MANAGEMENT PLAN
Public Open Space

The Vintner's Ridge
Sussex Location 4211

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Supported by Paul Cook
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Adopted by the Shire of Busselton November 2003

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1. Introduction

1.1. Aims of the Plan

This management plan has been produced as a guide for the protection of the Public Open Space, 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 fire control measures, soil erosion and rehabilitation techniques. Recreational strategies must also 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 whatever means available.

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

To achieve management recommendations, there is a need to formulate other management criteria to establish partnerships with the local community.

The recommendations outlined in the Management Plan are considered necessary to ensure that the optimum management criteria are met, and consequently implemented. The control and management, once vested with the Shire of Busselton, will be the responsibility of the Shire. Once the area is vested in the Shire, the Toby Inlet Catchment Group Inc. will assist with management with TIC members working as a subgroup. All TIC members are covered by Insurance, which will alleviate a cost to the Shire as with "Friends Of".

1.2. Management Objective

The management objective for these public open spaces and conservation areas, is to maintain, and if possible improve, its conservation, landscape and recreational values.

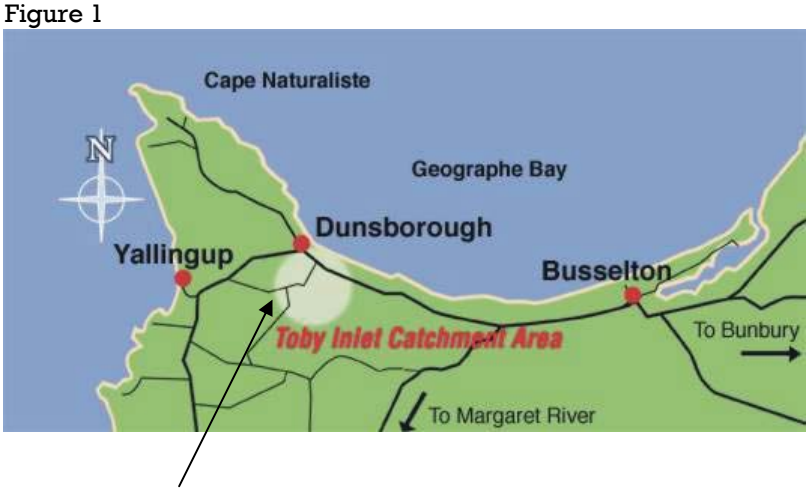
1.3. General Description

The site lies south of the township of Dunsborough some six kilometers to the north. 'The Vintner's Ridge' Development is bounded to the South by Biddle Road, Rosneath Farm to the West, Special Rural to the South and Commonage Road to the South East.

The area of the proposed Public Open Space is 10 ha. and will be used for recreation. A section of approximately 2 ha, at the Eastern end of Lot 40, will receive special treatment. Walk trails will be sited along the valley which is well vegetated.

Clark Creek, which rises to the west on Rosneath farm, runs in an easterly direction through the proposed public open space to meet Tranquil Creek, which runs from south to north. Within the eastern section of the site, Clark Creek runs through some prime vegetation communities, growing on slopes of some 25º to 30º. At the juncture of the two creeks, the area is comparatively flat and prone to flooding in very wet years. Figure 1.

Figure 1



The Vintner's Ridge Development

2. Site Description

2.1 History

Most of this area was harvested for timber during a period of intense timber harvesting. Most of the timber was exported. This area was Crown Land and was only released as Conditional Purchase Lease Blocks in the early 1950's and 1960's. One of the conditions of purchase was that the area be cleared for Agriculture use.

Sussex location 4211 was owned by Herbert Darnell and later by his son, Edward Darnell. The land was cleared for pasture in the 1960's. In general the land was parkland cleared leaving forested blocks and rocky outcrops. Along the creek line, rock pools and waterfalls were created. At some point along the creek, clay was removed to line the Sewerage Settling Ponds on Commonage Road.

In 1984, Haldane Harris and his family, purchased the property from the Darnell's. Hal Harris set about fencing creek lines to facilitate the regeneration of native species of plants. These procedures and the results of these procedures are evidenced along the creek line which

runs parallel to Biddle Road. Eroded areas were also fenced and rehabilitated with native vegetation. Over the past 18 years there has been a significant regeneration of plants such as Blackbutt, Marri, Peppermint, Paperbark and Mirbelia. Sheep with fine lines of wool were run on the property.

2.2. Geology, Landforms and Soils

A hierarchy of soil-landscape mapping has been adopted by Agriculture Western Australia to maintain a consistent approach to land resource surveys. Two levels of the hierarchy will be used to describe the soils and landform in the Toby Inlet catchment. They are the regional subdivisions called Zones, which are areas defined on a geomorphological criteria and mapped at 1:1,000,000, and Soil-Landscape Systems, which are areas with recurring patterns of landform, soils and vegetation mapped at 1:250,000.

Within the Swan Coastal Plain zone, a series of Soil-Landscape Systems have been described by Tille and Lantzke (1990). For each of these systems, a description of the soil types and identification of the susceptibility of the soils to nutrient transport has been prepared by (Tille & Lantke, *loc. cit*.; Weaving, 1998).

The Swan Coastal Plain has been subjected to repeated incursions of the sea over time. This has resulted in a highly variable mixture of alluvial, aoelian, shoreline and marine sediments being deposited in the palusplains. It is very difficult to predict these various sediments without detailed investigations. Geological surveys show the presence of only one sedimentary unit, Qpa (Lowrey, 1967). Qpa has been described as usually fine to medium quartz sand on the surface, with laterite near this surface cover, or near the water table. Underlying the quartz sand is mixed sand, silt and clay of various thicknesses.

About a third of the Toby Inlet catchment is within the Leeuwin - Naturaliste Ridge. There are gravelly as well as sandy soils in these areas of Jarrah-Marri woodland forest. The soils and landforms in the catchment are described in more detail below. The following information has come from the Geographe Bay Catchment Natural Resource Atlas (Weaving,1998) and Tille and Lantzke, 1990.

