



Shire of Susselton

MANAGEMENT PLAN
CREEKVIEW RESERVE (12492)

ADOPTED: AUGUST 2000

Prepared by the Toby Inlet Catchment Group Inc.

Shire of Busselton

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Appendix 1 Species list - Flora

Appendix 2 Species list - Fauna

Appendix 3 Species List - Birds

1. Introduction

1.1. Aims of the Plan

The aim of the management plan is to produce a working plan, as a guide for the protection of the Reserve, so that conservation values can be improved. These values will be achieved by providing baseline assessment of flora and vegetation, fauna and habitats, the control of weeds and feral animals and the impact of predators, fire prevention and control measures, soil erosion and rehabilitation techniques. Recreational strategies must be addressed so that impact by use does not threaten conservation values. Diseases such as die-back need to be identified, and controlled, if possible, by what ever means available.

There is a need to identify management issues, and then provide policies and recommendations to address those issues.

As Creekview Reserve has been, in part, used for gravel and sand extraction, there are some 8 to 10 ha that have been degraded by extraction, and the introduction of die-back (*Phytophthora sp.*). Some areas have fairly extensive erosion problems that need addressing. The remnant vegetation that remains on the south east sector of the Reserve, has retained a comprehensive diversity of native vegetation.

This remnant vegetation needs to be protected, soil erosion controlled, and the remaining degraded areas rehabilitated with local dieback resistant plant species.

The whole area needs to be retained as a Conservation and Recreational Reserve for public use.

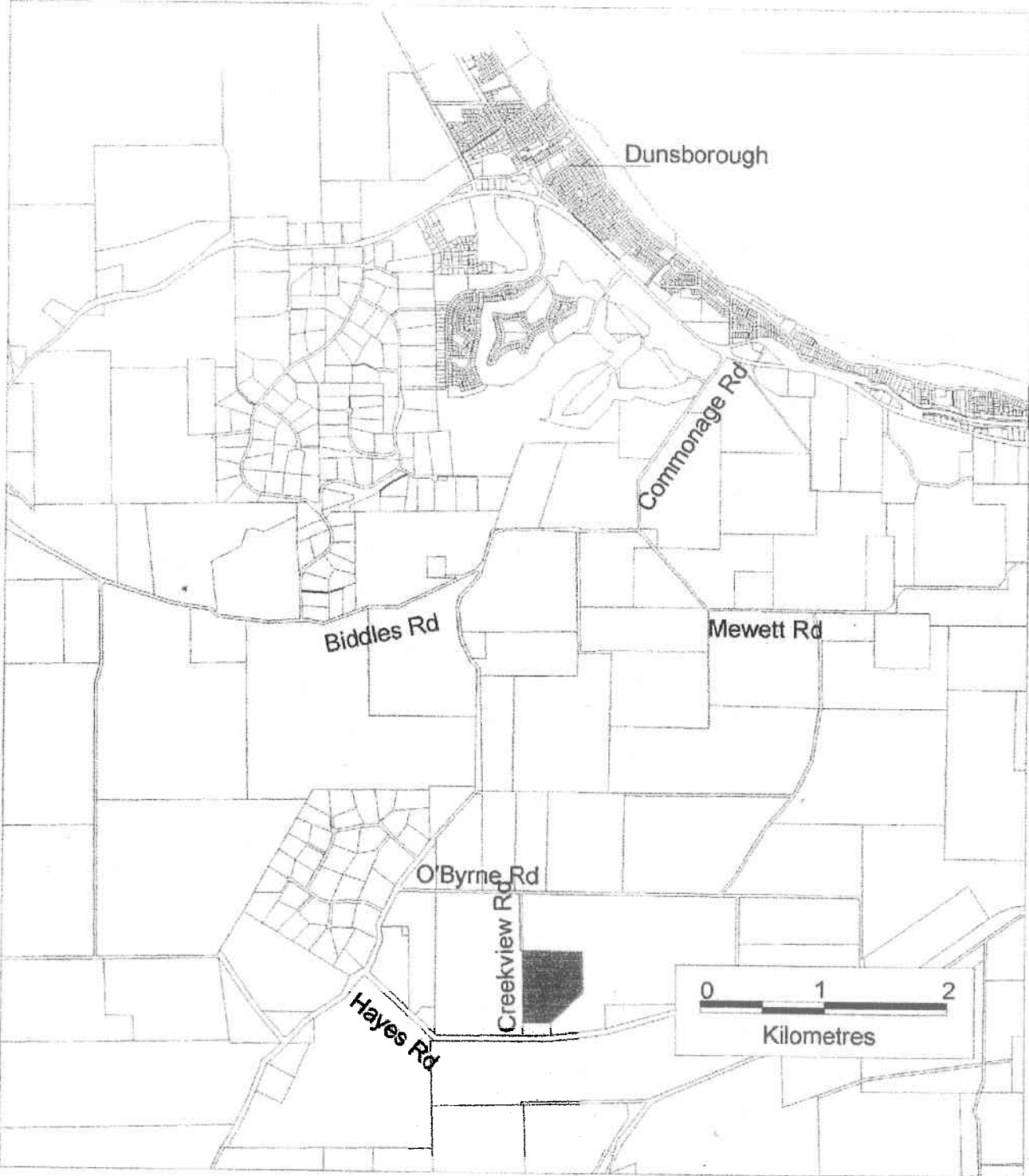
To achieve management recommendations, the Shire of Busselton needs to formulate other management criteria to establish partnerships with local community groups.

The recommendations outlined in the Management Plan are considered necessary to ensure that the optimum management criteria are met, and consequently implemented under the Shire of Busselton, who are responsible for control and management of the Reserve.


1.2. Management Objective

The management objective for the reserve, is to maintain, and if possible improve, its conservation, landscape and recreational values.

Figure 1: Location of reserve



Legend

 **Creekview Reserve**



1.3. General Description

Creekview Reserve is approximately 8 kilometres south of Dunsborough at Latitude S 33 40' 23.4", Longitude E 115 06' 11.2".

Entry to the Reserve is from Commonage Road east via O'Byrne Road then south along Creekview Road. (See Figure 1.)

The reserve is approximately 20 hectares, with about 8 hectares having been used for gravel extraction. Healthy and diverse vegetation still remains on the southern and south east sections. The vegetation below the gravel extraction areas has been affected by dieback, with severe outbreaks in adjacent properties. As the dieback appears to be restricted to the extraction area, it can be suggested that the dieback was brought into the Reserve by extraction equipment. The extent of dieback has not, as yet, been determined.

