Flora Assessment of High Value Roadside Reserves in Newham, Victoria

Prepared for the Newham and District Landcare Group

Karl Just - January 2016

Karl Just, ecological consultant
5 Farran Street, Castlemaine, Victoria 3450
Ph: 0434815374

Flora Assessment of High Value Roadside Reserves in Newham, Victoria, January 2016

Document Version: Version 1

All photographs by Karl Just except where otherwise credited.

Cover photos:

Acknowledgments

The author would like to gratefully acknowledge the contributions of the following people during the preparation of this management plan:

Penny Roberts (Newham and District Landcare Group) - for designing and coordinating the project.

TABLE OF CONTENTS

Appendices

List of Figures

To be completed

List of Tables

List of Plates

1.0 EXECUTIVE SUMMARY

Flora surveys were conducted across 10 high value roadside reserves throughout Newham and surrounding areas during spring and summer of 2014/2015. During the project over 21 kilometres of road reserve were surveyed, predominately on both sides of the road, totalling nearly 40 kilometres of linear road reserve. For each roadside, a list of plant species identified was recorded while significant species, large-old trees (>70cm DBH) and photopoints were geographically referenced using a GPS.

During the surveys a total 345 vascular plant species were recorded across the study area, including 232 that are indigenous and 113 that are introduced. Of the indigenous species recorded, five are listed under the Victorian Advisory List and one of these is also listed as threatened under the Environment Protection and Biodiversity Conservation (EPBC) Act and Flora and Fauna Guarantee (FFG) Act. Twenty two of the recorded species are considered to be of regional significance while many others are of local significance. A total of 1228 large-old trees were mapped across the study area while 87 photo points were established to assist with monitoring the condition of these areas.

The study area was found to contain nine Ecological Vegetation Classes (EVCs). Three of these are listed as endangered, three are listed as vulnerable and three are listed as depleted within the Central Victorian Uplands bioregion. The condition of the vegetation varied across the study area, but was predominantly of high quality, including outstanding examples of some of these EVCs.

The roadsides surveyed during the project include vegetation of very high significance. The examples of Scoria Cone Woodland (EVC 894) at Hennebergs Road were dominated by *Eucalyptus pauciflora* (Snow Gum) with a herb-rich ground-layer, vegetation that is exceedingly rare in Victoria. Large areas of woodland and forest across the study area contained a herb-rich groundflora with a high cover of lilies, daises and other herbs, notably along Three Chain Road, Sheltons Road and Bolgers Lane. The study area also contained important remnants of riparian communities and foothill forests occurring on several different geologies.

All sites are at ongoing threat from a range of processes, including weed invasion, grazing pressure, vegetation clearance and roadworks. It is essential that the importance of each site is recognised by relevant land managers, and that the roadsides are subject to ongoing monitoring and management to retain their very high ecological values.

2.0 INTRODUCTION

2.1 Project Context

The Newham and District Landcare Group commissioned the author to conduct flora surveys along a series of high value roadside reserves in Newham, Victoria. The purpose of the project was to document the botanical values of these sites and to provide a set of recommendations to guide their ongoing protection and management.

The majority of field work was conducted during spring and summer 2015, although this report also incorporates data that was collected along several sections of Three Chain Road during spring 2014 (see Just and Aquilina 2014, Just 2015).

2.2 Study area

The study area encompassed 10 separate roadside reserves occurring across the foothills and elevated plains around Newham, north-east of Woodend. Part of the study area also included the adjacent localities of Carlsruhe (part of Three Chain Rd), Cobaw (McKinley Track) and Woodend (Lavender Farm Road). This landscape is dominated by private lands that have been heavily cleared for agriculture, so that some of the best remaining stands of native vegetation are confined to linear patches along roadsides. Larger remnant areas of bushland around Newham are associated with the volcanic scoria cone known as 'The Gem', as well as more extensive bushland in the Cobaw Ranges.

