Bruces Creek Open Space Reserve Management Plan

Issued: August 2013

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GOLDEN PLAINS SHIRE

Contents

Version control

1.00	Original document developed	Bram Muller	Jun 2011
1.01	Draft Management Plan	Bram Muller	Dec 2012

1. Introduction

1.1. Location and Planning Area

Bruces Creek Open Space Reserve is located within the township of Bannockburn approximately 23km north west of Geelong and contains important natural and geological features, remnant vegetation and has significant cultural values.

Bruces Creek Open Space Reserve contains areas of native vegetation featuring large remnant River Red Gums (*Eucalyptus camaldulensis*) and areas of native grasslands with significant conservation value.

The purpose of this management plan is to support the Bruces Creek Master Plan and guide development and management of the Bruces Creek Open Space Reserve.

The Bruces Creek Open Space Reserve will become a '*significant landscape corridor*' that will promote the ecological, recreational and aesthetic values of the area (Land Design 2009). This Management Plan will help to manage and enhance the natural environment, guide infrastructure development such as walking trails and encourage recreation within the Reserve.

The management area encompasses freehold land held by Council and includes three discreet areas comprising the following:

Bruces Creek South
Alice Mews Reserve

- Lot RES1 LP218326
- Lot RES2 LP218326
- Lot RES1 LP148270
- Lot RES2 LP148270
- Lot RES1 PS430943

Willowbrae Reserve

- Reserve not yet in Council ownership

Bruces Creek North

- Lot RES1 PS543312
- Lot RES1 PS948410
- Lot RES1 PS606887
- Lot RES1 PS618276
- Lot RES1 PS618277
- Plus additional parcels to come to Council as subdivision progresses.

This Management Plan has been divided into two parts in some sections to help clarify certain management themes. Pilloud's Bridge on the Bannockburn-Shelford Road is used as a divider to distinguish the north and south areas of the Reserve. These two parts will be listed as 'Bruces Creek Open Space Reserve (North)' and 'Bruces Creek Open Space Reserve (South Alice Mews)'.

Bruces Creek Open Space Reserve (North) consists of a modified landscape. Agriculture was the primary use of this land prior to residential subdivision. There are extensive areas of cleared vegetation that accommodated cropping and grazing. There are still remaining areas of native grasslands on the escarpment areas and remnant vegetation along the creekline.

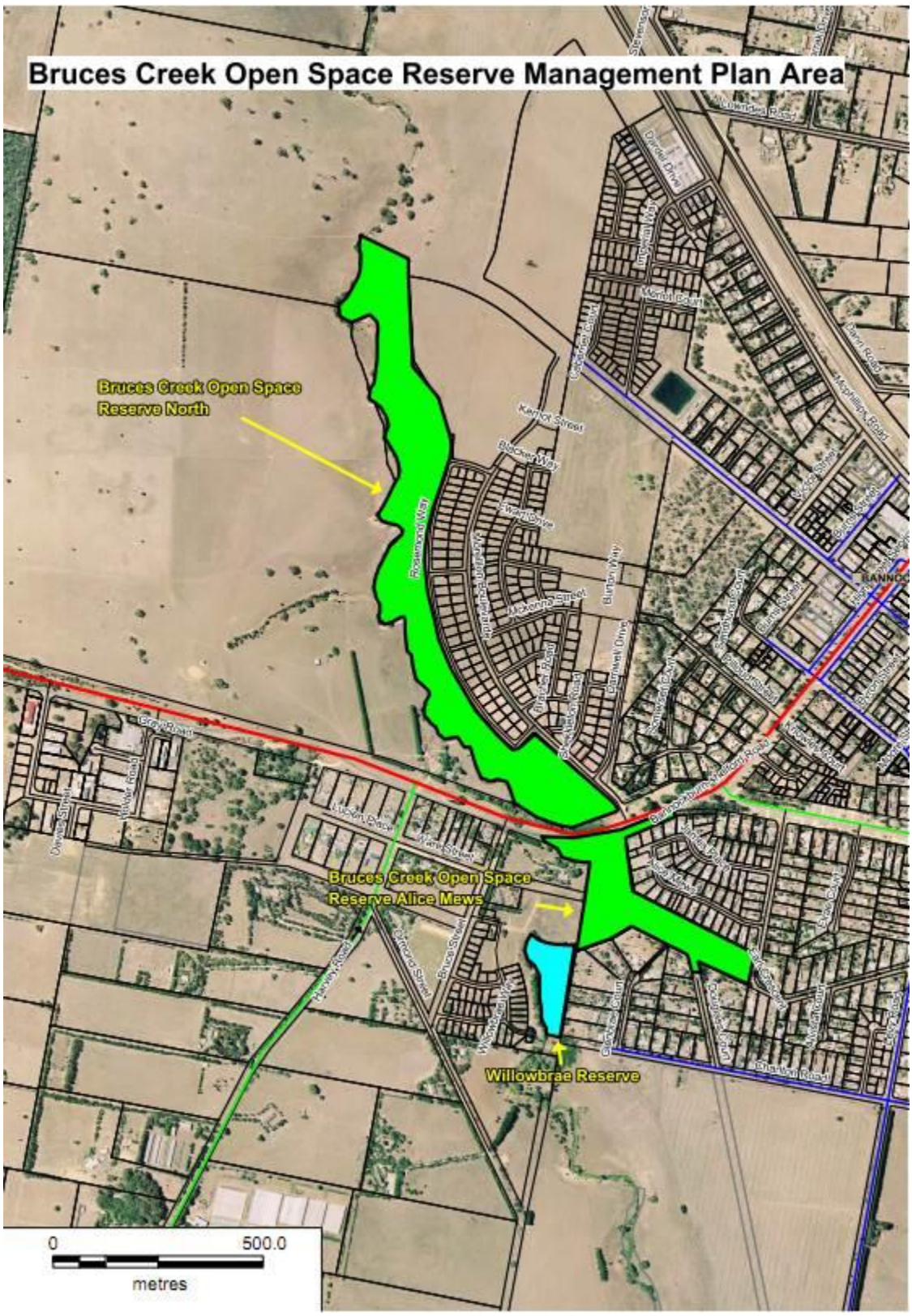
Bruces Creek Open Space Reserve (South Alice Mews) is bordered by residential houses. There are areas of remnant vegetation along the creek.

Willowbrae Reserve not yet under Council ownership with intact remnant vegetation that will increase the environmental values of the Reserve.

It is expected the Reserve will expand substantially as the subdivision process continues to the west and north of its current extent.

The Reserve falls within the Corangamite Catchment Management Authority region and the Golden Plains Shire Council local government area.

Figure 1- Bruces Creek Locality Map



2. Background and Context

2.1. Values and Significance

Bruces Creek Open Space Reserve is located within the Victorian Volcanic Plains (VVP) bioregion and contains remnants of Creekline Grassy Woodland (EVC 68) and Plains Grassy Woodland (EVC 55_61) both of which are listed as endangered vegetation types.

The escarpment area in the northern section of the Reserve contains species commonly associated with Plains Grassland (EVC 132_61). While the escarpment area has avoided the pressures of cropping, it is probable this endangered EVC once existed more widely throughout the Reserve.

Being located within a township and amidst extensively cleared rural farming landscapes, the remaining area of remnant natural vegetation is of high local conservation significance. Additionally, Bruces Creek Open Space Reserve offers significant visual amenity and recreational values for the local community of Bannockburn.

There are areas and objects of both Aboriginal and European cultural heritage within the Reserve.

2.2. Legislation and Guidelines

The land is owned freehold by Golden Plains Shire.

Management of the Reserve is carried out under the direction of the following legislation:

Federal Legislation
- *Environment Protection and Biodiversity Conservation Act* (1999)
- *Native Title Act* (1993)

State Legislation
- *Aboriginal Heritage Act* (2006)
- *Catchment and Land Protection Act* (1994)
- *Fences Act* (1968)
- *Flora and Fauna Guarantee Act* (1988)
- *Forests Act* (1958)
- *Heritage Act* (1995)
- *Local Government Act* (1989)
- *Planning and Environment Act* (1987)
- *Water Act* (1989)
- *Land Act* (1958)

2.3. Strategic Direction

Bruces Creek Open Space Reserve has been set aside as public open space as part of the subdivision process to provide amenity and recreational space for the local community.

Management Directions
- Maintain and where possible, improve the extent and quality of the remnant native vegetation communities within the Reserve.
- Provide for low impact public passive recreation which is not detrimental to the conservation values of the Reserve in line with the objective above.
- Maintain the Reserve for public access and amenity within the urban landscape
- Maintain the Reserve to mitigate fire risk.
- Control and/or eradicate pest plants and animals within the Reserve.
- Develop a '*Friends of Bruces Creek*' community group

3. Natural Resource Management

3.1. Geology and Landforms

Bruces Creek Open Space Reserve lies within the Victorian Volcanic Plain (VVP) bioregion. The underlying geology is mainly composed of Pliocene and Miocene deposits of fluvial gravel, sand and silts overlying marine based glauconitic silts, marl and minor limestone. The fringes of the Reserve show indications of basaltic flows associated with the Newer Volcanic period of the Holocene epoch.

The dominant geological process that shapes the Bannockburn landscape involves the deposition of material carried downstream from the Bruces Creek catchment. As the flow of Bruces Creek slows, suspended particles (Alluviums) of gravel and silt in the water are dropped forming the landform of the Reserve.

