GOODALE SANCTUARY 25 YEARS....

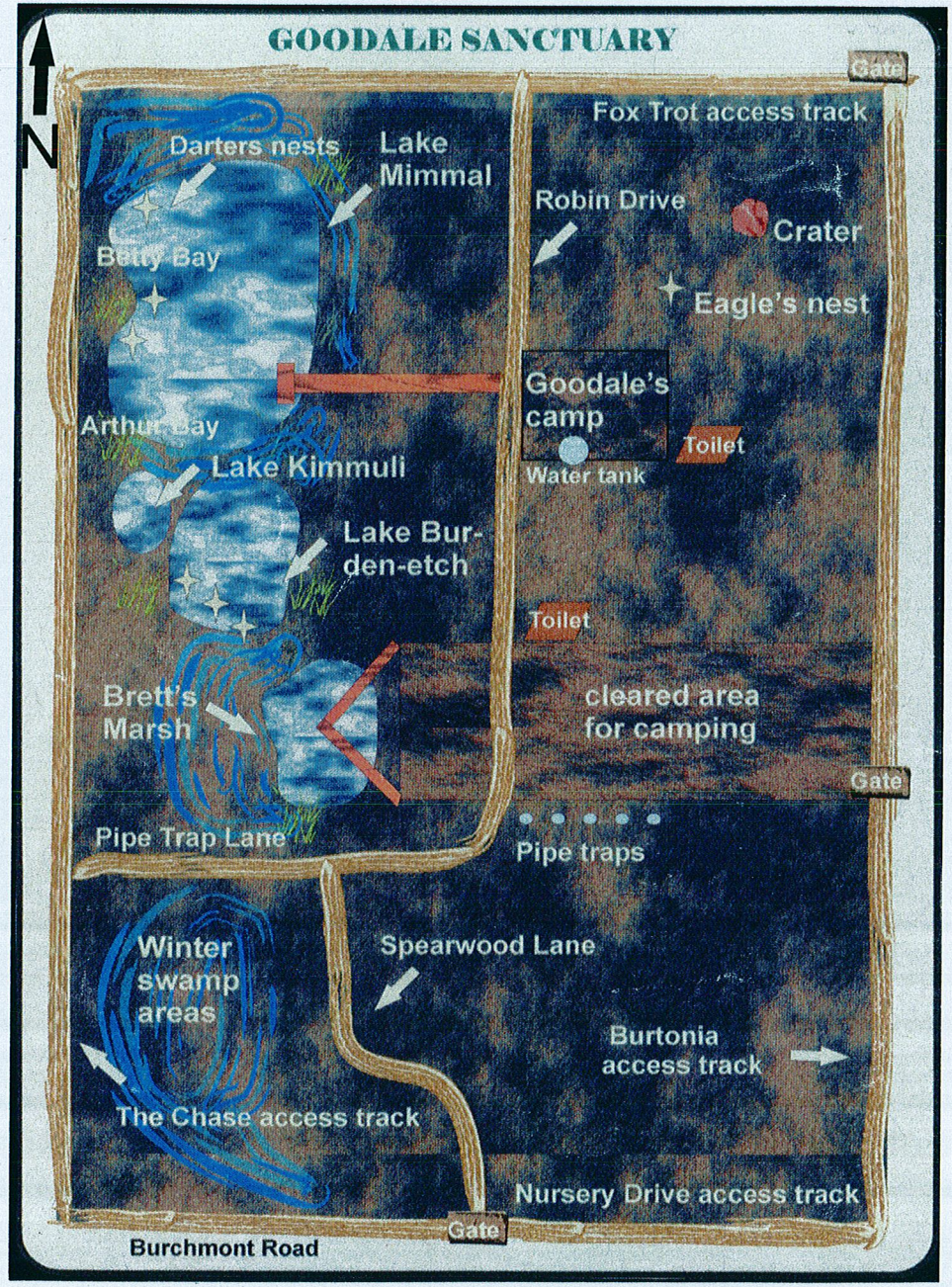
JOHN TONKIN WINNER GREENING AWARDS

This booklet highlights 25 years of study, on the privately owned Goodale Sanctuary. We hope the biodiverse data collected, may encourage others to see the value of saving natural bushland.

lotterywest supported

GOODALE SANCTUARY PTY LTD

GOODALE SANCTUARY MAP

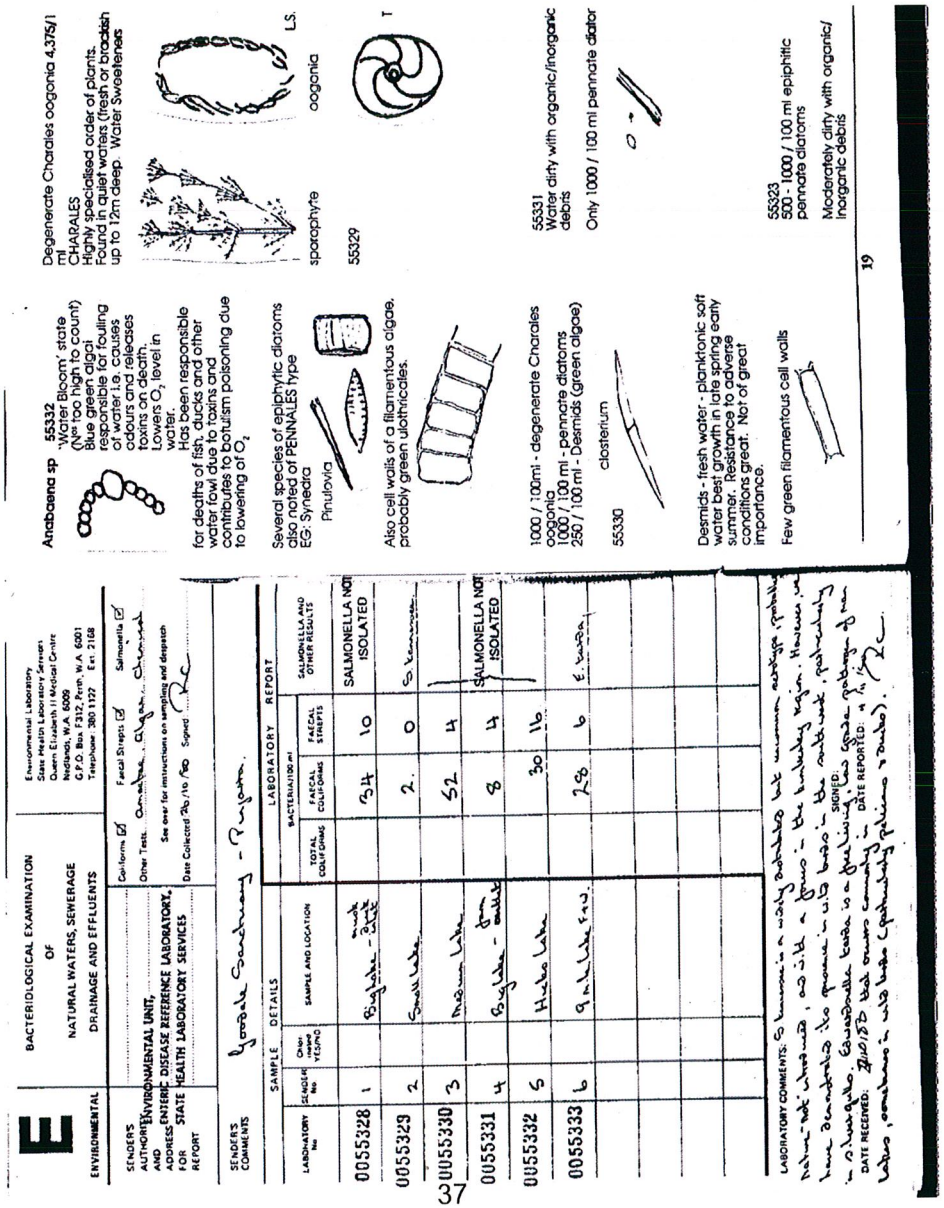


ACKNOWLEDGEMENTS:

Thanks to the many volunteers who have contributed their time to provide the data presented in this booklet & helped conserve Goodale Sanctuary. Thanks also to the people involved in the production of this booklet:

-Lotterywest - for funding the publication of this 25 year study
-Bob Goodale for all photos except macroinvertebrates, thanks to Curtin Uni for these.
-Kwinana/Rockingham/Mandurah Branch of the WA Naturalists' Club - for facilitating the funding
- Polly Hammond & Libby Burgess for putting the booklet together
- David Cale, Dr Nic Dunlop, Margaret Telford & Anne Bellman - for editing.
-Finally to all the shareholders: Peter Wilmot, Stan & Margaret Telford, John Jnr & Christopher Thornton, for their ongoing support.

APPENDIX 4 : WATER ANALYSIS DATA



BACTERIOLOGICAL EXAMINATION OF NATURAL WATERS, SEWERAGE DRAINAGE AND EFFLUENTS

ENVIRONMENTAL

Environmental Laboratory
State Health Laboratory Services
Queen Elizabeth II Medical Centre
Nedlands, W.A. 6009
G.P.O. Box F312, Perth, W.A. 6001
Telephone: 380 1322 Ext. 2168

SENDERS AUTHORITY AND ADDRESS: ENVIRONMENTAL UNIT, ENTERIC DISEASE REFERENCE LABORATORY, STATE HEALTH LABORATORY SERVICES

Coli-forms ☑ Faecal Streps ☑ Salmonella ☑
Other Tests: Campylo., Giardia, Cryptosp.
See over for instructions on sampling and despatch
Date Collected 26/10/00 Signed

SENDERS COMMENTS: Goodale Sanctuary - Pingelly.