During the project over 21 kilometres of road reserve were surveyed, predominately on both sides of the road, totalling nearly 40 kilometres of linear road reserve. The roadsides documented during the project included:

- Bolgers Lane – approximately 1.6 kilometres of each side of the road was included, running roughly north-south between Sheltons Road and Three Chain Road.
- Boundary Rd – approximately 2.4 kilometres of each side of the road was included, running roughly north south between Three Chain Road and Pipers Creek Road.
- Forest Rd – approximately 1.2 kilometres on the north side only was included, running roughly east-west from Dohertys Road to just east of Egans Lane.
- Hennebergs Rd - approximately 3.2 kilometres of each side of the road was included, running roughly north-south between Deep Creek and Whitebridge Road.
- Lavender Farm Rd - approximately 1 kilometre on both sides of the road was included, running roughly north-west to south-east from the Lancefield to Woodend Road.

- McKinley Track - approximately 1 kilometre on both sides of the road was included, situated south of the Cobaws State Forest.
- Saunders Rd - approximately 1.7 kilometres on both sides of the road were included, running roughly east-west from Bolgers Lane to Hennebergs Road.
- Sheltons Rd - approximately 2.9 kilometres on both sides of the road were included, running roughly north-west to south-east from Bolgers Lane to south of the Lancefield Reservoir.
- Three Chain Rd – approximately 4.7 kilometres on both sides of the road were included, running roughly east-west from north of Mowbrays Road to Wisemans Lane.
- Whitebridge Rd - approximately 1.7 kilometres of each side of the road was included, running roughly north-west to south-east from near Three Chain Road to Hennebergs Road.

The study area occurs within the Macedon Ranges Shire and includes land within the jurisdiction of both the Port Philip and Western Port Catchment Management Authority (CMA) and the North Central CMA. All sites are situated within the Central Victorian Uplands bioregion. The Newham area is near the boundary of two groups of traditional owners, the Taungurong (whose lands extend north of the Divide) and the Woiwurrung (whose lands extend to the south within the Port Phillip Catchment).

Figure 1 Study Area

3.0 BACKGROUND

3.1 Landforms

The study area encompasses a landscape of elevated plains, foothills and scattered higher peaks, with elevation within the range of 500-600 metres above sea level (a.s.l). In the local area, the highest parts of the landscape are found along the Cobaw Ranges, which form part of the Great Dividing Range that separates the coastal river systems to the south from the drainage systems that eventually flow into the Murray River to the north. Heading south from the Cobaws, elevation gradually decreases until it meets a broad, flat valley that is dissected by Three Chain Road. The land then rises again in the south-eastern section of the study area, where the highest points are marked by two volcanic scoria cones.

There are few major creeks within the study area, although numerous smaller gullies and broad ephemeral drainage lines dissect the plains and foothills. The study area includes tributaries and small parts of both Dry Creek and Deep Creek.

3.2 Geology and soils

The Newham area occurs within a diverse geological landscape, encompassing geological units from a wide range of ages. These include sedimentary rocks that are over 400 million years old (predating the emergence of terrestial life) to colluvial and alluvial plains that have been deposited relatively recently with the last two million years. This highly diverse and complex geological setting has no doubt played a significant role in the evolution and assemblage of the study areas interesting vegetation.

Castlemaine Group Sandstone

The oldest rocks within the study area are the sandstones of the 'Castlemaine Supergroup', which were formed during the Ordovician period sometime around 450-490 million years ago. During this period, much of the current land surface consisted of a large basin that lay beneath the ocean off the coast of eastern Australia. Over millions of years, erosion from an ancient highland area known as the Delamerian Mountains formed a thick sequence of sediments throughout the basin many kilometres thick (Edwards et. al. 1997). These sediments were later uplifted and now form the dominant rock throughout large parts of central Victoria (e.g. Castlemaine-Bendigo).