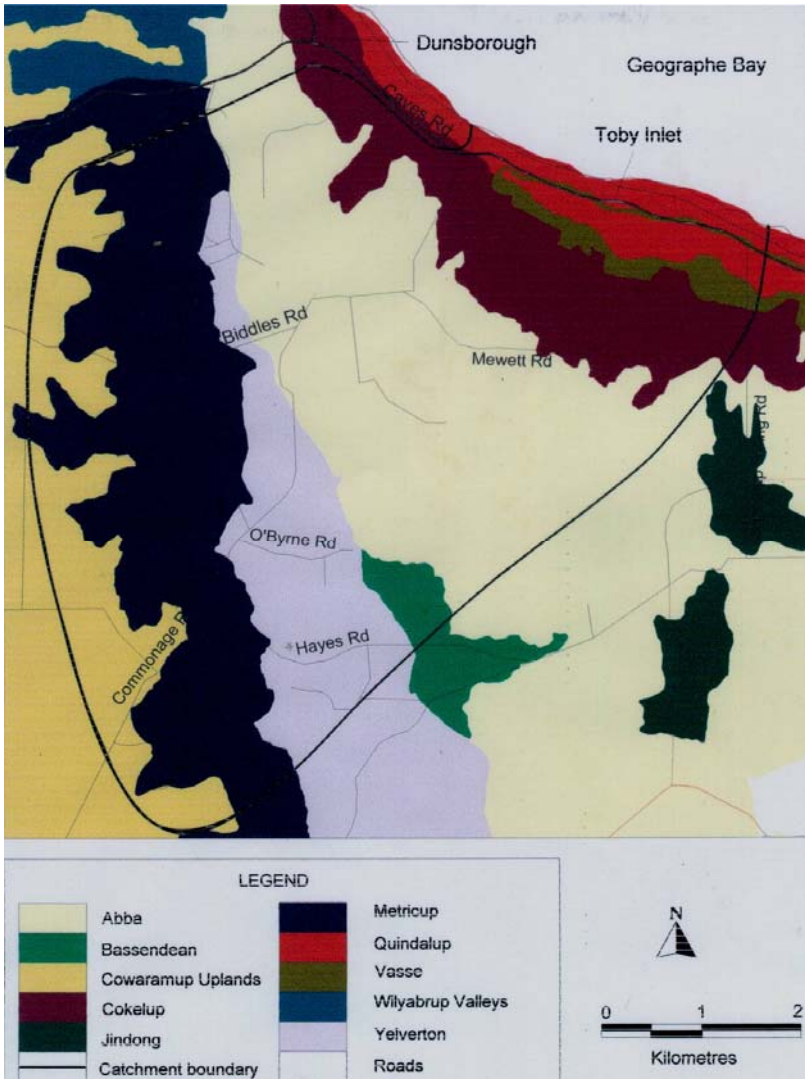
The Leeuwin Zone is a narrow strip of land between 0.2 and 6km wide running along the coast from Cape Naturaliste to Cape Leeuwin. It is composed of crystalline rock capped by laterite and sand. It is a discontinuous ridge of Tamala limestone with underlying Leeuwin Block granite being exposed in places (Tille & Lantzke, 1990).

The following Soil-Landscape Systems are within the Leeuwin Zone:

Cowaramup Uplands System: Lateritic plateau in the Leeuwin Zone with sandy gravel, loamy gravel and grey sandy duplex. Jarrah-marri forest is the principal vegetation.

Metricup System: Granitic and laterite slopes in the eastern edge of the northern Leeuwin Zone. The major soil types include loamy gravel, sandy gravels and duplex. Jarrah-marri forest is the principal vegetation.

Figure 2 Soil Landscape Systems of the Toby Inlet Catchment



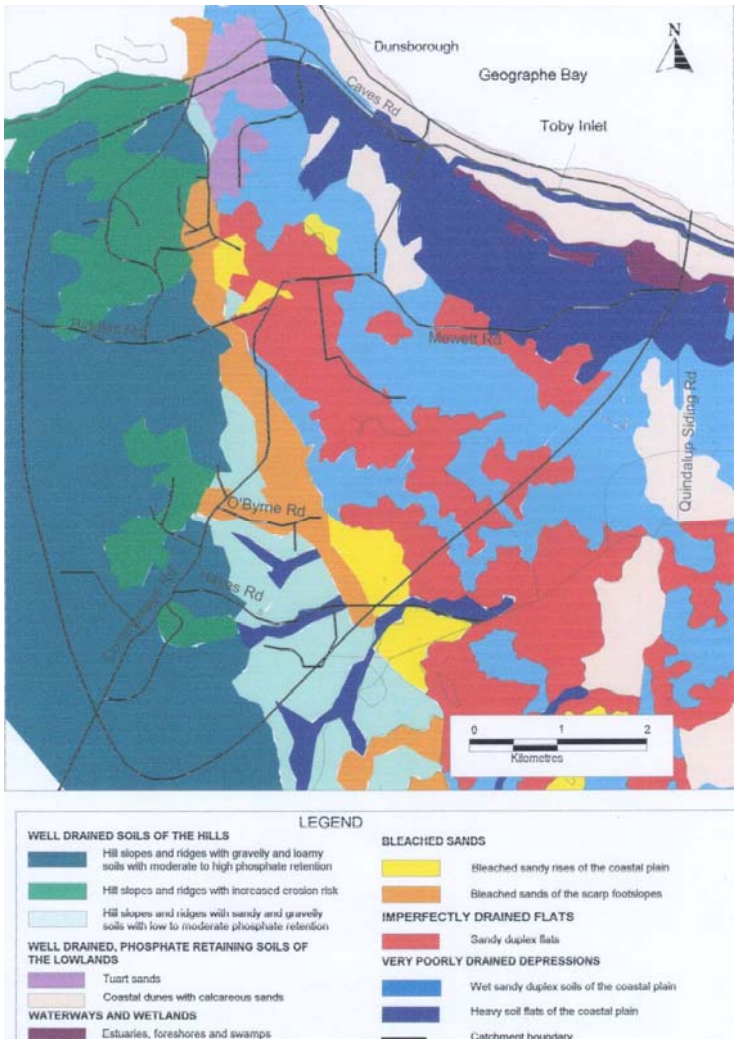
The following Zones are within the Toby Inlet catchment:

Nutrient Management and Soils

Figure 3 shows the nutrient management units for the Toby Inlet catchment. These units are nutrient transport systems. This is briefly described below:

Well drained soils of the hills: The overland flow causing soil erosion during intense rainfall events are the most likely forms of nutrient transport in this group of soils.

Figure 3 Nutrient Management Units of the Toby Inlet Catchment



2.3. Hydrology

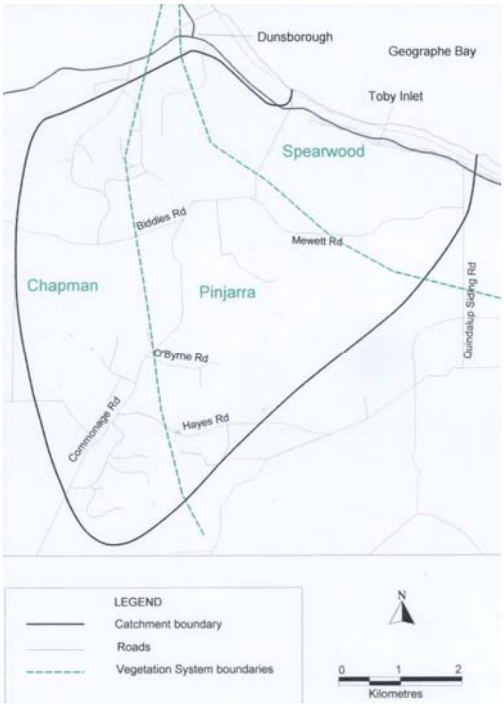
The major drainage is from west to east and, joining a drainage line that runs from south to north east .