The area surrounding Creekview Reserve is privately owned and is used for agriculture, rural-residential, tourism and viticulture.

2. Site Description

2.1. History

Creekview Reserve, vested in the Shire of Busselton, was used for gravel and sand extraction. It is understood that extraction began in the late seventies, and continued on till the late eighties. An attempt to rehabilitate the work site was attempted in 1990 by the Shire of Busselton. However, as the area was not landscaped, and topsoil was not replaced, establishment of introduced species was very poor. Growth rate, especially the Eastern States Eucalyptus spp. has been about 1 metre to 2 metre in 9 years. Regeneration of endemic shrubs and herbs has also been slow and isolated.

At the beginning of 1999, the Toby Inlet Catchment Group conducted a first stage flora survey. With permission from the Shire of Busselton, a rehabilitation program was also started with the understanding, that a 'Management Plan' be instigated, and that the Reserve be revested to 'Landscape Protection'.

The Shire committed \$10,000.00 for landscaping and other works, to be completed before June 2000. The Toby Inlet Catchment Group committed some \$5,184.00, split between the two Reserves, Creekview and Hayes. The funds were spent on preparing the ground by scarifying, ripping, and returning some of the available topsoil to the scarified areas. Appropriate seed was purchased and sown at the rate of 1.5kg per hectare. And an appropriate fertiliser was purchased and spread. Some \$6,380.00 'in Kind' by the TIC Group, was split between the two Reserves, Creekview and Hayes.

The TIC Group applied to GeoCatch for a \$5,000.00 grant, to assist with some experimental studies. Data from Results will be forwarded to GeoCatch, on conclusion of the trials.

The \$5,000.00 was spent on the purchase of straw, seed and fertiliser. Various replications of seed species, straw and soil applications were used in the trial quadrats. Some quadrats were ripped and scarified, and others were not treated.

2.2. Landform and Soils

Classification for the Reserve falls within the Yelverton Shelf land system, Tille and Lantzke (1990). This land system consists of gently inclined slopes rising from the Swan Coastal Plain at an elevation of about 40m above sea level, to a gently undulating plain of between 60-80 metres above sea level. The reserve is located from 35m to 60m above sea level. In some sections the area varies from a gentle undulating slope to a moderately steep slope. Within the Yelverton Shelf land system there are a variety of soil types. The soil type that occurs within most of the reserve, is a shallow gravel over ironstone. The north and south east sections of the reserve are part of a drainage depression and the eastern section is part of an area of deep bleached sands.

2.3. Hydrology

The reserve is generally well drained with water flowing to the north east to Creekview Creek, and south east to Bennett Creek. As a result of gravel and sand extraction there are areas, on the eastern boundary, where ponding is severe during the wet season (Figure 2). These two creeks have over the past few years, dried up over summer. It is thought that these creeks would flow for longer periods into the summer, if the weather patterns revert to a wet cycle as in the 1960's.

Although it does not appear to affect the Reserve, changes to the hydrology, along Creekview Creek, by the construction of seven dams, must impact on the ecology of the lower drainage line.

It is not evident that the shallow ground water flows in a north east direction as it does on the flood plains. This may need to be defining for future management ?.

2.4. Vegetation Communities and Flora

The remnant vegetation is primarily marri-jarrah forest, with the dominant tree species being Marri (*Eucalyptus calophylla*), Jarrah (*E. marginata*), and peppermint (*Agonis flexuosa*), *Banksia attenuata*, *Banksia grandis* and *Allocasuarina fraseriana*. The understorey is quite diverse and includes such

shrubs as *Kunzea ericifolia*, *Hakea amplexicaulis*, *Acacia extensa*, *Acacia rostellifera*, *Daviesia preissei*, *Mirbelia dilitata* and several species of *Hibbertia*.

A diverse range of herbaceous plants such as *Stylidium spp.*, *Conostylis aculeata*, *Haemodorum laxum* and *Drosera spp.* were recorded.

A total of 84 plant species of vascular plants have been recorded to date. The flora survey was undertaken in summer and it is anticipated that the total species list will increase when flora surveys are completed.

Several introduced species, such as *Eucalyptus saligna* and *Eucalyptus resinifera*, used in rehabilitation work, have been recorded. There are no Shire records on species used.

A current plant species list has been included in Appendix 1.

The vegetation on the southern and south eastern sections of the reserve, is supported, by a diverse representation of plant species. The vegetation on the northern and north eastern section has been affected by dieback (*Phytophthora cinnamomi*), with a loss of certain species. On the eastern boundary and adjoining property, *Banksia spp.* and in particular *Banksia grandis* are dying from dieback infestation. Ponding has probably exacerbated the problem due to the accumulation of the fungus.

The level of weed infestation in the reserve is very low.

2.5. Fauna

Fauna recorded within the area is well documented, Fauna of the Commonage Precinct, Clay 1999. (Appendix 2), and Field Guide, Birds of Cape Naturaliste, Pauline and Brian Clay, 1996, and Bird Atlas, Pauline Clay, Judy Henderson, 1999 - 2000 (Appendix 3).

During the latter part of 1998 and several runs in 1999, the Toby Inlet Catchment Group, instigated a fox baiting program from Caves Road in the West to Vasse / Quindalup siding road in the East. By observation, it has been noted that there has been a large increase in the local fauna.

For example:

The Quenda (*Isodon obesulus*) has now been observed in a number of localities at fairly frequent intervals. The Ringtail Possum (*Pseudocheirus occidentalis*), the Common Brushtail Possum (*Trichosurus v. vulpecula*), the Honey Possum (*Tarsipes rostratus*), the Pygmy Possum (*Cercartetus concinnus*) have all been observed in localities throughout the Commonage Precinct, with few recorded sightings prior to 1996, except for road kills. The

Western Brush Wallaby (*Macropus irma*) has also been observed in four different locations. It is not yet known if these observations of the Brush Wallaby, are the same family group.

Reptiles such as King's Skink, (*Egernia kingii*), Southern Crevice Skink, (*Egernia napoleonis*), and the Varanids, *Gould's Monitor* (*Varanus gouldii*, *Rosenberg's Monitor*, (*Varanus rosenbergi*) are now sighted regularly.

It could be suggested, that with the reduction of fox numbers, and reported visual sightings of native fauna, that populations of native fauna have increased. Animals such as the Quenda are now being observed regularly at locations where animals have not been seen before. These sightings did not occur some two years ago.