3.2. Soils

Soils within the Reserve range from heavier greyish brown clay soils derived from basalt to deep reddish brown sandy loams on flats adjacent to the creekline.

Basalt soils are very fertile and play an influential role in the unique indigenous vegetation types found throughout the Victorian Volcanic Plains bioregion.

These soils are highly susceptible to erosion and this is evidenced by the significant erosion that resulted from recent infrastructure works. Future works must take care to avoid this issue through careful planning and use of erosion barriers and post work revegetation. Soil erosion is also occurring along areas of the creek where it is devoid of riparian vegetation. Rabbits (*Oryctolagus cuniculus*) are further contributing to soil erosion through diggings and overgrazing of native vegetation.

Storm water traps have been installed along several areas of escarpment along Moreillon Boulevard and Rosemond Way. These will help reduce storm water velocity and minimise the onset of erosion.

Management actions

- Maintain tracks, riparian zones and drainage to prevent erosion of soils.
- Future infrastructure works must follow work practices that minimise erosion.

3.3. Flora

The Victorian Volcanic Plains (VVP) bioregion covers an area of 2.3 million hectares with 4.5% of remnant native vegetation remaining. As native grasslands comprise just 0.1% of this area, the grasslands occurring in the Reserve are a valuable asset and an important natural feature. As species in the grassy ecosystem are sensitive to disturbance, in particular soil disturbance, weed establishment, rock removal, ploughing and storm water run off, appropriate measures should be taken to protect them. The Reserve supports two Ecological Vegetation Classes (EVC) Creekline Grassy Woodland (EVC 68) and Plains Grassy Woodland (55_61) both of which are endangered vegetation communities.

Creekline Grassy Woodland (EVC 68) is a eucalypt-dominated woodland to 15 m tall with occasional scattered shrub layer over a mostly grassy/sedgy to herbaceous ground-layer. It occurs in low-gradient ephemeral to intermittent drainage lines, typically on fertile colluvial/alluvial soils, on a wide range of suitably fertile geological substrates. These minor drainage lines can include a range of graminoid and herbaceous species tolerant of waterlogged soils, and are presumed to have sometimes resembled a linear wetland or system of interconnected small ponds (DSE 2004)

There is an isolated pocket of Plains Grassy Woodland (EVC 55_61) on the sloped area of the Reserve along Moreillon Boulevard **(Appendix 1)**. This EVC consists of open eucalypt woodland to 15 m tall. It occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer (DSE 2004).

Bruces Creek Open Space Reserve (North)

Bruces Creek Open Space Reserve (North) contains a modified landscape that has been impacted by land clearing, grazing and cropping. It contains remnants of the endangered Ecological Vegetation Class (EVC 68) Creekline Grassy Woodland. This EVC is dominated by River Red Gum (*Eucalyptus camaldulensis*) and to a lesser degree Swamp Gum (*Eucalyptus ovata*). The understorey consists of Hedge Wattle (*Acacia paradoxa*) and ground covers of native and introduced grasses. The riparian zone includes introduced and indigenous species with areas of native Common Reed (*Phragmites australis*) and Common Grass Sedge (*Carex breviculmis*). This vegetation community is largely confined to the creekline.

The escarpment area of the reserve along Moreillon Boulevard has an isolated stand of remnant Plains Grassy Woodland (EVC 55_61), including a dead remnant Drooping She-oak (*Allocasuarina verticillata*) stag **(Appendix 1)** and Creeping Saltbush (*Atriplex semibaccata*). There have been some supplementary plantings of Drooping She-oak (*Allocasuarina verticillata*) to enhance the endangered EVC. Drooping She-oaks form a bed of *'pine needle'* where they grow which suppresses weed species while supporting native grasses such as *Themeda spp*, and *Stipa spp*.

Grassland species associated with the endangered Plains Grassland (EVC 132_61) exist below the proposed school site on the escarpment area. Plains Grassland consists of treeless vegetation mostly less than 1m tall dominated by largely graminoid and herb life forms. It occupies fertile cracking basalt soils prone to seasonal water logging (DSE 2004).

The surrounding slopes and flats are dominated by both native and introduced grasses with some plantings of indigenous trees and shrubs. There is some natural recruitment occurring in the revegetation plantings adjacent to Moreillon Boulevard. Indigenous native grass species that have been noted in the Reserve include Kangaroo Grass (*Themeda triandra*), Common Tussock Grass (*Poa labillardierei*), Spear grass varieties (*Stipa* spp.), Wallaby Grass (*Austrodanthonia* spp.), Slender Rat's Tail Grass (*Sporobolus spp.*) and Weeping Grass (*Microlaena stipoides*) **(Appendix 2)**. Grassland areas appear to lack many of the smaller herbaceous species normally associated with native grasslands possibly as a result of many years of grazing by stock. This area would have been part of the Plains Grassy Woodland (EVC 55_61) that existed in the region.

The nearby Wabdallah Reserve; under the management of Parks Victoria, conserves the endangered Plains Grassy Woodland (EVC 55_61) and it is likely that this vegetation type originally extended into the Bruces Creek Open Space Reserve area.

Bruces Creek Open Space Reserve (South Alice Mews)

Bruces Creek Open Space Reserve (South Alice Mews) contains the endangered Ecological Vegetation Class (EVC 68) Creekline Grassy Woodland and has remnant areas of native grasses that add environmental value to the Reserve. The Reserve is dominated by River Red Gum (*Eucalyptus camaldulensis*). The understory consists of Hedge Wattle (*Acacia paradoxa*), Silver Wattle (*Acacia dealbata*) and Black Wattle (*Acacia mearnsii*). The creekline is more diverse, mainly due to permanent pools and the presence of riparian plant species including Common Bulrush (*Typha* spp), Common Reed (*Phragmites australis*) and Common Grass Sedge (*Carex breviculmis*).

Creeping Saltbush (*Atriplex semibaccata*) occurs in the Kangaroo Grass (*Themeda triandra*) dominated grassland **(Appendix 1)**. A controlled burn would help promote desired native herbaceous species and enhance grassland biodiversity.

The nearby Willowbrae Reserve is not yet under Council ownership. There are isolated pockets of native grasses and significant remnant trees including River Red Gum (*Eucalyptus camaldulensis*) and Black Wattle (*Acacia mearnsii*). It has intact remnant vegetation that will increase the environmental values of the Reserve.

Bruces Creek Open Space Reserve provides suitable habitat for Vulnerable, Rare, or Threatened (VROT) listed species. No formal survey of flora in the Reserve has been undertaken; however a list of flora likely to occur in the Reserve has been compiled from *Just a Minute - Victorian Animals and Plants* (Viridians, 2005).

Refer to **Appendix 3** for complete flora list.

Management actions

- Map and report to DSE, VROT flora species found within the Reserve.
- Undertake further revegetation to promote establishment of indigenous native flora species in the Reserve.
- Control weeds threatening revegetation and existing vegetation.
- Undertake controlled burns of native grasslands to promote biodiversity.

3.4. Fauna

Yellow Wattlebird (*Anthochaera paradoxa*), Superb Fairy-wren (*Malurus cyaneus*), Crested Pigeon (*Ocyphaps lophotes*), Australian Magpies (*Cracticus tibicen*), Australian Ravens (*Corvus coronoides*) and Eastern Rosella (*Platycercus eximius*) have been observed in the Reserve. These native fauna species are mainly confined to the creekline and the indigenous plantings alongside Moreillon Boulevard.

The remnant River Red Gums (*Eucalyptus camaldulensis*) provide suitable habitat for nesting arboreal mammals. Eastern Rosellas were observed nesting in the hollows of the River Red Gums (*Eucalyptus camaldulensis*) and Superb Fairy Wrens (*Malurus cyaneus*) were observed amongst the thickets of Hedge Wattle (*Acacia paradoxa*) that line Bruces Creek.

Revegetation with indigenous species will encourage native fauna to the Reserve. This creates suitable habitat and refuge for native fauna by improving and expanding the existing wildlife corridor and enhancing the biodiversity of Bruces Creek Open Space Reserve.

It is likely the Reserve supports native reptiles and amphibians.

No formal survey of fauna in the Reserve has been undertaken; however a list of fauna likely to occur in the Reserve has been compiled from *Just a Minute- Victorian Animals and Plants* (Viridians, 2005).

Refer to **Appendix 4** for a complete fauna list.

Management Actions

- Undertake a comprehensive fauna survey in the Reserve with the assistance of a Tertiary institution or other body.

3.5. Fire

The Reserve poses minimal fire risk to the town if well managed. The primary risk is of a grass fire in heavy introduced grass fuels. Weed control of pasture grasses such as Toowoomba Canary Grass (*Phalaris aquatica*) and Caterpillar Grass (*Paspalum dilatatum*) by spraying or burning will reduce its density and subsequent fuel load. The promotion of native grasses through controlled burning will further contribute to the control of weed species. Native grass species such as Kangaroo Grass (*Themeda triandra*) are known to remain green during the dry summer months and reduce the fire risk in comparison to higher fuel loads associated with introduced pasture grasses that die back in summer leaving an increased risk of fire.

