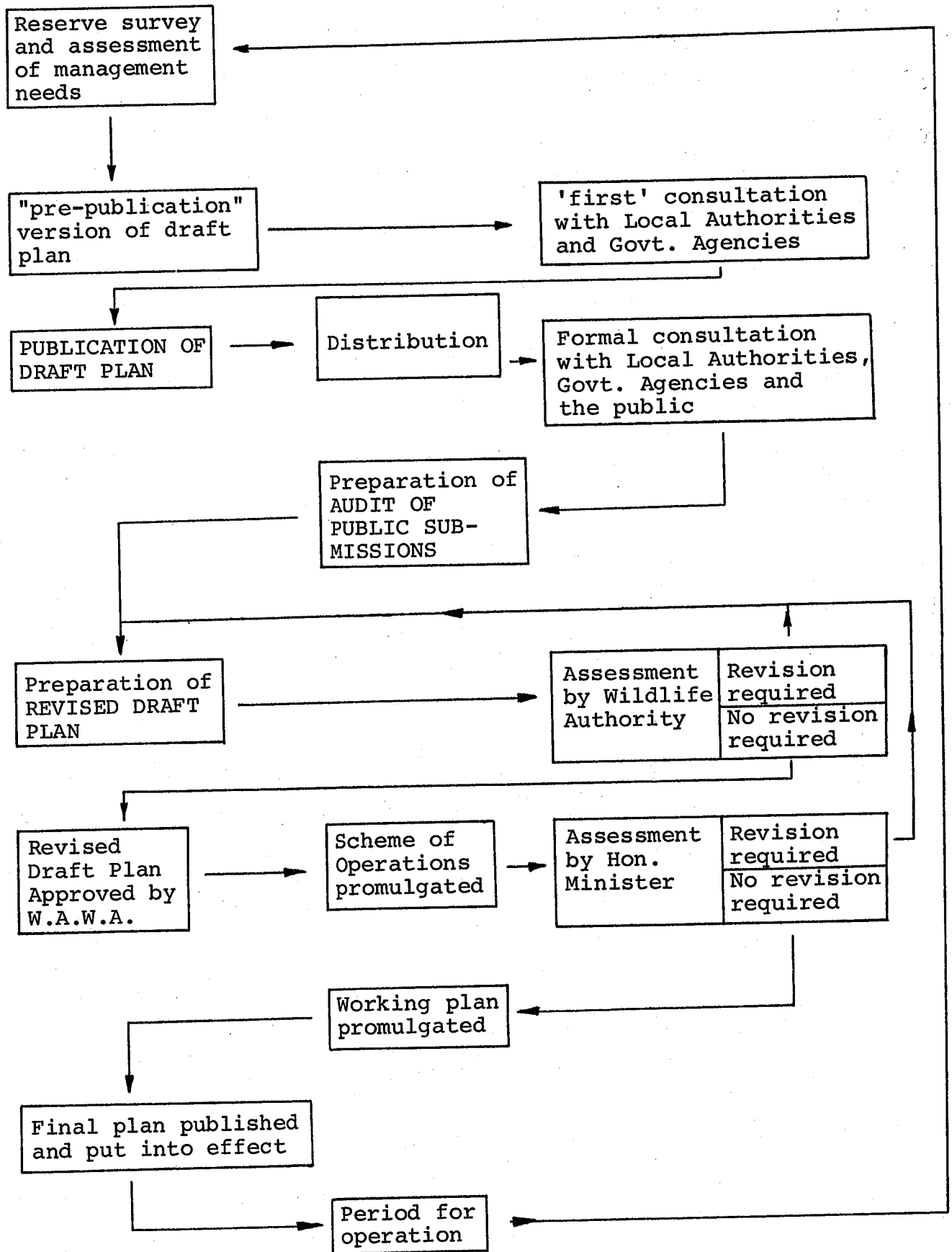
The entire planning process can be summarised in the diagram on p.25.

3. WANNEROO AND OTHER DISTRICTS

(i) Firebreaks

Firebreak maintenance costs rose sharply during the year, necessitating a rescheduling of some work due to lack of funds. Several reserves, mainly in the Albany district, could not be maintained and some were only partially maintained.

Total length of firebreaks managed from Wanneroo is now 2020 km.



A total of 1091 km of firebreaks were maintained; 57 km by Departmental staff and equipment and 1034 km under contract.

New construction was as follows:

| <u>Reserve No.</u> | <u>Name</u> | <u>Length (Km)</u> | <u>Local Authority</u> |
|--------------------|-------------|--------------------|------------------------|
| 30626 | Gingilup | 14.0 | Nannup |
| 32142 | Wilgarup | 8.0 | Manjimup |
| 33697 | Wongamine | 8.0 | Toodyay |
| | Total | <u>30.0</u> km | |

Firebreaks upgraded were as follows:

| <u>Reserve No.</u> | <u>Name</u> | <u>Length (km)</u> | <u>Local Authority</u> |
|--------------------|---------------|--------------------|------------------------|
| A.15555 | Thomsons Lake | 8.0 | Cockburn City |
| 22096 | | 7.0 | Toodyay |
| | Total | <u>15.0</u> km | |

(ii) Wildfires

Nine wildfires were attended by fire crews from Wanneroo:

- (a) Boononaring Hill, Gingin Shire, (proposed nature reserve, System 6 study)
- (b) Reserve 23012, Shire of Serpentine-Jarrahdale
- (c) Modong Nature Reserve, Shire of Serpentine-Jarrahdale
- (d) Alfred Cove Nature Reserve, City of Melville
- (e) Austin Bay Nature Reserve, Shire of Murray
- (f) Gingilup Nature Reserve, Shire of Nannup
- (g) Baker's Junction Nature Reserve, Shire of Albany
- (h) Buller Road Nature Reserve, Shire of Waroona.

In addition units attended a bush fire emergency in the City of Cockburn. Units also assisted at clearing burns adjacent to:

- (a) Lake Magenta Nature Reserve, Shire of Kent
- (b) Wongamine Nature Reserve, Shire of Toodyay
- (c) Bokarup Nature Reserve, Shire of Cranbrook
- (d) Mokine Nature Reserve, Shire of Northam.

(iii) Prescribed Burning Programme

At Two Peoples Bay the fifth year of a six year plan was successfully completed. The last year of the 5 year Kojonup Reserves burning plan was more difficult. The first compartment, which

was comparatively easy to control, was successfully burned under suitable conditions on May 4th. However, it was necessary to delay the burning of the remaining two compartments until further rain fell. A date was finally chosen and arrangements were made for eight fire units from local brigades to be present in addition to four from the Department. However, 48 hours before the burn was programmed the local Brigade Captain requested a further delay because of the extreme dryness of the area. In June, when rain eventually fell, it turned out to be the break of the season and the lack of significant dry periods during that month prevented the prescribed burning taking place.

(iv) Other projects

The erection of a fence around Thomsons Lake Nature Reserve occupied a large part of available staff time during the summer and autumn. Significant delays caused by contractors increased the amount of work necessary by Departmental staff.

New Nature Reserve signs were erected at Moondyne, Thomsons Lake and Modong Nature Reserves.

4. PINGELLY

As at June 1981 there were 254 Nature Reserves within the Pingelly Management District. Significant additions to reserved land within the District include the creation of Reserve Nos. 29027 and 32549, both of about 1500 ha, and the expansion of the Lake Ace Nature Reserve.

(i) Biological Survey

During the past year six areas of reserved bushland have been examined and recommended as Nature Reserves to be vested in the Western Australian Wildlife Authority. Two Nature Reserves were surveyed and one of these was also recommended for vesting in the Western Australian Wildlife Authority. Few areas of privately-owned bushland have been investigated in the past twelve months, however two small areas have been recommended for inclusion into Nature Reserves, and preliminary discussions with the relevant landowners have been completed.

Survey work on the Boyagin and Mooradung Nature Reserves has been continued, and it is intended that draft reports on these areas will be completed during 1981/82.

(ii) Firebreak Construction

The major objective of the 1980/81 construction programme was to complete a firebreak system for the Dragon Rocks Nature Reserve. Work included the expansion of some firebreaks; re-clearing of some tracks; and the construction of new firebreaks. Firebreak lengths stated below include all firebreak work whether or not it involved the construction of completely new firebreaks.

| <u>Reserve No.</u> | <u>Name</u> | <u>Length (km)</u> | <u>Shire</u> |
|--------------------|--------------|--------------------|------------------|
| 21286 | - | 5 | Pingelly |
| 21287 | - | 9 | Pingelly |
| 34442 | Dobaderry | 15 | Beverley |
| A.36128 | Dragon Rocks | 146 | Kulin/Lake Grace |

The total length of firebreaks managed from Pingelly is now 949 km.