Foxes, rabbits and deer have been observed in the Reserve.

Birds of note have been the Wedge Tailed Eagle, observed flying over the Reserve. The Sacred Kingfisher and the Rainbow Bee-Eater are common in the Reserve after their arrival from the north. Both these birds nest in the Reserve. Honeyeaters, White Breasted Robins, Golden Whistlers and the Red Capped Parrots are common. The Red Eared Firetail has also been recorded near the creek line, Clay, P. pers. comm. (See Bird List Appendix 3).

2.6. Landscape and Recreational Value

Creekview Reserve has value as a Conservation reserve in an area that is surrounded by agriculture and rural-residential development. It is not currently used much for recreation, except for a few bush walkers. The Reserve has been degraded with the clearing for gravel extraction, the introduction of dieback and very poor landscaping and rehabilitation with trees from the Eastern State. Due also to poor landscaping, soil erosion and gullies have occurred.

With existing remnant vegetation and with rehabilitation works being carried out, the Reserve should attract more visitors, and thus increase the usage. Added to the above is the ever growing local population, of which there will be a fairly large percentage of people who will use the Reserve for pleasure.

2.7. Land Tenure

A re-vesting proposal of the Creekview Reserve, to 'Landscape Protection', has been made to the Department of Land Administration, by the Shire of Busselton.

Priority 1=Urgent. Priority 2=Needs to be addressed. Priority 3=Not urgent

3. Management Physical Resource

3.1. Climate and Weather

The area experiences a Mediterranean climate with warm to hot summers and mild wet winters. Mean annual rainfall of 821.7mm. at Busselton and a mean annual rainfall at Cape Naturaliste of 824.7mm. (Bureau of Meteorology, 1903 – 1993) suggest that the lower flood plains experience a similar rainfall pattern. However the mean average rainfall on the ridge from 1991 to 1998 of 976mm. suggests that the mean average rainfall on the ridge is greater than the low country (Clay – Rainfall, Lot 1 Commonage Rd. 1991-1998).

The affects of high rainfall has, and will have, an impact on cleared and degraded land causing ponding and erosion.

Ponding has occurred on the eastern boundary of the Reserve, due to the extraction of sand and lack of landscaping during rehabilitation. These ponds have created two major problems:

- i. Being at the bottom of the slope, these ponds have created a wet and or moist area which has created a perfect site for the dieback fungus.
- ii. Water has also created numerous channels, which in some cases have turned into small gullies. These erosion sites need treatment with on site rocks and or logs to arrest the flow of water. Hopefully, once the area becomes revegetated, gullies are dealt with, erosion will be arrested.

Issue

- i. Severe weather patterns, and or a return to a wet cycle will exacerbate the problems of erosion and ponding, by flooding.

Objective

- i. To understand the general flow of water down the slopes, and redirect and or stabilise these flow rates. Using local materials.

Action

- i. To stabilise eroded areas with various treatments, Such as rock fill and or logs. Logs and rocks on site. **Priority 1.**
- ii. Revegetate, with understorey endemic plants, where appropriate, to stabilise water flow. **Priority 1.**

- iii. Direct water flow, with channels, away from potential erosion areas. **Priority 1.**
- iv. Landscape ponds on the eastern boundary. **Priority 1.**

4. Management of Biological Resources

4.1. Vegetation and Flora

4.1.1. Vegetation Communities

The remnant vegetation is predominantly *Euclyptus marginata* and *E. calophylla* with a fairly diverse understorey. This plant community exists on the south east and north sections of the reserve. The area that has been disturbed, contains very few dominant trees, and the shrubs that have returned are forming plant communities. *Mirbelia dilitata* and associated plants has formed a plant community and so has *Kunzea ericifolia* and associated plants formed another community.

These two communities are struggling to colonise the degraded area.

4.1.2. Flora

A total of 84 plant species of vascular plants have been identified. Apart from the *Eucalyptus spp.* planted with the original rehabilitation program, there have been no further weeds recorded.

As yet no declared rare flora have been recorded.

Issue

- i. Conservation of the remnant vegetation.
- ii. Weeds, feral animals and habitats.

Objectives

- i. Try to ensure that dieback (*Phytophthora cinnamomi*) does not invade dieback free zones.
- ii. Try to protect the diversity of plant species.
- iii. Ensure adequate protection from fire, weeds and feral animals.

Action

- i. Treat dieback infected areas, with fungicide, to stop spread **Priority 1.**
- ii. Control access with signage. **Priority 1.**

- | | | |
|------|--|-------------|
| iii. | Control feral animals. | Priority 3 |
| iv. | Complete flora survey. | Priority 3. |
| v. | Complete and instigate a fire protection plan. | Priority 2. |
| vi. | Establish an ongoing monitoring program, for all of the above. | Priority 3. |
| vii. | Collate all data to the computer using GIS programs | Priority 3. |

4.2. Fauna

4.2.1. Mammals, Reptiles, Amphibians

Seven species of native mammals, and four introduced, have been recorded close to the Reserve. Breeding has been observed with the Bandicoot (*Isodon obesulus*) and Pygmy Possum (*Cercartetus concinnus*).

Eight species of frog have been recorded in and around the Reserve, and apart from common species such as the Western Banjo Frog (*Limnodynastes dorsalis*), some aquatic frog numbers seem to have declined, perhaps due to falling water tables, due to the below average rainfall over the past twenty years. A.R. Main, 1965, "Frogs of Western Australia", states that, 'the elements referred to as the biotic environment, such as rainfall, drought, and high or low temperatures, can cause high mortalities in aquatic frogs. An example of a water system drying up was Lake Banganup, where the population of *Ranidella glauerti* was depleted dramatically from 1975 to 1989 (Clay 1990)

Thirteen reptiles have been recorded, with some species such as the King Skink (*Egernia kingii*), on the increase. A fairly rare secretive nocturnal snake, Black-Headed Snake, (*Suta gouldii*) was captured, identified and released. The Crowned Snake (*Drysdalia coronata*), rarely seen, was recorded at O'Byrne Road.

Issue

- i. Conserve remnant vegetation and habitats for fauna.

Objective

- i. Manage remnants by controlling dieback and fires.
- ii. The establishment of local vegetation in the rehabilitation area as fauna habitats.

- iii. Establish records of animals and habitats.