LABORATORY No	SENDER'S No	Chlor. YES/NO	SAMPLE AND LOCATION	LABORATORY REPORT: BACTERIA/100 ml TOTAL COLIFORMS	FAECAL COLIFORMS	FAECAL STREPTS	SALMONELLA AND OTHER RESULTS
0055328	1		Boyline - Dam		34	10	SALMONELLA NOT ISOLATED
0055329	2		Small Lake		2.	0	S. hemolyticus
0055330	3		Moon Lake		52	4	
0055331	4		Boyline - Bore		8	4	SALMONELLA NOT ISOLATED
0055332	5		Hebe Lake		30	16	
0055333	6		Goodale Rd.		28	6	E. hermanii

LABORATORY COMMENTS: [illegible]

SIGNED:
DATE REPORTED:
DATE RECEIVED:

Anabaena sp 55332 "Water Bloom' state (Not too high to count) Blue green algal responsible for fouling of water t.o. causes odours and releases toxins on death. Lowers O_2 level in water. Has been responsible for deaths of fish, ducks and other water fowl due to toxins and contributes to botulism poisoning due to lowering of O_2

Several species of epiphytic diatoms also noted of PENNALES type EG: Synedra, Pinulovia

Also cell walls of a filamentous algae, probably green ulothricales.

1000 / 100ml - degenerate Charales oogonia
1000 / 100 ml - pennate diatoms
250 / 100 ml - Desmids (green algae)

55330 closterium

Desmids - fresh water - planktonic soft water best growth in late spring early summer. Resistant to adverse conditions great. Not of great importance.

Few green filamentous cell walls

Degenerate Charales oogonia 4,375/1 ml
CHARALES
Highly specialised order of plants. Found in quiet waters (fresh or brackish up to 12m deep. Water Sweeteners

sporophyte

55329 oogonia

55331 Water dirty with organic/inorganic debris

Only 1000 / 100 ml pennate diator

55323 500 - 1000 / 100 ml epiphitic pennate diatoms

Moderately dirty with organic/ inorganic debris

19

CONTENTS PAGE

Important Information.....1
Preamble.....2
Brief Overview.....3
Conservation Plan.....5
Future Development.....6
Fauna List.....7
Flora List.....8
Fungi List & Lichen.....15
Bird Sightings.....16
Bird List.....17
Possum Tagging.....21
Fox Baiting.....23
Macroinvertebrate Data.....25
Field Trip 2003 Data.....27
Ant Survey Data.....28
Fighting Dieback.....29
Appendix 1 CALM Letter.....30
Appendix 2 AgWest Letter.....31
Appendix 3 Buying Bush Article.....32
Appendix 4 Water Analysis Data.....37

GOODALE SANCTUARY IMPORTANT INFORMATION

OWNERS: Robert and Ann Goodale purchased Murray Location 1313, Birchmont Road, Coolup (Goodale Sanctuary) in 1980, then on the 21st of January 1992 the company "Goodale Sanctuary Pty Ltd A.C.N 054 873 362" was established.

RULES OF ENTRY:

- Goodale Sanctuary is a flora and fauna reserve - **all native animals and plants are protected.**

- **Entry is by invitation only** - donations will assist with running costs and are greatly appreciated.

- **Entry is at own risk -** note there are poisonous snakes, lakes and swamps and trees regularly shed heavy branches.

- Any Goodale Sanctuary shareholder has the **right to refuse entry or ask a person to leave.**

- Fires only allowed at two camp sites in designated area. **No fires at all during fire bans or high risk conditions.**

- **No Cigarettes.** The sanctuary is a smoking free and Nuclear Free zone.

- **Please keep to tracks**, boardwalks and firebreaks as much as possible.

- Please **record your observations** on clipboards provided in caravan.

- If camping, please bring your own supplies and **remove your rubbish** upon leaving. Also ensure any fires are out.

- **Use toilets** at two campsites - not the bush

- **Vehicles to stay on main tracks only and to be parked at first campsite** - follow signs. Walking only from this point on.

published by

Bush Brokers

a partnership of the World Wide Fund for Nature (WA)
Soil and Land Conservation Council (WA)
Real Estate Institute of WA

WWF REIWA

ISBN 0 646 41289 2

editors
Keith Bradby, Erin Gisborne & Denise True

illustrations
Leone Ferrier

layout
Reader-Friendly Publication Services

cover design
Denise True &
key2design, East Perth

printing
The Environmental Printing Company, Maylands, WA
This book is printed with vegetable inks
on 100% recycled paper.

Natural Heritage Trust
This publication was produced with assistance from the Natural Heritage Trust.

Cover photograph
Woodland at Trayning © *R. McLellan*
inset on front cover
Flowering Moort, Kartadjinup © *N. McQuoid*
Pygmy possum, Kartadjinup © *N. McQuoid*
Picnickers at Cordingup South © *K. & C. Rowe*

readily available for other people to learn from. They have held seminars, started teaching other people, bringing those skills across to managing reserves for local government and generally publicising their experience through articles in the newsletters of the different groups and societies.

Looking to the future

To secure the property for the future, the Goodales reviewed a number of options.

> *Covenanting was not available in Western Australia when we first bought the property and we realised that we were mere mortals and that either a bus might run us over or we would eventually die of old age: and then what would happen to the property?*

They explored for possibilities and eventually decided to engage a lawyer to assist them set up a company. Goodale Sanctuary Pty Ltd. was created in 1991. There is provision for two types of shares in the company. The Goodales themselves hold 'A' shares. In their lifetime they are the Governing Directors of the company and have control of the company. There are also 20 'B' shares that the Goodales can sell to like-minded people. Each new shareholder must sign a Memorandum of Understanding, which has been compiled. Any new shareholders have to be approved by all existing shareholders before being accepted. On the death of the Goodales the people holding 'B' shares assume management of the company. It cost the Goodales about $5000 to establish the company.

The Goodales are aware that a number of covenanting options are now available and they may have used these if they had been available at the time. However, they feel that some people may still wish to use their sort of system, if they want to be independent and stay away from government and other organisations.

> *Sitting around the campfire at night and watching the bandicoots feeding a metre away from your feet... A lot of joys and pleasures..Walking through the bush and spotting vivid orchids; small birds that we recognise instantly, that sort of thing is wonderful...I suppose the other rewarding thing on a more rational or scientific level is that we have actually contributed some little thing toward saving an important part of WA that is rapidly being cleared off and cemented over.*

Courtesy WA Newspapers

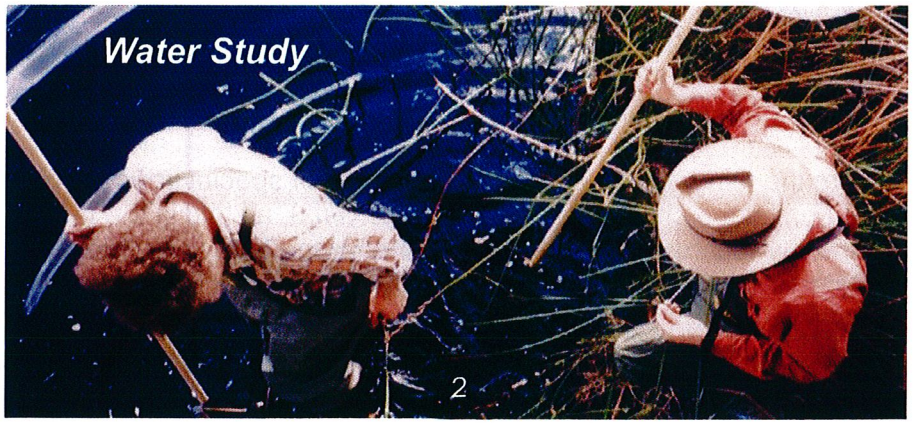
PREAMBLE

This publication details 25 years of study, observation and conservation on the 38 ha property known as Goodale Sanctuary. Reports and data supplied update the earlier booklet printed after the first ten years of conservation on the property.

Information presented here comes from a variety of sources. Flora and fauna surveys have been conducted by groups and individuals from such organisations as the WA Naturalists' Club, Birds Australia, the WA Wildflower Society and the Orchid Society to mention a few. Environmental Biology students from Curtin University have studied and recorded data on fauna species annually for the last five years.

The purpose of this book is to make available information on the biodiversity of a section of bushland uncleared for over sixty years and unburnt for over thirty years. This publication can be used as a source of flora and fauna species found in the Peel-Harvey wetland chain, for reference, research and comparison. Also, it is to be hoped that the information supplied will be a guide for those wishing to purchase, preserve and conserve land for the retention of biodiversity.

Observations on Goodale Sanctuary are on-going. However, despite best efforts, listed data will of necessity show an incomplete profile with species under-collected or insufficiently described. It is to be hoped that by making available the information collated since the purchase and preservation began on the property in 1980, the report constitutes a sound basis for observations and research in the future.



GOODALE SANCTUARY - BRIEF OVERVIEW

Divided only by a rough track from Nine Mile Nature Reserve (government "A" Class reserve), Goodale Sanctuary serves an important conservation function - providing and extending protected habitat for existing flora and fauna in the wetland chain between the Peel-Harvey Estuary System and the South Western Highway. The property is on the southern boundary of the Mealup Catchment area.

Since the purchase of the property in 1980, increasing knowledge of the wide variety of habitats in the sanctuary came gradually - this knowledge has been received with great enthusiasm by shareholders and visitors. Acknowledgements must go to the many conservation groups, scientists and interested individuals who have visited on a regular basis, helping to form the extensive notes on flora and fauna over the past decade. You will find a summary of the data collected within the pages of this booklet.

The sanctuary is situated within the Bassendean dune system, just west of the fertile Pinjarra Plain. The Jarrah-Banksia Woodland community within the sanctuary has never been cleared for farming, however some timbers were cut for fencing over fifty years ago - many of the Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla)* were too twisted at that time to be considered useful and have since become substantial trees. Extensive stands of Sheoak (*Allocasuarina fraseriana)* and Woody Pear (*Xylomelum occidentale)* contribute to the transitional aspects of the wooded areas. 5 different species of Banksia, 4 Melaluecas, and in parts dense shrub coverage tend to protect smaller flowering species.