The soils of this rock type are generally shallow, poorly structured and relatively infertile. They are typically duplex soils, with a shallow, grey topsoil overlying a yellow sub-soil. These soils tend to become hydrophobic when dry, causing water to sheet flow across the ground rather than percolate

into the soil (CGB 2007). While these soils could be seen as infertile and relatively harsh, they support a diverse range of indigenous plant species that are highly adapted to these conditions. On the other hand, there is a suite of species within the study area that require more fertile, water holding soils and so will rarely grow on these sediments (e.g. *Dianella amoena, Caesia calliantha).*

Beauvallet Granodiorite

The Beauvallet Granodiorite formation is the dominant rock of the Cobaw State Forest, although it forms only part of a greater mass of granite that also includes the Baynton Granodiorite to the north and the Pyalong Granodiorite to the east (collectively known as the Cobaw Batholith; Edwards et. al. 1997) . This is an igneous (volcanic) rock type that was formed over a kilometre beneath the surface during the late Devonian period, approximately 360 million years ago. The granites later became exposed following erosion of the surrounding sedimentary rocks, and because the latter geology is less resistant to erosion, the sediments eventually eroded to well below the higher granite outcrops (with the Cobaw State Forest).

The soils of the Beauvallet Granodiorite are generally more fertile than those of the Castlemaine Group sandstones due to the presence of nutrient rich minerals such as micas and feldspars. They are generally well drained but can become water logged due to the presence of hard pans and rock outcrops below the surface (CGB 2007). This is apparent throughout parts of the Cobaws, where the drainage systems include small springs that tend to stay wet for much of the year. This is because water tends to percolate throughout the granite soils relatively well, rather than sheeting off as it often does on the sediments.

Newer Volcanics

The study area occurs along the margins of an extensive basalt plain that extends to the north-west to just south of Bendigo and to the south to the inner parts of Melbourne, extending west of there to near the South Australian border (making it one of the largest volcanic plains in the world). The volcanic activity associated with the Newer Volcanics occurred during two main phases, the first 5-7 million years ago (late Miocene) and the second within the last 1 million years (Pleistocene). The study area includes relatively flat volcanic plains as a well as several scoria cones that emerge from the surrounding Castlemaine Group sandstones (along Hennebergs Road).

The soils of the basalt plain are relatively deep and fertile but tend to shrink when dry and swell when wet due to the high clay content. Many woody species do not tolerate these cracking clays due to the stress caused to their root systems, so that the basalt soils tend to support open grassy woodlands or grasslands with few trees and shrubs. These soils have been highly sought after for agriculture.

Colluvial deposits

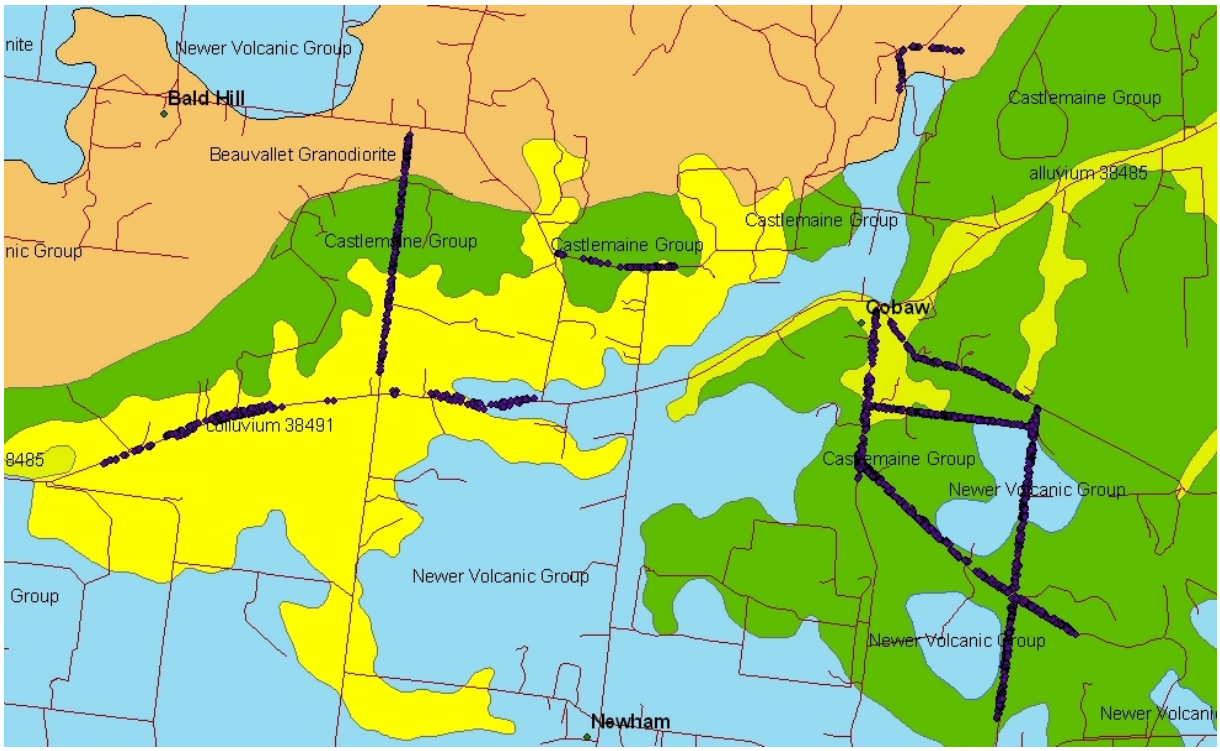
A large deposit of colluvial material abuts the northern edge of the volcanic plain (best seen along Three Chain Road). This material was deposited in the last 2 million years, probably beginning when ancestral drainage systems were altered by the volcanic flows to the south (Edwards et. al. 1997). The appearance of volcanic rock to the immediate south would have essentially blocked stream systems running south off the Cobaws, instead forcing these streams to meander to the west. This would have slowed the erosion of material from the Cobaws, creating the existing bed of colluvium. Minor deposits of colluvial material are also found elsewhere within the study area in association with minor gullies and drainage lines.