(iii) Firebreak Maintenance

The good condition of many firebreaks permitted the Pingelly Management Team to discontinue some maintenance work for the 1980/81 season. It was estimated that some 340 km of firebreaks were maintained under contract, and that a further 125 km were maintained by the Pingelly Management Team.

Some maintenance work included the use of a blade plough and a ripper. Results to date suggest that the use of these methods of maintaining firebreaks on a "once-off" basis following construction work will provide long-term advantages for firebreak maintenance. Herbicides have also been used on an experimental basis in firebreak maintenance, and further work with herbicides will be carried out in 1981/82. Work with herbicides has involved consultation with the Department of Agriculture, Forests Department and the National Parks Authority.

(iv) Wildfires

A small wildfire on the Mount Caroline Nature Reserve was attended in the 1980/81 fire season.

(v) Prescribed Burns

A prescribed burn was carried out on part of the Mooradung Nature Reserve in April 1981. Assistance was also given to the Wanneroo Team with control burns at Kojonup and Two Peoples Bay; and the Pingelly Team attended a number of clearing burns adjoining Nature Reserves during the 1980/81 restricted season.

(vi) Other Activities

During the year the Pingelly Team has been involved in a wide variety of activities not mentioned above. Liaison with Local Government, landholders adjoining Nature Reserves, and with other Government Departments has continued to be an important function of management. Recommendations have been made with respect to a number of activities proposed for Reserves including gravel mining, land excision and the construction of banks to combat salt encroachment onto farmland. Liaison with research workers and other visitors to Nature Reserves has continued, and is likely to be of increasing importance. Several chapters of an Operations Manual have now reached the final draft stage, and it is anticipated that several more chapters will be completed during 1981/82.

5. GENERAL

Activities undertaken by the Reserves Management Officer based in Perth included:

- (i) Woody Island, Recherche Archipelago. The management of tourist use has continued and impact has been negligible.
- (ii) Negotiations with the Shire of Bruce Rock, reported last year, concluded with an agreement satisfactory to both parties.
- (iii) Bengier Swamp. Acquisition of land has progressed satisfactorily and little of the swamp remains to be purchased. The western boundary is now clearly identified by a levee bank and most of the future reserve is fenced.
- (iv) Reports were prepared on the possible impact of subdivisions on land adjoining the Goonaring and Beelaring Springs Nature Reserves and land at Wooroloo.

- (v) Lake Toolibin. After several years of being dry, flow into the lake commenced in early June 1981. Water levels are still low, however. The main northern inflow from the vegetated catchment (including an area purchased and successfully rehabilitated) is fresh. However saline inflows from ground water and from cleared land to the west are a cause of concern. Current indications are that the lake may fill in 1981, enabling the study to be completed.
- (vi) Metropolitan and near-metropolitan reserves. Work commenced on the implementation of management plans approved for Moondyne, Thomsons Lake and Modong Nature Reserves and other near Metropolitan reserves were examined.

VI WILDLIFE RESEARCH

1. BIOLOGICAL SURVEY

Survey work in the South-west Kimberley continued with, in September 1980, a visit to the dune country south of the Edgar Ranges - on the northern edge of the Great Sandy Desert. As a result of this work a new species of mammal, closely related to the Hairy-footed Dunnart, Sminthopsis hirtipes, is being described, and a much clearer understanding of the biological transition between the sub-humid Kimberley and the Great Sandy Desert was gained. One of the principal conservation values of the proposed Nature Reserve centred on the Edgar Ranges is in representing this zone of transition.

Further field work was carried out on the Dampier Peninsula in June 1981. It had two aims:

(i) to document the coverage of the Peninsula's habitats by the existing and proposed reserves - the boundaries of which were constrained by pre-existing land-tenure;

(ii) to more intensively trap for small mammals - the previous inventory appeared surprisingly depauperate in this area. With the additional species recorded during this 1981 work, a total of thirty-three native mammals are now known to have inhabited the Peninsula since European settlement. The capture of the small dasyurid marsupial Planigale maculata was of particular interest.

During June 1981 several days were also spent on the north-western (seaward) edge of the Great Sandy Desert, a reconnaissance for a future trip to meet the Cabinet endorsed recommendation by the Conservation Through Reserves Committee that a survey be undertaken near the Radi Hills with a view to delineating a Nature Reserve. The Mandora Salt Marsh, Salt Creek (which has one of only two non-coastal stands of mangrove trees in Western Australia) and a number of fresh-water swamps were examined and preliminary collection of plants and bird data made. The area involved is part of the Mandora paleoriver; five to six thousand years ago the Marsh is thought to have been an estuary and the paleoriver active under a higher rainfall regime. The fresh water swamps were heavily vegetated with bullrushes, sedges, Dragon-flower Trees and Cadjeputs and very closely resembled Dragon

Tree Soak in a small Nature Reserve further inland on the same paleoriver. These soaks appear to support remnants of the original riverine vegetation.

The regional survey of the Eastern Goldfields continued with field surveys of the plants and vertebrate animals in the Southern Cross/Coolgardie (May 1981), Kurnalpi/Kalgoorlie (August 1980, February 1981) and Mount Elvire/Mt Manning (March 1981) cells. All sites have now been sampled at least twice. Only three field trips remain to be undertaken; two of the five cells have been visited in the three seasons required by the survey design.

Preliminary tabulation of data from the Kalgoorlie/Kurnalpi cell includes a number of species not previously recognised as occurring in the Goldfields and shows that certain species had a much wider habitat usage than expected.

2. ANIMAL ECOLOGY

(i) Kangaroo Management Programmes

Monitoring of the commercial red kangaroo harvest as required by the Kangaroo Management Advisory Committee was continued.

Red kangaroo harvest rates fell during the second half of 1980 as expected, following the breaking of the statewide drought earlier in the year, and depletion of field stocks during the preceding four years. The total harvest for 1980 consequently fell to 100 000, some 50 000 less than the 1979 total. This is the lowest harvest taken since 1975, but is consistent with predictions based on analysis of patterning in historic harvest records.

Harvests taken during the first four months of 1981 were similar to those during the comparable period in 1980, and females have comprised just over half the total harvest taken since late 1978.

The needed census of field stocks of these kangaroos was completed in autumn 1981. Dr Graham Caughley of C.S.I.R.O. Division of Wildlife Research, Canberra, undertook this task on invitation from the Department and the State Kangaroo Management Advisory Committee. Final results from this survey are not yet available.

The Government of the United States of America announced lifting of the ban on importation of kangaroo products in 1981, but this decision has so far been of little consequence in regard to the operations of the Western Australian kangaroo management programme.

The Western Grey Kangaroo programme has been continued as before. The increased rate of harvest during the first 6 months of 1980, in comparison with the corresponding period in 1979, was carried through to the end of 1980. The total Western Grey Kangaroo harvest therefore increased. This species also provided more than one-third of the carcasses used by the Western Australian kangaroo trade during 1980.

(ii) Wheatbelt Rock Wallaby Project.

In 1969, the wheatbelt suffered a severe drought and two populations of rock-wallabies became extinct in the Kellerberrin area. Cause and effect are implied and form a plausible explanation for the extinction, but in the final analysis, the impact of severe drought remained unknown. This year, however, it became possible to document the impact of a severe drought as the area was once again declared drought-affected.

Given that the surviving rock-wallaby populations are measurably affected by a prolonged drought, then one would expect to observe weak and emaciated animals, poor recruitment and absence of pouched young. None of these conditions were evident on trapping the population in April 1981.

It is possible that the effect of the drought may still exert a strong negative influence during winter since we have previously noted that rock-wallabies lose weight during this season; this possibility will be checked at the end of winter.

Trapping of the population generated a population estimate that was lower than last year, but here again it is difficult to relate this decline to the prolonged drought. One factor that may explain the decline was the increased exposure to predators. This year we noted a greater tendency for rock-wallabies to leave their rocky outcrops to graze on the adjacent meadows; in previous years sufficient food was always available on the outcrops.