Action

- i. Physical fauna survey. **Priority 3.**
- ii. Collate all records of fauna and habitats onto a data base. **Priority 3.**

5. Management – Protection and Other Issues

5.1. Dieback

Dieback, caused by the fungus *Phytophthora cinnamomi*, is present in the Reserve. It is understood that machinery used for the gravel and sand extraction, introduced the fungus to the Reserve, as die-back is found predominantly around the edges of the extraction site. It has been determined that fungus has spread down the eastern and northern slopes. Apart from the deaths of regrowth *Banksia grandis* in the degraded area, it is hard to determine the extent of the dieback in the extraction site. The northern section of the reserve, down slope from the gravel extraction site, is dieback affected. The southern section of the reserve appears to be clear of dieback, although there appears to be small pockets of infection at the top of the hill, close to the extraction site. Those areas that appear to be free of the fungus, will need a dieback plan to ensure these areas are protected. Movement of people and vehicles into, and out of the Reserve, needs to be controlled with signage. The ponding issue needs to be addressed, and to control the dieback, there has to be a recognised plan, so that the spread of the dieback can be contained.

Issue

- i. Dieback has invaded a large section of the worked gravel pit, and appears to be a threat to the remnant vegetation.

Objective

- i. Where practical treat affected dieback areas with fungicide, and restrict movement with signage.

Action

- i. Treat vegetation threatened by dieback with fungicide. **Priority 1.**
- ii. Record areas treated, results, and area of infestation. **Priority 3.**
- iii. Plan walk trails and firebreaks to minimise spread. **Priority 3.**

- iv. Erect signage to define movement and affected areas. **Priority 2.**
- v. Ensure use of dieback resistant species in rehabilitation. **Priority 1.**

5.2. Rehabilitation

Over a third of the reserve has been cleared for gravel extraction (see Figure 2). Due to poor techniques and the use of introduced species, the rehabilitation of the gravel extraction site has produced poor results. Regeneration that has occurred has been minimal and with poor results.

In 1999 the Toby Inlet Catchment Group and Friends of the Creekview and Hayes Reserves, started rehabilitation work. Approximately 4 ha was ripped and scarified, and where available top soil was replaced. Oaten straw was also used as a substitute for soil. Seed was sown into this medium. The whole of the treated area was fertilised as per CALM and ALCOA specifications.

Seeds used were dieback resistant and endemic to the area, with a dominance of *Acacia spp.*, especially *Acacia pulchella*. Plots were laid out, and these plots received various treatments so that an informed approach may be taken as to the best methods to rehabilitate a gravel pit. These data have yet to be collated and analysed before presentation to GeoCatch, the sponsors.

All plants and or seeds used in the rehabilitation process of the Reserve, will be local and dieback resistant species.

Issue

- i. As the Reserve is near the headwaters of the two creeks, Creekview and Bennett and a major section of the Toby Inlet Catchment it is suggested that it should be necessary to stabilise the erosion problem and other run off problems such as nutrients.

Objective

- i. To rehabilitate and stabilise the site as part of the Toby Inlet Catchment Management Plan and ensure that this water system is not contaminated.
- ii. Create habitats for local fauna.
- iii. Recreate bio-diversity within the system.

Action

- | | | |
|------|--|-------------------|
| i. | Rip and scarify where necessary. | Priority 1 |
| ii. | Landscape ponded areas. | Priority 1 |
| iii. | Return available top soil and or straw as medium for growth | Priority 1 |
| iv. | Rehabilitate all degraded areas using local native species of seed and plants. | Priority 1 |

5.4 Weed and Feral Animal Control

Weed infestation in the reserve is very low. The spreading of topsoil and mulch to assist regeneration of vegetation may lead to an increase in weeds. The area needs to be monitored and weed control undertaken as necessary. From reports there is at least one Victorian tea-tree in the reserve, location not known. It should be eradicated and a complete survey undertaken to assess any further problems.

Foxes, rabbits and deer have been observed in the reserve. Warrens for both fox and rabbit have been recorded, and cat tracks have been observed. Most frequently used area is in the lower sandy slopes. Fox control, using eggs injected with 1080, has been undertaken, by the TIC Group, on adjacent properties since 1998. Evidence of an increase in sightings of local fauna, indicates that the baiting program has been a success.

Issue

Weeds, foxes, rabbits, deer and possibly cats.

Objective

- i. Control by eradication.

Action

- i. Eradicate weeds with appropriate herbicides, and control feral animals with poison baits. **Priority 2**

5.5 Fire Control and Prevention

The issue of fire and bush management is a complex one, as there is always a need to burn to reduce fuel loading for safety reasons. Fire is also a natural part of the Australian environment, and as a management tool it must be used with caution, as frequent burning results in degradation of bush areas.

There does not appear to be a fire history for the Reserve, as fire records do not exist. It is apparent there has not been a major fire in this area for the last 25 years (Clay 2000). An assessment of the fire hazard of the reserve will need to be carried out.

Controlled burning should only be carried out if there is a fuel hazard problem, and to create a buffer zone around part of the boundary. Fuel reduction is needed to help stop wild fires from entering the Reserve. As a management tool the total area is too small to subdivide into smaller blocks for control burns.

Access tracks with a reduction of fuel loading to a distance of some 60m along the boundaries is an ideal method of fire control. Fuel loading, especially light fuels can be slashed, small areas only, or the use of a cool burn can be recommended.

A fire protection action plan, as a management tool, over and above the basic Shire requirements of one external firebreak, is needed to ensure that costly rehabilitation of plants are not burnt before the plants have reached an age that will tolerate fire.

Issue

- i. Uncontrolled wild fires, and fire as a management tool.

Objective

- i. To prevent uncontrolled fires from entering the Reserve and if necessary the use of fire as a management tool.

Action

- i. Complete fire access tracks, only on the existing cleaned areas of the Reserve along the margins of the remaining vegetation without clearing or damage to this vegetation. **Priority 1**
- ii. Reduce fuel loading from approved tracks into the Reserve for 20m where the Manager, Community Law has determined these fuel loads to be very high. **Priority 1**
- iii. Determine fuel loading for the remaining remnants. **Priority 2**
- iv. Consider dual use fire access and walk trails where appropriate. **Priority 3**

v. Progress a fire plan after completion of surveys

Priority 3

6 Management - Recreation

6.1 Access

The Reserve is not used very much, but it is anticipated that as the Reserve is rehabilitated and walk trails/information trails are put in place, the Reserve will attract more and more people. It is anticipated that with the use of a web site and news letters usage will be increased.