Clark Creek, which rises to the west on Rosneath farm, runs in an easterly direction through the proposed public open space to meet Tranquil Creek, which rises to the south, near Marrinup Drive. Within the eastern section of the site, Clark Creek runs through some prime vegetation communities, growing on slopes of some 25º to 30º. At the juncture of the two creeks, the area is comparatively flat and prone to flooding in very wet years. Figure 5.

2.4. Vegetation Communities and Flora

Vegetation surveys of Western Australia's by J.S. Beard, from 1969 onwards, divided the state into Botanical Provinces, Botanical Districts and Vegetation Systems. The Toby Inlet catchment contains three of his Vegetation Systems. They are the Spearwood System adjacent to the coast, the Pinjarra Plain System inland of the Spearwood system, and the Chapman System lies on the western edge of the catchment. The descriptions come from the vegetation surveys of J. S. Beard (1981) and Smith (1973, 1974) and have been taken from the Geographe Bay Natural Resource Atlas and J.S. Beard, 1990.

Figure 4. Beard's Vegetation Systems in the Toby Inlet Catchment.



Each Vegetation System covers a defined area and consists of a particular series of plant communities, occurring in a mosaic pattern, linked to soil types, topographical and geological features.

The vegetation maps resulting from Beard's work show original natural vegetation that is assumed to have existed before clearing and disturbance by European settlers. It is mapped at a scale of 1:250,00 so doesn't show small vegetation communities.

The Spearwood System consists of ridges of calcarenite almost parallel to the coastline, and is mantled with yellow sand. The principal component of the vegetation in the Toby Inlet catchment was eucalypt woodland of Jarrah (*Eucalyptus marginata ssp marginata*), Marri *(E.calophylla)* and Tuart (*E. gomphocephala*) with Peppermint (*Agonis flexuosa var flexuosa*) being a principal understorey tree. Between the sand ridges lies the Toby Inlet, with swamps and lakes, around which Paperbark Trees grow. Where the sand is very deep Jarrah and Marri grow. No Tuarts are found in the deep sand.
The Pinjarra Plain System contains heavier alluvial soils. The surface is flat to slightly undulating. As this area contains some of the best soils on the coastal plain for agricultural development, little of the original vegetation is left. The original vegetation appears to have been mainly marri open forest with flooded gum (*Eucalyptus. rudis*) in the wetter areas. In the Toby Inlet catchment the marri may have closed up to form forest. Ground which is subject to frequent flooding, supports low woodland or forest of swamp paperbark *(Melaleuca rhaphiophylla*), thickets of moonah *(M. preissiana)* or sedge-land. Jarrah open forest occurs on higher ground where there are deposits of laterite gravel.

The Chapman System is a low undulating duri-crusted plateau, surfaced with ironstone gravels. The most characteristic vegetation formation is jarrah forest in pure stands on laterite, joined by marri where there are more superficial soils. Sheoak *(Allocasuarina fraseriana)* is also common. On the more favourable valley soils, blackbutt *(Eucalyptus patens)* joins the forest dominants. There are areas of high open shrub-land on clay with kingia *(Kingia australis*) and shrubby jarrah.

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 current plant species list has been included in Appendix 1.

The vegetation on the southern sector of the Public Open Space, is supported by a diverse representation of plant species.

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).

To ensure the survival of all fauna, protection of their Habitats is a priority.

Western Pipistrelle (Bat family) *Pipistrellus tasmaniensis.* Nothing is known of its biology thus making it hard to protect. It is known to roost in trees in the higher rainfall areas, and will feed on moths and beetles. The only bat to be collected in the area, is Gould's Wattled Bat. It could be suggested that the Vintner's Ridge development will not impact on *Pipistrellus*, as the food source is still available.

White Tailed Black Cockatoo (long bill) *Caltyptorbyncus baudinii baudinii*. This bird breeds in the South West and forages widely eating seeds of marri and wood boring grubs. This bird is not threatened, as its habitat is reasonably secure.

White Tailed Black Cockatoo (short bill) *Caltyptorbyncus baudinii latirostris*. Breeds in low rainfall areas (below 750mm), but will migrate to higher rainfall areas in the coastal region. Feeds on fruits of Proteaceae shrubs and nectar from their flowers. This bird is threatened due to the destruction of its habitat in the wheat belt.

Red Tailed Black Cockatoo. *Caltyptorbynchus magnificus*. Lives and breeds in Marri trees and feeds on galls and seeds from Banksia's, Hakea's, Grevillea's and Acacia's. Breeding has been recorded west of Commonage Road, within The Vintner's Ridge Development. Development of this habitat could be a threat to breeding within the district.

Western Quoll (Chuditch) D*asyurus geoffroii.* Fits into a wide range of climatic conditions. Eats small mammals and insects .In July 2000, one animal was sighted, south of Mewett Road,

by Alf Mewett. Alf Mewett confirmed that he knows what a Chuditch looks like as he used to hunt these animals, with his father, after they had raided the chook pen.

Southern Brown Bandicoot (Quenda). *Issoodon obesulus*. Feeds on insects and grubs. Its preferred habitat is dense vegetation. Suggest that this catchment does support populations in various habitats. Rehabilitated stream vegetation would support a fairly large population. These animals are now being observed throughout the Toby Inlet Catchment. The increase in numbers is due to fox baiting, by the TIC Group, from Caves Road to Yallingup Siding Road.

Western Ringtail(WRT) Possum. *Pseudocheirus occidentalis.* The Western Ringtail Possum is listed as a vulnerable species under state and federal legislation. It occupies a variety of habitats and feeds mainly on the foliage of the Peppermint tree, *Agonis flexuosa*. The species builds drays in trees. Restrictions on the species range are primarily from the loss and fragmentation of Peppermint tree and predation by feral animals. Since fox baiting in the Toby Inlet Catchment these animals have, for the first time, been observed in the upper reaches of the Toby Inlet Catchment. These observations do not assume that the WRT possum was extinct in this area, but suggest that it was not common. It would be expected that the WRT possum is now resident in the area, and would need the support of the Peppermint tree as a food source.

Common Brushtail Possum. *Trichosurus vulpecular.* This Possum is common and abundant in most areas and will cohabit with humans. Nocturnal animal that prefers open forests and woodlands and nest in hollows of trees or logs. It eats mainly Eucalypt leaves, fruits, buds and bark. It is able to partially detoxify the poisons in the Eucalypt leaf. Since fox baiting this Possum is now observed more frequently within the Toby Inlet Catchment.

Brush-tailed Phascogale or Common Wambenger. *Phascogale tapoatafa*. Prefers dry sclerophyll forest,and a diet of arthropods, including spiders and centipedes, together with any small vertebrate. This animal has been observed at Rosneath Farm, just southwest of Biddle Road and Yungarra Drive, and an observation has been reported just south of the proposed Vintner's Ridge development southern boundary. It could be suggested that this animal does exist within this development proposal.