Predation by foxes and feral cats has always been seriously considered, and this year intensive studies were made to assess the effectiveness of established methods of predator control. In the past, the Agriculture Protection Board was active in the area with respect to both rabbit and fox control and rock-wallaby numbers were definitely higher than now. It is therefore possible that the Agriculture Protection Board had achieved effective predator control by direct baiting of foxes and by secondary poisoning due to rabbit baiting.

To test these possibilities, two trials were made:

- (1) A.P.B. factory dog/fox baits were laid on Nangeen Hill Nature Reserve,
- (2) rabbits were baited by the A.P.B. according to standard procedures.

Effectiveness of the trials were assessed by daily track counts before and after baitings. The results from a series of trials over a ninety-day period were as follows:

- (1) A.P.B. factory (dog/fox) 1080 baits were ineffective; foxes and feral cats did not find these baits attractive,
- (2) A.P.B. 'one-shot' baiting of rabbits was very efficient - rabbit track counts declined by 80%.
- (3) after baiting for rabbits on Mt Caroline Nature Reserve, fox track counts declined by 50%; cat track counts were not affected,
- (4) rabbit baiting on Nangeen Hill Nature Reserve did not affect fox or cat track counts,
- (5) kangaroo track counts were not affected by rabbit baiting techniques.

More recent trials using a meat-based bait has resulted in several 'takes' of bait by foxes. A full assessment of this promising method will be made with the return of dry weather conditions. If this method is effective, it is planned to apply the technique to the Numbat project.

Electrophoretic studies on a population of rock-wallabies persisting on a property south of Shackleton were made by Dr M. Johnstone of the University of Western Australia. This once thriving population is now reduced to about 8 wallabies; no variation from the Kellerberrin group was observed.

(iii) Dampier Rock-Wallaby Project

Many of the islands in the Dampier Archipelago carry extensive areas of plain composed of lime sands and most of these sand plains are held under mining leases. On Enderby Island, the sand plain habitat, (as judged by the numerous wallaby tracks and droppings) is extremely used, but the importance of the habitat is not fully understood.

The importance of the sand plain seems to be nutritional; the plains support a greater variety of plants than the predominantly Triodia - grassed rocky scree areas. These outcrops bordering the sand plains shelter thriving populations of wallabies while in the highlands, (dominated by almost pure stands of Triodia) one still sights rock wallabies but in fewer numbers. It would appear then that the sand plain regions create an important edge-effect.

In conjunction with the sand plain study, aspects of the island's fire ecology are being researched. An experimental burn over a localized area carrying a resident marked population of rock-wallabies was made in October; 2 rock-wallabies fitted with radio collars were tracked before and after the burn. A brief summary of the results to date is as follows:

All the rock-wallabies survived the fire; the radio-collared animals spent up to 6 hours/night on the adjacent sand plain before and after the burn; as the vegetation regenerated the nightly migration to the plain ceased; 6 months after the burn, re-trapping the population on the burned area resulted in few recaptures of mature rock-wallabies but many juveniles were caught for the first time. The study is to continue and will cover all seasons.

(iv) Numbat Research

A programme of research into the causes of decline of Numbat populations has been commenced.

Recent sighting reports and field investigations indicate that this species is persisting, probably at low densities, in the northern jarrah forest. A population in the Perup River Fauna Priority Area near Manjimup has been the subject of study, by this Department and the Forests Department, into aspects of Numbat ecology. Work at Dryandra State Forest indicates that the population there has recovered somewhat since the survey conducted in 1979.

The general abundance of the Numbat, however, is still very low compared with that of even ten years ago, causing great concern for the security of this species.

Research into the causes of this situation is centred on the abundance of food (termites) accessible to Numbats, and on the effect of introduced predators on Numbat populations.

(v) Banded Hare Wallaby Reintroduction Programme - Dirk Hartog Island.

Further trapping to check recruitment and dispersal of the field release group was completed in September 1980 with the aid of a volunteer assistant. This work showed that the group had suffered losses since the previous check in June 1979, and that most probably less than 10 animals remained. Drought during summer 1979-80 had apparently been responsible for death of an estimated 30-40% of the Acacia shrub cover, and was no doubt the cause of the observed decrease in wallaby numbers.

The need for further protection of the remaining live shrub cover if this project was to proceed was obvious. Problems posed by these latter events have yet to be resolved.

A limited pit plus drift-line trapping programme undertaken on Dirk Hartog Island in September 1980 at the time of the visit to check on progress of the Banded Hare Wallaby reintroduction revealed the continued existence of the Common Dunnart (Sminthopsis murina). This is now the only naturally occurring marsupial species known to remain on Dirk Hartog Island. This record is also the first confirmation of the presence of living Dasyurids on any of the Shark Bay islands.

(vi) Dugong

No further survey work was undertaken by Departmental officers during the past year.

The ABC-TV documentary programme filmed during work in Shark Bay in mid 1979 was screened nationally on 22 December 1980.

Further research work on the Shark Bay dugong population will be commenced by Professor Paul Anderson in September 1981.

(vii) Bernier Island

Three officers from the New South Wales National Parks and Wildlife Service were assisted during a visit to Bernier Island in March 1980 for the purpose of further documenting habitat structure, etc. and habits of the Boodie (Bettongia lesueur). This work was undertaken as part of a feasibility study directed at possible reintroduction of this species to New South Wales.

The Shark Bay Mouse (Pseudomys praeconis) appeared particularly abundant in suitable habitat during this visit.

(viii) Waterbird and Wetland Research

- (a) Installation and maintenance of depth-gauges on Western Australian Wildlife Authority-vested Wetland Nature Reserves in the South West and Eucla Land Divisions of the State continued during 1980-81. The total number of lakes now gauged is 106. Depths and salinities were monitored in July, September and November 1980, and January and May 1981. It is proposed to continue the same level of monitoring in 1981-82.

The data obtained from the monitoring programme provide a sound basis for decisions concerning annual duck shooting seasons. The data also provide an essential basis for studies of the biology of wetlands and in the long term will enable the Department to assess the impact or likely impact of changes in catchment use on wetlands, particularly Wetland Nature Reserves.

- (b) Rainfall and wetland monitoring data were compiled and presented in the 1980-81 Rainfall and Wetland Review. The report was submitted to the Bird Committee of the Western Australian Wildlife Authority in support of a recommendation for no duck shooting season in the South West and Eucla Land Divisions for 1980-81.
- (c) Aerial and ground surveys of the lake and river systems of the Eastern Goldfields and the Murchison were conducted in September and October 1980, following exceptionally high winter rainfalls in those areas. Surface water was plentiful, and large numbers of ducks and other waterbirds, particularly Banded Stilt, were encountered.
- (d) Wetland Nature Reserves which are under application to lease for peat mining in the Lake Muir area (Manjimup Shire) were monitored for water depth and quality at three-monthly intervals in accordance with the conditions of a proposed agreement between the Department of Mines, the Department of Fisheries and Wildlife and Magnet Industries Pty. Ltd.
- (e) The programme for culling of exotic duck species from metropolitan wetlands which was initiated in January 1978 and deferred in 1979 due to insufficient staff was deferred again in 1980 for the same reason.
- (f) During 1980-81 Research Staff continued to assist "amateur" ornithologists of the W.A. Wader Study Group with wader counting, catching and banding activities. Study Group members were instructed in the use of cannon-nets for wader catching and the Group now makes regular use of the Department's mist-netting and cannon-netting equipment with considerable success.
- (g) In April 1981 the Department contracted the Royal Australasian Ornithologists Union to undertake a four-year assessment of waterbird usage of W.A.W.A.-vested Wetland Nature Reserves (WNRs) in the South-West and Eucla Land Divisions of the State. The objectives of the project are:

- (i) To provide information on waterbird usage to assist in the management of WNRs and in the resolution of conflicts between different uses.
- (ii) To assess the role and importance of the WNR system in the conservation of waterbird populations.
- (iii) To provide appropriate experience for future monitoring of waterbird abundance.

A full-time Field Officer has been employed by the R.A.O.U. to administer the project. He has two main roles: to coordinate the activities of a team of amateur observers, and to design, test and report on census techniques and results. The R.A.O.U. will produce annual summaries of the information obtained and a final report at the end of the four years discussing the methods employed, the results, and their implications for management both of waterbirds and Wetland Nature Reserves.

Approximately 100 of the 160 WNRs to be surveyed have had depth gauges installed and Departmental Research Staff will monitor water levels and quality (initially salinity and pH) during the course of the study as outlined in (a) above. Research staff will also contribute waterbird usage data to the R.A.O.U. project.