From the thirty species of orchid identified, of special importance is the Leafless orchid (*Praecoxanthus aphyllus*), as this is the most northerly record of this species.and the Grand Spider Orchid (*Caladenia hugelii*) quite rare species due to land clearing.

The Goodales have this advice for people considering buying a bush block:

> *Be persistent, but get advice from people who know the bush and consult the many wonderful books that are available on bush management and the like. If you can't afford your own property join in with other people who are doing that sort of thing.*

Management

Bob and Ann have considerable knowledge and skills in bush management, which they have acquired as a result of years of commitment to the bush, both professionally and privately. With this block their objective is to manage a very interesting area of bush for maximum bio-diversity.

Their first management priority was that the block be well fenced from cattle. They have high quality rural fencing on the boundaries shared with cattle properties. On the boundary fronting the road, they erected a simple fence (3 strands of plain wire) which allows for the kangaroos to cross freely into their property from the nearby Nature Reserve, while preventing the entry of stray stock, motorists and trail bikes. In order to provide some comfort when they visited the block, they constructed a simple 'lean-to' with water tank. Recently they have parked a caravan nearby.

The Goodales soon realised that no small animals were evident on the property. They decided that foxes were most likely the cause and, with the help of the Department of Agriculture, embarked on a 5 year program of regular fox baiting. Every two months, 24 eggs are buried at bait stations. They keep data on the results, which they share with the Departments of Agriculture and Conservation. It seems that fox numbers have dropped dramatically. The Department of Conservation and one other neighbour now baits for foxes regularly, as does a nearby property holder.

After about a year of fox baiting the Goodales obtained a licence to release some bandicoots on the property. The numbers have increased dramatically - from the seventeen released to a current population of hundreds! At the same time possum and reptile numbers have increased dramatically. Even tortoises are a lot more common now.

The Goodales have organised the construction of boardwalks to keep people off the sensitive areas, enabling them to view over the main lake without disturbing the vegetation. Friends helped to build the boardwalk and it was financed through grants received from Alcoa Landcare and the Gordon Reid Foundation (Western Australian Lotteries Commission). They also sought help from Dept of Agriculture and the Dieback Action Group on how to manage dieback.

To manage fire they maintain the required firebreaks, which are also vehicle access ways. They bought a fire fighting plant using funds from the Gordon Reid Foundation and Alcoa Landcare. They communicate regularly with neighbours and have provided gate access from the neighbouring properties to give easy access in an emergency. They would try to stop a fire, especially a summer fire which is likely to have been caused by humans. They believe that the biodiversity levels on the block are high because it is so long since it has been burnt.

Due to the practices that they have applied on this property, the Goodales have become well known among researchers and scientists involved in similar areas. Their experience is made

Buying Bush: a how-to guide

about this book 7
Keith Bradby & Denise True

1. Doing it! 9
Keith Bradby

2. Good People, Good Bush 13

Kallamadong 14
The Wet Coast 17
Caladenia Hill 21
The Rainbow Coast 26
Cordingup South 28
Goodale Sanctuary 32
Hartley's Reserve 35
Kartadjinup 38
Lake Mealup 42
Lowlands 46
Mt Gibson Station 50
Riverside 54
Rosneath Farm 57
Dragon Rocks 60
Kojonup Bush Heritage Reserve 62

3. Living with your bush 66
Nathan McQuoid & Denise True

4. Protection in perpetuity 73
Keith Bradby

5. Sources of advice & assistance 76
Keith Bradby

Glossary 84

Some useful reading 85

The twenty hectares of wetland have also suffered from introduced Gambusia, yet these fish do add to the fauna food sources. Heron feed well on the two species of *Cherax* (Koonac and Gilgie). A Black Swan pair and a Swamp Harrier pair have been sighted annually nesting in the dense cover of Jointed Twig Rush (*Baumea articulata)* and Pithy Sword-sedge (*Lepidosperma longitudinale)* which surround all three lakes. More than 120 bird species have been recorded since 1980, and the sanctuary provides "over water" nesting habitat for one of the largest known breeding colonies of Darters in the South West of Western Australia.

The mammal population living in or near the sanctuary is limited due to clearing for settlement and farming. Brush-tailed wallabies appear to be declining in number, while the Grey Kangaroo population trend seems stable. Brush-tailed Possum sightings have been more common since the full-time fox baiting programme began in 1995. The quenda or brown Bandicoot was introduced after one year of fox baiting and the results have been spectacular.

Tiger Snakes, Dugites and Blind Snakes have all been recorded, along with King's Skink, Bobtail and Bearded Dragon as common inhabitants. Work on reptile communities and insects is proposed in the future as many species are yet to be recorded. Reptile and Mammalian faecal testing recorded *Salmonella bleadon*. This serotype is native, but uncommon, restricted almost entirely to wildlife with only twelve cases in humans in the past two decades and none of these were located in the South West of the state

A small number of sheep were allowed to roam through the property under prior ownership, but not in sufficient numbers to damage the undergrowth or soil. Fire has not affected the sanctuary for at least fifty years, so the sanctuary may provide interesting studies in Gondwana relics.

Over the past 25 years, improved fencing and firebreaks have become a high priority and continued control of introduced species will continue to be of high importance in the future. Foxes the main threat particularly for ground nest predation of Long-necked tortoises.

GOODALE SANCTUARY CONSERVATION PLAN

OBJECTIVES

The sanctuary has been developed for the purpose of conservation of the natural bushland and maintenance of the natural population of flora and fauna native to the sanctuary. Hence the following are the goals of the sanctuary:

1. To ensure that the sanctuary remains a Wildlife and Nature Reserve in perpetuity.

2. Retaining and improving the status of the native flora and fauna communities, including preservation of swamp and wetland areas.

3. To encourage environmental education and conservation.

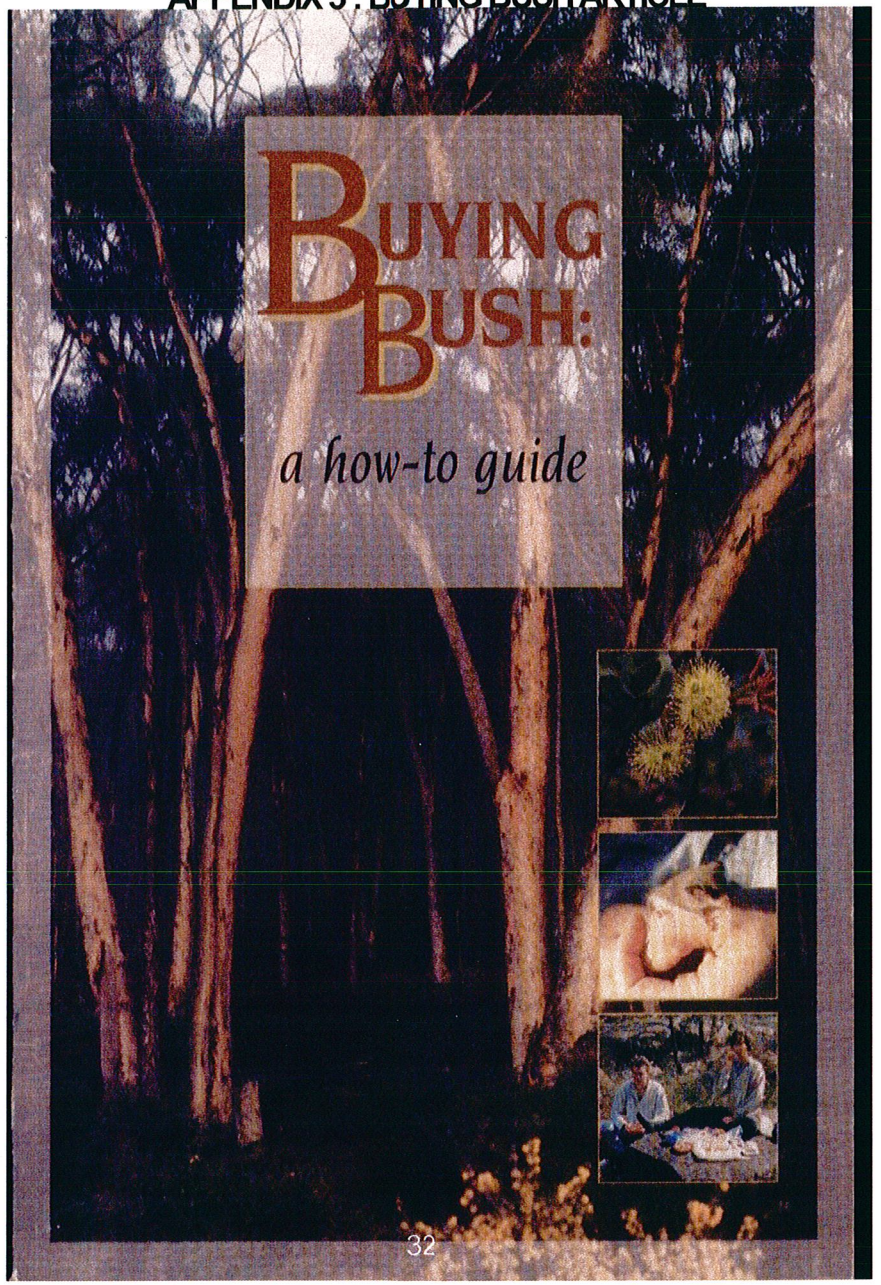
TERMS OF USE

The main use of the sanctuary is to permit non-intrusive observation of the flora and fauna. To achieve the objectives of the sanctuary, only groups or individuals compatible with the above mentioned objectives will be acceptable visitors - prior permission should be gained before entry.

Shareholders and permitted guests can be accommodated on the property overnight. Camping shall only be permitted in the areas designated on the diagrammatic plan or in the study facilities (see map on first page).

Mr and Mrs Goodale may use the sanctuary for educational purposes and for filming and photography on a profit basis during their lifetime without being liable to account to the company or other shareholders in respect of such profits. Others may use the sanctuary for these purposes only by invitation or request of the shareholders.