Western Grey Kangaroo. *Macropus fulignonus*. Numbers have increased dramatically within the Catchment, and over grazing of native bush has been recorded in many locations. The native bush is loosing its diversity of species due to the numbers of animals in the district. This animal is not threatened but needs to be controlled.

Western Brush Wallaby or Black-gloved Wallaby. *Macropus Irma.*
This Wallaby, within this location, is on the edge of its southwest habitat range, and does not occur on the coast from Busselton to Albany. The juvenile Wallaby is predated upon foxes. Not a great deal is known about its food preferences. This animal needs to be protected.

Honey Possums, Pigmy Possums and the Common Dunnarts have all been observed within the Toby Inlet Catchment since fox baiting was introduced by the TIC Group.

During the latter part of 1998 and several runs in1999, 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 (*Isoodon 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.

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. The New-Holland Honeyeaters and White Breasted Robins are also common.

2.5.1 Feral Animal Control

These animals need to be controlled so that local fauna can survive.

Fox. *Vulpes vulpes* The number of foxes within this locality could still be high, and therefore still impacting on small mammals. The Toby Inlet Catchment Group has been laying fox bait within the Catchment for three years and records show that Possums , Bandicoots and other small animals have returned.
Pristine areas do not mean animals will be able to use the habitat if predation remains a problem.

Rabbit. *Oryctolagus cuniculus.* Rabbits have had a great impact on vegetation communities. Damage to the vegetation has an impact on smaller animals due to loss of habitat as well as the loss of a food source.

2.6 Landscape and Recreational Value

The Vintner's Ridge public open space has great value for recreation and landscape protection, in an area that is surrounded by agriculture and rural-residential development.

With existing remnant vegetation and with rehabilitation works being suggested, the Public Open Space, should attract more visitors, and thus increase the usage. The ever growing local population of land holders who will use the area for pleasure, need assurance that the public open space and remnant vegetation, is there for there for all to enjoy.

2.7 Land Tenure

Once a Management Plan has been created and approved by the Shire of Busselton, recommendations from the plan will be managed by the Shire of Busselton and local groups such as the Toby Inlet Catchment Group. It is suggested that the Shire of Busselton accept vesting of the Public Open Space as **'Landscape Protection and Recreation'**.

3 Management of Physical Resources

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

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 (Rainfall records - Lot 1 Commonage Rd. Clay, 1991-1998).

The effects of high rainfall has, and will have, an impact on cleared and degraded land causing erosion. High run off will transport nutrients to the streams if there are no natural filter systems in place along streamlines and dams.

Issue

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

Objective

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

Action

i. Revegetate with understorey of local deep rooted plants, where appropriate, to stabilise stream banks. Pr 1.

ii. Assess and repair eroded areas. Seek advice on appropriate erosion control methods. Pr 1.

4 Management of Biological Resources

4.1. Remnant Vegetation and Flora

4.1.1. Vegetation Communities

Extensive clearing of vegetation in the Toby Inlet catchment has occurred for agricultural and residential development. On the Quindalup dunes adjacent to the coast most of the remnant vegetation has been cleared and the area has now been developed for residential use. On the Swan Coastal Plain extensive clearing has occurred for agricultural development and little remnant vegetation remains. On the Leeuwin-Naturaliste Ridge there is more remnant

vegetation although much of it has become degraded through grazing, burning, dieback and/or weed invasion. Figure 4 shows the vegetation systems in the catchment.

The Toby Inlet Catchment covers a variety of landforms with a diverse representation of native vegetation and variable land use. Clearing by early settlers has left a landscape devoid of much of the original vegetation. Problems related to clearing are the changes in the hydrological balance, with the replacement of deep-rooted native vegetation with shallow-rooted annual crops and pasture (Saunders and Hobbs, 1983).

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,
The Pinjarra Plain System contains heavier alluvial soils. The surface is flat to slightly undulating.

Issue

i. Loss of diversity of plant species due to overgrazing by sheep and kangaroos and the degradation of soil types.
ii. Destruction of riparian vegetation.

Objective

i. Return plant diversity within the lower plant system and rehabilitate riparian zones.
ii. Maintain plant communities to ensure there are animal habitats and a food source.

Action

i.	Vegetation surveys to determine and monitor habitats.	Pr. 1.	
ii.	Protect and maintain plant communities.	Pr. 1.	
iii.	Assess predation/overgrazing by Kangaroos and consult with CALM regarding their control	Pr. 1.	
iv.	Rehabilitate degraded areas		Pr. 2
v.	Rehabilitate riparian vegetation	Pr. 2	

4.1.2. Flora

A total of 99 species of vascular plants in 44 Families, were recorded. There were 3 species of alien plants and 96 native plants. These plants are listed in the appendix in families, genera and species. An asterisk after the name in the table indicates that the species is not native (appendix 1).

Within The Vintner's Ridge, no species of Declared Rare Flora or Priority Flora were recorded. Plants of interest were, *Caladenia longiclavata* and *Caladenia marginata ,* which were found in small clumps near Clark creek. It is suggested that overgrazing has reduced numbers.

Declared weeds, such as the Arum lily, were not found in large numbers.

Issue

i. Degradation of biodiversity by predation and mismanagement.

Objective

i. To maintain and enhance existing plant communities.

Action

i.	Inform the community on the vegetation types and their Importance	Pr 2
ii.	Restrict the movement of Kangaroos	Pr 2
iii.	Conduct frequent flora surveys to monitor progress	Pr 2

4.2. Fauna

4.2.1. Mammals, Reptiles and Amphibians

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

During the latter part of 1998 and several runs in1999, 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 (*Isoodon 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 over the last few years, in localities throughout the Commonage Precinct. There are few recorded sightings prior to 1996, except for a few 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.

Birds of note have been the Wedge-Tailed Eagle (*Aquila audax*), observed flying over the Reserve. The Sacred Kingfisher (*Merops ornatus*) and the Rainbow Bee-Eater (*Halcyon sancta)* are common in the Reserve after their arrival from the north. Both these birds nest in the Reserve. Honeyeaters, White Breasted Robins, Golden Whistlers are common (Bird List Appendix 3). There have been 65 species of birds recorded on The Vintner's Ridge Development, with 26 breeding species recorded.

There appears to be a decline in the aquatic frogs. It is suggested that the down turn in numbers could be attributed to the lower rainfall over the last 20 years. There is still no proof that frog numbers have been affected by herbicides. It is suggested that the surfactant is more than likely to be the possible problem. There is still no data to support the number of deaths by fungus, or from surfactants, but it has been considered that the fungus and the lack of rain are the major factors for the decline in numbers.

Issue

i. Pressure of people and predation on animals and their habitats.

Objective

i. To protect and conserve habitats so as to ensure survival of the native fauna.