Define dual walk trails/access tracks and information signs will need to be provided to restrict access to various vegetation communities. Erosion, the spread of weeds and dieback needs careful planning of pathways so that people do not move from one zone to another without thought of spreading dieback or weeds.

Restricted defined car parks need to be put in place so that cars are confined to one area. It is recommended that pine posts be used as markers.

Issue

i. Recreation

Objective

i. Provide walking tracks for enjoyment and information without disturbing the ecological balance.

Action

i. Apply for funding through Trails West to fund proposed walking trails/fire access tracks. **Priority 3**

ii. Complete information signage. **Priority 3**

iii. Define car parks with appropriate posts. **Priority 2**

iv. Allowing existing informal track in the southern section of the Reserve to regenerate naturally and locate future walk trails in the northern section of the Reserve aligning where possible with firebreaks to minimise disturbance. **Priority 2**

6.2 Reserve boundary

The reserve boundary is not well defined in certain sections. It is suggested that this needs to be addressed. It is considered that fencing is inappropriate, and that markers, if needed, could be used to define the boundary.

Issue

- i. Boundary definition.

Objective

- i. Define the boundary where it is needed.

Action

- i. Survey and define boundary (where needed).

7 Community Relations

7.1. Education and information

With newsletters and brochures, the local community needs to be well informed on all aspects of management and the benefits of good management will have on the total wellbeing of the whole of the environment.

7.2. Community Liaison and Involvement

It is important to liaise with the local community, and obtain their input on management plans and to assist with management. The formation of a 'Friends of Reserve' should be formed, if the local community is willing to be part of such a group. If such a group is formed they should be encouraged to participate in all aspects of management.

Issue

Ensure the Community is aware of the values of the Reserve.

Objective

- i. Encourage community involvement with management and ensure that management is in accordance with the management plan.

Action

- i. Relay information to the community via news letters.

8 Research and Monitoring

Initial research has commenced on flora, fauna, dieback, methods of rehabilitation etc. Further surveys and research need to be seen as ongoing projects, so that management proceeds with the optimum information available.

Issue

Base line data to ensure efficient management.

Objective

- i. To ensure all the necessary data is available for management.

Action

- i. Collate all available data.

Priority 3

9. Plan Implementation

The Shire of Busselton needs to agree on a management plan so that recommendations can be put in place. As the Shire retains responsibility and control, the Shire needs to address the level of assistance required from local communities, and the degree of involvement, which is also acceptable to local communities. Partnerships have been suggested as a means to management.

9.1. Priorities

Priorities have been addressed, and a suggested priority number assigned to each phase of a project by nominating the urgency to any particular project. These nominations will vary during the time frame set, and therefore should be flexible.

9.2. Funding

The Shire of Busselton has set aside funding for Creekview Reserve, for the 1999 / 2000 period. It is understood that funding after this date is unlikely. Funding for walk trails, fencing and the like can be sourced from various funding bodies.

9.3. Evaluation and Review

An initial review stage to be set to assess how well the objectives outlined here, have been addressed. At this stage management can be modified to address deficiencies or altered objectives.

If funding is not available then management will not proceed.

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Some references have been included to suggest further reading.

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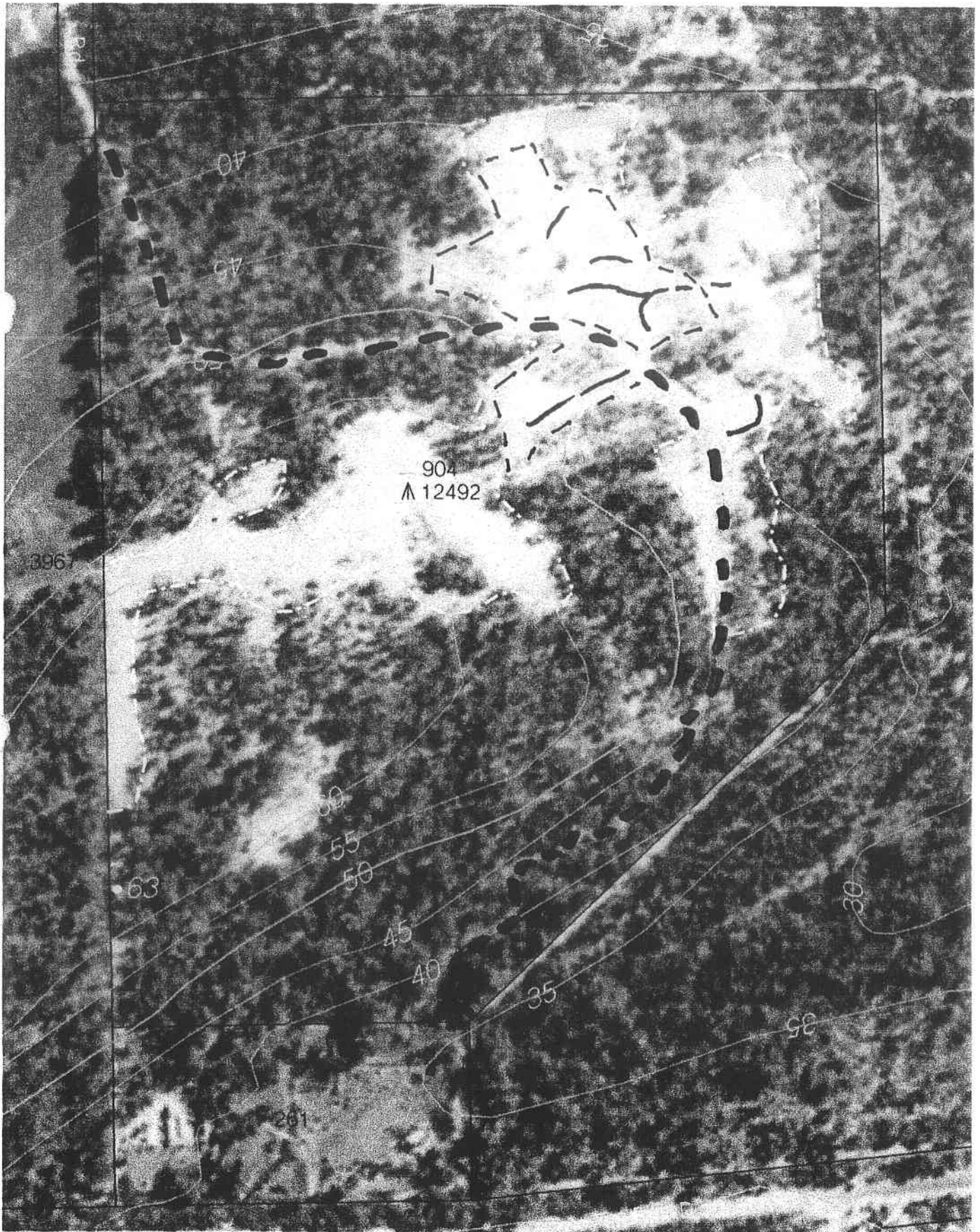
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CREEKVIEW RESERVE No 12492