- (h) A salinity/permanence classification of Wetland Nature Reserves of the south-west of the State was initiated in 1980-81 and it is anticipated that this will be completed during 1981-82.
- (i) Research staff continue to operate the "check structure" (adjustable height weir) at Lake Chittering so that the Lake holds water right through summer, thus providing a valuable refuge for waterbirds.
- (j) It has not been possible to give sufficient attention to wetland survey and acquisition during 1980-81, due to insufficient manpower. Some survey work was undertaken in the Gingin to Dongara areas however, and a reserve on Minyulo Brook, west of Cataby, has been proposed to the Lands Department.

Research Staff have been involved in a number of other proposals for acquisition of wetlands during 1980/81 including the southern end of Lake Wannamal, Mialla Lagoon, Owingup Swamp, an un-named swamp on south side of Peel Inlet, the east side of Lake Cairlocup, and Benger Swamp.

- (k) During 1980-81, Research Staff visited the Cunderdin, Narrogin, Harvey and Denmark Agricultural Schools to talk with the students about methods of increasing the suitability of farm dams for breeding waterbirds, particularly game-species of ducks. It is proposed to repeat these talks during 1981-82. Agricultural Schools, the W.A. Field and Game Association and a small number of interested farmers are being encouraged to experiment with various types of artificial nest sites for waterbirds in the hope that more suitable designs may be developed. W.A.F.G.A. have already had considerable success with 5 gallon metal drums with both ends half open, and placed in tree forks.
- (l) Dr M. Brock, Tutor in Plant Biology, School of Environmental and Life Sciences, Murdoch University, commenced a study of the ecology of hydrophytes (angiosperms and the larger algae) in salt lakes in Western Australia in September 1980. This work is considered to be of value in increasing our understanding of the ecology of wetlands and is therefore supported. Field work is primarily on W.A.W.A.-vested WNRs because water depth and water quality data are available for these wetlands. Collections are made by Dr Brock during the two-monthly monitoring trips by Research Staff.
- (m) Twelve-month studies (one day per lake at two-monthly intervals) of the birds of Lakes Jandabup and Forrestdale were completed in August 1980. Results are being prepared for publication in 1981-82.

(ix) Western Swamp (Short-necked) Tortoise

During the 1980 winter seven tortoises were captured at Ellen Brook Nature Reserve but only one at Twin Swamps. Latest estimates of population size at Ellen Brook are consistent with previous ones and suggest a population of 15

to 25 animals. This population is breeding successfully most years. The Twin Swamps population is continuing to decline and appears to be headed for extinction.

Captive breeding experiments continued. Nineteen eggs were obtained by hormonal injection of captive and wild animals; 12 of these were fertile. Hatching took place in May and June 1981; only 6 animals were hatched alive and two of these died shortly afterwards. Much information was gained on techniques and a higher hatch rate is expected in future. The two hatchlings from 1980 are growing satisfactorily.

- (x) Pesticides and the thinning of birds' eggs.

Data collected in 1980 are still being analysed.

- (xi) The Dibbler (Antechinus apicalis)

No work was carried out by the Wildlife Research Centre during 1980/81. Traps were loaned to Dr P. Woolley of La Trobe University in early 1981 to assist in an intensive trapping survey of two areas between Ravensthorpe and Esperance. One of these was an area of Crown land close to the sites where two specimens of Dibbler were found in recent years. It was proposed by Government that this area be released for farming but following an approach from Dr Woolley it was agreed that a decision on release would be delayed until November 1981 to allow further attempts to locate Dibblers in the area. Unfortunately, Dr Woolley failed to catch any Dibblers. It is proposed that Wildlife Research personnel will trap the area again in October 1981.

- (xii) Long-tailed Dunnart (Sminthopsis longicaudata)

The Long-tailed Dunnart is recognised as a rare and possibly endangered species. Only 3 specimens had been collected, two last century and one in 1940, until a Wildlife Research Centre biological survey team obtained one in the Gibson Desert in 1975. Despite further recent survey work in the desert no further captures have been made. In June 1981 a team from the Wildlife Research Centre left for the Gibson Desert in an effort to locate further populations. Using a special technique one animal was trapped in the Gibson Desert Nature Reserve on 28 June. A further 8 animals were trapped later in the trip.

(xiii) Mangrove Bats

Field work in mangroves was finalised in June 1981 with work near Cape Keraudren and Cygnet Bay. Preliminary analysis of the data suggests that two species of bat are restricted to mangrove communities in Western Australia - Tadarida loriae and Pipistrellus tenuis; the latter is occasionally recorded at watering sites in immediately adjacent habitats.

Characteristic bat faunas can be recognised in the different mangrove biogeographical regions of Western Australia. Preliminary analysis also shows that flight membrane morphology can be used as an index of realised niche for insectivorous species in mangrove communities.

(xiv) Bat Taxonomy

Material was borrowed from the Northern Territory Museum and the Australian Museum (N.S.W.) in connection with a study of the taxonomy and zoogeography of species of Free-tailed Bats (sub-genus Mormopterus). This finalises the morphometric data required.

Arrangements were made to carry out electrophoretic studies on Western Australian specimens and the relevant live material of two of the three species of Mormopterus currently recognised in Western Australia was collected.

3. PLANT ECOLOGY

(i) Fire Ecology

Two more blocks of the strategic fire buffer at Two Peoples Bay Nature Reserve were burnt in September 1980. Two study plots have been established in the buffer system to monitor regeneration of the vegetation following burning at different seasons. Quadrats from the plot burnt in February 1979 were harvested in October 1980 but the material has yet to be sorted and weighed.

Collection of data from reserves in the central wheatbelt continued with an emphasis on the comprehensive grid sampling programme at Tutanning Nature Reserve. About 60% of the reserve has now been surveyed on this basis. Further plant collections were made and incorporated into the herbarium.

Additional quadrat samples were made of the heathland areas of Tutanning Nature Reserve on the three major soil types to elucidate ecological relationships. Preliminary analyses of the results highlight the floristic importance of this vegetation unit in wheatbelt vegetation: over 50% of vascular plant species recorded for the whole 2 000 ha reserve were found in the 10 heath areas examined totalling some 7 ha. The preliminary results of this study were given in a paper presented at the Ecological Society of Australia Open Forum on Ecological Research (Muresk College May 1980): "Aspects of heath vegetation at Tutanning Nature Reserve", J.M. Brown and A.J.M. Hopkins.

Development of the PREPLAN, the computerised land information, research and management system continued with collection of further field data and investigation of recent innovations in computing which utilise digitised map records in place of manually coded grid cell records. This work was outlined at a workshop on fire in Semi-arid Australia, Mildura (May 1981) in a paper. The implementation of PREPLAN - a computer-based management information system - in an area of semi-arid Australia" (with S.R. Kessell). Proceedings of this workshop will be published by the Victorian National Parks Service.

A second paper on results of recent fire studies was also presented: "The use of fire for ecological purposes: animal habitat management".

(ii) Eneabba

The results of the first phase of the northern kwongan studies - a detailed ecological study of a 20 km² area south of Eneabba - have now been published. A paper on the effects of harvesting vegetation in that area (for use in rehabilitation following mining for heavy mineral sands) has been accepted for publication. A paper on the results of a regional study of kwongan vegetation on lateritic uplands (Jurien to Three Springs) has been completed and work has commenced on Phase 3: the ecology of kwongan vegetation in the Mt Lesueur - Cockleshell Gully area.

(iii) Middle Island

A further assessment of the regeneration of vegetation on Middle Island after the fires of

1972/73 and 1977 was undertaken in November 1980. These results are presently being incorporated into the proposed publication covering all aspects of the Middle Island work.

(iv) Dorre Island

No further progress was made during 1980. It is hoped that this work can be resumed in 1981-2.

4. FLORA CONSERVATION

(i) Atlas of the western Australian Flora - Pilot Project

The project was launched in November 1980 when several members of the W.A. Native Orchid Study and Conservation Group were issued with books of Sight Record Sheets. The first completed sheets were received in April 1981. A survey of orchids on metropolitan reserves is planned over winter-spring of the current year.

Data on kangaroo paws and related plants acquired by S.D. Hopper during 1973-81 were accessed onto computer and preliminary analyses undertaken. Further work is projected in the second half of 1981.