The colluvial soils are relatively deep and fertile and tend to support grassy woodlands. These soils have been highly sought after for agriculture.

Alluvial deposits

An extensive alluvial deposit occurs along the terraces of Dry Creek, with minor deposits occurring elsewhere in association with minor gullies and drainage lines. Similar to the colluvial deposits, the alluvial soils are relatively deep and fertile. The formation of these drainage lines was also probably heavily influenced by the blocking of ancestral streams to the south by lava flows. The alluvial soils have been highly sought after for agriculture.

Plate 1 The geological landscape of the study area. The points highlight the majority of the survey sites.



3.3 Climate

The study area experiences a temperate climate characterised by cool, wet winters and relatively hot, dry summers. During most of the year, particularly winter-spring, the dominant climatic influence comes from the south-west, which brings rain-bearing low pressure fronts from the southern ocean. During the summer months the south-westerlies typically weaken, allowing high pressure systems from northern Australia to move down into southern Victoria, causing hot, dry conditions. The long-term rainfall patterns of the region are highly variable due to the effects of El Nino and La Nina, with the former being associated with extended drought and the latter to wet conditions.

While there are no weather stations at Newham, weather data collected at nearby Kyenton show that that area has an annual mean rainfall of 752 mm. Winter has historically been the wettest time of year with the months of June and August having averages of 89.7 mm and 84.1 mm respectively. Late summer is the driest time of year with January and February having averages of 37mm and 39.4mm respectively. The coolest month of the year is July with a mean maximum temperature of 10C and a mean minimum of 1.6C. The hottest months of the year are January and February with mean maximum temperatures of 27.2C and 26.7C.

The climate within the study area is likely to be similar but slightly different to Kyneton. There is also a wide degree of micro-climates found within the study area, created by physical attributes such as topography and aspect. The low-lying valley along Three Chain Road would receive cold air drainage from the surrounding hills and consequently would receive more frequent and heavier frost than the more exposed hill tops. Other micro-climates would be created by aspect: north and west facing slopes receive higher solar radiation, while exposure to dominant winds would vary across the study area in relation to topographic protection.

3.4 Ecological Vegetation Classes

The study area was found to support nine Ecological Vegetation Classes (EVCs) that were distributed according to landform, soil type, aspect and other environmental factors. These are described individually below.

Creekline Herb-rich Woodland (EVC 164) - vulnerable

Creekline Herb-rich Woodland occurs along ephemeral drainage lines and colluvial deposits across the foothills. Minor occurrences were recorded across the study area where small gullies crossed the roadsides, including at Sheltons Road and Bolgers Lane, while the EVC also occurred along Deep Creek in the far south of Hennebergs Road and far east of Sheltons Road. This EVC often occurred downslope of Valley Grassy Forest (EVC 47).