Ponded areas
Rehabilitation 1999
Existing Access Tracks
Erosion

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Family	Species name	Common name	Location
AMARANTHACEAE			
	<i>Ptilotus manglesii</i>	rose tipped mulla-mull	Creekview
ANTHERICACEAE			
	<i>Thysanotus sp.</i>	fringe lily	Creekview / Haye
	<i>Johnsonia lupulina</i>		Hayes
APIACEAE			
	<i>Pentapeltis peltigera</i>		Creekview - Haye
ASTERACEAE			
	<i>Olearia axillaris</i>		Creekview
CASUARINACEAE			
	<i>Allocasuarina humilis</i>		Creekview / Haye
	<i>Allocasuarina fraseriana</i>	she oak	Creekview / Haye
CEASALPINIACEAE			
	<i>Labichea punctata</i>		Hayes
COLCHICACEAE			
	<i>Burchardia multiflorus</i>	dwarf Burchardia	Hayes - Creekvie
CYPERACEAE			
	<i>Isolepis nodus</i>	knotted club rush	Hayes
	<i>Lepidosperma tetraquetrum</i>	square sedge	Hayes
	<i>Lepidosperma sp.</i>		Hayes
	<i>Lepidosperma leptostachyum</i>		Hayes
	<i>Lepidosperma costale</i>		Hayes
	<i>Mesomelaena stygia</i>	semaphore sedge	Hayes
	<i>Hypolaena exsulca</i>		Hayes - Creekvie
DASYPOGONACEAE			
	<i>Acanthocarpus preissi</i>	prickle lily	Creekview
	<i>Kingia australis</i>	grass tree	Creekview
	<i>Dasyogon hookeri</i>		
DENNSTAEDTIACEAE			
	<i>Pteridium esculentum</i>	bracken	Creekview - Haye
DILLENACEAE			
	<i>Hibbertia rhadinopoda</i>		Creekview
	<i>Hibbertia hypericoides</i>		Hayes
DROSERACEAE			
	<i>Drosera sp.</i>		Creekview
EPACRIDACEAE			
	<i>Astroloma ciliatum</i>		Hayes
	<i>Astroloma pallidum</i>		Hayes
	<i>Leucopogon ? Tenuis</i>	curry and rice	Hayes
	<i>Leucopogon propinquus</i>	common forest heath	Hayes
GERANIACEAE			
	<i>Palargonium capitatum</i>		Hayes / Creekvie

Family	Species name	Common name	Location
EUPHORBIACEAE	<i>Phyllanthus calycinus</i>		Hayes
GOODENIACEAE			
	<i>Dampiera linearis</i>	common Dampiera	Hayes
	<i>Goodenia caerulea</i>		Hayes
	<i>Lechenaultia biloba</i>		Hayes
HAEMODORACEAE			
	<i>Conostylis setigera</i>		Hayes
	<i>Conostylis aculeata</i>		Creekview
IRIDACEAE			
	<i>Patersonia occidentalis</i>		Hayes / Creekvie
LOBELIACEAE			
	<i>Lobelia gibbosa</i>		Creekview
MIMOSACEAE			
	<i>Acacia stenoptera</i>	narrow winged wattle	Creekview
	<i>Acacia pulchella</i>	prickly moses	Creekview
	<i>Acacia nervosa</i>	ribbed wattle	Hayes
	<i>Acacia browniana</i>		Hayes
	<i>Acacia obovata</i>	wavy-leaved wattle	Hayes
	<i>Acacia extensa</i>		Creekview
	<i>Acacia rostellifera</i>		
MYRTACEAE			
	<i>Agonis flexuosa</i>	peppermint	Creekview / Haye
	<i>Eucalyptus marginata</i>	jarrah	Creekview / Haye
	<i>Eucalyptus calophylla</i>	marri	Creekview / Haye
	<i>Hypocalymma robustum</i>	Swan River myrtle	Creekview / Haye
	<i>Hypocalymma angustifolia</i>	white myrtle	Creekview / Haye
	<i>Kunzia ericifolia</i>	spearwood	Creekview / Haye
	<i>Calothamnus sanguineus</i>	pinfdak	Creekview / Haye
	<i>Melaleuca viminea</i>		Creekview / Haye
	<i>Melaleuca thymoides</i>		Hayes
PAPILLIONACEAE			
	<i>Bossiaea eriocarpa</i>	common brown pea	Creekview / Haye
	<i>Bossiaea ornata</i>	broad-leaf brown pea	Creekview / Haye
	<i>Daviesia cordata</i>	book-leaf	Hayes
	<i>Hardenbergia comptoniana</i>	native wisteria	Hayes / Creekvie
	<i>Hovea chorizemifolia</i>	holly-leaf hovea	Creekview / Haye
	<i>Gompholobium knightianum</i>	handsome wedge pea	Hayes
	<i>Gompholobium confertum</i>		Hayes
	<i>Gompholobium tomentosum</i>		Hayes
	<i>Jacksonia alata</i>		Creekview
	<i>Mirbelia dilitata</i>	holly-leafed Mirbelia	Creekview / Haye
	<i>Viminaria juncea</i>	golden spray	Hayes / Creekvie
PITTOSPORACEAE			
	<i>Billardiera parviceps</i>		Creekview
	<i>Billardiera varifolia</i>		Creekview