An application to the Australian Bureau of Flora and Fauna for funds to purchase a minicomputer and digitiser for the Atlas were successful. Tenders for the computer system were called early in 1981 and a Tektronix system was subsequently ordered.

Code numbers were assigned by computer to the 7 000 plant species in the State's flora using J.W. Green's computerized census file.

(ii) Census and Atlas of Commercially exploited W.A. plants.

Research on this project was deferred until a full 12 month's data from returns of flora taken are available for analysis.

(iii) Conservation Status and Biology of Rare Plants

Information on rare species was obtained through literature searches, consultation with local botanists, active field programmes, and through the letting of consultancies for surveys of particular species. Attempts to acquire reserves for rare plants were initiated.

A filing system on rare species was expanded to facilitate rapid retrieval of the available information.

Information on plants that could be gazetted as rare with confidence was collated. A list of 100 taxa recommended for special protection was published in the Government Gazette of November 14, 1980.

The manuscript of a 211 page "Guide to the Gazetted Rare Flora of Western Australia" was completed and published.

Manuscripts for colour leaflets on eight rare species were completed and submitted for publication.

Contract botanists completed surveys and submitted unpublished reports on the conservation status of Dodonaea hackettiana, Eucalyptus macrocarpa, E. rhodantha, 13 Wongan Hills species, plants with fleshy underground storage organs, and three rare plants of the Jurien Bay hinterlands (Eucalyptus pendens, E. johnsoniana and Banksia tricuspis).

Studies on the possible role of mammals as pollinators of Eucalyptus caesia and Banksia goodii were undertaken.

A brief survey of rare eremophilas and related plants was completed by S.D. Hopper with R.J. Chinnock of the Adelaide Herbarium.

Manuscripts on Eucalyptus caesia, E. macrocarpa, E. stoatei and Conostylis wonganensis sp. nov. are now near completion or have been submitted for publication.

Lists of geographically restricted plants (range < 100 km) were collated by a consultant.

A week was spent in Canberra in May 1980 by S.D. Hopper to finalise work on Eucalyptus caesia and E. stoatei with collaborators in C.S.I.R.O. Division of Forest Research.

The first attempt to acquire some private land for a rare species (Eucalyptus caesia) has been unsuccessful because of the difference between the farmer's asking price and the government valuer's assessment of the monetary value of the land.

Given present resources, reasonable progress has been made in setting up a system for obtaining information on rare plants. However, it is now clear that a substantial injection of funds and new staff will be required for flora conservation if the Department seeks to fulfill its statutory responsibilities and effectively conserve the State's rare flora.

(iv) Reserve survey, acquisition and management

Over the past year the following reserves or proposed reserves have been surveyed or visited during trips relating to research on flora conservation.

Vacant Crown land N.W. of Munglinup and E. of Jerdacuttup

Fitzgerald River National Park;

Air survey of Mt Churchman, Fraser Rocks and

Chiddarcooping Hill Nature Reserve;

Cooloomia Nature Reserve;

Millbrook Nature Reserve;

Two Peoples Bay Nature Reserve;

Tutanning Nature Reserve;

Boyagin Nature Reserve;

Watheroo National Park;

Burma Road Nature Reserve;

Vacant Crown land south of Mt Adams;

Wongamine Nature Reserve;

Vacant Crown land - Edgar Ranges;

Vacant Crown land N.W. of Cataby;

Wongan Hills;

Gravel reserves, York Shire;

Lake Cronin Nature Reserve;

Pallarup Rocks Nature Reserve;

Chutawalakin Hill;

Reserve 1981 N.E. of Normalup; and

Hassell National Park.

As a result of the surveys in vacant Crown land proposals for nature reserves have been recommended for North West of Munglinup and East of the Jerdacuttup River (preservation of Eucalyptus stoatei), South of Mt Adams (rich northern heathlands flora) and North West of Cataby (ephemeral swamps).

Intensive work on Two Peoples Bay Nature Reserve has enabled the completion of a pit trap survey of small mammals, reptiles and frogs, and the mapping of all banksias and eucalypts on a 500 m grid throughout the reserve. Highlights of the

latter project were the discovery of two live plants of Banksia verticillata and two very rare undescribed mallee eucalypts on the reserve.

Following the rediscovery near Corrigin of the Underground Orchid Rhizanthella gardneri by K.W. Dixon and members of the W.A. Orchid Study and Conservation Group, attempts were initiated to have the relevant localities declared Class A Nature Reserves vested in the Western Australian Wildlife Authority.

(v) Biology of Kangaroo Paws and Conostylis

Opportunistic field observations on several species of kangaroo paws and Conostylis were made in the course of routine field work on other projects. Additionally, a study of morphometric and allozyme variation in a hybrid kangaroo paw population at Gingin was undertaken in collaboration with Dr S.H. James.

A description of a rare Conostylis from the Wongan Hills was written and submitted for publication.

(vi) Pollination ecology of the Australian Flora

Further original observations of honeyeaters and honey possums feeding on flowers were made. These, together with published observations and numerous personally communicated records from interested colleagues, have been collated in draft form for a proposed departmental report.

Two papers were published in the Australian Journal of Botany, one comparing birds and mammals as pollen vectors in Banksia communities at Cheyne Beach (east of Albany) and the other reporting a study of the animals that visit flowers of Syzygium tierneyanum, a rainforest tree of north Queensland.

A further three brief articles relating to vertebrate pollination were also published.

(vii) Evolution and Biogeography of the Australian Flora

Work on the phytogeography of central Australian acacias was completed, presented at the "Evolution of the Flora and Fauna of Arid Australia" symposium in Adelaide, May 1980, and submitted for publication.

Preliminary discussions were held in Canberra with G.M. Chippendale and M.I.H. Brooker about undertaking a study on the phytogeography of eucalypts in Australia. A similar project on Acacia is well advanced in collaboration with B.R. Maslin, L. Pedley and R.J. Hnatiuk.

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VII ENFORCEMENT

1. ACTIVITIES

Emphasis has been placed on controls in many areas during the year. Illegal activities associated with nest robbing and the taking of immature avian fauna with the associated despoliation of the habitat has not been as prevalent as a result. Similarly, the protected native flora has come under close surveillance. Wildlife Officers throughout the South-West Land Division have become involved with this important new aspect of their enforcement duties.

The overall commercialisation of native flora is considerable and is now recognised as a multi-million dollar industry in Western Australia. The international market is now served by local cut flower and seed merchants. A temporary office was established and located at Walpole during the boronia picking season. Two alternative flora officers from Perth licensed the pickers and successfully supervised this operation.

Keeping of derelict fauna by private persons and wildlife park proprietors throughout the State came under regular scrutiny by Wildlife Officers. All persons associated with the practice of caring for sick and derelict fauna were regularly monitored and controlled so that they conformed with the regulations. Good liaison has been maintained with the Customs, State and Commonwealth Police, Agriculture, Forests and other associated Government Departments and as a result successful prosecutions were effected.

Because of the vastness of this State, illegal trafficking in our flora and fauna will remain a problem area.

Isolated human fatalities involving salt water crocodiles (*Crocodylus porosus*), including one in Wyndham, attracted criticism of the protection afforded these prehistoric reptiles, although reports and sightings indicate a build-up in population in northern waters.

Increased interest in persons wishing to deal in wildlife and others wishing to create wildlife parks resulted in more enforcement activity for these areas.

2. RESERVES

The number of Nature Reserves has increased in recent years. 1980 has been no exception and it is expected that the trend will be maintained. Wildlife Officers are heavily involved in surveying and preparing reports and recommendations for control of suitable areas of land. However, with limited enforcement staff, Wildlife Officers are unable to adequately police all areas. Patrols are maintained wherever possible and prosecutions

have been successful against offenders violating the regulations appropriate to Nature Reserves. Offences are due in the main to ill-informed persons treating reserves as vacant land. Dumping of rubbish, cutting of timber, taking of flora, illegal removal of soil and gravel caused constant concern, as does the illegal use of water taken from reserves, either by illegally re-channelling streams on to neighbouring land or the damming of reserve streams.

3. MANAGEMENT PROGRAMME

Grey and Red Kangaroos

These Management Programmes are regularly policed by Wildlife Officers. Management controls and policy are enforced and offenders prosecuted. Instances of illegal shooting and processing are a constant concern requiring continual enforcement follow up. Licensed operators in the field and their registered chillers together with the meat and skin processors of the metro area are regularly inspected by enforcement officers. From time to time, people have left the industry and are usually replaced but there has been no overall commercial increase. By enforcing the management policies throughout the State, the numbers of both species of macropod have been maintained.