The vegetation was dominated by *Eucalyptus ovata* (Swamp Gum) in association with *Eucalyptus rubida* (Candlebark) and *Eucalyptus radiata* (Narrow-leaf Peppermint) with a scattered small tree layer of *Acacia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle). The upper terraces contained a variety of dryland grasses and herbs while the wetter creeklines were typically dominated by *Carex appressa* (Tall Sedge) and *Juncus* spp. (Rushes) in conjunction with a variety of wetland herbs. Most occurrences were found in relatively dry, minor gullies within small catchments, with the exception of Deep Creek which had a larger creek terrace and retained scattered larger pools by mid-summer. These pools supported several semi-aquatic herbs such as *Ranunculus amphitrichus* (Small River Buttercup) and *Cynogeton procera* (Water Ribbons).

Creekline Herb-rich Woodland is listed as 'vulnerable' in the Central Victorian Uplands.

Plate 2 EVC Creekline Herb-rich Woodland at Sheltons Road

Grassy Dry Forest (EVC 22) – depleted

Grassy Dry Forest generally occupies exposed ridges and higher slopes across the sedimentary foothills. Within the study area it was only recorded in a limited area along Boundary Road, although areas of Grassy Forest (EVC 128) in the south-eastern section of the study area were noted to have floristic and structural affinities with this EVC. The example along Boundary Road was restricted to a hill crest and associated slopes on sandstones of the Castlemaine Group.

The vegetation was dominated by *Eucalyptus dives* (Broad-leaf Peppermint) with a sparse shrub layer. The ground layer had a conspicuous cover of *Rytidosperma pallidum* (Silver-top Wallaby-grass) and *Dianella admixta* (Black-anther Flax-lily) in conjunction with a variety of small shrubs and forbs.

Grassy Dry Forest is listed as 'depleted' in the Central Victorian Uplands.

Plate 3 EVC Grassy Dry Forest at Boundary Road.

Grassy Forest (EVC 128) - vulnerable

Grassy Forest is often considered transitional between the drier box-stringybark forests and the taller wetter forests of the ranges. It can therefore be difficult to accurately identify in the field due to its resemblance to several other EVC's such as Grassy Dry Forest (EVC 22) and Valley Grassy Forest (EVC 47). Within the study area, Grassy Forest was recorded along parts of Hennebergs Road, Saunders Road and Sheltons Road, where occurring on sandstones of the Castlemaine Group. Vegetation that appeared transitional between Valley Grassy Forest and Grassy Forest was observed as several sites (e.g. Sheltons Road) near the boundary of the colluvial deposits with the more elevated, sedimentary geologies.

The vegetation was characterised by a low open forest dominated by *Eucalyptus dives* (Broad-leaf Peppermint) in association with *Eucalyptus rubida* (Candlebark), *Eucalyptus radiata* (narrow-leaf Peppermint) and *Eucalyptus obliqua* (Messmate Stringybark), with a grassy, herb-rich ground layer.

Grassy Forest is listed as 'vulnerable' in the Central Victorian Uplands.

Plate 4 – EVC Grassy Forest at Whitebridge Road

Herb-rich Foothill Forest (EVC 23) - depleted

Herb-rich Foothill Forest generally occurs on protected aspects in the foothills and lower mountain slopes. Within the study area it was recorded on Castlemaine Group sandstones along Boundary Road and on Beauvallet Granodiorite along McKinley Track. This latter variant is the dominant EVC across much of the Cobaw State Forest.

The vegetation was characterised by a relatively tall forest dominated by *Eucalyptus obliqua* (Messmate Stringybark) with a scattered medium to tall shrub layer including *Acacia dealbata* (Silver Wattle) and *Acacia melanoxylon* (Blackwood). The ground-layer supported a good diversity of small herbs and often had a high cover of *Poa labillardieri* (Common Tussock-grass) and *Pteridium esculentum* (Austral Bracken).

Herb-rich Foothill Forest is listed as 'depleted' in the Central Victorian Uplands.