Action

i.	Protect animal habitats	Pr 2	
ii.	Create new habitats		Pr 2
iii.	Complete fauna surveys to establish habitat criteria		Pr 2
iv.	Inform landholders	Pr 2	
v.	Control weeds, feral animals and pests (see under feral animals)	Pr 1	

5 Management – Protection and Other Issues

5.1 Dieback

Dieback, caused by the fungus *Phytophthora cinnamomi,* is thought to be present on the eastern section of the development. It is extremely hard to define the extent and or presence due to the lack of indicator species. The lower vegetation complex has been impacted upon by overgrazing, leaving very little plant diversity. The property used to run sheep and has during the latter years supported a large population of kangaroo's.

Issue

Spread of dieback, *Phytophthora cinnamomi*

Objective

Control the spread of dieback where possible

Action

i.	Treat vegetation threatened by dieback with fungicide	Pr 1	
ii.	Determine extent of dieback		Pr 1
iii.	Record areas treated, results		Pr 2
iv.	Plan walk trails to minimise spread	Pr 2	
v.	Erect information signage	Pr 2	
vi.	Ensure use of dieback resistant species in rehabilitation	Pr 1	

5.2. Rehabilitation

It is anticipated that the eastern section of the Public Open Space will require some riparian rehabilitation. The flat country to the east of the Public Open Space is to be reserved for public recreation so that the rehabilitation work will to have to be landscaped to meet these criteria. BBQ sites and other proposed activity sites will also have to be addressed.

The two creek lines, Clark creek entering the flat from the West will require some riparian repair, with perhaps the major work occurring on Tranquill Creek that enters from the South.

The western sector of the Public Open Space and running east, will require a certain amount of rehabilitation so to enhance the current plant associations within these zones.

Issue

Degraded areas within the vegetated zones and degraded areas outside the vegetated zones need rehabilitation

Objective

To upgrade plant communities and plant diversity to sustain animal habitats, and to ensure soil erosion does not occur.

Action

i. Rehabilitation of designated areas with local dieback resistant species Pr 1

5.3 Weed and Feral Animal Control

It is suggested that declared weeds have not yet invaded the area on any large scale. It is suggested that there needs to be an ongoing weed eradication program. Arum Lily control, at The Vintner's Ridge Development, was instigated during the latter part of 2002.

It is known that foxes, dogs and cats pass through the Development, and may sometimes reside within the area. These animals will impact on the local fauna and need to be controlled. Fox baiting by the Toby Inlet Catchment Group over the last four years has allowed the local

fauna to increase in numbers. Reports of Quendas, and other small mammals, are now fairly common, and indicates that the baiting program has been successful.

Rabbits need to be controlled by the various methods available, as they will destroy the native vegetation at an alarming rate. Rabbits are an ongoing problem.

Issue

Damage to native vegetation by invasive weeds, predation of fauna by feral animals and the degradation of plant communities by overgrazing.

Objective

Ensure all available controls are in place to prevent further spread of weeds and reduce predation and overgrazing.

Action

i.	Inform the local community on weed, pest and feral animal control and the importance of control with information	Pr 1	
iii.	Ensure herbicides and equipment is available		Pr 2
iv.	Complete a weed survey, and start a data base		Pr 1
v.	Maintain control of weeds – ongoing		Pr 1
vi.	Ensure new plantings are safeguarded	Pr 2	

5.4. Fire Control and Prevention

Fire control and or prevention is already in place for the whole development with Strategic fire breaks being placed.

In accordance with "Planning for Bush Fire Protection" Guidelines all dwellings should not be within 100 metres of an extreme bush fire hazard and have at least a 20 metre low fuel separation zone.

Reduction of fuel loading within the Public Open Space and Conservation areas will have to monitored and assessed to determine recommended procedures. Due to the slope of the terrain, control burns would be extremely difficult and hard to contain without the development of the control burn turning into a wildfire. Should fuel loading need reducing,

then small winter burns under supervision would be required. A request for a fuel load assessment from the Shire of Busselton FMO when it is suspected the fuel load is high. Consultation needs to be undertaken with all management bodies before a controlled burn is applied.

Should any area be burnt either by control burns or wildfires then these areas need to be monitored to assess plant growth and re-invasion of plant species.

Issue

Wildfires and fuel loading

Objective

To ensure the total area is monitored to determine fuel hazard loading

Action

i.	Ensure all fire breaks are maintained at required standards	Pr 1
ii	Assess the conservation requirements of the middle section of the POS and assess the fire risk of the whole reserve and determine acceptable fuel loadings for these areas	Pr 1
ii.	Monitor fuel loads	Pr 2
iii.	Maintain close liaison with Shire FMO	Pr 2
iv.	Inform landholders of the their responsibilities with regard to fire protection	Pr 2

6 Management – Recreation

6.1. Access

As more and more people will use these areas, access to the Public Open Space and the Conservation Area needs to be controlled, but in such a way that the control measures are unobtrusive.

Wheel chair access needs to be addressed so that a person in a wheel chair can participate and enjoy the BBQ areas and some of the walk trails.

Public Open Space – Eastern Sector

This area, is already cleared and is well suited to wheelchair access, seating and tables for picnics, plus an area for ball sports. The area can be the starting point for any of or all walk trails.

The area needs to be landscaped to make it attractive as a recreation site. There is a certain amount of riparian repair, along the creek-lines, that needs addressing.

Parking needs to be addressed so that visitors can park close to the recreational area.

Public Open Space – Western Sector

This section is predominantly remnant vegetation with a certain amount of degradation from overgrazing on the lower vegetation communities. The area is made attractive by Clark Creek flowing through the middle. The creek contains small waterfalls surrounded by granite rocks along some of the streamline. The area lends itself to low impact walk trails, with information signage. These trails could access the creek at pre-determined sites.

Special Area – Part of Lot 40

This section is situated in the middle of the public open sector on the high point of the south side, and runs south to the boundary of J. Syms property. This boundary needs defining.
The whole area is covered with remnant vegetation over clay loam and granite boulders.
Walk trails in this area would have to be located in the public open space and would have to ensure the sensitivity of the area is not impacted upon. Domestic animals should be restrained (on a leash) in this area. Signage could be placed along these walk trails.

Issue

Create a recreation area that would be attractive to all

Objective

To define access to various recreational areas so that the public can utilize the total area with minimum impact to the environment

Action

i.	Create an area with tables and benches	Pr 2	
ii.	Create an open space for ball sports		Pr 2
iii.	Create low impact walk trails that follow natural contours	Pr 1	
iv.	Provide wheel chair access to east sector	Pr 2	
v.	Use signage to inform	Pr 2	
vi.	Prohibit misuse of the Reserve	Pr 1	
vii.	Clean up old fence lines and rubbish		Pr 1
viii.	Inform local landholders and seek support	Pr 2	

6.2. Boundary

For Management purposes, the areas to be set aside as Public Open Space need to be demarcated. Those lines of demarcation that are deemed necessary need only be a post that demarcates the boundary.