The Reserve requires maintenance of a fuel reduced zone adjacent to houses on Rosemond Way, Moreillon Boulevard, Alice Mews, the proposed school site and along access paths and visitor infrastructure in order to provide a level of reassurance to the local community. These areas will be maintained as part of Council's township maintenance program. Fuel loads in the Reserve will be maintained through annual pre-summer slashing and/or prescribed burning.

Areas of native grassland should be burned in autumn on a 2-3 year cycle to reduce fuel loads, encourage the establishment of native grassland species and increase biodiversity. Burning the biomass of native grasses also encourages the growth of smaller herb species and enhances

grassland ecosystems. Where opportunity exists, areas of introduced grasses should be burnt to reduce the weed burden, improve fire management and encourage native species.

The development of a Fire Management Plan for Bruces Creek Open Space Reserve in consultation with DSE and the CFA will direct the use of fire as a management tool and assist with the management of wildfire.

Access for CFA vehicles exists along Rosemond Way, Moreillon Boulevard, Milton Street and the concrete footpath. There is access to the southern area of the Reserve from the Bannockburn-Shelford Road, Earl Crescent, Glenbrae Court and Douglas Court.

Management Actions

- Maintain a fuel reduced zone along Rosemond Way, Moreillon Boulevard, Alice Mews, the proposed school parcel, the walking trail and visitor infrastructure as part of the regular township mowing program.
- Undertake slashing of introduced grass areas in spring annually as part of Councils pre-summer fuel maintenance program.
- Burn the native grassland areas in autumn every 2-3 years.
- Opportunistically undertake fuel reduction burns in areas of introduced grasses.
- Develop a Fire Management Plan for the Reserve in consultation with DSE, and the CFA.

3.6. Threatening Processes

A range of threatening processes that may detrimentally impact natural assets with the Reserve include:

- Inappropriate fire regimes
- Uncontrolled dogs
- Soil disturbance from development
- Spread of existing weeds
- Invasion by of weeds from adjoining properties
- Grazing by rabbits/ soil disturbance
- Flooding/ climatic conditions
- Water quality

3.6.1. Pest Plants

Pest plants are a threat to the conservation values of the Reserve by out-competing and replacing native species. A variety of non-native woody, grassy and herbaceous species are present in the Reserve and control works are required to ensure these species do not take over large areas.

Weed control will be ongoing in the Reserve. Being situated along the catchment of Bruces Creek means new and emerging weed species will likely impact the Reserve through water dispersal and from the built up seed bank in the soil. Monitoring of new and emerging weed threats is important in keeping with the conservation values of the Reserve.

The *Catchment and Land Protection Act (CaLP)* (*1994*) offers legislative guidance regarding the management of land when controlling declared and environmental weeds.

Declared weeds are listed under the *CaLP Act 1994* and are recognised as being a serious threat to environmental and agricultural values. The *CaLP Act 1994* states that landholders must undertake control of these weed species. Environmental weeds are not governed by any Act, however they still represent a threat to environmental and agriculture values and should be controlled (Golden Plains Shire Council, 2009). For further information refer to the *Declared Weeds, Golden Plain's worst weeds* information sheet.

Declared Weeds

Declared weeds in Bruces Creek Open Space Reserve that are a threat to the conservation values of the Reserve either by direct competition or displacing native species are:

- Boxthorn (*Lycium ferocissimum*) **(H)**
- Bridal Creeper (*Asparagus asparagoides*) **(M)**
- Cape Broom (*Genista monspessulana*) **(L)**
- Chilean Needle Grass (*Nassella neesiana*) **(M)**
- Flax Leaf Broom (*Genista linifolia*) **(L)**
- Great Mullein (*Verbascum thapsus*) **(M)**
- Pattersons Curse (*Echium plantagineum*) **(M)**
- Serrated Tussock (*Nassella trichotoma*) **(H)**
- Spiny Rush (*Juncus acutus*) **(L)**
- Sweet Briar Rose (*Rubus rubiginosa*) **(L)**
- Variegated Thistle (*Silybum marianum*) **(L)**
- Horehound (*Marrubium vulgare*) **(H)**

These weeds have been given a rating of High (H), Medium (M) and Low (L) according to their invasiveness, abundance, and impact on the biodiversity values in the Reserve. This rating will help prioritise Council resources.

Boxthorn (*Lycium ferocissimum*), occurs mainly along the riparian zone of the Reserve with a few satellite infestations occurring within the grassland areas. As Boxthorn provides harbour for pest animals and directly competes with and displaces native flora, removal is required. In some areas of the Reserve it envelops River Red Gums (*Eucalyptus camaldulenis*) and obscures refuge for arboreal mammals like Brushtail Possums (*Trichosurus vulpecula*) that nest in tree hollows.

Sweet Briar-Rose (*Rubus rubiginosa*), Flax-Leaf Broom (*Genista linifolia*) and Cape Broom (*Genista monspessulana*) are also present in the Reserve. They are emerging weeds and need controlling as they become problematic once established.

There is a small infestation of Bridal Creeper (*Asparagus asparagoides*) present in the Reserve. A weed of national significance, it should be eradicated as it poses a threat by blanketing native vegetation and is difficult to control once established. Bridal Creeper is present in the nearby Bannockburn Bushland Reserve.

Spiny Rush (*Juncus acutus*) is choking much of the watercourse of Bruces Creek. Highly invasive it is known to harbour pest animals and is an indicator of saline conditions. It requires control and replacement with Silver Tussock (*Poa labillardierei*) and Common Grass-sedge (*Carex breviculmis*) should be considered to minimise the onset of erosion and overcome potential salinity issues.

Serrated Tussock (*Nassella trichotoma*) is present and is controlled annually. Chilean Needle Grass (*Nassella neesiana*) is an emerging weed in the Reserve. Chilean Needle Grass is a Weed of National Significance (WONS), which poses a serious threat to native grassland values by colonising quickly and competing with native grassland species. Weed control using selective herbicide in the grasslands and timely slashing regimes prior to the onset of seed development should be practised. Control of Horehound (*Marrubium vulgare*) and Variegated Thistle (*Silybum Marianum*) in the Reserve is also required.

An infestation of Pattersons Curse (*Echium plantagineum*) is present in the Bruces Creek Open Space Reserve (South Alice Mews). Noted as 'Australia's worst broadleaf temperate pasture weed' (CSIRO, 2011), it should be eradicated as it colonises rapidly and difficult to control once established.

Environmental Weeds

Environmental weeds in Bruces Creek Open Space Reserve that are a threat to the conservation values of the Reserve either by direct competition or displacing native species are:

- Black Berry Nightshade (*Solanum nigrum*)
- Bristly Ox-Tongue (*Helminthotheca echioides*)
- Buffalo Grass (*Stenotaphrum ecundatum*)
- Carpet Weed (*Galenia pubescens*)
- Caterpillar Grass (*Paspalum dilatatum*)
- Cats-Ears (*Hypochaeris spp.*)
- Desert Ash (*Fraxinus angustifolia*)
- Dutch Elm (*Ulmus x hollandica*)
- Dutch Elm (*Ulmus x hollandica*)
- Fat Hen (*Chenopodium album*)
- Paddymelon (*Cucumis myriocarpus*)
- Peppercorn (*Schinus molle*)
- Plantain (*Plantago spp.*)
- Summer Grass (*Digitaria ciliaris*)
- Squirting Cumcumber (*Ecballium elaterium*)
- Toowoomba Canary Grass (*Phalaris aquatica*)

Peppercorn (*Schinus molle*) is found along the waterway within the Reserve. It is a threat to the Creekline Grassy Woodland (EVC 68) as Peppercorn 'wildings' threaten to displace native flora. Dutch Elm (*Ulmus x hollandica*), has spread significantly along the Bannockburn-Shelford Road near the entrance of Moreillon Boulevard. These may have local historic value; therefore any wildings should be removed without herbicide application due to the risk of killing the parent trees. Desert Ash (*Fraxinus angustifolia*) is found in small infestations along the creekline and poses a threat to conservation values.

Buffalo Grass (*Stentaphrum secundatum*) is prolific along the Bruces Creek riparian zone and should be controlled and then replaced with native grasses such as Silver Tussock (*Poa labillardierei*) and Common Grass-sedge (*Carex breviculmis*). This will assist to stabilise the riparian zone and prevent the onset of erosion.
There is a historic orchard located in Bruces Creek Open Space Reserve (North) that will need to be maintained. If 'wildings' occur in other areas of the Reserve, then the removal of the wildings is required. **Appendix 1**

Hedge wattle (*Acacia paradoxa*) is indigenous to the region, but can be invasive within its natural environment. Some areas of the Reserve require 'thinning out' to allow for native ground covers to become established. Willowbrae Reserve will require Hedge Wattle (*Acacia paradoxa*) thinning once in Council ownership to increase biodiversity.

Management Actions

- Undertake control of woody weeds, particularly Boxthorn (*L. ferrocissiumum*) with the aim of eradicating these species from the Reserve.
- Undertake control of Horehound (*Marrubium vulgare*) annually.
- Undertake control of Serrated Tussock (*Nassella trichotoma*) annually.
- Undertake control of Spiny Rush (*Juncus acutus*) and revegetate with indigenous flora.
- Monitor and prevent the establishment and spread of new pest plants in the Reserve, particularly Chilean Needle Grass.
- Eradicate the infestation of Pattersons Curse (*Echium plantagineum*) and monitor for new infestations
- Eradicate the small infestation of Bridal Creeper (*Asparagus asparagoides*) and monitor for new infestations.
- Reduce biomass of Hedge Wattle (*Acacia paradoxa*) at Willowbrae Reserve once under Council ownership.