Plate 5 EVC Herb-rich Foothill Forest at McKinley Track.

Plains Grassy Woodland (EVC 55) - endangered

Plains Grassy Woodland is generally found on poorly drained, relatively fertile soils across low gradient plains. Within the study area, this EVC was recorded on colluvial deposits and volcanic soils along Three Chain Road. Plains Grassy Woodland has been heavily targeted for agriculture across the region and examples with intact understorey are rare.

While this EVC is often dominated by *Eucalyptus camaldulensis* (River Red Gum) across other parts of its range, in the local area this species is replaced by *Eucalyptus ovata* (Swamp Gum), likely due to the colder climate. Most examples within the study area were dominated by weeds with a patchy cover of native grasses and herbs. A small area with a good cover of native grasses, lilies and herbs was observed in the eastern section of Three Chain Road.

Plains Grassy Woodland is listed as 'endangered' in the Central Victorian Uplands.

Plate 6 EVC Plains Grassy Woodland at Three Chain Road.

Scoria Cone Woodland (EVC 894) – endangered

Scoria Cone Woodland is restricted to scoria cones (also known as cinder cones) and adjacent areas across the volcanic plains. This EVC was recorded across the slopes of two scoria cones located along Hennebergs Road. This EVC has been heavily cleared across its range for agriculture and intact examples are rare in Victoria.

The vegetation was generally dominated by *Eucalyptus viminalis* (Manna Gum), although several stands were dominated by *Eucalyptus pauciflora* (White Sallee) (notably between Fincher Lane and Saunders Road along Hennebergs Road). The understorey varied from open to locally dense areas with a high cover of *Acacia dealbata* (Silver Wattle). Several sizeable areas contained an outstanding groundflora that included a high diversity of grasses, lilies and other herbs. These areas are among the most intact examples of this EVC remaining in Victoria (personal observation).

Scoria Cone Woodland is listed as 'endangered' in the Central Victorian Uplands.

Plate 7 EVC Scoria Cone Woodland at Hennebergs Road.

Sedgy Riparian Woodland (EVC 198) – depleted

Sedgy Riparian Woodland generally occurs along ephemeral creek systems of the wetter foothills. This EVC was only observed at one location within the study area, at a creek crossing on McKinley Track. High quality examples of Sedgy Riparian Woodland were also recently observed by the author along several drainage lines within the Cobaw State Forest (ABZECO 2014), however the EVC does not extend onto the plains to the south.

At McKinley Track the vegetation was dominated by *Eucalyptus ovata* (Swamp Gum) with a dense understorey containing *Leptospermum lanigerum* (Woolly Tea-tree) and thickets of *Phragmites australis* (Common Reed). A variety of herbs, ferns and sedges were found in the ground-layer. This EVC contains habitat for a variety of regionally significant species that rarely occur in other local EVCs (e.g. *Epilobium pallidiflorum, Cardamine paucijuga, Eleocharis gracilis*).

Sedgy Riparian Woodland is listed as 'depleted' in the Central Victorian Uplands.

Plate 8 EVC Sedgy Riparian Woodland at McKinley Track.

Swampy Riparian Woodland (EVC 83) –endangered

Swampy Riparian Woodland occupies low-gradient drainage lines of the more fertile plains and lower foothills. Only small, mostly degraded remnants of this EVC were observed along parts of Three Chain Road. These remnants appeared to be the outer band of what would formerly have been a relatively large patch along a broad, swampy depression in the valley to the north of the road on private land. This area has been heavily modified by drainage, diversion of water and clearance of the tree canopy and understorey.

The vegetation was dominated by *Eucalyptus ovata* (Swamp Gum) with a sparse shrub layer and a groundflora frequently dominated by weeds. Intact examples supported a range of native grasses and scattered wetland herbs. The best example observed was in the western portion of Three Chain Road and included several locally to regionally significant wetland flora species including *Eryngium vesiculosum* (Prickfoot), *Allittia cardiocarpa* (Swamp Daisy) and *Senecio squarrosus* (Leafy Fireweed).

Swampy Riparian Woodland is listed as 'endangered' in the Central Victorian Uplands.