APPENDIX 3 : BUYING BUSH ARTICLE



APPENDIX 2 : AGWA LETTER

Agriculture
WESTERN AUSTRALIA

Your ref:
Our ref:
Enquiries : Mark Rivers
Date : 23 April, 1999

Agriculture Western Australia
PO Box 376 6 George Street
PINJARRA WA 6208
Ph: 9531 1788 Fax: 9531 3040
mrivers@agric.wa.gov.au

Mr Bob Goodale
218 Arcadia Drive
Safety Bay WA

Dear Bob

Please find enclosed with this letter a copy of the second annual vegetation monitoring report prepared for the Agriculture Western Australia Alkaloam (bauxite residue) Project by Sally Claymore of Claymore Consulting.

These results represent the second year's worth of "background" vegetation monitoring that AGWEST has undertaken to allow meaningful comparisons to be made in terms of vegetative health after possible future Alkaloam applications adjacent to some of these sites.

The results obtained so far indicate that only minor changes have occurred within the communities monitored (as would be expected) and the only conclusions or recommendations that have been made refer to refinements in the monitoring programme itself to allow more accurate and meaningful assessments to be made in the future.

Thank you once again for your continued assistance with this important monitoring programme and for allowing AGWEST staff and consultants access to your property.

If you have any further questions regarding this or any other aspect of the Alkaloam project please do not hesitate to contact me on the above telephone number.

Yours Faithfully

Mark Rivers
Research Officer
Southern Swan Coastal Plain SRD Project
Agriculture Western Australia

FUTURE DEVELOPMENT

With the agreement of all shareholders, the following developments may occur (many have already been implemented and need further funding for maintenance and continued monitoring):

- Construction and maintenance of accommodation and study facilities in designated areas (on diagrammatic plan).
- Construction of observation hides, board walks and viewing platforms.
- Improving status of native flora and fauna.
- Continue steps to protect and safeguard native flora and fauna
- Treatment of flora and fauna for diseases.
- Re-afforestation or translocation of flora and fauna previously lost to the area.
- The destruction and exclusion of feral pests is permitted (using methods deemed suitable by all shareholders).
- Such other developments in line with goals and objectives and as agreed upon by all stakeholders.

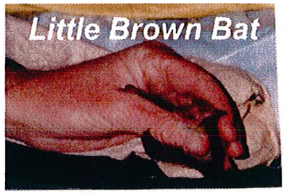
Objectives for the future life of the sanctuary will uphold the original aims of the owners and shareholders. It is hoped that the near original bush conditions of the sanctuary will continue to provide valuable study and quantifiable observations. The formation of the Goodale Sanctuary Company is a key in the success of achieving this along with the above mentioned plan and objectives and the shareholders memorandum of understanding.

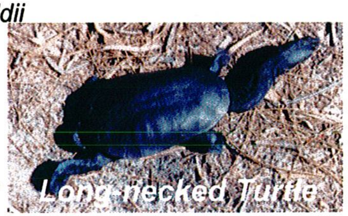
The next phase of the sanctuary is being investigated through legal advice and wide discussion with friends of the sanctuary and shareholders - this is to officially secure the property with reserve status so it is further protected by nature reserve associated acts and legislation. This strategic move would help ensure the perpetuity of the reserve.

In the meantime - a good motto to adhere to whilst visiting the reserve is "Take only photographs and leave only footprints".

FAUNA LIST

MAMMALS	
Western grey kangaroo	*Macropus fuliginosus*
Western brush wallaby	*Macropus irma*
Common brushtail possum	*Trichosurus vulpecula*
Quenda	*Isoodon obesulus*
Gould's long-eared Bat	*Nictophilus gouldi*
Lesser long-eared Bat	*Nictophilus geoffroyi*
Greater long-eared Bat	*Nictophilus timoriensis*
Little brown bat	*Eptesicus regulus*
MONOTREMES	
Echidna	*Tachyglossus aculeatus*
REPTILES	
King's skink	*Egernia kingii*
Western glossy swamp egernia	*Egernia luctuosa*
South west crevice egernia	*Egernia napoleonis*
Bobtail skink	*Tiliqua rugosa rugosa*
Fence skink	*Crytoblepharus plagiocephalus*
Gould's monitor	*Varanus gouldii*
Racehorse monitor	*Varanus tristis*
Western pale-flecked morethia	*Morethia lineoocellata*
Western bearded dragon	*Pagoda minor*
Burton's snake lizard	*Lialis burtonis*
Marbled gecko	*Phyllodactylus marmoratus*
Blind snake	*Rhamphotyphlops sp*
Tiger snake	*Notechis scutatus*
Gould's hooded snake	*Rhinoplocephalus gouldii*
Dugite	*Pseudonaja affinis*
Oblong or long-necked turtle	*Chelodina oblonga*
AMPHIBIANS:	
Squelching frog	*Crinia insignifera*
Bleating frog	*Crinia psuedinsignifera*
Glauert's froglet	*Crinia glauerti*
Motorbike frog	*Litoria moorei*
Slender tree frog	*Litoria adelaidensis*
Moaning frog	*Heleioporus eyrei*
CRUSTACEAE:	
Koonac	*Cherax sp.*
Gilgie	*Cherax sp.*
FERAL ANIMALS:	
Fox	*Vulpes vulpes*
Cat	*Felis catus*
House-mouse	*Mus musculus*
Black rat	*Rattus rattus*
Rabbit	*Oryctolagus cuniculus*





APPENDIX 1 : CALM VEGETATION SURVEY LETTER

DEPT OF CONSERVATION & LAND MANAGEMENT
13 SEP 2002
MANDURAH

Department of Conservation and Land Management
Conserving the nature of WA

Forest Management Branch
Kensington

Senior interpreter A J van de Sande
20 Dick Perry Avenue
Postal Address: Kensington WA 6151
Tel: 94747045 Fax: 93684528 Mobile: 0429966330
Email: abev@calm.wa.gov.au

To: Mr Murray Love. Mandurah Work Centre

SURVEY OF VEGETATION DEATHS: NINE MILE LAKE RESERVE

Murray Love requested an inspection of part of the Nine Mile Lake reserve following concerns about numerous tree deaths in the reserve and adjoining private property. An inspection was carried out by myself, Murray Love, and Paul Brown. The purpose of the survey was to find any causal factors for the tree deaths including forest pathogens such as Phytophthora or Armillaria.

AREA DESCRIPTION

This area is on the coastal plain and is composed of the Bassendean landform. The major tree species are *Eucalyptus marginata, Corymbia callophylla and Allocasuarina fraseriana.* The principal understory in these areas is *Banksia attenuat. Dasypogon and Hibbertia hypericoides* formed the majority of the ground cover in this area.

OBSERVATIONS

Numerous *Eucalyptus marginata* and *Allocasuarinafraseriana* deaths were observed on this inspection. The ground cover of *Hibbertia* and *dasypogon* were also affected. On closer inspection it was found that a lot of the trees and plants looked at were coppicing at the base, and when dug up, the roots were still alive.

Another interesting point noted was that the abundant understory of *Banksia attenuata* was not affected at all. This ruled out *Phytophthora cinnamomi* as a causal factor for this sudden decline in forest health. In all the area inspected, one *Banksia attenuata* death was found. This was sampled.

One dying *Eucalyptus marginata* sapling was inspected and found to be still alive 1.5 meters above the ground; above this, the trunk was dead. A sample was taken of the bark at the junction of dead and living bark to check for canker. The trunk of this tree was collared by borer infestation. An *Allocasuarina fraseriana* sapling inspected proved the same the *Eucalyptus marginata* and was sampled. A clump of apparent dead *dasypogon* was also sampled.

FINDINGS

No *Phytophthora* were recovered from the samples. No cankers were recovered from the samples. No *Armillaria* was found. All trees checked had heavy infestation of borers, which had in most instances collared the trees although no living grubs were noted. All tree and ground cover deaths are on the same contour.

CONCLUSIONS

Considering all the findings, I conclude that drought stress could be the cause of the decline of these areas of forest. This would predispose the trees to other agents such as insect or borer attack..

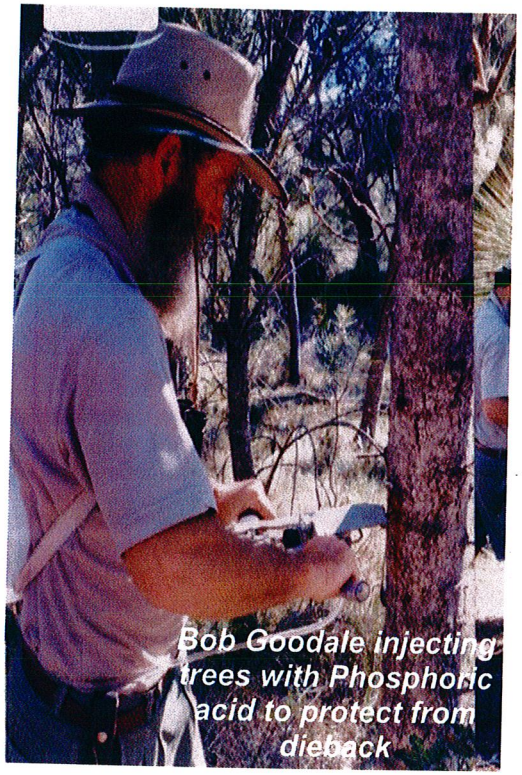
A J van de Sande

NOTE | ACTION

FIGHTING DIEBACK (*Phytophthora cinnamomi*)

It has been researched that a road-base gravel dump in nearby Mills Rd first introduced Jarrah Dieback (*Phytophthora. Cinnamomi*)into the area. The fungi travelled through farmland and reached the Western boundary of Goodale Sanctuary by 1991 via a cattle holding property. A disease front was seen at the western vehicle access track killing trees, mainly Sheoak and Banksia. These trees are now all dead. A programme of tree injection with Phosphoric acid was used to control the disease spread and since that time no new spread of the disease has been noted. Boot scrub washes were set up at the entrance gate and at the Northern end of the central walking track for further disease control.