Finch Trapping

The 1980 Finch Trapping Season resulted in the taking of 21 000 birds. One third of the finches were exported direct to Eastern States from Wyndham, the remainder coming to dealers in Perth. Many of these would also find their way to Eastern States' markets. The number of licensed finch trappers has declined by natural means and now totals seven. No new Finch Trappers Licenses have been issued. Trappers' effort, climatic conditions and the restricted season are some theories as to the variation in numbers taken.

Duck Shooting

There was no open season in the South West Land Division again this year. The customary spasmodic shooting occurs in the open area of the 'Goldfields', 'North-West' and 'Kimberley' but as there is never a great concentration of shooters in these vast areas, duck populations do not appear to be diminishing.

PROSECUTIONS - JULY 1, 1980 TO JUNE 30, 1981

Various offences against the Wildlife Conservation Act and Regulations occurred throughout the year. Of these, some 38 were considered to be of a less serious nature and warning letters were sent. In addition, in many instances, verbal warnings given by the Wildlife Officer were considered sufficient.

Details of prosecutions are recorded as follows:

| | | | |
|-------------------------------|----------------------|--------------------|--|
| DISTRICT NO. 1 - WYNDHAM | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 2 - KARRATHA | | | |
| Prosecutions - 1 | 1 case pending | | |
| DISTRICT NO. 3 - MT MAGNET | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 4 - CARNARVON | | | |
| Prosecutions - 1 | Fines \$100.00 | Costs \$101.20 | |
| DISTRICT NO. 5 - GERALDTON | | | |
| Prosecutions - 2 | Fines \$50.00 | Costs \$45.70 | 1 case pending |
| DISTRICT NO. 6 - MOORA | | | |
| Prosecutions - 5 | Fines \$525.00 | Costs \$173.60 | |
| DISTRICT NO. 7 - WONGAN HILLS | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 8 - WAROONA | | | |
| Prosecutions - 3 | 3 cases pending | | |
| DISTRICT NO. 9 - PINGELLY | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 10 - KALGOORLIE | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 11 - BUSSELTON | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 12 - ALBANY | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 13 - PERTH | | | |
| Prosecutions - 21 | Fines \$1 550.00 | Costs \$521.00 | 6 cases pending 1 case dismissed |
| DISTRICT NO. 14 - MANJIMUP | | | |
| Prosecutions - Nil | | | |
| DISTRICT NO. 15 - ESPERANCE | | | |
| Prosecutions - Nil | | | |
| GRAND TOTALS | | | |
| PROSECUTIONS - 33 | FINES \$2 225.00 | COSTS \$841.50 | 11 Cases Pending 1 Case Dismissed |

| Section of Act or Regulation | No. | Description | Fines | (Total) Costs |
|---|-----|--|----------------|---------------|
| | | | \$ | \$ |
| DISTRICT NO. 2 KARRATHA | | | | |
| Sect. 16(1) | 1 | Taking of protected fauna (wild turkey) | Case pending | |
| DISTRICT NO. 4 CARNARVON | | | | |
| Reg. 52 | 1 | Taking fauna not fully fledged | 100.00 | 101.20 |
| DISTRICT NO. 5 GERALDTON | | | | |
| Sect. 17(2)(e) | 1 | Selling of protected fauna (kangaroo) without lawful authority | 50.00 | 45.70 |
| Reg. 28(1) | 1 | Keeping reptiles in captivity without lawful authority | Case pending | |
| DISTRICT NO. 6 MOORA | | | | |
| Sect. 16A(1) | 1 | Possession of protected fauna (kangaroo) | 75.00 | 35.60 |
| Sect. 46(b) | 3 | Picking flora on a Nature Reserve | 150.00 | 107.40 |
| Reg. 52 | 1 | Taking fauna not fully fledged | 300.00 | 30.60 |
| DISTRICT NO. 8 WAROONA | | | | |
| Sect. 16(1) | 2 | Taking of protected fauna (kangaroo) | Case pending | |
| Sect. 16A(1) | 1 | Possession of protected fauna (kangaroo) | Case pending | |
| DISTRICT NO. 13 PERTH METROPOLITAN AREA | | | | |
| Sect. 16(1) | 1 | Taking of protected fauna (kangaroos) | 50.00 | 18.10 |
| Sect. 16(1) | 1 | Taking of protected fauna (kangaroos) | 1 Case pending | |
| Sect. 16(1) | 1 | Taking of protected fauna (birds) | 800.00 | 25.60 |
| Sect. 16A(1) | 6 | Possession of protected fauna (kangaroos) | 360.00 | 188.00 |
| Sect. 16A(1) | 1 | Possession of protected fauna (kangaroos) | 1 Case pending | |
| Sect. 16A(1) | 1 | Possession of protected fauna (birds) | 1 Case pending | |
| Sect. 16A(1) | 1 | Possession of protected fauna (wild turkey) | 100.00 | 45.60 |
| Sect. 16A(2) | 2 | Possession of kangaroo carcass with tag not duly affixed. | 70.00 | 81.30 |

| Section of Act or Regulation | No. | Description | Fines | (Total) Costs |
|---|-----|---|----------------|---------------|
| DISTRICT NO. 13 PERTH METROPOLITAN AREA (CONT.) | | | | |
| Sect. 16A(2) | 1 | Possession of kangaroo carcass with tag not duly affixed. | Case dismissed | |
| Sect. 17(2)(e) | 1 | Selling protected fauna (kangaroo) without lawful authority | 60.00 | 35.60 |
| Sect. 17(2)(e) | 1 | Selling protected fauna (kangaroo) without lawful authority | Case pending | |
| Sect. 25(1)(a) | 1 | Obstruction | Case pending | |
| Sect. 46(b) | 2 | Picking flora on a Nature Reserve | 80.00 | 91.20 |
| Sect. 46(k) | 1 | Riding a horse on a Nature Reserve | 30.00 | 35.60 |
| Reg. 52 | 1 | Taking fauna not fully fledged | Case pending | |

VIII LICENSING

The keeping of or dealing with fauna not in its natural environment is controlled under the licensing system. During the twelve months ending June 30, 1981, the following licenses were issued.

1. SCIENTIFIC PURPOSES - REGULATION 17

These licenses were issued mainly to official organisations or their employees. 104 licenses were issued to take fauna or general scientific purposes.

2. EDUCATIONAL AND PUBLIC PURPOSES - REGULATION 15

There were 27 licenses issued for the following purpose:

| | |
|------------------------|---|
| Care of derelict fauna | 8 |
| Collection and Study | 4 |
| Study and Display | 5 |
| Educational | 5 |
| Photography | 3 |
| Miscellaneous | 2 |

3. AVICULTURE

(i) Licenses to Keep and Breed Fauna in Captivity - Regulation 12

5 234 licenses were issued, mainly to aviculturists.

(ii) Licenses to Deal in Avian Fauna - Regulation 13

108 were issued.

(iii) Licenses to Trap Avian Fauna - Regulation 11

13 were issued.

List of Parrots Trapped

| | |
|----------------------------|-------|
| Port Lincoln Ringneck (28) | 557 |
| Western Rosella | 1 228 |
| Red-capped (W.A. King) | 319 |

List of Finches Trapped

| | |
|----------------------------|-------|
| Long-tailed (Black heart) | 6 845 |
| Masked | 2 797 |
| Star | 3 674 |
| Gouldian | 1 132 |
| Crimson (Blood) | 1 029 |
| Double-barred Mannikin | 2 286 |
| Chestnut-breasted Mannikin | 1 461 |
| Pictorella Mannikin | 1 956 |

4. GAME

Licenses to Take Game

34 quail shooters' licenses were issued.

81 duck shooters' licenses were issued.

5. KANGAROOS

Licenses to Take Red Kangaroos for Sale - Regulation 6

132 licenses were issued throughout the year.

Licenses to Deal in Kangaroo Carcasses - Regulation 8

24 licenses were issued.

Licenses to Deal in Kangaroo Skins - Regulation 10

16 licenses were issued.

Licenses to Process Fauna - Regulation 7

22 licenses were issued to process kangaroos.

6. IMPORTS AND EXPORTS OF FAUNA

The Wildlife Conservation Regulations provide that no fauna shall be imported or exported from this State without a license.