Plate 9 EVC Swampy Riparian Woodland at Three Chain Road

Valley Grassy Forest (EVC 47) - vulnerable

Valley Grassy Forest typically occurs on relatively fertile and well-drained colluvial soils along valley slopes and low rises. This was one of the most common EVCs observed across the study area, where it tended to occur on the low rises of lightly dissected colluvial plains.

The vegetation was commonly dominated by *Eucalyptus rubida* (Candlebark)*, Eucalyptus radiata* (Narrow-leaf Peppermint) and occasionally *Eucalyptus pauciflora* (White Sallee)*,* with an open to relatively dense middle shrub layer including *Acacia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle). The ground layer was dominated by a variety of grasses and often included a carpet of herbs, including lilies and orchids.

Valley Grassy Forest is listed as is listed as 'vulnerable' in the Central Victorian Uplands.

Plate 10 EVC Valley Grassy Forest at Three Chain Road.

4.0 THREATENING PROCESSES

In Victoria, roadsides are widely recognised as significant refuges for flora and fauna, serving as major repositories for biodiversity. This is particularly the case for the relatively fertile grassy landscapes, where the land has been heavily cleared, degraded and fragmented for agricultural use. In many cases, roadsides support some of the best remaining examples of endangered vegetation communities due to their history of protection from grazing and cropping practices.

But roadside vegetation remnants are at ever increasing risk from a variety of processes that threaten the integrity and quality of these sites. Due to the linear shape and close proximity to roads, they are particularly vulnerable to edge effects and the processes of fragmentation. The paragraphs below discuss threats to the roadsides documented during the current survey. In most cases, these threats apply to most roadside vegetation in Victoria and are particularly relevant throughout the Macedon Ranges Shire.

4.1 Weed invasion

Approximately 32% of the flora species recorded during the current survey were introduced species (over 100 separate taxa), and this number is likely to increase over time. Roadsides are particularly vulnerable to weed invasion due to high rate of introduction from vehicles, horses and walkers. Disturbed edges immediately adjacent to the road edge also act as ideal colonization areas, as the cover of native species is often too sparse to repel invasion. These areas also become modified due to increased runoff from the road edge.

Of the exotic species recorded, only a small percentage were high threat species, and overall the cover of weeds is low throughout the road reserves. This is partly due to ongoing control efforts by Newham Landcare, who have targeted some of the most threatening weed species, however significant weed infestations still persist along most roadsides.

Table 1 lists high threat weed species recorded across the study area that are of priority for control. There are a variety of additional weeds that are widespread and can be equally invasive within local ecosystems, particularly grasses and herbs such as **Anthoxanthum odoratum* (Sweet Vernal-grass), **Briza* spp. (Quaking-grass), **Vulpia* sp. (Fescue), **Romulea rosea* (Onion Weed), **Plantago lanceolata* (Ribwort) and **Galium aparine* (Cleavers). However this latter group of weeds can be difficult to control due their often large population sizes and rapid recruitment and will probably only be subject to control for special projects (e.g. within grazing exclusion fences or around threatened plant species).

Table 1 – high threat weeds recorded within the study area

Scientific name	Common name
Acacia floribunda	White Sallow-wattle
Agapanthus praecox subsp. orientalis	Agapanthus
Centranthus ruber subsp. ruber	Red Valerian
Cotoneaster pannosus	Velvet Cotoneaster
Crataegus monogyna subsp. monogyna	Hawthorn
Cytisus scoparius	English Broom
Dactylis glomerata	Cocksfoot
Ehrharta erecta var. erecta	Panic Veldt-grass
Euphorbia lathyris	Caper Spurge
Festuca arundinacea	Tall Fescue
Genista monspessulana	Montpellier Broom
Hakea salicifolia subsp. salicifolia	Willow-leaf Hakea
Hedera helix	English Ivy
Nassella neesiana	Chilean Needle-grass
Juncus acutus subsp. acutus	Spiny Rush
Ligustrum lucidum	Large-leaf Privet
Phalaris aquatica	Toowoomba Canary-grass
Pinus radiata var. radiata	Radiata Pine
Prunus cerasifera	Cherry Plum
Ranunculus repens	Creeping Buttercup
Rosa rubiginosa	Sweet Briar
Rubus anglocandicans	Common Blackberry
Salix cinerea	Grey Sallow
Salix fragilis	Crack Willow
Ulex europaeus	Gorse
Vinca major	Blue Periwinkle
Watsonia meriana var. bulbillifera	Bulbil Watsonia