3.6.2. Pest Animals

The *Catchment and Land Protection (CaLP) Act (1994)* and the *Flora and Fauna Guarantee Act (1988)* offer legislative guidance regarding the management of land when controlling declared pest animal species.

Declared pest animals are animals listed under the *CaLP Act (1994)* and are recognised as being a serious threat to environmental and agricultural values. Declared pest animals found in Bruces Creek Open Space Reserve are European Rabbit (*Oryctolagus cuniculus*) and European Red Fox (*Vulpes vulpes*).

European Brown Hare (*Lepus europaeus*) are present in the Reserve and are a threat to conservation values. Not listed as a declared pest animal under the *CaLP Act (1994)*, they are known ring to bark native vegetation.

European Rabbit (*Oryctolagus cuniculus*) is declared as an established pest animal under the *Catchment and Land Protection Act (1994)*. Rabbits are present in the Reserve and pose a threat to conservation values having been listed as a threatening process under the *Flora and Fauna Guarantee Act (1988)*. They are known to overgraze native flora species and cause erosion through burrowing and soil disturbance. Some rabbits do not burrow and utilise available cover provided by weed species like Boxthorn (*Lycium ferocissium*) and Spiny Rush (*Juncus acutus*). Future monitoring of the population and control of woody weeds to remove harbour is required. Ideally to manage rabbit populations, more than one control method is required. Control methods including annual fumigation and warren blasting should be considered.

European Red Fox (*Vulpes vulpes*) is prevalent in the district and is declared as an established pest animal under the *Catchment and Land Protection Act (1994)*. Foxes are known to predate on native fauna and are listed as a threatening process under the *Flora and Fauna Guarantee Act (1988)*. The direct impact of foxes on native fauna in the Reserve is unknown. They aid in the spread of weeds through their scats in particular fruit from Boxthorn (*Lycium ferocissimum*) and Sweet Briar-Rose (*Rosa rubiginosa*). As the Reserve is frequented by recreational users walking their dogs and with housing development taking place; baiting for foxes with 1080 (sodium monofluroacetate) or Strychnine is not permitted due the risk of bait consumption by domestic pets. If foxes are found to be problematic to native fauna in the Reserve, research into a suitable control method should be considered.

European Brown Hare (*Lepus europaeus*) is known to inhabit native grasslands and open woodlands but their impact on the Reserve is unknown. If they are found to be problematic, research into a suitable control method should be considered. They are usually controlled by shooting however this is not suitable in township areas.

Management actions

- Control rabbits to minimise their grazing impact on the Reserve through annual fumigation and where required, warren removal (blasting) program.
- Removal of rabbit harbouring weeds including Boxthorn (*Lycium ferocissium*) and Sweet Briar-Rose (*Rubus rubiginosa*).
- Monitor fox numbers and if required apply a suitable control measure.

4. Cultural Resource Management

4.1. Indigenous cultural heritage

Bannockburn was once occupied by the Wauthurong of the Kulin nation. There are accounts of conflict between Aborigines and Europeans, who settled on the land in the late 1830s and early 1840s. No evidence has been found, however, of such conflict in or around the township of Bannockburn. (Huddle, 2004 & Beaurepaire 1995)

Identified indigenous archaeological sites and features have been recorded within and in the vicinity of the Reserve. These include artefact scatters, scar trees, and historic places.

Infrastructure development has the potential to negatively impact on cultural heritage and care must be taken to ensure this does not occur.

Management of the Reserve in accordance with relevant legislation will respect the aspirations and rights of the Traditional Owners and the Local Aboriginal Community.

Any rabbit warren destruction in or around the waterway must address the relevant approval process prior to works to minimise the risk of disturbance or destruction of Aboriginal sites.

Management actions

- Undertake a survey of indigenous cultural heritage places and areas of indigenous cultural heritage sensitivity using the services of a qualified cultural heritage advisor. Review the management plan in light of any findings of the survey.
- Implement relevant approval process prior to any rabbit warren destruction works within 200m of the watercourse.

4.2. Post-settlement cultural heritage

Bruces Creek Open Space Reserve is situated on land originally held as the Wabdallah Pastoral Run by the Clyde Company. George Russell a pastoral pioneer held the land from 1837-1840. James Bruces later held the land from 1840-1850 (VHD 2011).

There are remains of an orchard that were part of a Swiss Vineyard owned by the Pilloud family.

Though the vineyards were destroyed by disease in 1875-1876, there are still remnants of the historic orchard (Beaurepaire, 1995), comprised of a Black Mulberry (*Morus nigra*), several Pear trees (*Pyrus* sp.) and Plum trees (*Prunus* sp.) **Appendix Figure 1**

The historic orchard plot will need to be maintained. If any 'wildings' occur in other areas of the Reserve, removal is required.

Management actions

- Install interpretive signage for heritage areas.
- Maintain historic orchard

5. Land Use Management.

5.1. Land Tenure

The Reserve comprises freehold land held by the Golden Plains Shire Council as a result of residential subdivisions and includes the following:

Bruces Creek South
Alice Mews Reserve

- Lot RES1 LP218326
- Lot RES2 LP218326
- Lot RES1 LP148270
- Lot RES2 LP148270
- Lot RES1 PS430943

Willowbrae Reserve

- Reserve not yet in Council ownership

Bruces Creek North

- Lot RES1 PS543312
- Lot RES1 PS948410
- Lot RES1 PS606887
- Lot RES1 PS618276
- Lot RES1 PS618277

Appendix Figures 1 and 2

It is expected the Reserve will expand substantially as the subdivision process continues on land to the west and north of the Reserve. The Bannockburn Urban Design Framework forms the basis for Council land acquisition adjacent to the creek as land in the area is subdivided.

The Reserve is zoned as Public Park and Recreation Zone (PPRZ), Farming Zone (FZ) and Residential Zone (R1Z) under the Golden Plains Planning Scheme. The Reserve is not subject to a Vegetation Protection Overlay (VPO), Environmental Significance Overlay (ESO) or Wildfire Management Overlay (WMO) within the Golden Plains Planning Scheme.

Management Actions

- Apply a single zoning PPRZ across the Reserve when the next zoning amendment is undertaken.

5.2. Management

Bruces Creek Open Space Reserve is managed by the Golden Plains Shire Council. Golden Plains Shire is responsible for the management of road drains and run off from land that feeds into regional drains, rivers and creeks.

The Golden Plains Shire Works Department are responsible for maintaining the footpath, slashing footpath verges, maintaining public amenities, mowing firebreaks alongside Moreillon Boulevard, Rosemond Way, School Parcel, and around amenities, installing signage, and maintaining vehicle access.

Golden Plains Shire Environmental Services are responsible for pest plant and animal control, fire management, future revegetation works, indigenous flora/fauna, interpretive signage, the development of a nature walk, education, and research.

The Corangamite Catchment Management Authority (CCMA) is the responsible body for the management and monitoring of river and creek health and its water quality. Barwon Water is responsible for water supply and the management of water quality in reservoirs and connected rivers and creeks.

Management Actions

- Monitor water pollution and sediment run off from Council land and road drains to ensure there is no negative impact on Bruces Creek water quality.

5.2.1. Community Involvement

The development of a '*Friends of*' community group would be beneficial to protecting and enhancing the natural and historic values of the Reserve. This would also instil pride and ownership of Bruces Creek and establish a means of consulting with the community on matters relating to the management of the Reserve.

Management Actions

- Conduct revegetation days for the local community on National Tree Day.
- Encourage the establishment of a "*Friends of*" group.

5.2.2. Walking Tracks

Bruces Creek Open Space Reserve (North) Refer to Appendix 5.

A concrete pedestrian footpath has been installed from Moreillon Boulevard to an access point on Milton Street. There is also access to the pedestrian footpath from Rosemond Way.

The concrete footpath turns into a gravel substrate where the public picnic amenities are located near the Milton Street access. Weeds will invade the gravel path so ongoing maintenance will be required.

A temporary access track from Milton Street to the public picnic amenities is mineral earth and is subject to erosion and is infested with Horehound (*Marrubium vulgare*). This path allows for maintenance vehicles however bollards are required to prevent unauthorised vehicle access and appropriate signage should be installed. Improved access from Milton Street is to be addressed in future development.

Due to the geology and soil types present in the Reserve, areas along the newly formed concrete footpath are highly susceptible to erosion. Rill and gully erosion is forming along sections of the footpath where soil disturbance has occurred.

Weeds have colonised the verges of the footpath where soil disturbance has occurred during the construction of the path. Weeds including Caterpillar Grass (*Paspalum dilatatum*), Summer Grass (*Digitaria ciliaris*), Toowoomba Canary Grass (*Phalaris aquatica*), Horehound (*Marrubium vulgare*), Fat Hen (*Chenopodium album*), Variegated Thistle (*Silybum marianum*), and Black Berry Nightshade (*Solanum nigrum*) line the footpath. These weeds make the path appear untidy and contribute to concerns about snakes. The track verges will need routine mowing to address this problem.