(i) Export Interstate

Finches:-

| | |
|----------------------------|-------|
| Crimson (Blood) | 351 |
| Chestnut-breasted Mannikin | 306 |
| Double-barred Mannikin | 975 |
| Gouldian | 385 |
| Long-tailed (Black-heart) | 3 790 |
| Masked | 1 157 |
| Pictorella Mannikin | 728 |
| Star | 1 597 |
| Painted | 17 |

Parrots:-

| | |
|----------------------------|-------|
| Port Lincoln Ringneck (28) | 1 411 |
| Western Rosella | 1 058 |
| Budgerygah | 452 |
| Red-capped (W.A. King) | 565 |
| Scarlet-chested | 2 |
| Red-collared Lorikeet | 4 |
| Purple-crowned Lorikeet | 53 |
| Elegant | 92 |
| Bourke's | 2 |
| Red-winged | 1 |
| Little Lorikeet | 3 |
| Mulga | 14 |

| | |
|------------------------|---|
| Regent | 3 |
| Red-rumped | 3 |
| Alexandra's (Princess) | 1 |
| Superb | 1 |
| Cockatiel (Weero) | 1 |
| Eastern Rosella | 2 |

Cockatoos:-

| | |
|---------------------|----|
| Red-tailed Black | 3 |
| White-tailed Black | 6 |
| Galah | 16 |
| Little Corella | 20 |
| Long-billed Corella | 4 |
| Sulphur Crested | 2 |
| Gang-gang | 1 |
| Major Mitchell | 3 |

Other Species:-

| | |
|-----------------------|---|
| Southern Stone Curlew | 2 |
| Australian Bustard | 1 |
| King Quail | 3 |

Exotics:-

| | |
|-------------------------|-----|
| Canary | 251 |
| African Fire Finch | 66 |
| Love Birds - Peach Face | 159 |
| Masked | 69 |
| Nyassa | 86 |

Mammals:-

| | |
|-------------------------|----|
| Hairy-nosed Wombat | 2 |
| Brush Wallaby | 2 |
| Western Grey Kangaroo | 1 |
| Honey Possum | 2 |
| Hairy Footed Dunnart | 1 |
| Woylie | 2 |
| Spectacled Hare-Wallaby | 1 |
| Euro | 6 |
| Pretty-faced Wallaby | 2 |
| Common Dunnart | 1 |
| White-tailed Dunnart | 1 |
| Wuhl-wuhl | 21 |
| Ride's Ningui | 1 |

Reptiles and Amphibians

| | |
|----------------------------------|----|
| <i>Varanus eremius</i> | 1 |
| <i>Varanus caudolineatus</i> | 1 |
| <i>Crenadactylus ocellatus</i> | 1 |
| <i>Heteronotia binoei</i> | 19 |
| <i>Phyllodactylus marmoratus</i> | 1 |
| <i>Phyllurus mili</i> | 15 |
| <i>Rhynchoedura ornata</i> | 1 |
| <i>Diplodactylus strophurus</i> | 1 |

| | |
|----------------------------------|----|
| <i>Gehyra variegata</i> | 46 |
| <i>Gehyra australis</i> | 2 |
| <i>Gehyra punctata</i> | 16 |
| <i>Acanthophis pyrrhus</i> | 1 |
| <i>Demansia affinis</i> | 1 |
| <i>Unechis monachus</i> | 1 |
| <i>Elapognathus minor</i> | 1 |
| <i>Pseudonaja modesta</i> | 1 |
| <i>Amphibolurus nuchalis</i> | 6 |
| <i>Tiliqua rugosa</i> | 22 |
| <i>Lialis burtonis</i> | 1 |
| <i>Nephrurus asper</i> | 1 |
| <i>Pygopus nigriceps</i> | 1 |
| <i>Echiopsis curta</i> | 2 |
| <i>Litoria rubella</i> | 40 |
| <i>Cyclorana maini</i> | 10 |
| <i>Pseudophryne occidentalis</i> | 3 |
| <i>Neobatrachus</i> sp. | 48 |

(ii) Import Interstate

Finches:-

| | |
|----------------------------|-----|
| Plum-headed | 28 |
| Star | 68 |
| Gouldian | 11 |
| Long-tailed (Black heart) | 8 |
| Blue-faced | 48 |
| Painted Fire-tail | 136 |
| Chestnut-breasted Mannikin | 8 |
| Double-barred Mannikin | 23 |
| Black-throated | 14 |

Parrots:-

| | |
|-----------------------------------|-------|
| Alexandra's (Princess) | 82 |
| Blue-bonnet | 10 |
| Budgerygah | 1 161 |
| Cockatiel (Weero) | 107 |
| Red-winged | 78 |
| Eastern King | 61 |
| Hooded | 11 |
| Mallee Ringneck | 15 |
| Scaly-breasted Lorikeet | 11 |
| Red-rumped | 10 |
| Adelaide Rosella | 12 |
| Crimson Rosella | 32 |
| Eastern Rosella | 19 |
| Pale-headed Rosella | 34 |
| Yellow Rosella | 6 |
| Red-collared Lorikeet | 4 |
| Superb | 10 |
| Regent | 2 |
| Varied Lorikeet | 9 |
| Purple-crowned Lorikeet | 4 |
| Golden-shouldered | 7 |
| Eclectus | 7 |
| Port Lincoln Ringneck (28 parrot) | 22 |
| Blue-winged | 1 |

| | |
|----------------|----|
| Swift Lorikeet | 6 |
| Green Rosella | 10 |

Cockatoos:-

| | |
|---------------------|-------|
| Little Corella | 479 |
| Galah | 1 310 |
| Sulphur-crested | 3 |
| Major Mitchell | 3 |
| Red-tailed Black | 1 |
| Yellow-tailed Black | 1 |
| Long-billed Corella | 1 |

Other Species:-

| | |
|--------------------------|----|
| King Quail | 16 |
| Diamond Dove | 71 |
| Mangrove Kingfisher | 1 |
| Little Kingfisher | 4 |
| Red-headed Honeyeater | 1 |
| Yellow Silvereye | 4 |
| Broad-billed Fly Catcher | 4 |
| Brown Quail | 20 |
| Common Bronzewing | 5 |
| Bar-shouldered Dove | 2 |
| Superb Fairy-wren | 2 |
| White-plumed Honeyeater | 21 |
| Black-backed Magpie | 7 |
| White-backed Magpie | 2 |
| Thin-billed Grass Wren | 23 |
| Brown Fly Catcher | 1 |
| Little Wood Swallow | 1 |

Exotics:-

| | |
|-------------------------|-----|
| Canary | 424 |
| Melba Finch | 75 |
| Cordon-bleu Finch | 164 |
| Aurora Finch | 51 |
| Orange-breasted Waxbill | 166 |
| Cuban Finch | 34 |
| Cut-throat Finch | 31 |
| African Firetail | 38 |
| Californian Quail | 4 |
| Bleeding Heart Pidgeon | 3 |
| Masked Nameca Dove | 7 |
| Love Bird | 25 |
| Jacarine | 20 |

Mammals:-

| | |
|-------------------------|----|
| Spinifex Hopping Mouse | 6 |
| Tammar Wallaby | 80 |
| Spectacled Hare Wallaby | 1 |
| Koala | 6 |
| Black-striped Wallaby | 3 |
| Wombat | 4 |
| Southern Bush Rat | 44 |

| | |
|---|---|
| Western Grey Kangaroo (Kangaroo Island) | 1 |
| Woylie | 2 |

Bats:-

| | |
|----------------------------------|----|
| <i>Chalinolobus nigrogriseus</i> | 4 |
| <i>Tadarida planiceps</i> | 20 |
| <i>Taphozous kapelgensis</i> | 1 |

Reptiles and Amphibians:-

| | |
|---------------------------|----|
| <i>Elapognathus minor</i> | 1 |
| <i>Dendrelaphis</i> sp. | 2 |
| <i>Suta suta</i> | 1 |
| <i>Liasis childreni</i> | 56 |

(iii) Export Overseas

| | |
|---------------------------|-----|
| Western Magpie | 2 |
| Crested Pigeon | 4 |
| Common Bronzewing | 4 |
| Laughing Kookaburra | 4 |
| Boobook Owl | 2 |
| Budgerygah | 12 |
| Black Swan | 6 |
| Banded Lapwing | 8 |
| Banded Land Rail | 8 |
| African Lovebird | 24 |
| Galah | 43 |
| Gouldian Finch | 160 |
| Major Mitchell Cockatoo | 1 |
| Red-tailed Black Cockatoo | 2 |
| Black-winged Stilt | 2 |
| Southern Stone Curlew | 2 |
| Masked Lapwing | 2 |
| Tawny Frogmouth | 4 |
| Rufous Night Heron | 12 |
| Sulphur-crested Cockatoo | 2 |
| Little Corella | 4 |
| Canary | 2 |
| Western Grey Kangaroos | 4 |
| Agile Wallaby | 9 |
| Euro | 3 |
| Brush Wallaby | 2 |
| Scorpion | 25 |

7. LICENSES TO KEEP FAUNA - REGULATION 16

25 issued in the year.