Family	Species name	Common name	Location
PROTEACEAE			
	<i>Adenanthos barbigerus</i> ssp		Hayes
	<i>Dryandra bipinnatifida</i> ssp. bipinnatifida		Hayes / Creekvie
	<i>Dryandra lindleyana</i> ssp. lindleyana var lindleyana		Creekview / Haye
	<i>Hakea ruscifolia</i>	candle Hakea	Creekview
	<i>Hakea amplexicaulis</i>	prickly Hakea	Creekview
	<i>Persoonia longifolia</i>	snottgobble	Creekview / Haye
	<i>Petrophile linearis</i>		Creekview / Haye
	<i>Stirlingia latifolia</i>	blueboy	Creekview
	<i>Synaphea petiolaris</i> ssp.trilob		Hayes
	<i>Kylomelum occidentale</i>	woody pear	Hayes / Creekvie
	<i>Grevillea trifida</i>		Creekview
	<i>Grevillea quercifolia</i>		Hayes / Creekvie
	<i>Banksia grandis</i>		Creekview / Haye
	<i>Banksia attenuata</i>		Creekview
RESTIONACEAE			
	<i>Loxocarya fasciculata</i>		Creekview / Haye
	<i>Loxocarya flexuosa</i>		Creekview / Haye
RHAMNACEAE			
	<i>Spyridium globulosum</i>		Hayes
STYLIDIACEAE			
	<i>Stylidium bulbiferum</i> ssp. mavrocarpu		Hayes / Creekvie
	<i>Stylidium amoenum</i>		Hayes / Creekvie
THYMELAEACEAE			
	<i>Pimelea suaveolens</i> ssp. sauveolens		Hayes
XANTHORRHOEACEAE	<i>Xanthorrhoea preissii</i>	grass tree	Creekview / Hay
	<i>Xanthorrhoea gracilis</i>	slender grass tree	Creekview / Haye

Mammals, Reptiles and Amphibians

FAMILY	SCIENTIFIC NAME	COMMON NAME	Big Rock	Toby Inlet	Meelup	Toby Inlet Catchment				
						Site 1	Site 2	Site 3	Site 4	Site 5
FROGS										
Leptodactylidae	<i>Crinia georgiana</i>	Quacking Froglet		#	#					
	<i>Crinia pseudinsignifera</i>	Granite Froglet		#						#
	<i>Geocrinia leai</i>	Lea's Froglet	#	#	#	#	#			
	<i>Heleioporus eyrei</i>	Moaning Frog		#	#					#
	<i>Heleioporus inornatus</i>	Chocolate Burrowing Frog		#	#					#
	<i>Limnodynastes dorsalis</i>	Western Banjo Frog	#	#	#					#
	<i>Metacrinia nichollsi</i>	Nicholl's Toadlet				#				#
	<i>Pseudophyrne guentheri</i>	Guenther's Toadlet			#					#
Hylidae	<i>Litoria adelaidensis</i>	Slender Tree Frog		#	#					
	<i>Litoria moorei</i>	Moore's Frog		#						
REPTILES										
	<i>Chelodina oblonga</i>	Oblong Snake-necked Turtle		#						
Gekkonidae	<i>Christinus marmoratus</i>	Common Marbled Gecko	#	#	#					#
	<i>Diplodactylus polyophthalmus</i>	Rusty Gecko								#
Pygopodidae	<i>Aprasia pulchella</i>	Pretty Worm-lizard								
	<i>Delma australis</i>	Southern Delma								
	<i>Pygopus lepidopodus</i>	Southern Scaly-foot		#						
Agamidae	<i>Pogona m. minor</i>	Western Bearded Dragon		#	#	#				#
Scincidae	<i>Basiana trilineata</i>	Southwest Bassiana		#	#					
	<i>Cryptoblepharus plagiocephalus</i>	Common Crypto		#	#					
	<i>Ctenotus delli</i>	Dell's Ctenotus			#					
	<i>Ctenotus impar</i>	Eleven-striped Ctenotus			#					#
	<i>Ctenotus labillardieri</i>	Red-legged Ctenotus	#	#						
	<i>Egernia kingii</i>	King's Skink	#	#	#					#
	<i>Egernia napoleonis</i>	Southern Crevice Skink		#						#
	<i>Glaphyromorphus australis</i>	Souther Slender Skink		#						
	<i>Hemiergis peronii</i>	Peron's Earless Skink		#	#					
	<i>Lerista distinguenda</i>	SW Four-toed Lerista		#						
	<i>Menetia greyii</i>	Grey's Menetia	#	#	#					#
	<i>Morethia lineocellata</i>	Ocellated Morethia	#	#	#					#
	<i>Tiliqua r. rugosa</i>	Western Bobtail	#	#	#					#
	Varanidae	<i>Varanus gouldii</i>	Gould's Monitor		#	#				
<i>Varanus rosenbergia</i>		Rosenberg's Monitor		#	#					#
Typhlopidae	<i>Ramphotyphlops australis</i>	Southern Blind Snake								
Boidae	<i>Morelia spilota imbricata</i>	Southwest Carpet Python								
Elapidae	<i>Drysdalia coronata</i>	Crowned Snake								
	<i>Echipsis curta</i>	Bardick								#
	<i>Notechis scutatus occidentalis</i>	Western Tiger Snake		#	#					#
	<i>Pseudonaja a. affinis</i>	Dugite		#	#					#
	<i>Rhinoplocephalus bicolor</i>	Square-nosed Snake								
	<i>Suta gouldii</i>	Gould's Snake								#
	<i>Suta nigriceps</i>	Black-backed Snake								
MAMMALS										
Tachyglossidae	<i>glossus aculeata</i>	Short-beaked Echidna			#					
Dasyuridae	<i>Antechinus flavipes leucogaster</i>	Yellow-footed Antechinus								
	<i>Phascogale t. tapoatafa</i>	Brush-tail Phascogale								
	<i>Sminthopsis c. crassicaudata</i>	Fat-tailed Dunnart								
	<i>Sminthopsis griseoventer</i>	Grey-bellied Dunnart			#		#	#		
Peramelidae	<i>Isodon o. obesulus</i>	Souther Brown Bandicoot	#	#	#	#	#	#	#	#
Burramyidae	<i>Cercartetus concinnus</i>	Western Pygmy Possum					#	#		
Pseudocheiridae	<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum		#	#	#	#	#	#	#
Tarsipedidae	<i>Tarsipes rostratus</i>	Honey Possum			#		#	#	#	#
Phalangeridae	<i>Trichosurus v. vulpecula</i>	Common Brushtail Possum		#	#					#
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo	#	#	#	#	#	#	#	#
	<i>Macropus irma</i>	Western Brush Wallaby	#			#	#	#	#	#
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Watted Bat								#
Canidae	<i>Vulpes vulpes</i>	Fox	#	#	#	#	#	#	#	#
Felidae	<i>Felis catus</i>	Cat	#	#	#	#	#	#	#	#
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit	#	#	#	#	#	#	#	#