Issue

Define boundaries for management purposes

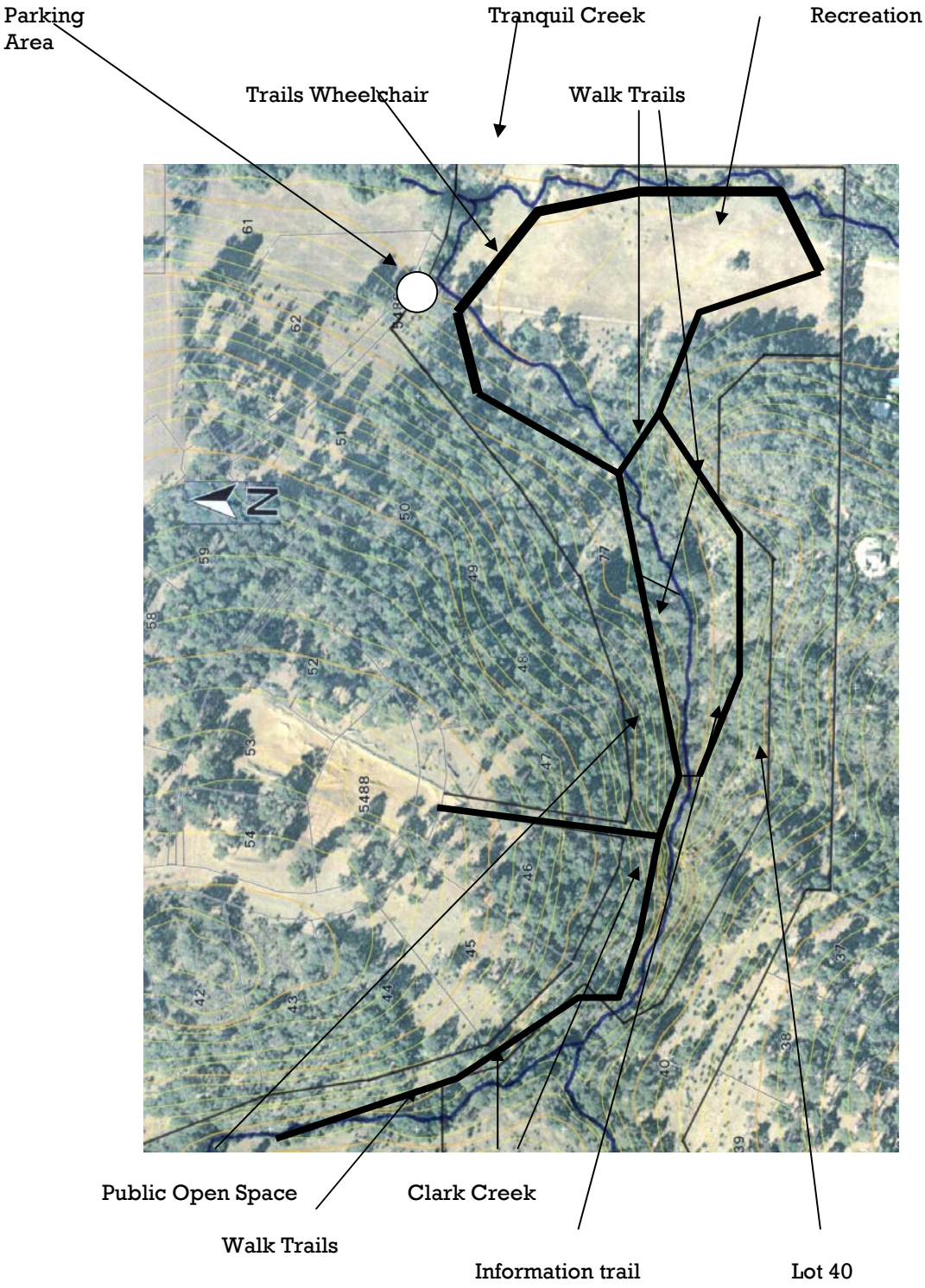
Objective

To ensure that the area is not abused and best management practices are instigated

Action

i.	Inform the public to ensure their cooperation with management	Pr 2
ii.	Demarcate public open space and special areas	Pr 1

Figure 5 details proposed actions. The Vintner's Ridge Public Open Space



7. Community Relations

7.1. Education and information

Inform the general public with news-letters and brochures on all aspects of management and the benefits of good management on the total well-being of the whole environment.

7.2. Community Liaison and Involvement

It is important to liaise with the local community, and obtain their input on management plans and their implementation. It is very important to have the community who are on site to assist with management. The local community must be encouraged to help with management as it is their asset.

Issue

Community need to be aware of the values of the Reserve

Objective

Armed with the necessary information there is a need to ensure the community will assist with Management

Action

i. Ensure all residents have access to a Management Plan
Pr 1

ii Educate and inform the community on Pr 1
- weed and feral animal controls and restraint of domestic animals
- the flora and fauna
- dumping of rubbish

iii Form a Resident management group Pr 1

iv. Hold information days Pr 2

v. Involve agencies and local government
Pr 2

vi. Involve residents in tree planting, weeding etc.
Pr 2

8. Research and Monitoring

Initial research has already commenced on flora and fauna. Flora and fauna surveys should be conducted periodically to establish the effects of management. In relation to fauna survey, well justified rationale for doing the survey is required to obtain the appropriate licenses through CALM. Water monitoring with associated macro invertebrate surveys are needed in the short and long term to assess the health of the streams.

The purpose of the research is to inform management decisions made in the reserve. Management is a continuous process which must be backed up with relevant meaningful information.

Issues

Collation of data to maintain a continuous improvement process for Management.

Objective

To ensure management practices are based on sound technical data

Action

i.	Continue with flora / fauna surveys	Pr 2
ii.	Fauna mark and return (only with CALM approval)	Pr 2
iii.	Assess animal habitats	Pr 2
iv.	Water monitoring / bio-monitoring	Pr 2
v.	Encourage residents to record flora / fauna	Pr 2
vi.	Maintain data bases	Pr 2
vii.	Weed maps	Pr 2
vii.	Fauna / flora maps	Pr 2

9. Management Plan

9.1 Plan Implementation

There is a need to agree on a management plan so that recommendations within the plan can be put in place. The level of assistance required from local communities, and the degree of involvement, which is also acceptable to the local community, has to be addressed and incorporated into the plan. It has been suggested that 'Partnerships' can also be part of the management plan.

9.2 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. Priorities can not be prioritised due to variables such as funding and climatic conditions.

9.3. Funding

Vysam Property Holdings Pty Ltd have indicated that funding will be made available to the Toby Inlet Catchment Group, once the Management Plan has been approved, to implement some of those recommendations within the Plan. It is envisaged that once the area has been vested in the Shire of Busselton, then it will receive funding under existing Shire guidelines.

It is anticipated the Toby Inlet Catchment Group and members of the Quindalup Preservation strip will assist with obtaining further funds from various grants.