Bruces Creek Open Space Reserve (South Alice Mews) Refer to Appendix 5.

There is a gravel substrate walking track in Bruces Creek Open Space Reserve South. The track starts at the bridge on the Bannockburn-Shelford Road and exits the Reserve at Earl Crescent with access points at Glenbrae Court, Douglas Court and Burnside Road. The gravel access track off Burnside Road is in good condition; however the section closer to Bannockburn-Shelford Road was once asphalt and is in poor condition.

The installation of a foot bridge across the weir beside the bridge at Bannockburn-Shelford Road should be considered to allow safe pedestrian access. There is a crossing in place however pedestrians cannot use this crossing when the creek is high.

Future track maintenance needs to take erosion control and weed spread prevention into consideration.

Management Actions

- Revegetate areas of disturbed soil along tracks with indigenous grass species to help prevent erosion and the spread of weeds.
- Upgrade the access track to gravel substrate from Milton Street to the Reserve and install bollards.
- Upgrade the access track in Bruces Creek South to concrete.
- Install a pedestrian footbridge beside the Bannockburn-Shelford Road Bridge, allowing access for residents in the west of Bannockburn to the Reserve at Alice Mews.
- Install bollards where appropriate to prevent vehicle access.
- Mow the verges of the pedestrian paths and tracks.

5.2.3. Pedestrian Access

Bruces Creek Open Space Reserve (North)
Pedestrian access to the Reserve is via pedestrian access points along Moreillon Boulevard, Rosemond Way and Milton Street as depicted in **Appendix 5**.

Bruces Creek Open Space Reserve (South Alice Mews)
Pedestrian access to the Reserve is via pedestrian access points at Glenbrae Court, Douglas Court, Earl Crescent, James Place, Burnside Road and the Bannockburn-Shelford Road as depicted in **Appendix 6**.

5.2.4. Fencing

The Reserve is bounded by urban and semi rural properties with fences in varying states of repair. The fences serve to prevent unauthorised vehicle and stock access and to define boundaries. There is some old fencing along sections of the creekline that should be maintained as they create a buffer zone, protecting native vegetation and minimising disturbance along the riparian zone.

Management Actions

- Liaise with neighbours to maintain the existing fences between private landholders and the Reserve in a good state of repair.
- Remove old fences that border the Reserve that are no longer required.

5.2.5. Signage

There is signage indicating shared thoroughfare for cyclists and pedestrians at Moreillon Boulevard and Rosemond Way and at the access track from Milton Street. Signage needs to be installed at pedestrian access points at Glenbrae Court, Douglas Court, Earl Crescent and Burnside Road indicating authorised uses and a map of the Bruces Creek Open Space Reserve trails at each pedestrian access point should be considered

Management Actions

- Install signage at entrances to the Reserve indicating authorised and prohibited uses.

5.2.6. Interpretation

There is currently no interpretive signage present in the Reserve. Interpretative signage helps give the public insight into the significant natural values, geology, waterway health, flora, fauna and cultural heritage of the Reserve. Interpretative signage helps to educate and engage the community and promote the importance of the natural environment of the Reserve.

Management Actions

- Develop and install interpretive signs identifying the primary ecosystem types and values and cultural heritage values.
- Develop interpretive maps for installation at access points to guide users around the Reserve.

5.2.7. Revegetation

Significant areas of the Reserve are suitable for revegetation with local indigenous species drawn from the EVCs present in the Reserve and nearby areas.

Some revegetation has been undertaken along Moreillon Boulevard and natural recruitment is occurring with the *Acacia spp*. They provide suitable habitat for local fauna species as well as aiding in weed suppression. Revegetation along the riparian zone will help prevent stream bank erosion. Revegetating of these areas with fast colonising indigenous species will help prevent further degradation. A planting of Tussock Grass (*Poa labillardieri*) has improved an area of footpath where soil disturbance has occurred however follow up weed control is required to control Fat Hen (*Chenopodium album*) that threatens the planting. There is a planting of indigenous trees and shrubs at the public picnic amenities near Milton Street. These plants are now are established and will aid in weed suppression and provide aesthetic values.

Weed control of Spiny Rush (*Juncus acutus*) and Buffalo Grass (*Stenotaphrum secundatum*) along the riparian zone and creekline should be considered. Revegetating with natives such as Common Grass-sedge (*Carex breviculmis*) and Common Tussock Grass (*Poa labillardierei*) not only enhances the riparian zone but also improves water quality and reduces the impact of erosion and salinity.

The creekline requires supplementary planting of understorey species from the Creekline Grassy Woodland vegetation community in areas where Boxthorn (*Lycium ferrocissimum*) is present. It will also aid in the suppression of undesired pasture grass species. The slopes toward the southern end of the Reserve would support species from the Plains Grassy Woodland vegetation community and would benefit from supplementary planting of indigenous grassland species.

An offset planting has been established adjacent to Moreillon Boulevard to compensate for removal of native vegetation undertaken on Milton Street as part of sewerage works.

The native grassland area within the Reserve should be protected and only revegetated with herbaceous species known to occur in native grasslands.

Community groups such as the Bannockburn Primary School are often seeking revegetation sites for student education and areas within the Reserve are suitable for this purpose.

All revegetation works must be undertaken with the approval of and under the supervision of the Golden Plains Shire Council's Natural Resources Officer. They must be with locally sourced indigenous species to match the EVC of the Reserve must not hinder the development of native grassland species.

Amenity trees have been planted along Moreillon Boulevard and Rosemond Way.

6. Authorised uses

6.1. Vehicle access

Bruces Creek Open Space Reserve (North)

Authorised vehicle access is available along the footpath and at the access points on Rosemond Way, Moreillon Boulevard and Milton Street via locked bollards. There is no other impediment to vehicles; particularly four wheel drives, accessing the Reserve from Moreillon Boulevard, Rosemond Way or Milton Street. Revegetating along these areas with trees would prevent access and be visually more appealing than installing bollards if unauthorised vehicles accessing the Reserve becomes an issue.

Bannockburn Open Space Reserve (South Alice Mews)

Authorised vehicle access to the Reserve is possible from the Bannockburn-Shelford Road, Earl Crescent, Glenbrae Court and Douglas Court. Vehicle access is controlled using chain gates and lockable bollards.

Vehicle access except for management purposes (e.g. maintenance, wildfire control) is not permitted.

Management actions

- Maintain existing vehicle access points and signage. Install additional signs and bollards as required.

6.2. Firewood Collection

The collection of firewood for personal or commercial use is not permitted within the Reserve. If the collection of firewood becomes problematic, appropriate signage should be installed.

6.3. Rubbish Dumping

The dumping of rubbish in the Reserve is not permitted. If the dumping of rubbish becomes problematic, appropriate signage should be installed. Dumping of garden waste is not permitted and should be removed immediately if it occurs. Local residents are invited to report any illegal rubbish dumping.

6.4. Recreation

Passive recreation in the form of walking, cycling, jogging and enjoyment of the natural heritage are common uses that are appropriate for a Reserve of this nature. Some of these uses have the potential to adversely impact on the natural values of the Reserve and must be managed. It is important to encourage appropriate recreational use and engender a sense of public ownership and pride that will lead to support of the management aims for the Reserve.

6.4.1. Horse Riding

Horse riding is not permitted in the Reserve. If horse riding does occur appropriate signage should be installed. Horses have the potential to damage track surfaces and introduce weeds through their droppings and conflict with other users. Horse riding would also be an issue on a constructed walking path.

6.4.2. Motorbike riding

Motorbikes are not permitted in the Reserve. If motorbike riding does occur appropriate signage should be installed. Motorbikes have the potential to damage tracks, disturb soil and inconvenience other users.

6.4.3. Walking

Walking for fitness or recreation is a common use and should be encouraged as part of a broader community health and wellbeing program and develop an appreciation of the natural values of the Reserve. Walkers should be encouraged to use existing tracks and these should be maintained to ensure walker safety.
The development of signed nature walks highlighting particular vegetation types, plants or features may educate and stimulate interest in natural history and should be considered.

Management actions

- Install signage to encourage walkers to remain on existing formed tracks.
- Develop a nature trail or similar using existing walking tracks to educate and stimulate interest in the Reserve.

6.4.4. Cycling

Cycling as a recreational activity is sometimes undertaken in the Reserve but should be restricted to existing formed tracks. The development of challenging mountain or BMX type tracks should be discouraged as these have the potential to create erosion and damage vegetation and are a significant risk exposure for Council.

Management actions

- Install signage to encourage cyclists to use existing formed tracks.

6.4.5. Dogs and Cats

Many walkers use the Reserve to walk their dogs and this is a use that is to be encouraged. Uncontrolled dogs have the potential to disturb or even kill native wildlife and annoy other Reserve users, therefore signage should state “Dogs under effective control at all times”.

Stray and feral cats (*Felis catus*) can have a detrimental affect on indigenous fauna; in particular small native birds and mammals. It is a legislated requirement to register a domestic cat and the Golden Plains Shire Council actively encourages residents to register their domestic cats. Their impact on the Reserve is unknown.

Management actions

- Install signage to encourage dog owners to keep “Dogs under effective control at all times”.
- Review the management of dogs in the Reserve as part of the Golden Plains Shire Domestic Animal Plan.