In 1995, with the sponsorship of 1200 experimental dieback resistant Jarrah trees from Alcoa, a planting programme was initiated. It was to prove unsuccessful however, as from the 1200 planted with tree guards, fertilizer tablets and initial watering in, only one Jarrah survived and that tree, although quite large and healthy looking, has never produced seed.



Bob Goodale injecting trees with Phosphoric acid to protect from dieback

FLORA LIST

Anthericaceae

Agrostocrinum scabrum	Blue Grass Lily
Chamaescilla corymbosa	Blue Squill
Laxmannia squarrosa	
Thysanotus patersonii	Twining Fringed Lily
Thysanotus sp.	Fringed Lily

Apiaceae (Umbelliferae)

Platysace compressa	Tapeworm Plant
Trachymene pilosa	Native Parsnip

Thysonatus patersonii

Asteraceae (Compositae)(Daisy Family)

* *Arctotheca calendula*	Capeweed
Asteridea pulverulenta	Bristle Daisy
Cotula coronopifolia	Water Buttons
Hyalosperma cotula	
* *Hypochaeris glabra*	Flatweed
Lagenophora huegelii	
Podotheca sp.	
Siloxerus (Angianthus) humifusus	
* *Ursinia anthemoides*	

Casuarinaceae

Allocasuarina fraseriana	Common Sheoak

Chenopodiaceae

Chenopodium sp	Goosefoot
Dysphania glomulifera	

Colchiaceae

Burchardia umbellata	Milkmaids

Cyperaceae (Sedges or Rushes)

Baumea articulata	Jointed Twig-rush
Lepidosperma longitudinale	Pithy Sword-sedge
Lepidosperma sp.	

Dasypogonaceae

Dasypogon bromeliifolius	Pineapple Bush
Lomandra nigricans	Tiered Mat rush
Lomandra purpurea	Purple Mat Rush
Lomandra sp.	

Dilleniaceae (Hibbertia Family)
Hibbertia hypericoides Yellow Buttercups
Hibbertia subvaginata
Hibbertia vaginata
Hibbertia stellaris

Droseraceae (Sundew Family)
Drosera erythrorhiza Red Ink Sundew
Drosera gigantea Giant Sundew
Drosera (?menziesii) Pink Rainbow
Drosera stolonifera Leafy Sundew
Drosera sp. Pygmy Rosetted


Drosera sp.

Epacridaceae (Heath Family)
?Astroloma sp.
Conostephium pendulum Pearl Flower
Leucopogon (?australis) Spiked Beard Heath
Leucopogon propinquus
Lysinema ciliatum Curry Flower

Euphorbiaceae
Stachystemon vermicularis

Goodeniaceae (Leschnaultia Family)
Dampiera linearis Wedge-leaved Dampiera
Goodenia filiformis Thread-leaved Dampiera

Haemodoraceae (Kangaroo Paw Family)
Conostylis aculeata Prickly Conostylis
Conostylis juncea
Phlebocarya ciliata

Iridaceae (Iris Family)
Orthrosanthus laxus Morning Iris
Patersonia occidentalis Purple Flag
* *Romulea rosea* Guildford Grass

Juncaceae
Juncus pallidus Pale Rush
Juncaginaceae
Triglochin sp. Water Ribbons
Lamiaceae
Hemiandra pungens (prostrate) Snakebush

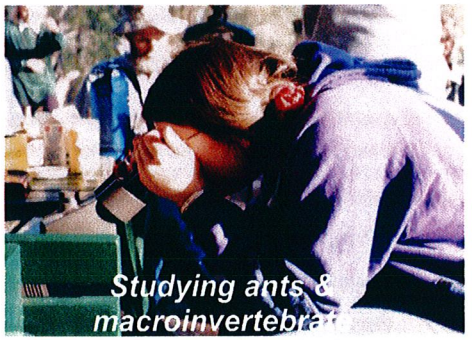

Blue Lady Orchid

ANT SURVEY DATA OCTOBER 1996

ANT SPECIES	UNDISTURBED	DISTURBED
PONERINAE		
Amblyopone sp		*1*
Rhytidoponera sp 1	*14*	*11*
Rhytidoponera sp 2	*3*	
MYRMICINAE		
Meranoplus sp		*31*
Pheidole sp	*35*	
Tetramorium sp	*18*	*120*
Solenopsis sp	*7*	*45*
Monomrium sp	*450*	
DOLICHODERINAE		
Dolichoderus sp		*1*
Iridomyrmex sp 1	*10*	*81*
Iridomyrmex sp 2		*7*
Tapinoma sp	*1*	*5*
FORMICINAE		
Melophorus sp 1	*1*	*44*
Melophorus sp 2	*1*	*10*
Melophorus sp 3	*1*	
Melophorus sp 4	*1*	
Camponotus sp 1		*2*
Camponotus sp 2		*3*
Camponotus sp 3		*3*
TOTAL ANTS	542	364
NO. OF SPECIES	14	12

SPECIES IN COMMON 7
TOTAL SPECIES -19


Huntsman Spider


Studying ants & macroinvertebrates

FIELD TRIP DATA

Goodale Sanctuary Feield Trip - Cutin Uni
27-29 Sept 2003

Cage traps on Goodale Sanctuary (105 trap days)
- 1 adult male Brown Bandicoot
- 1 female adult Brown Bandicoot, post lactation
- 1 male Brush-tailed Possum
- 1 Black Rat
- 2 King's Skinks
- 3 Bobtail Skinks

Elliot Traps on Nine Mile Lake (50 trap days)
No captures

Pitfall&Drift Clusters on Nine Mile Lake, 5 clusters 4 new (75 trap days)
- 4 *Helioporus eyrei*
- 3 *Crinia insignifera*
- 4 *Morethia obscura*
- 3 *Pogona minor*
- 2 *Cryptoblepharus plagiocephalus*
- 2 house mice

Turtle trap in main lake
- 5 long neck tortoises

Birds mist netted Goodale Sanctuary (banded by Stephen Davies)
- 1 Grey Strike Thrush
- 6 New Holland Honeyeater
- 8 White-browed Scrub-wren
- 8 Splendid Fairy-wren
- 8 Silvereye
- 1 Golden Whistler
- 1 Scarlet Robin
- 2 Grey Fantail

Bats mist netted Goodale Sanctuary
- 5 Lesser Long-eared Bat
- 1 Southern Forest Bat

Lauraceae (Dodder)
Cassytha racemosa — Dodder Laurel

Lindsaeaceae
Lindsaea linearis — Screw Fern

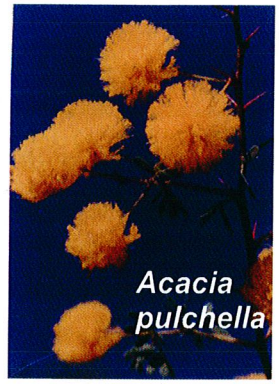
Lobeliaceae
Lobelia gibbosa — Tall Lobelia
Lobelia tenuior — Slender Lobelia

Loranthaceae (Mistletoe Family)
Nuytsia floribunda — Christmas Tree

Menyanthaceae
Villarsia sp.

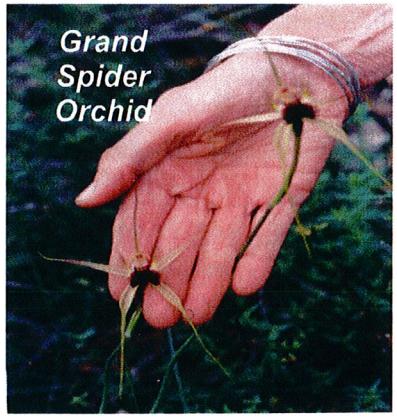
Mimosaceae (Wattle Family)
Acacia huegelii
Acacia pulchella — Prickly Moses
Acacia stenoptera — Narrow Winged Wattle

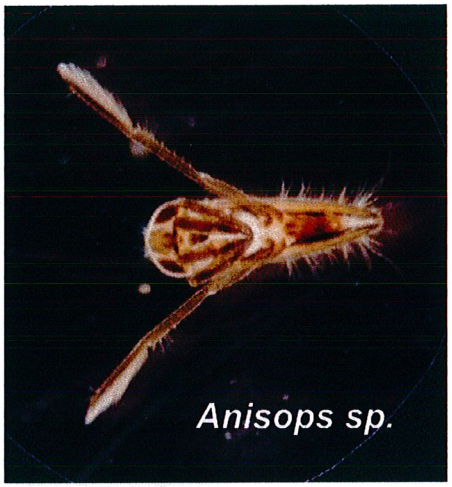
Myrtaceae (Myrtle Family)
Astartea fascicularis
Calothamnus lateralis
Calytrix (?flavescens) — Summer Starflower
Calytrix fraseri — Pink Summer Star flower
Corymbia calophylla — Marri
Eremaea pauciflora
Eucalyptus marginata — Jarrah
Hypocalymma angustifolium — White Myrtle
Kunzea ericifolia — Spearwood
Melaleuca lateritia — Robin Redbreast Bush
Melaleuca preissiana — Moonah/Stout Paperbark
Melaleuca raphiophylla — Swamp Paperbark
Melaleuca thymoides
Pericalymma ellipticum — Swamp Teatree
Regelia ciliata
Scholtzia involucrata — Spiked Scholtzia

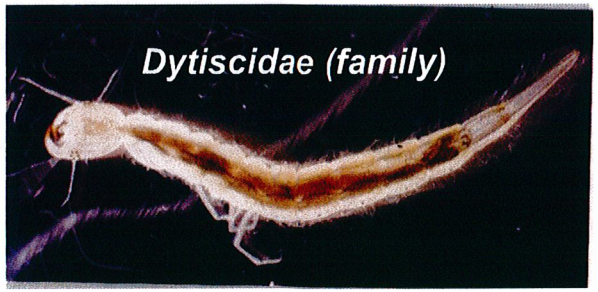


Orchidaceae (Orchid Family)