9.4. Evaluation and Review

At this initial stage, management can be modified to address deficiencies so that, issues, objectives and recommendations can be altered.

A 3 to 5 year time frame is suggested so that amendments to the issues, objectives and recommendations within the Management Plan can be addressed and amended if necessary.

Changes can only be made to the Management Plan after consultation with the Shire of Busselton. The Shire of Busselton is responsible for the control and any amendments to the Management Plan, and would accept recommendations for review from any community group.

10. References

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Appendix 1

Vascular Plant Species of the Vintner Ridge Development Public Open Space and Lot 40

By

Hazel Cole, Don Carter, Vaile Drake and Brian Clay

2003

Nomenclature 'The Cape Naturaliste Regional Herbarium'

054F Anthericaceae

Caesia micrantha
Chamaescilla corymbosa var coryombosa
Thysanotus manglesianusv

281 Apiaceae

Xanthosia candida
Xanthosia tasmanica

035 Araceae

Zantedeschia aethiopica *

345 Asteraceae

Olearia ciliata
Lagenophora huegelii
Olearia axillaris
Pseudognaphalium luteoalbum

164 Caesalpiniaceae

Labichea punctata

054J Colchicaceae

Burchardia multiflora

032 Cyperaceae

Lepidosperma lavigartum
Lepidosperma tetraquetrum
Mesomelaena tetragona

011C Dennstaedtiaceae

Pteridium esculentum

226 Dilleniaceae

Hibbertia cunninghamii
Hibbertia hypericoides

143 Droseraceae

Drosera pallida

288 Epacridaceae

Astroloma ciliatum
Sphenotoma capitatum

185 Euphorbiaceae

Pseudanthus virgatus
Phylanthus calycinus

303 Gentianaceae

Centaurium tenuiflorum *

341 Goodeniaceae

Scaevola calliptera
Lechenaultia biloba

055 Haemodoraceae

Conostylis setigera ssp setigera
Conostylis acuelata ssp gracilis

060 Iridaceae

Patersonia umbrosa var xanthina (yellow)
Patersonia occidentalis
Orthrosanthos laxus var laxus

052 Juncaceae

Juncus pallidus

302 Loganiaceae

Logania serpyllifolia ssp angustifolia

163 Mimosaceae

Acacia pulchella var glaberrima
Acacia lateriticola "glabrous variant"
Acacia divergens
Acacia pulchella var pulchella

273 Myrtaceae

Darwinia citriodora
Hypocalymma robustum
Hypocalymma angustifolium
Corymbia calophylla
Agonis parviceps
Calothamnus sanguineus
Agonis flexuosa var flexuosa
Eucalyptus marginata ssp marginata
Agonis linearifolia
Eucalyptus patens

066 Orchidaceae

Elythranthera brunonis

Caladenia flava ssp flava
Caladenia longiclavata
Lyperanthus serratus
Caladenia marginata

165 Papilionaceae

Chorizema nanum
Bossiaea aquifolium ssp aquifolium
Sphaerolobium medium
Isotropis cuneifolia subsp.cuneifolia
Hovea trisperma
Chorizema rhombeum
Hovea elliptica
Mirbelia dilitata

152 Pittosporaceae

Marianthus tenuis
Billardiera floribunda
Cheiranthera preissiana var planifolia

031 Poaceae

Briza minor
Briza maxima

183 Polygalaceae

Comesperma ciliatum

090 Proteaceae

Hakea trifurcata
Dryandra lindleyana var mellicula
Banksia grandis
Banksia attenuata
Hakea lissocarpha
Hakea amplexicaulis
Grevillea trifida

039 Restionaceae

Desmocladus fasculatus (m)

215 Rhamnaceae

Trymalium ledifolium var rosemarinifolium
Cryptandra arbutiflora var tubiflora

331 Rubiaceae

Opercularia echinocephala
Opercularia hispidula

175 Rutaceae

Philotheca spicata

207 Sapindaceae

Dodoneae ceratocarpa (m and f)

202 Stackhousiaceae

Tripterococcus brunonis

343 Stylidiaceae

Stylidium adnatum
Stylidium schoenoides
Stylidium megacarpum
Stylidium calcaratum
Stylidium amoamum var caulescens

263 Thymelaeaceae

Pimelea preissii
Pimelea spectabilis
Pimelea rosea ssp rosea

182 Tremandraceae

Tremandra diffusa
Tetratheca setigera

054D Xanthorrhoeaceae

Xanthorrhoea gracilis
Xanthorrhoea preissii

016A Zamiaceae

Macrozamia reidlei

Appendix 2

Mammals - Reptiles - Amphibians

FAMILY	SCIENTIFIC NAME	COMMON NAME	Toby Inlet Catchment				
		Sites	1	2	3	4	5
FROGS							
Leptodactylidae	Crinia georgiana	Quacking Froglet					#
	Crinia pseudinsignifera	Granite Froglet					
	Geocrinia leai	Lea's Froglet	#	#			#
	Heleioporus eyrei	Moaning Frog					#
	Heleioporus inornatus	Chocolate Burrowing Frog					
	Limnodynastes dorsalis	Western Banjo Frog					#
	Metacrinia nichollsi	Nicholl's Toadlet	#				#
	Pseudophyrne guentheri	Guenther's Toadlet					#
Hylidae	Litoria adelaidensis	Slender Tree Frog					
	Litoria moorei	Moore's Frog					
REPTILES							
	Chelodina oblonga	Snake-necked tortoise					
Gekkonidae	Christinus marmoratus	Common Marbled Gecko					#
	Diplodactylus polyophthalmus	Rusty Gecko					#
Pygopodidae	Aprasia pulchella	Pretty Worm-lizard					
	Delma australis	Southern Delma					
	Pygopus lepidopodus	Southern Scaly-foot					
Agamidae	Pogona m. minor	Western Bearded Dragon	#				#
Scincidae	Basiana trilineata	Southwest Bassiana					
	Cryptoblepharus plagiocephalus	Common Crypto					
	Ctenouts delli	Dell's Ctenotus					#
	Ctenotus impar	Eleven-striped Ctenotus					
	Ctenotus labillardieri	Red-legged Ctenotus					
	Egernia kingii	King's Skink					#
	Egernia napoleonis	Southern Crevice Skink					#
	Glaphyromorphus australis	Souther Slender Skink					
	Hemiergis peronii	Peron's Earless Skink					
	Lerista distinguenda	SW Four-toed Lerista					#
	Menetia greyii	Grey's Menetia					#
	Morethia lineoocellata	Ocellated Morethia					#
	Tiliqua r. rugosa	Western Bobtail					#
Varanidae	Varanus gouldii	Gould's Monitor					#
	Varanus rosenbergia	Rosenberg's Monitor					#
Typhlopidae	Ramphotyphlops australis	Southern Blind Snake					