6.4.6. Camping

No sites exist for the provision of camping and the development of camp sites would severely impact on the ecological values and amenity of the Reserve. Therefore camping is not permitted in the Reserve and would be inappropriate given the urban nature of the Reserve. If camping is found to be occurring in the Reserve, appropriate signage should be installed.

6.4.7. Fires

Recreational fires (e.g. camp fires) are not permitted in the Reserve as they present a risk of fire escape and impact on the ecological values of the Reserve as a result of firewood collection. There are bbq facilities provided near the Milton Street access to enable visitors to enjoy outdoor cooking. If fires are being lit in the Reserve, appropriate signage should be installed.

6.4.8. Education

Education is an important tool for creating public awareness and ownership; contributing to the long term security of the natural values of the Reserve. Educating the Bannockburn Primary School children of these natural values and involving them in revegetation plantings and proper recreational use is fundamental.

Management Actions

- Involve the Bannockburn Primary School in planting days and educate them on the Reserve’s natural values.
- Educate the Bannockburn Primary School on responsible recreation in the Reserve.

6.4.9. Research

The Reserve has significant vegetation; (EVC 55_61) Plains Grassy Woodland and (EVC 68) Creekline Grassy Woodland and possibly Plains Grassland (EVC 132_61) on the escarpment areas. These EVC’s are listed as endangered and further research into appropriate management should be considered.

All research projects on flora and fauna operate under a permit system managed by the Department of Sustainability and Environment. Opportunities exist for the education of local school children and the community through participation in research in the Reserve.

Management actions

- Undertake comprehensive research into the flora and fauna of the Reserve, using a tertiary institution or other body.

7. Implementation

Management Action	**Priority**	**Timeframe**	**Responsibility**
	(High, Medium or Low)	(ongoing, annually, as required or date e.g. December 2009)	(Committee of Management, Golden Plains Shire, DSE)
Soils			
Maintain tracks, riparian zones and drainage to prevent erosion of soils.	High	As required	Golden Plains Shire
Future infrastructure works must follow work practices that minimise erosion.	High	As required	Golden Plains Shire
Flora			
Map and report to DSE, VROT flora species found within the Reserve.	High	Ongoing	Environmental Services
Undertake further revegetation to promote establishment of indigenous native flora species in the Reserve.	High	Annually	Environmental Services
Control weeds threatening revegetation and existing vegetation.	High	Annually	Environmental Services
Undertake controlled burns of native grasslands to promote biodiversity.	High	2-3 years	Environmental Services
Fauna			
Undertake a comprehensive fauna survey in the Reserve with the assistance of a Tertiary institution or other body.	Medium	Every 10-20 years	Environmental Services
Fire			
Maintain a fuel reduced zone along Rosemond Way, Moreillon Boulevard, Alice Mews, the proposed school parcel, the walking trail and visitor infrastructure as part of the regular township mowing program.	High	As required	Environmental Services
Undertake slashing of introduced grass areas in spring annually as part of Council's pre-summer fuel maintenance program	High	Ongoing	Environmental Services
Burn the native grassland areas in autumn every 2-3 years.	High	2-3 years	Environmental Services
Opportunistically undertake fuel reduction burns in areas of introduced grasses.	High	As required	Environmental Services
Develop a Fire Management Plan for the Reserve in consultation with DSE and the CFA.	High	December 2015	Environmental Services
Pest Plants			
Undertake control of woody weeds, particularly Boxthorn (*L. ferrocissiumum*) with the aim of eradicating these species from the Reserve.	High	December 2015	Environmental Services
Undertake control of Horehound (*Marrubium vulgare*) annually.	High	Annually	Environmental Services
Undertake control of Serrated Tussock (*N. trichotoma*) annually	High	Annually	Environmental Services
Undertake control of Spiny Rush (*Juncus acutus*) and revegetate with indigenous flora.	High	Ongoing	Environmental Services
Monitor and prevent the establishment and spread of new pest plants in the Reserve, particularly Chilean Needle Grass.	High	Annually	Environmental Services

Eradicate the infestation of Pattersons Curse (*Echium plantagineum*) and monitor for new infestations.	High	Annually	Environmental Services
Eradicate the small infestation of Bridal Creeper (*Asparagus asparagoides*) and monitor for new infestations.	High	Ongoing	Environmental Services
Reduce biomass of Hedge Wattle (*Acacia paradoxa*) at Willowbrae Reserve once under Council ownership.	Medium	As required	Environmental Services
Pest Animals			
Control rabbits to minimise their grazing impact on the Reserve through an annual fumigation and where required, warren removal (blasting) program.	High	Annually	Environmental Services
Removal of Rabbit harbouring weeds including Boxthorn (*Lycium ferocissium*) and Sweet Briar-Rose (*Rubus rubiginosa*).	High	As required	Environmental Services
Monitor fox numbers and if required and apply a suitable control measure.	Low	As required	Environmental Services
Control cats through opportunistic cat trapping as required.	Low	As required	Environmental Services
Install appropriate signage promoting adequate dog restraint.	Medium	December 2014	Works Department
Indigenous cultural heritage			
Undertake a survey for indigenous cultural heritage places and areas of indigenous cultural heritage sensitivity using the services of a qualified cultural heritage advisor. Review the Management Plan in light of any findings of the survey.	Low	December 2015	Environmental Services
Implement relevant approval process prior to any rabbit warren destruction works within 200m of the watercourse.	High	As required	Environmental Services
Post-settlement cultural heritage			
Install interpretive signage for heritage areas.	Low	December 2015	Work Department
Maintain historic orchard	Medium	December 2015	Environmental Services
Land Tenure			
Apply a single zoning PPRZ across the Reserve when the next zoning amendment is undertaken.	Medium	As required	Golden Plains Shire
Management			
Monitor water pollution and sediment run off from Council land and road drains to ensure there is no negative impact on Bruces Creek water quality.	Medium	As required	Golden Plains Shire
Community Involvement			
Conduct revegetation days for the local community on National Tree Day.	Low	Annually	Environmental Services
Encourage the establishment of a "*Friends of*" group.	Low	December 2015	Environmental Services
Tracks			
Revegetate areas of disturbed soil along tracks with indigenous grass species to help prevent erosion and the spread of weeds.	High	December 2015	Environmental Services
Upgrade the access track to gravel Milton St to the Reserve and install bollards.	Medium	December 2015	Works Department
Upgrade the access track in Bruces Creek South	High	December	Works

to concrete.		2015	Department
Install a pedestrian footbridge beside the Bannockburn- Shelford Rd bridge, allowing access for residents in the west of Bannockburn to the Reserve at Alice Mews.	High	December 2015	Works Department
Mow the verges of the pedestrian paths and tracks	High	Annually	Works Department
Fencing			
Maintain the existing fences between private landholders and the Reserve in a good state of repair.	Medium	Ongoing	Golden Plains Shire
Remove old fences that border the Reserve that are no longer required.	Low	As required	Environmental Services
Signage			
Install signage at entrances to the Reserve indicating authorised and prohibited uses.	High	December 2015	Works Department
Interpretation			
Develop and install interpretive signs identifying the primary ecosystem types and values and cultural heritage values.	Medium	December 2015	Environmental Services &Works Department
Develop interpretive maps for installation at access points to guide users around the Reserve.	Low	December 2015	Environmental Services &Works Department
Vehicle access			
Maintain existing vehicle access points and signage. Install additional signs as required.	High	Ongoing	Works Department
Walking			
Install signage to encourage walkers to remain on existing formed walking tracks.	Low	December 2015	Works Department
Develop a nature trail or similar using existing walking tracks to educate and stimulate interest in the Reserve.	Low	December 2015	Environmental Services
Cycling			
Install signage to encourage cyclists to use existing formed tracks.	Medium	December 2015	Works Department
Dogs and Cats			
Install signage to encourage dog owners to keep “Dogs under effective control at all times”.	Medium	December 2015	Works Department
Review the management of dogs in the Reserve as part of the Golden Plains Shire Domestic Animal Plan.	Medium	December 2015	Golden Plains Shire
Education			
Involve the Bannockburn Primary School in planting days and educate them on the Reserve natural values.	High	Ongoing	Environmental Services
Educate the Bannockburn Primary School on responsible recreation in the Reserve.	High	Ongoing	Environmental Services
Research			
Undertake comprehensive research into the flora and fauna of the Reserve using a tertiary institution or other body.	Medium	Ongoing	Environmental Services