Caladenia flava subsp. flava	Cowslip Orchid
Caladenia macrostylis	Leaping Spider Orchid
Caladenia nana subsp.nana	Pink Fan Orchid
Caladenia reptans subsp.reptans	Little Pink Fairy Orchid
Caladenia huegelii	King Spider Orchid
Cryptostylis ovata	Slipper Orchid
Cyrtostylis huegelii	Midge Orchid
Cyanicula gemmata	Blue China Orchid
Cyanicula sericea	Silky Blue Orchid
Cyanicula deformis	Blue Fairy Orchid
Diuris sp.	Donkey Orchid
Drakaea elastica	Glossy-leaved Warty Hammer Orchid
Drakaea glyptodon	King-in-his-carriage Orchid
Drakaea livida	Warty Hammer Orchid
Elythranthera brunonis	Purple Enamel Orchid
Elythranthera emarginata	Pink Enamel Orchid
Eriochilus dilatatus	White Bunny Orchid





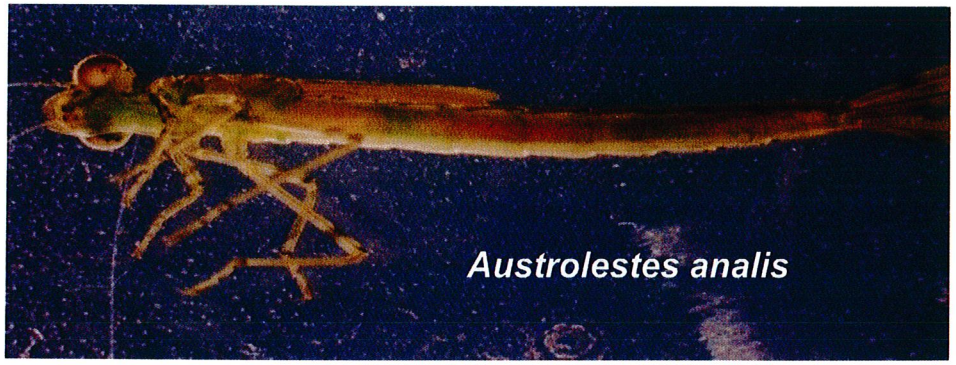


MACROINVERTEBRATE SPECIES LIST

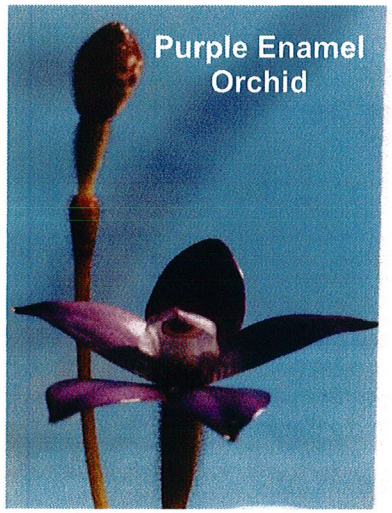
Order	Family	Species
Ostracoda		3 species
Isopoda	Amphisopidea	*Paramphisopus paustris*
Amphipoda	Ceinidae	*Austrochiltonia subtenuis*
Amphipoda	Perthidae	*Perthia acutitelson*
Odonanata	Lestidae	*Austrolestes analis?*
Hemiptera	Corixidae	
Hemiptera	Notonectidae	*Anisops sp.*
Coleoptera	Dytiscidae	*Chostonectes sp.?*
Coleoptera	Dytiscidae	*?*
Trichoptera	Leptoceridae	*Oecetis sp.*
Trichoptera	Leptoceridae	*Triplectides Australis?*

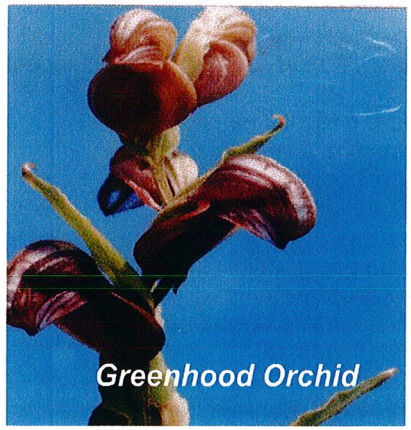
Three species worth noting:
Perthia acutitelson : endemic species
Paramphisopus paustris : intolerant of salt
Micronecta robusta : indicator of eutrophication in high numbers

Reference
Davis, J.,Christidis, F.(1997) *A guide to Wetland Invertebrates of Southwest*. Western Australian Museum.



Leporella fimbriata	Hare Orchid
Microtis (?media)	Mignonette Orchid
**Monadenia bracteata*	South African Orchid
Paracaleana nigrita	Flying Duck Orchid
Praecoxanthus aphyllus	Leafless Orchid
Prasophyllum (?macrostachyum)	Leek Orchid
Prasophyllum (?parvifolium)	Autumn Leek Orchid
Pterostylis barbata	Bird Orchid
Pterostylis nana sp.	Snail Orchid (nana complex)
Pterostylis recurva	Jug Orchid
Pterostylis sanguinea sp.	Banded Greenhood Orchid (vittata complex)
Pyrorchis nigricans	Red Beaks
Thelmitra crinita	Blue Lady Orchid
Thelmitra macrophylla	Scented Sun Orchid





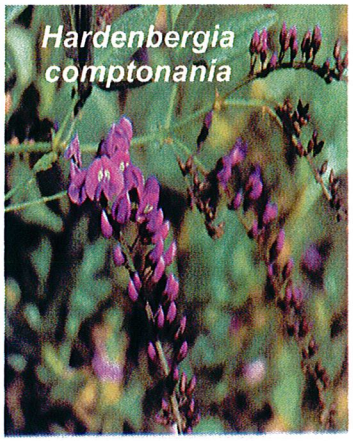
Papilionaceae (Pea Family)

Aotus gracillima	
Aotus procumbens	
Bossiaea eriocarpa	Common Brown Pea
Daviesia divaricata	Bitter Pea
Dillwynia dillwynioides	
Euchilopsis linearis	Swamp Pea
Gompholobium tomentosum	Yellow Pea
Gompholobium scabrum	Painted Lady
Gompholobium sp.	
Hardenbergia comptoniana	Native Wisteria
Hovea trisperma	Common Hovea
Jacksonia furcellata	Grey Stinkwood
Kennedia prostrata	Scarlet Runner
Latrobea tenella	
Pultenaea ochreata	
Pultenaea reticulata	Bush Pea


Kennedia prostrata

Phormiaceae

Dianella sp.	Flax Lily


Hardenbergia comptonania

Pittosporaceae

Pronaya fraseri	Elegant Pronaya

Poaceae (Grass Family)

Austrostipa (?compressa)	
Austrostipa elegantissima	Feather Spear Grass
* *Briza maxima*	Blowfly Grass

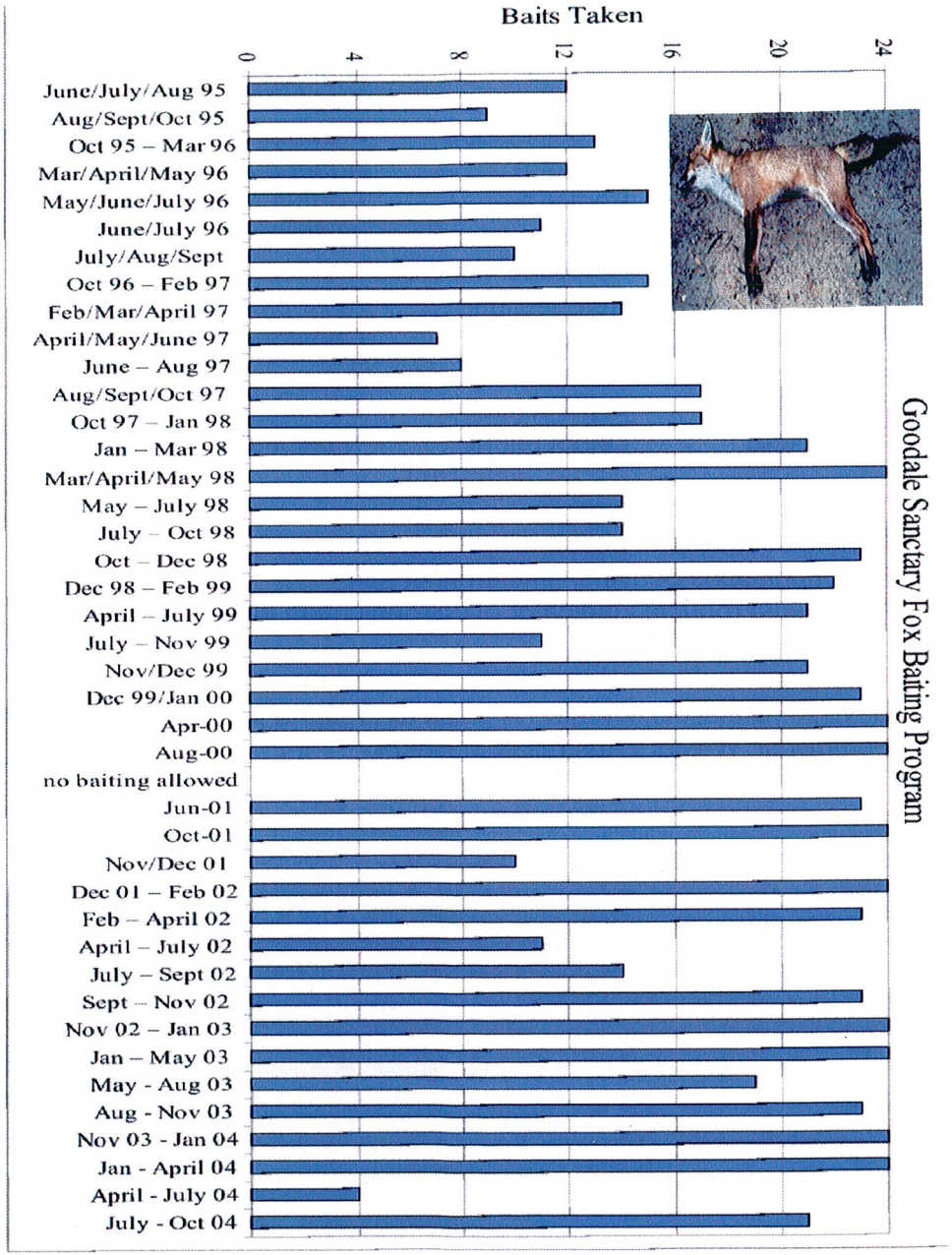
Polygalaceae (Milkweed family)