8. EMUS

License to Process Fauna - Regulation 7

4 licenses were issued to process Emu eggshells.

9. FLORA

During the twelve months ending June 30, 1981, the following licenses were issued.

Commercial Purposes License

454 licenses were issued authorising the taking of protected flora for sale from Crown Land only.

Commercial Producer's License

199 licenses issued authorising the taking of protected flora for sale from Private land only.

Scientific or Prescribed Purposes License

301 licenses issued authorising the taking of protected flora (except whole plants or roots of plants) from Crown land for the following purposes: Scientific, educational, hobby, propagation, personal enjoyment. Holder of this license are not permitted to sell flora taken.

IX LEGISLATION

1. WILDLIFE CONSERVATION ACT AMENDMENTS

No Amendment to the Wildlife Conservation Act was made during the period of this Report.

2. WILDLIFE CONSERVATION REGULATIONS AMENDMENTS

The Wildlife Conservation Regulations were amended to repeal subregulation (4) of Regulation 19 that had required that export approval be obtained from the exporting State before an import license could be issued. The Regulations were also amended to rectify a deficiency in the wording of Regulation 8 in its reference to kangaroo carcasses, and to update the returns prescribed in Appendix A to the Regulations.

The amending regulations were published in the *Government Gazette* dated March 27, 1981.

X STAFF

1. ADMINISTRATION

The Wildlife Conservation Act is administered by Mr B.K. Bowen Director of the Department of Fisheries and Wildlife and Chairman of the Western Australian Wildlife Authority; Mr A.J. Mearns, Secretary and Conservator of Wildlife; Mr D.W. Arnold, Administrative Officer of the Department of Fisheries and Wildlife and Executive Officer of the Western Australian Wildlife Authority; and clerical staff of the Department of Fisheries and Wildlife.

2. ENFORCEMENT

Disposition of Wildlife Officers at 30 June 1981:

| | | |
|--------------|------------------------------|-------------------------------|
| <u>Perth</u> | Chief Wildlife Officer | B.A. Carmichael |
| | Supervising Wildlife Officer | A.R. Marshall |
| | Senior Wildlife Officer | J. Wilson |
| | Wildlife Officer | W.M. Mahoney |
| | Wildlife Officer | Vacant |
| | Wildlife Officer | M. Osborn |
| | Wildlife Officer | D. Coughran |
| | Wildlife Officer | T. L. Walley |
| | Wildlife Officer (Relieving) | G.J. Hanley |
| | Wildlife Officer (Relieving) | J. Quinn |
| | Wildlife Officer (Flora) | S.J. Hancock (B. App. Sc.) |
| | Wildlife Officer (Flora) | B.C. Haberley |
| | Trainee Wildlife Officer | Vacant |
| | Trainee Wildlife Officer | Vacant |

Districts

| | |
|--------------|----------------------------------|
| Wyndham | Wildlife Officer D.W. Noble |
| Karratha | Wildlife Officer P.A. Pennings |
| Mt Magnet | Wildlife Officer P.J. Collins |
| Carnarvon | Wildlife Officer K.L. Marshall |
| Geraldton | Wildlife Officer D.J. Mell |
| Moora | Wildlife Officer K. Miller |
| Wongan Hills | Wildlife Officer P.J. Roberts |
| Pingelly | Wildlife Officer L.J. Silvester |
| Waroona | Wildlife Officer R.M. Fitzgerald |

| | |
|------------|--------------------------------|
| Busselton | Wildlife Officer P.M. Lambert |
| Manjimup | Wildlife Officer R.A. Coughran |
| Albany | Wildlife Officer R.L. Smith |
| Albany | Wildlife Officer L. Coyne |
| Esperance | Wildlife Officer I.A. Cooke |
| Kalgoorlie | Wildlife Officer R.I. Piggot |

3. RESEARCH AND RESERVE MANAGEMENT

The Wildlife Research Section comprises six Research Officers and seven technical staff, all of whom are based at the Western Australian Wildlife Research Centre, Woodvale. Two positions within this section are currently vacant due to financial constraints.

The Reserve Management Section comprises nine officers (four professional and five technical). Within this section, two officers are based at Pingelly, one at Karratha, one at Two Peoples Bay Nature Reserve and the remainder at Woodvale. The post of Chief Reserve Management Officer is currently vacant.

XI EXTENSION AND PUBLICITY

Public involvement in wildlife conservation continued to expand with an increasing level of written and verbal requests for information from teachers, students, government departments, educational institutions and the general public.

Demand by conservation associations, wildlife institutions, libraries and educational bodies in Australia and throughout the world for inclusion on the mailing list for Department Reports, Wildlife Research Bulletins and the quarterly journal, SWANS, continued.

Departmental publications on wildlife conservation published during the year were:

- Report 41 Scott, J.K. (1981). A survey method for identifying roadside flora suitable for conservation in Western Australia.
- Report 42 Rye, B.L. and Hopper, S.D. (1981). A Guide to the Gazetted Rare Flora of Western Australia.
- Report 43 Hopper, S.D. (1981). A pit trap survey of small mammals, reptiles and frogs on Two Peoples Bay Nature Reserve.

Wildlife Research Bulletin No. 9

Hopkins, A.J.M. and Hnatuik, R.J. (1981).
An ecological survey of the kwongan south of Eneabba, Western Australia.

Crook, I.G. and Burbidge, A.A. (1981). Lake Magenta Nature Reserve. Western Australian Nature Reserve Management Plan No. 4 (Draft).

Other Publications:

Protecting our Flora - a brief guide to the legislation
Duck Shooter's Guide 1981
Grey Kangaroo Management Programme (updated)

Stocks of brochures, leaflets and general information material were maintained; several of these publications being updated and reprinted.

Three editions of the journal, SWANS, were published during 1980-81 (Vol. 10 No. 1 & 2, Vol. 11 No. 1). It is anticipated the journal will be published on a regular quarterly basis in the future.

The 1980 Annual Report of the Western Australian Wildlife Authority was collated and published.

XII FINANCE

1. WILDLIFE CONSERVATION ACT

The demands on this Department to continually expand its involvement in the areas of wildlife conservation, research and enforcement, and the requirement to maintain existing activities, require increased expenditure each year from the Consolidated Revenue Fund. This trend has continued in 1980/81.

2. WILDLIFE CONSERVATION TRUST FUND

A financial statement as at June 30, 1981 is presented on the following page.

WILDLIFE CONSERVATION TRUST FUND

STATEMENT OF RECEIPTS AND PAYMENTS FOR THE PERIOD JULY 1, 1980 TO JUNE 30, 1981

| RECEIPTS | | PAYMENTS | |
|-----------------------------------|-------------|---|-------------|
| Balance brought forward on 1.7.80 | \$59 356.52 | Survey of Water Bird Usage - South West Wetlands | \$1 800.00 |
| Interest on Investments | 4 693.40 | Depth Gauge Installations in Wetland Areas | 1 117.92 |
| Flora Licenses | 3 589.00 | Transfer of Moneys to Wildlife Revenue | 97.99 |
| Duck Shooters' Licenses | 1 656.00 | | |
| Quail Shooters' Licenses | 180.00 | | |
| Gifts and Bequests | 27.00 | | |
| | <hr/> | | |
| | \$69 501.92 | BALANCE carried forward at 30.6.81 | 66 486.01 |
| | <hr/> | | |
| | | | <hr/> |
| | | | \$ 3 015.91 |
| | | | <hr/> |
| | | | \$69 501.92 |
| | | | <hr/> |

I certify that this statement is in accordance with the accounts and records produced.

BK Dawson

DIRECTOR
DEPARTMENT OF FISHERIES AND WILDLIFE

G. J. Banks

AUDITOR GENERAL