8. References

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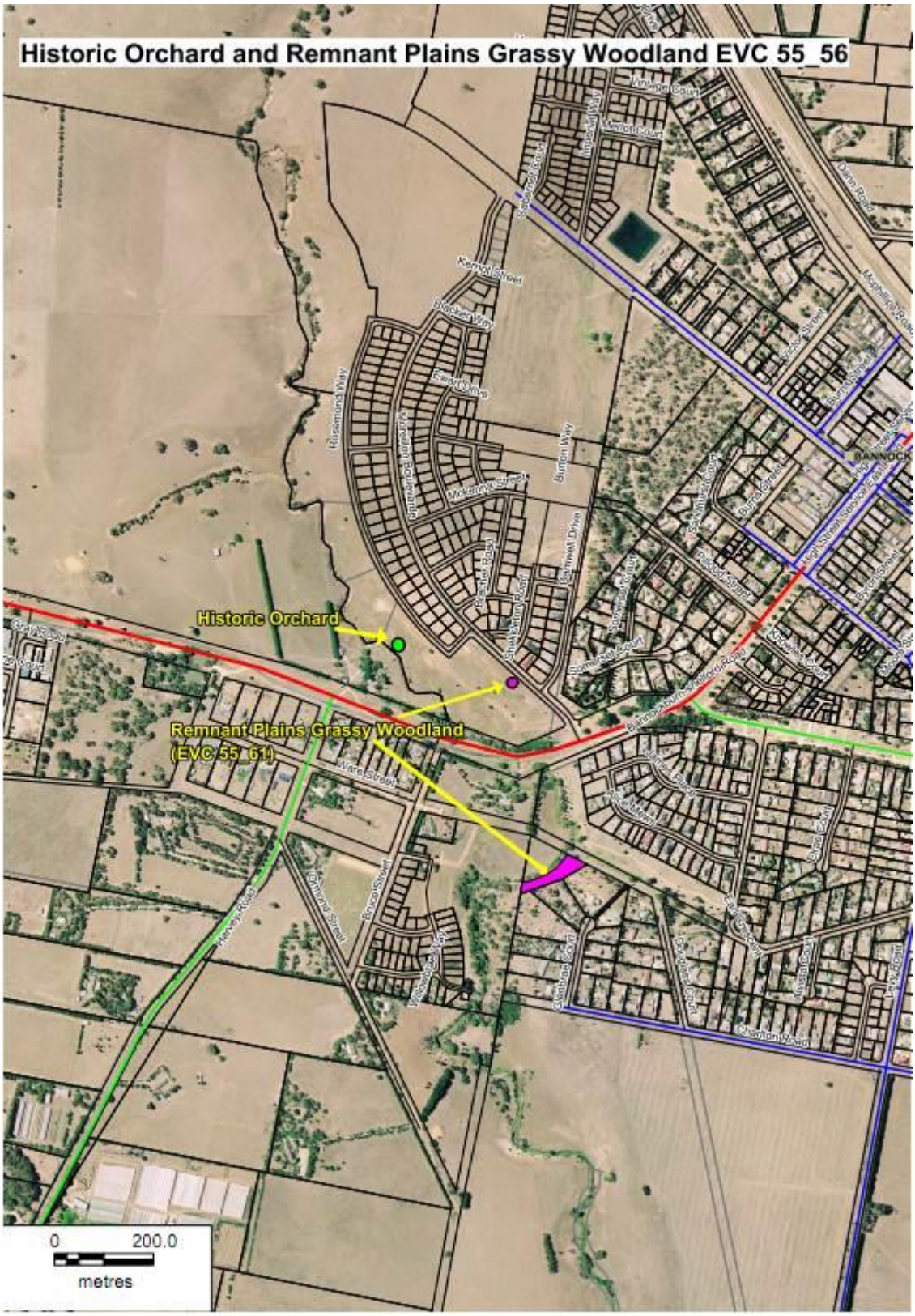
9. Appendix 1- Historic Orchard and Remnant Plains Grassy Woodland (EVC 55_56)



10. Appendix 2- Bruces Creek Native Grasslands (EVC 132)

11. Appendix 3- Flora species list for the Bannockburn area

Just a Minute - Victorian Plants

Species Names	Family	Last Date
Acacia melanoxylon **-** Blackwood	Mimosaceae	1990-1999
Acacia paradoxa **-** Hedge Wattle	Mimosaceae	1990-1999
Acaena echinata **-** Sheep's Burr	Rosaceae	1990-1999
**** Aira cupaniana*** **-** Quicksilver Grass	Poaceae	1990-1999
Allocasuarina verticillata **-** Drooping Sheoak	Casuarinaceae	1990-1999
Arthropodium minus **-** Small Vanilla-lily	Anthericaceae	1990-1999
Arthropodium strictum **-** Chocolate Lily	Anthericaceae	2000-2005
Asperula scoparia **-** Prickly Woodruff	Rubiaceae	1990-1999
Austrodanthonia auriculata **-** Lobed Wallaby-grass	Poaceae	1990-1999
Austrodanthonia caespitosa **-** Common Wallaby-grass	Poaceae	1990-1999
Austrodanthonia carphoides **-** Short Wallaby-grass	Poaceae	1990-1999
Austrodanthonia duttoniana **-** Brown-back Wallaby-grass	Poaceae	1990-1999
Austrodanthonia setacea **-** Bristly Wallaby-grass	Poaceae	1990-1999
Austrostipa stuposa **-** Quizzical Spear-grass	Poaceae	1990-1999
Brachyscome aculeata **-** Branching Daisy	Asteraceae	1990-1999
**** Briza maxima*** **-** Large Quaking-grass	Poaceae	1990-1999
**** Briza minor*** **-** Lesser Quaking-grass	Poaceae	1990-1999
Burchardia umbellata **-** Milkmaids	Colchicaceae	1990-1999
Caesia calliantha **-** Blue Grass-lily	Phormiaceae	2000-2005
Calocephalus citreus **-** Lemon Beauty-heads	Asteraceae	2000-2005
Calocephalus lacteus **-** Milky Beauty-heads	Asteraceae	1990-1999
Calotis anthemoides **-** Cut-leaf Burr-daisy	Asteraceae	1990-1999
Chrysocephalum apiculatum **-** Common Everlasting	Asteraceae	1990-1999
Chrysocephalum semipapposum **-** Clustered Everlasting	Asteraceae	2000-2005
Convolvulus erubescens spp. agg. **-** Pink Bindweed	Convolvulaceae	2000-2005
Crassula sieberiana **-** Sieber Crassula	Crassulaceae	1990-1999
**** Cuscuta epithymum*** **-** Common Dodder	Cuscutaceae	1990-1999
Cynoglossum suaveolens **-** Sweet Hound's-tongue	Boraginaceae	1990-1999
Deyeuxia quadriseta **-** Reed Bent-grass	Poaceae	1990-1999
Dianella longifolia **-** Pale Flax-lily	Phormiaceae	2000-2005
Dianella revoluta **-** Black-anther Flax-lily	Phormiaceae	2000-2005
Dichelachne crinita **-** Long-hair Plume-grass	Poaceae	2000-2005
Dillwynia cinerascens **-** Grey Parrot-pea	Fabaceae	1990-1999
**** Dittrichia graveolens*** **-** Stinkwort	Asteraceae	2000-2005

	Diuris chryseopsis **-** Golden Moths	Orchidaceae
1990-1999		
	Diuris lanceolata s.l. **-** Golden Moths	Orchidaceae
1990-1999		
	Drosera peltata subsp. auriculata **-** Tall Sundew	Droseraceae
1990-1999		
	Eleocharis acuta **-** Common Spike-sedge	Cyperaceae
1990-1999		
	Eryngium ovinum **-** Blue Devil	Apiaceae
2000-2005		
	Eutaxia microphylla var. microphylla **-** Common Eutaxia	Fabaceae
1990-1999		
	Geranium potentilloides **-** Cinquefoil Cranesbill	Geraniaceae
1990-1999		
	Goodenia pinnatifida **-** Cut-leaf Goodenia	Goodeniaceae
1990-1999		
	Haloragis heterophylla **-** Varied Raspwort	Haloragaceae
1990-1999		
	Helichrysum rutidolepis **-** Pale Everlasting	Asteraceae
1990-1999		
	**** Hypochoeris radicata*** **-** Cat's Ear	Asteraceae
1990-1999		
	Leptorhynchos squamatus **-** Scaly Buttons	Asteraceae
1990-1999		
	Linum marginale **-** Native Flax	Linaceae
1990-1999		
	Lobelia pratioides **-** Poison Lobelia	Campanulaceae
1990-1999		
	Lomandra filiformis **-** Wattle Mat-rush	Xanthorrhoeaceae
1990-1999		
	Lomandra nana **-** Dwarf Mat-rush	Xanthorrhoeaceae
1990-1999		
	Luzula meridionalis **-** Common Woodrush	Juncaceae
1990-1999		
	**** Lycium ferocissimum*** **-** African Box-thorn	Solanaceae
2000-2005		
	Minuria leptophylla **-** Minnie Daisy	Asteraceae
1990-1999		
	# Myoporum insulare **-** Common Boobialla	Myoporaceae
1990-1999		
	**** Nassella leucotricha*** **-** Texas Needle-grass	Poaceae
2000-2005		
	**** Nassella neesiana*** **-** Chilean Needle-grass	Poaceae
2000-2005		
	**** Nassella trichotoma*** **-** Serrated Tussock	Poaceae
2000-2005		
	Pentapogon quadrifidus var. quadrifidus **-** Five-awned Spear-grass	Poaceae
1990-1999		
	Pimelea curviflora **-** Curved Rice-flower	Thymelaeaceae
1990-1999		
	Pimelea glauca **-** Smooth Rice-flower	Thymelaeaceae
1990-1999		
C v	***Pimelea spinescens subsp. spinescens*** **-** Spiny Rice-flower	Thymelaeaceae
2000-2005		
	Plantago gaudichaudii **-** Narrow Plantain	Plantaginaceae
2000-2005		
	Poa sieberiana var. sieberiana **-** Grey Tussock-grass	Poaceae
1990-1999		