Comesperma flavum	
Comesperma (?virgatum)	Pink Flower
Comesperma sp.	Blue Flower

Proteaceae (Banksia Family)

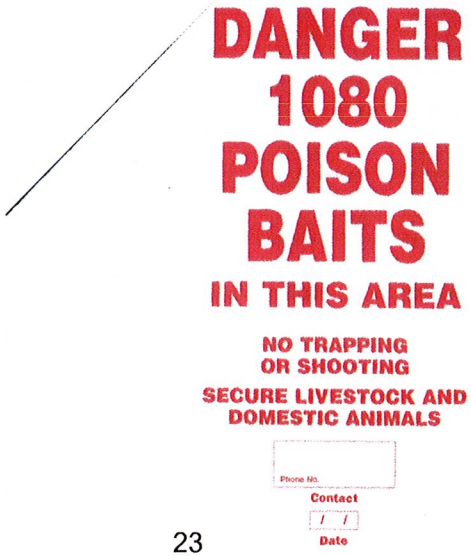
Adenanthos meisneri	
Adenanthos obovatus	Basket Flower
Banksia attenuata	Slender / Candle Banksia
Banksia grandis	Bull Banksia
Banksia ilicifolia	Holly-leaved Banksia
Banksia littoralis	Swamp Banksia
Banksia menziesii	Firewood Banksia


Banksia grandis



FOX BAITING PROGRAMME

In 1995, a bi-monthly fox-baiting programme was commenced after consultation and training with Agriculture WA. Since then the only severe break in baiting occurred between August 2000 and June 2001 when the Department stopped issuing feral control bait licenses while they radically changed their system. The programme used on Goodale Sanctuary complies with all government Regulations, and is adapted only to the size of the property and suitability of approved methods. Six times each year, 1080 Poison Baits, in the form of impregnated oat grains, are inserted into 24 eggs which are sealed with candle wax and these are buried in shallow dips at marked intervals around the property including three along the central track. (Dried meat-bait drops were considered not appropriate as nearby hobby farms have domestic dogs). At each re-baiting, recordings are made of how many eggs have been taken by foxes, with recording also of any which could have been broken by a Raven. Standard Poison-Bait warning signage is displayed at the main gate.



Proteaceae continued

Persoonia saccata	Snottygobble
Petrophile linearis	Pixie Mops
Stirlingia latifolia	Blueboy
Xylomelum occidentale	Woody Pear

Restionaceae (Rushes or Sedges)
Desmocladus (loxocarya) sp.
?Hypoleana exsulca
Leptocarpus sp.
Lyginia barbata

Rubiaceae

Opercularia hispidula	Hispid Stinkweed

Rutaceae

Boronia crenulata	Aniseed Boronia
Boronia spathulata	
Philotheca (Eriostemon) spicatus	Pepper & Salt

Stackhousiaceae
Stackhousia (?huegelii)

Stylidiaceae (Triggerplant Family)

Stylidium brunonianum	Pink Fountain Triggerplant
Stylidium calcaratum	Book Triggerplant
Stylidium (?carnosum)	Fleshy-Leaved Triggerplant
Stylidium junceum	Reed Triggerplant
Stylidium piliferum	Common Butterfly Triggerplant
Stylidium repens	Matted Triggerplant
Stylidium schoenoides	Cow Kicks

Thymelaeaceae

Pimelea sp.	White Flower

Tremandraceae
Platytheca galioides

Tetratheca (?hirsuta)	Black-eyed Susan

Xanthorrhoeaceae

Xanthorrhoea preissii	Grass Tree or Balga

Zamiaceae
Macrozamia riedlei

FUNGI LIST

Austroboletus occidentials	Jarrah
Pleurotus nidiformis	Stump
Laccaria laccata	firebreak
Amanita umbrinella	firebreak
Amanita preissii	firebreak
Calostoma fuscum	track
Rozites australiensis	firebreak
Gymnopilus sp	paperbark
Sepedonium aurantiacum	fungus attacking other fungi
Boletus aff. Badius	roots
Calocera sinesis	*Banksia* wood
Mycena sp	paperbark trunk
Boletellus obscurecoccineus	litter
Schizophylium commune	stump
Pycnoporus coccinus	dead paperbark
Amanita pericina	track
Gymnopilus pampeana	paperbark
Bolbitus (vitellinus??)	egg yolk fungus
Ramaria Sp	white coral fungus
Hebdoma aminophila	ghoul fungus
Pleurotus nidiformis	ghoul fungus
Psilocybe coprophila	
Galerina autumnalis	
Calvitia camdida	
Pycnoporus coceineus	scarlet bracket
Laccarin lascata (?)	
Coltricia oblectans	
Leptonia lampropus (?)	


Fungi sp.


Fungi sp.

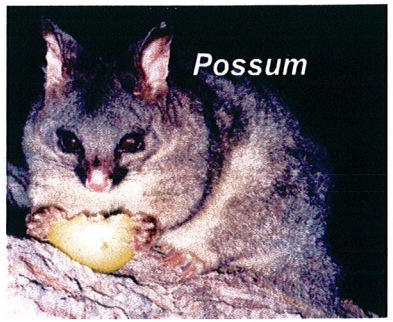
LICHENS:

Usnea arida
Cladonia Sp
Buellia Sp
Zanthoparmclia rutidoti
Thysanothecium


Lichen sp.

POSSUM TAGGING DATA

Origin	I.D.	Sex	Weight	Pes	Head Length	Tail Length	Scrotum Length/ Width	Pouch
GS	DW592	F	1620	62.2	92.6			
GS	DW591	F	800	55.2	86.4	100%		
GS	DW953	M	2025	68.1	93.5	100		
GS	DW952	F	1400	57.6	84.6	0		
GS	DW954	M	2175	69.8	91.0	100	26.0/31.8	
9M	DW975	M	1160	64.4	86.0	70	22.9/29.4	
9M	DW955	M	650	59.0	81.1	70	21.8/25.9	
GS	DW974	M	1580	61.9	88.5	100	21.4/26.3	
GS	DW973	F	865	52.5	82.6	100		2PY~20mm
GS	DW972	F	700	52.6	73.0	100		3PY~35mm
9M	DW956	F	1200	55.5	82.9	100		2 RN
9M	DW966	F	800	60.0	84.6	100		1 EN, Lact
GS	DW960	F	1025	57.6	86.9	95		2N, Lact
GS	DW971	F	705	51.6	78.4	100		3PY~40mm
GS	DW967	M	1875	65.4	95.0	0	24.9/28.9	
GS	DW969	M	1355	66.0	84.6	70	24.8/30.0	
GS9M	DW968	M	810	61.9	83.7	100	24.3/31.2	
GS	DW957	M	1150	65.0	85.4	100	24.2/33.3	
GS	DW970	M	1235	65.2	85.1	100	22.8/30.4	
GS	DW964	F	1140	56.3	88.9	100		2RN
GS	DW959	M	1140	62.9	88.7	100	26.5/32.0	
GS	DW961	F	775	54.5	78.5	100		2PY~25mm
GS	DW963	M	950	63.4	88.3	20	24.0/32.3	
9M	DW958	M	1425	68.7	92.0	100	28.4/33.0	
GS	DW965	M	300	44.1	58.9	100	JUV	
GS	DW925	M	190	40.2	55.5	100	JUV	
GS	DW924	F	620	52.9	72.9	40		2EN, NL
GS	DW902	F	1200	56.9	85.4	100		2PY~75mm
GS	DW903	M	1275	62.8	91.7	20	21.7/28.5	
GS	DW923	M	1475	70.2		60	24.8/33.7	
GS	DW962	F	925	55.5		100		2PY~55.4
GS	DW920	F	825	56.8	80.7	100		2RN
GS	DW919	M	1525	62.3	91.9	100	25.5/30.4	
9M	DW918	F	700	56.8	80.1	100		2RN
9M	DW919	M	1460	62.0	91.2	100	25.1/27.7	
9M	DW917	M	1150	62.1	87.7	60	21.4/29.4	
9M	DW904	F	450	50.9	72.2	100		Undev
9M	DW914	F	900	59.9	83.4	100		No EN


Possum

POSSUM TAGGING DATA

Detailed Possum information has been collected over the last five years. Prior to this, sightings were recorded only. A feed station was established opposite Goodale Campsite, where, intermittently, chopped fruit and vegetable matter and cat or dog biscuits would be left, allowing close-up observations at night.

The more recent surveys were conducted in both Goodale Sanctuary (GS) and Nine Mile Lake Reserve (GSNM) opposite the southern boundary. Animals were trapped, using 'Elliott' traps and details including measurements taken and recorded. The possums were then tagged, with ID numbers before being released. Data records list Location, ID No., sex, weight in grams, foot length (Pes), scrotum length/width, head length and tail length. Tail lengths vary greatly from full length to a complete absence of tail. This is mainly due to fights and scraps where tails are chewed. The condition of the pouch in females is recorded as follows: PY = pouched young, RN + raised nipple, EM = enlarged nipple and Lact. indicates lactation.