Boidae	Morelia spilota imbricata	Southwest Carpet Python						
Elapidae	Drysdalia coronata	Crowned Snake						#
	Echipsis curta	Bardick						
	Notechis scutatus occidentalis	Western Tiger Snake						#
	Pseudonaja a. affinis	Dugite						#
	Rhinoplocephalsu bicolor	Square-nosed Snake						
	Unechisgouldii	Gould's Snake						#
	Unechis nigriceps	Black-backed Snake						
MAMMALS								
Tachyglossicae	glossus aculeata	Short-beaked Echidna						
Dasyuridae	Antechinus flavipes leucogaster	Yellow-footed Antechinus						
	Phascogale t. tapoatafa	Brush-tail Phascogale						
	Sminthopsis c.crassicaudata	Fat-tailed Dunnarrt						
	Sminthopsis griseoventer	Grey-bellied Dunnart				#	#	
Peramelidae	Isoodon o. obesulus	Souther Brown Bandicoot	#			#	#	#
Burramyidae	Cercartetus concinnus	Western Pygmy Possum				#	#	
Pseudocheiridae	Pseudocheirus occidentalis	Western Ringtail Possum	#			#		#
Tarsipedidae	Tarsipes rostratus	Honey Possum				#	#	#
Phalangeridae	Trichosurus v. vulpecula	Common Brushtail Possum						#
Macropodidae	Macropus fulignosus	Western Grey Kangaroo	#	#		#	#	#
	Macropus irma	Western Brush Wallaby	#			#	#	
Vedspertilionidae	Chalinolobus gouldii	Gould's Wattled Bat						#
Canidae	Vulpes vulpes	Fox	#	#		#	#	#
Felidae	Felis catus	Cat	#	#		#	#	#
Leporidae	Oryctolagus cuniculus	Rabbit	#	#		#	#	#
	Provisional List from observations - 2003. B. Clay				2003			

Appendix 4

Birds Recorded and Breeding Records

Vintner's Ridge Development – South Biddle Road

Pauline Clay

December 2002

(p) Birds present (b) Birds breeding

AUSTRALASIAN GREBE	*Tachybaptus novaehollandiae* (p)
WHITE-FACED HERON	*Ardea novaehollandiae* (p)
HOARY_HEADED GREBE	*Poliocephalus poliocephalus* (p)
LITTLE-PIED CORMORANT	*Phalacrocorax melanoleucos* (p)
AUSTRALIAN SHELDUCK	*Tadorna tadornoides* (p) (b)
PACIFIC BLACK DUCK	*Anas superciliosa* (p) (b)
GREY TEAL	*Anas gibberifrons* (p)
MANED DUCK	*Chenonetta jubata* (p)
WHISTLING KITE	*Haliastur sphenurus* (p)
BLACK-SHOULDERED KITE	*Elanus axillaris* (p)
BROWN GOSHAWK	*Accipiter fasciatus* (p)
WEDGE-TAILED EAGLE	*Aquila audax* (p)
LITTLE EAGLE	*Hieraaetus morhnoides* (p)
AUSTRALIAN HOBBY	*Falco longipennis* (p)
AUSTRALIAN KESTREL	*Falco cenchroides* (p)
EURASIAN COOT	*Fulica atra* (p)
COMMON BRONZEWING	*Phaps chalcoptera* (p) (b)
RED-TAILED BLACK-COCKATOO	*Calyptorhynchus magnificus* (p) (b)
WHITE-TAILED BLACK-COCKATOO	*Calyptorhynchus baudinii* (p)
GALAH	*Cacatua roseicapilla* (p)
PURPLE-CROWNED LORIKEET	*Glossopsitta porphyrocephala* (p)
RED-CAPPED PARROT	*Purpureicephalus spurious* (p)

WESTERN ROSELLA	*Platycercus icterotis* (p) (b)
PORT LINCOLN RINGNECK	*Barnardius semitorquatus* (p) (b)
PALLID CUCKOO	*Cuculus pallidus* (p) (b)
FAN-TAILED CUCKOO	*Cuculus pyrrhophanus* (p) (b)
SHINING BRONZE-CUCKOO	*Chrysococcyx plagosus* (p) (b)
SOUTHERN BOOBOOK	*Ninox novaeseelandiae* (p)
BARKING OWL	*Ninox connivens* (p)
TAWNY FROGMOUTH	*Podargus strigoides* (p)
LAUGHING KOOKABURRA	*Dalcelo novaeguineae* (p) (b)
SACRED KINGFISHER	*Halcyon sancta* (p) (b)
RAINBOW BEE-EATER	*Merops ornatus* (p) (b)
WELCOME SWALLOW	*Hirundo neoxena* (p)
TREE MARTIN	*Cecropis nigricans* (p) (b)
RICHARD'S PIPIT	*Anthus novaeseelandiae* (p)
SCARLET ROBIN	*Petroica multicolor* (p)
WHITE-BREASTED ROBIN	*Eopsaltria Georgiana* (p)
WESTERN YELLOW ROBIN	*Eopsaltria griseogularis* (p)
GOLDEN WHISTLER	*Pachycephala pectoralis* (p)
GREY SHRIKE-THRUSH	*Colluricincla harmonica* (p)
GREY FANTAIL	*Rhipidura fuliginosa* (p) (b)
WILLIE WAGTAIL	*Rhipidura leucophrys* (p)
SPLENDID FAIRY-WREN	*Malurus splendens* (p) (b)
WHITE-BROWED SCRUB-WREN	*Sericornis frontalis* (p) (b)
WEEBILL	*Smicrornis brevirostris* (p)
WESTERN GERYGONE	*Gerygone fusca* (p)
INLAND THORNBILL	*Acanthiza apicalis* (p) (b)
WESTERN THORNBILL	*Acanthiza inornata* (p) (b)

YELLOW-RUMPED THORNBILL	*Acanthiza chrysorrhoa* (p) (b)
VARIED SITELLA	*Daphoenositta chrysoptera* (p)
RED WATTLE BIRD	*Anthochaera carunculata* (p) (b)
SINGING HONEYHEATER	*Lichenostomus virescens* (p)
WHITE-NAPED HONEYEATER	*Melithreptus lunatus* (p) (b)
BROWN HONEYEATER	*Lichmera indistincta* (p)
NEW HOLLAND HONEYEATER	*Phylidonyris novaehollandiae* (p) (b)
WHITE-CHEEKED HONEYEATER	*Phylidonyris nigra* (p) (b)
WESTERN SPINEBILL	*Acanthorynchus superciliosus* (p)
SPOTTED PARDALOTE	*Pardalotus punctatus* (p) (b)
STRIATED PARDALOTE	*Pardalotus striatus* (p) (b)
SILVEREYE	*Zosterops lateralis* (p) (b)
AUSTRALIAN MAGPIE-LARK	*Grallina cyanoleuca* (p)
GREY BUTCHERBIRD	*Cracticus torquatus* (p)
AUSTRALIAN MAGPIE	*Gymnorhina tibicen* (p)
AUSTRALIAN RAVEN	*Corvus coronoides* (p)