Data Source: *Flora Information System, Biodiversity and Natural Resources, DSE - May 2005 - © Viridans Biological Databases*

Species Names	***Family***
Last Date	
Podolepis jaceoides **-** Showy/Basalt Podolepis	Asteraceae
1990-1999	
Ptilotus macrocephalus **-** Feather Heads	Amaranthaceae
1990-1999	
Ptilotus spathulatus f. spathulatus **-** Pussy Tails	Amaranthaceae
1990-1999	
**** Romulea rosea*** **-** Onion Grass	Iridaceae
1990-1999	
**** Rosa rubiginosa*** **-** Sweet Briar	Rosaceae
2000-2005	

f E e	***Rutidosis leptorhynchoides*** **-** Button Wrinklewort	Asteraceae
2000-2005		
	Schoenus apogon **-** Common Bog-sedge	Cyperaceae
1990-1999		
	Sebaea ovata **-** Yellow Sebaea	Gentianaceae
1990-1999		
r	***Senecio cunninghamii var. cunninghamii*** **-** Branching Groundsel	Asteraceae
1990-1999		
f V e	***Senecio macrocarpus*** **-** Large-fruit Fireweed	Asteraceae
2000-2005		
	Solenogyne dominii **-** Smooth Solenogyne	Asteraceae
1990-1999		
	Solenogyne gunnii **-** Hairy Solenogyne	Asteraceae
1990-1999		
	Stackhousia monogyna **-** Creamy Stackhousia	Stackhousiaceae
2000-2005		
	Themeda triandra **-** Kangaroo Grass	Poaceae
2000-2005		
*******	***Trifolium arvense var. arvense*** **-** Hare's-foot Clover	Fabaceae
1990-1999		
*******	***Trifolium campestre var. campestre*** **-** Hop Clover	Fabaceae
1990-1999		
*******	***Trifolium dubium*** **-** Suckling Clover	Fabaceae
1990-1999		
*******	***Trifolium subterraneum*** **-** Subterranean Clover	Fabaceae
1990-1999		
	Velleia paradoxa **-** Spur Velleia	Goodeniaceae
1990-1999		
	Veronica gracilis **-** Slender Speedwell	Scrophulariaceae
1990-1999		
*******	***Vulpia bromoides*** **-** Squirrel-tail Fescue	Poaceae
1990-1999		
	Wahlenbergia stricta subsp. stricta **-** Tall Bluebell	Campanulaceae
1990-1999		
	Whalleya proluta **-** Rigid Panic	Poaceae
1990-1999		

Data Source: *Flora Information System, Biodiversity and Natural Resources, DSE - May 2005 - © Viridans Biological Databases*

12. Appendix 4- Fauna Species List for the Bannockburn area

Just a Minute - Victorian Animals

	Species Names	Family	Last Date
	Australian Hobby **-** Falco longipennis	Falconidae	1990-1999
	Australian Magpie **-** Gymnorhina tibicen	Artamidae	2000-2005
	Australian Owlet-nightjar **-** Aegotheles cristatus	Aegothelidae	1990-1999
	Australian Raven **-** Corvus coronoides	Corvidae	1990-1999
	Australian Shelduck **-** Tadorna tadornoides	Anatidae	2000-2005
	Australian Wood Duck **-** Chenonetta jubata	Anatidae	1990-1999
	Banded Lapwing **-** Vanellus tricolor	Charadriidae	1990-1999
	Black-faced Cuckoo-shrike **-** Coracina novaehollandiae	Campephagidae	2000-2005
	Black-shouldered Kite **-** Elanus axillaris	Accipitridae	1990-1999
	Blue-winged Parrot **-** Neophema chrysostoma	Psittacidae	1990-1999
	Brown Goshawk **-** Accipiter fasciatus	Accipitridae	1990-1999
	Brown Thornbill **-** Acanthiza pusilla	Pardalotidae	1990-1999
*	***Common Blackbird*** **-** Turdus merula	Muscicapidae	1990-1999
	Common Blue-tongued Lizard **-** Tiliqua scincoides	Scincidae	1990-1999
	Common Bronzewing **-** Phaps chalcoptera	Columbidae	1990-1999
	Common Brushtail Possum **-** Trichosurus vulpecula	Phalangeridae	1990-1999
	Common Ringtail Possum **-** Pseudocheirus peregrinus	Pseudocheiridae	1990-1999
*	***Common Starling*** **-** Sturnus vulgaris	Sturnidae	1990-1999
	Eastern Grey Kangaroo **-** Macropus giganteus	Macropodidae	2000-2005
	Eastern Rosella **-** Platycercus eximius	Psittacidae	2000-2005
	Eastern Spinebill **-** Acanthorhynchus tenuirostris	Meliphagidae	1990-1999
	Eastern Yellow Robin **-** Eopsaltria australis	Petroicidae	1990-1999
	Emu **-** Dromaius novaehollandiae	Casuariidae	1990-1999
*	***European Goldfinch*** **-** Carduelis carduelis	Fringillidae	1990-1999
*	***European Greenfinch*** **-** Carduelis chloris	Fringillidae	1990-1999
	Galah **-** Cacatua roseicapilla	Cacatuidae	2000-2005
	Grey Fantail **-** Rhipidura fuliginosa	Dicruridae	2000-2005
	Grey Shrike-thrush **-** Colluricincla harmonica	Pachycephalidae	1990-1999
*	***House Sparrow*** **-** Passer domesticus	Passeridae	1990-1999
	Laughing Kookaburra **-** Dacelo novaeguineae	Halcyonidae	1990-1999
	Lesser Long-eared Bat **-** Nyctophilus geoffroyi	Vespertilionidae	1990-1999
	Little Lorikeet **-** Glossopsitta pusilla	Psittacidae	1990-1999
	Little Raven **-** Corvus mellori	Corvidae	2000-2005
	Long-billed Corella **-** Cacatua tenuirostris	Cacatuidae	1990-1999
	Magpie-lark **-** Grallina cyanoleuca	Dicruridae	2000-2005
	Masked Lapwing **-** Vanellus miles	Charadriidae	1990-1999
	Musk Lorikeet **-** Glossopsitta concinna	Psittacidae	1990-1999
	Nankeen Kestrel **-** Falco cenchroides	Falconidae	1990-1999
	New Holland Honeyeater **-** Phylidonyris novaehollandiae	Meliphagidae	1990-1999
	Noisy Miner **-** Manorina melanocephala	Meliphagidae	2000-2005
Fv	***Painted Honeyeater*** **-** Grantiella picta	Meliphagidae	1990-1999
	Pallid Cuckoo **-** Cuculus pallidus	Cuculidae	1990-1999
	Purple-crowned Lorikeet **-** Glossopsitta porphyrocephala	Psittacidae	1990-1999
*	***Red Fox*** **-** Vulpes vulpes	Canidae	1990-1999
	Red Wattlebird **-** Anthochaera carunculata	Meliphagidae	1990-1999
	Red-browed Finch **-** Neochmia temporalis	Passeridae	1990-1999
	Red-rumped Parrot **-** Psephotus haematonotus	Psittacidae	2000-2005
	Silvereye **-** Zosterops lateralis	Zosteropidae	1990-1999
	Singing Bushlark **-** Mirafra javanica	Alaudidae	1990-1999
	Southern Boobook **-** Ninox novaeseelandiae	Strigidae	1990-1999
	Spiny-cheeked Honeyeater **-** Acanthagenys rufogularis	Meliphagidae	1990-1999
	Spotted Pardalote **-** Pardalotus punctatus	Pardalotidae	2000-2005

Spotted Turtle-Dove **-** Streptopelia chinensis	Columbidae	1990-1999
Striated Pardalote **-** Pardalotus striatus	Pardalotidae	2000-2005
Sugar Glider **-** Petaurus breviceps	Petauridae	1990-1999
Sulphur-crested Cockatoo **-** Cacatua galerita	Cacatuidae	1990-1999
Superb Fairy-wren **-** Malurus cyaneus	Maluridae	1990-1999
Tawny Frogmouth **-** Podargus strigoides	Podargidae	1990-1999
Welcome Swallow **-** Hirundo neoxena	Hirundinidae	1990-1999
White-browed Scrubwren **-** Sericornis frontalis	Pardalotidae	1990-1999
White-faced Heron **-** Egretta novaehollandiae	Ardeidae	1990-1999
White-plumed Honeyeater **-** Lichenostomus penicillatus	Meliphagidae	2000-2005
White-striped Freetail Bat **-** Tadarida australis	Molossidae	1990-1999

Data Source: *Atlas of Victorian Wildlife, Biodiversity and Natural Resources, DSE - May 2005 - © Viridans Biological Databases*

Species Names	***Family***	***Last Date***
Willie Wagtail **-** Rhipidura leucophrys	Dicruridae	2000-2005
Yellow-billed Spoonbill **-** Platalea flavipes	Threskiornithidae	1990-1999
Yellow-rumped Thornbill **-** Acanthiza chrysorrhoa	Pardalotidae	2000-2005
Yellow-tailed Black-Cockatoo **-** Calyptorhynchus funereus	Cacatuidae	1990-1999

Data Source: *Atlas of Victorian Wildlife, Biodiversity and Natural Resources, DSE - May 2005 - © Viridans Biological Databases*

13. Appendix 5- Bruces Creek Access Points and Walking Tracks