BIRD SIGHTINGS

The first bird-watch walk in August 1980 identified 20 different species of birds. By 2005 the number had increased to 120. Many species are seen more commonly than others: only one sighting has ever been declared of a Singing Honeyeater therefore this species has not been included in the list. There has also been only one sighting of a Galah, but this is such an obvious bird that it has been included. One of the earliest and perhaps most exciting birds seen was the Black Bittern. This bird proved over several years to be an occasional visitor and as the bird was only ever seen in an exclusive, hidden lake it would not perhaps have been disturbed by humans. An annual visitor for several years first seen in September 1980 was the Yellow Robin. Up to three pairs nested each year. Unfortunately, after 1989 the Yellow Robin has not been recorded.

On the western edge of the large lake a colony of Darters nested in the overhanging Melaleuca trees overhanging the water. Up to nine nests were recorded and this often included two sittings. The adults were observed leaving the nest to fish in the nearby Harvey Estuary before returning to sit with their chicks. During the three years drought, however, when the lake dried out completely each summer, the darters did not return to the site.

From the observation platform erected in a large Melaleuca over the large lake, it is possible to see many water birds, including, at times, several hundred Wood Duck and large flocks of Shelduck. This lake also attracts the Musk Duck, grey Teal, Black Duck and even a Blue-billed Duck. Dense natural growth around the edge of all three lakes provides habitat for Crakes, Dotterels, Little Grassbirds and Reed Warblers. A Swamp Harrier is often seen taking swoops over the lake.

In 1980 fresh bones were seen underneath a Wedge-tailed Eagle's nest in a tall Jarrah tree on the ridge, but this nest has not been used in twenty-five years.

Every year, finding nests of small bush birds is enjoyed. The Scarlet Robin, Yellow-rumped Thornbill and Grey Fantail nest every spring.

Added to bird observations has been a fruitful relationship with Dr Nic Dunlop's Bird Banding and Mist Netting programmes started in 1996.This an on-going study which will enhance Goodale Sanctuary's and Western Australia's database.

BIRD LIST

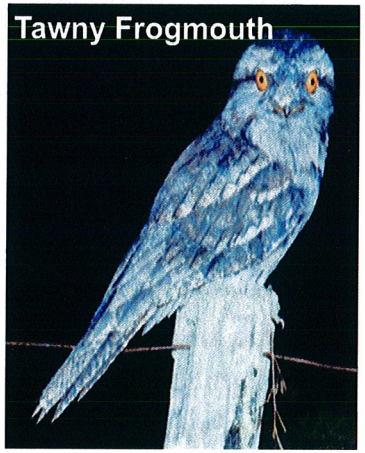
Australasian Grebe	*Tachybaptus novaehollandiae*
Hoary-headed Grebe	*Poliocephalus poliocephalus*
Pelican	*Pelicanus conspicullatus*
Little Black Cormorant	*Phalacrocorax sulcirostris*
Great Cormorant	*Phalacrocorax carbo*
Pied Cormorant	*Phalacrocorax varius*
Little Pied Cormorant	*Phalacrocorax melanoleucos*
Darter	*Anhinga melanogaster*
Pacific White-necked Heron	*Ardea pacifica*
White-faced Heron	*Ardea novaehollandiae*
Great Egret	*Ardea alba*
Little Egret	*Ardea (Egretta) garzetta*
Rufous (Nankeen) Night Heron	*Nycticorax caledonicus*
Black Bittern	*Ixobrychus flavicollis*
Australian White Ibis	*Threskiornis molucca*
Straw-necked Ibis	*Threskiornis spinicollis*
Royal Spoonbill	*Platalea regia*
Yellow-billed Spoonbill	*Platalea flavipes*
Black Swan	*Cygnus atratus*
Australian Shelduck	*Tadorna tadornoides*
Pacific Black Duck	*Anas superciliosa*
Grey Teal	*Anus gracilis*
Australasian Shoveler	*Anus rhynchotis*
Hardhead	*Aythya australis*
Pink-eared Duck	*Malacorhynchus membranaceus*
Australian Wood Duck	*Chenonetta jubata*
Blue-billed Duck	*Oxyuya australis*

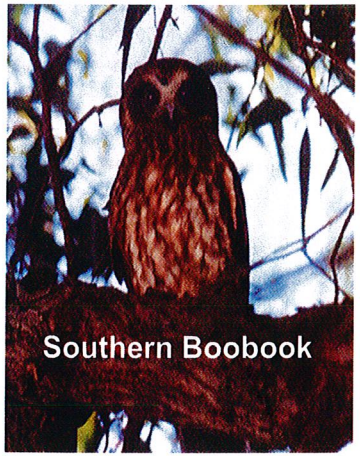
Willie Wagtail	*Rhipidura leucophrys*
Restless Flycatcher	*Myiagra inquieta*
Western Gerygone	*Gerygone fusca*
Weebill	*Smicrornis brevirostris*
Inland Thornbill	*Acanthiza apicalis*
Western Thornbill	*Acanthiza inornata*
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*
White-browed Scrubwren	*Sericornis frontalis*
Spendid Fairy-Wren	*Malurus splendens*
Clamorous Reed-Warbler	*Acrocephalus stentoreus*
Little Grassbird	*Megalurus gramineus*
Black-capped Sittella	*Daphoenositta chrysoptera pileata*
Spotted Pardalote	*Pardalotus punctatus*
Striated Pardalote	*Padalotus striatus*
Silvereye	*Zosterops lateralis*
Brown Honeyeater	*Lichmera indistincta*
White-naped Honeyeater	*Melithreptus lunatus*
New Holland Honeyteater	*Phylidonryis noaehollandiae*
White-cheeked Honeyeater	*Phylidonyris nigra gouldi*
Tawny-crowned Honeyeater	*phyidonyris melanops*
Western Spinebill	*Acanthorynchus superciliosus*
Little Wattlebird	*Anthochaera lunulata*
Red Wattlebird	*Anthochaera carunculata woodwardii*
White-fronted Chat	*Epthianura albifrons*
Magpie-lark	*Grallina cyanoleuca*
Black-faced Woodswallow	*Artamus cinereus melanops*
Dusky Woodswallow	*Artamus cyanopterus perthi*
Grey Butcherbird	*Cracticus torquatus*
Western Magpie	*Gymnorthina tibicen dorsalis*
Grey Currawong	*Streptera versicolor*
Little Crow	*Corvus bennetti*
Australian Raven	*Corvus coronoides*

Black-shouldered Kite	*Elanis axillaris*
Square-tailed Kite	*Lophoictinia isura*
Whistling Kite	*Haliastur sphenurus*
Brown Goshawk	*Accipiter fasciatus*
Collarede Sparrowhawk	*Accipiter cirrhocephalus*
Little Eagle	*Hieraaetus morphroides*
Wedge-tailed Eagle	*Aquila audax*
White-bellied Sea-Eagle	*Haliaeetus leucogaster*
Swamp Harrier	*Circus approximans*
Peregrine Falcon	*Falco peregrinus*
Australian Hobby	*Falco longipennis*
Brown Falcon	*Falco berigora*
Australian (Nankeen) Kestrel	*Falco cenchroides*
Stubble Quail	*Coturnix pectoralis*
Brown Quail	*Coturnix ypsilophora*
Buff-banded Rail	*Gallirallusphilipennsis*
Spotless Crake	*Porzana tabuensis*
Purple Swamphen	*Porphyrio porphyrio bellus*
Black-tailed Native-hen	*Gallinula ventralis*
Dusky Moorhen	*Gallinula tenebrosa*
Eurasian Coot	*Fulica atra*
Banded Lapwing	*Vanellus tricolor*
Red-capped Plover	*Charadrius ruficapillus*
Black-fronted Dotterel	*Charadrius (Elseyyornis) melanops*
Marsh Sandpiper	*Tringa stagnatilis*
Common Greenshank	*Tringa nebularia*
Sacred Kingfisher	*Todiramphus sanctus*
Rainbow Bee-eater	*Merops ornatus*
Welcome Swallow	*Hirundo neoxena*
Tree Martin	*Hirundo nigricans*
Australian (Richard's) Pipit	*Anthus novaeseelandiae*
Black-faced Cuckoo-shrike	*Coracina novaeseelandiae melanops*
White-winged Triller	*Lalage tricolor*
Scarlet Robin	*Petroica multicolor*
Hooded Robin	*Melanodryas cucullata*
Western Yellow Robin	*Eopsaltria griseogularis*
Golden Whistler	*Pachycephala pectoralis*
Rufous Whistler	*Pachycephala rufiventris*
Grey Shrike-thrush	*Colluricincla harmonica ruviventris*
Grey Fantail	*Rhipidura fuliginosa preissi*


Black-shouldered Kite

Laughing Turtle-Dove	*Streptopelia senegalensis*
Common Bronzewing Pigeon	*Phaps chalcoptera*
Crested Pigeon	*Ocyphaps lophotes*
Rainbow Lorikeet	*Trichoglossus haematodus moluccanus*
Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*
Regent (Smoker) Parrot	*Polytelis anthopeplus*
Twenty-eight Parrot	*Barnardius zonarius semitorquatis*
Red-capped Parrot	*Purpureicephalus spurius*
Western Rosella	*Platycercus ictorotis*
Elegant Parrot	*Neophema elegans*
Carnaby's Cockatoo	*Calyptorhinchus latirostris*
Baudin's Cockatoo	*Calyptorhinchus Baudinii*
Red-tailed Black-Cockatoo	*Calyptorhynchus banksii naso*
Galah	*Cacatua roseicapilla assimilis*
Corella	*Cacatua sp.*
Pallid Cuckoo	*Cuculus pallidus*
Fan-tailed Cuckoo	*Cacomantis flabelliformis*Horsfield's
Bronze-Cuckoo	*Chrysococcyx basalis*
Shining Bronze-Cuckoo	*Chrysococcyx lucidua plagosus*
Barn Owl	*Tyto alba*
Southern Boobook	*Ninox novaeseelandiae ocellata*
Tawny Frogmouth	*Podargus strigoides brachypterus*
Australian Owlet-nightjar	*Aegotheles cristatus*
Laughing Kookaburra	*Dacelo novaeguineae*


Tawny Frogmouth


Southern Boobook