Provisional Species List - Clay Jan 2000

Birds of the Toby Inlet Catchment

Relative to Creekview and Hayes Reserves

Pauline Clay - Judy Henderson

1999 - 2000

AUSTRALASIAN GREBE	<i>Tachybaptus novaehollandiae</i>
WHITE-FACED HERON	<i>Ardea novaehollandiae</i>
RUFIOUS NIGHT HERON	<i>Nycticorax caledonicus</i>
SACRED IBIS	<i>Threskiornis aethiopica</i>
STRAW-NECKED IBIS	<i>Threskiornis spinicollis</i>
BLACK SWAN	<i>Cygnus atratus</i>
AUSTRALIAN SHELDUCK	<i>Tadorna tadornoides</i>
PACIFIC BLACK DUCK	<i>Anas superciliosa</i>
GREY TEAL	<i>Anas gibberifrons</i>
MANED DUCK	<i>Chenonetta jubata</i>
WHISTLING KITE	<i>Haliastur sphenurus</i>
BROWN GOSHAWK	<i>Accipiter fasciatus</i>
COLLARED SPARROW-HAWK	<i>Accipiter cirrhocephalus</i>
WEDGE-TAILED EAGLE	<i>Aquila audax</i>
LITTLE EAGLE	<i>Hieraaetus morhnoides</i>
AUSTRALIAN HOBBY	<i>Falco longipennis</i>
BROWN FALCON	<i>Falco berigora</i>
AUSTRALIAN KESTREL	<i>Falco cenchroides</i>
PAINTED BUTTON-QUAIL	<i>Turnix varia</i>
SPOTLESS CRAKE	<i>Porzana tabuenis</i>
PURPLE SWAMPHEN	<i>Porphyrio porphyrio</i>
LAUGHING TURTLE-DOVE	<i>Pteroptelia senegalensis</i>

COMMON BRONZEWING	<i>Phaps chalcoptera</i>
RED-TAILED BLACK-COCKATOO	<i>Calyptorhynchus magnificus</i>
WHITE-TAILED BLACK-COCKATOO	<i>Calyptorhynchus baudinii</i>
GALAH	<i>Cacatua roseicapilla</i>
PURPLE-CROWNED LORIKEET	<i>Glossopsitta porphyrocephala</i>
RED-CAPPED PARROT	<i>Purpureicephalus spurius</i>
WESTERN ROSELLA	<i>Platycercus icterotis</i>
PORT LINCOLN RINGNECK	<i>Barnardius semitorquatus</i>
ELEGANT PARROT	<i>Neophema elegans</i>
PALLID CUCKOO	<i>Cuculus pallidus</i>
FAN-TAILED CUCKOO	<i>Cuculus pyrrhophanus</i>
HORSFIELD'S BRONZE -CUCKOO	<i>Chrysococcyx basalis</i>
SHINING BRONZE-CUCKOO	<i>Chrysococcyx plagosus</i>
SOUTHERN BOOBOOK	<i>Ninox novaeseelandiae</i>
BARKING OWL	<i>Ninox connivens</i>
BARN OWL	<i>Tyto alba</i>
TAWNY FROGMOUTH	<i>Podargus strigoides</i>
LAUGHING KOOKABURRA	<i>Dalcelo novaeguineae</i>
SACRED KINGFISHER	<i>Halcyon sancta</i>
RAINBOW BEE-EATER	<i>Merops ornatus</i>
WELCOME SWALLOW	<i>Hirundo neoxena</i>
TREE MARTIN	<i>Cecropis nigricans</i>
RICHARD'S PIPIT	<i>Anthus novaeseelandiae</i>
BLACK-FACED CUCKOO-SHRIKE	<i>Coracina novaehollandiae</i>
WHITE-WINGED TRILLER	<i>Lalage sueurii</i>
SCARLET ROBIN	<i>Petroica multicolor</i>
WHITE-BREASTED ROBIN	<i>Eopsaltria georgiana</i>

WESTERN YELLOW ROBIN	<i>Eopsaltria griseogularis</i>
GOLDEN WHISTLER	<i>Pachycephala pectoralis</i>
RUFIOUS WHISTLER	<i>Pachycephala rufiventris</i>
GREY SHRIKE-THRUSH	<i>Colluricincla harmonica</i>
GREY FANTAIL	<i>Rhipidura fuliginosa</i>
WILLIE WAGTAIL	<i>Rhipidura leucophrys</i>
SPLENDID FAIRY-WREN	<i>Malurus splendens</i>
WHITE-BROWED SCRUB-WREN	<i>Sericornis frontalis</i>
WEEBILL	<i>Smicrornis brevirostris</i>
WESTERN GERYGONE	<i>Gerygone fusca</i>
INLAND THORNBILL	<i>Acanthiza apicalis</i>
WESTERN THORNBILL	<i>Acanthiza inornata</i>
YELLOW-RUMPED THORNBILL	<i>Acanthiza chrysorrhoa</i>
VARIED SITELLA	<i>Daphoenositta chrysoptera</i>
RUFIOUS TREECREEPER	<i>Climacteris rufa</i>
RED WATTLE BIRD	<i>Anthochaera carunculata</i>
LITTLE WATTLEBIRD	<i>Anthochaera chrysoptera</i>
SINGING HONEYEATER	<i>Lichenostomus virescens</i>
WHITE-NAPED HONEYEATER	<i>Melithreptus lunatus</i>
BROWN HONEYEATER	<i>Lichmera indistincta</i>
NEW HOLLAND HONEYEATER	<i>Phylidonyris novaehollandiae</i>
WHITE-CHEEKED HONEYEATER	<i>Phylidonyris nigra</i>
WESTERN SPINEBILL	<i>Acanthorhynchus superciliosus</i>
SPOTTED PARDALOTE	<i>Pardalotus punctatus</i>
STRIATED PARDALOTE	<i>Pardalotus striatus</i>
SILVEREYE	<i>Zosterops lateralis</i>
AUSTRALIAN MAGPIE-LARK	<i>Grallina cyanoleuca</i>

GREY BUTCHERBIRD

Cracticus torquatus

AUSTRALIAN MAGPIE

Gymnorhina tibicen

AUSTRALIAN RAVEN

Corvus coronoides

RED-EARED FIRETAIL

Stagonopleura oculata