Two records of the highly invasive **Nassella neesiana* (Chilean Needle-grass) were collected during the current project, including along Whitebridge Road and Three Chain Road. This is the first official record of this weed for the Newham area. In both instances, the plants were recorded around recently constructed infrastructure, making it highly likely that the seed was brought in by machinery. This is of serious concern as Chilean Needle-grass has the potential to take over large parts of the local area, including within both bushland and pasture. While the plants recorded were immediately controlled by Newham Landcare, further efforts must be invested into preventing the spread of this weed and other species of **Nassella* throughout the Shire (a large infestation of **Nassella leucotricha* was also observed on a roadside west of Black Hill Reserve by the author in November 2015).

In addition to introduction of weeds from machinery and cars, planting of potentially invasive species by local landowners in their gardens is a serious problem. Within the study area, in some instances landowners have even planted invasive species within road reserves adjacent to their properties. Species that produce berries are of particular concern, as these are spread widely by a variety of

birds and mammals, a process known as 'endozoochory'. These berry producing weeds are already among the most widespread within the study area and include **Crataegus monogyna* (Hawthorn), **Prunus cerasifera* (Plum), **Rubus anglocandicans* (Blackberry) and **Rosa rubiginosa* (Sweet Briar).

Another group of weeds provide significant challengers for land managers, these being the species that produce relatively long-lived seed and that form extensive seed banks. This group of weeds includes **Ulex europaeus* (Gorse), **Genista monspessulana* (Montpellier Broom) and **Cytisus scoparius* (English Broom). The seeds of these species often remain dormant for many years until germination is triggered by fire or physical disturbance, leading to recruitment in large numbers. This means that for these weeds, plants are likely to continually germinate across the site regardless of control efforts, unless the site can be burnt one to several times to recruit and exhaust the seed bank.

4.2 Grazing

The European Rabbit (*Oryctolagus cuniculus*) and Brown Hare (*Lepus europaeus*) are both widespread across much of the study area. Both species can have a serious impact on groundflora vegetation, but the rabbit in particular is a major threat. Rabbits exert heavy grazing pressure on herbaceous species and typically dig and scratch the ground layer which removes moss cover and aids the spread of annual weeds. Both the rabbit and hare can also impact woody species by ring-barking trunks or chewing off smaller stems. Control of rabbits and hares is likely to prove difficult across the roadsides, but the key is to have an ongoing, coordinated control program involving Council and as many landowners as possible. Fencing and management of high value species and sites is also a recommended strategy for protecting these assets.

Grazing by Eastern Grey Kangaroo (*Macropus* giganteus) and Black Wallaby (*Wallabia* bicolor) may also pose a threat to native groundflora across the roadsides. In a larger bush block adjoining open paddocks north of Three Chain Road, three grazing exclusion fences constructed by Newham Landcare demonstrated dramatically just how serious the impacts of kangaroo grazing can be (Just 2014). However macropod grazing did not appear to be such a serious issue along most of the road reserves in spring 2015, possibly because kangaroos do not frequent these areas due to the paucity of nearby cover. The only effective way to prevent any potential over-grazing by kangaroos would be to fence selected areas, although grassy vegetation would require an alternative method of biomass management to prevent smothering of inter-tussock forbs, such as periodic burning.

4.3 Recreational pressures

The riding of horses through roadside vegetation has had localized but often serous impacts to important groundflora across the study area. This is particularly the case along Three Chain Road, where efforts have been made by Newham Landcare to divert horse riders away from significant areas (Just 2014b). Other sites where impacts were observed during the current study included along Bolgers Lane, Hennebergs Road, Sheltons Road and Saunders Road.

Horses can have a number of negative impacts on native vegetation. The creation of trails removes native groundflora and compacts the soil, which in a linear area such as a roadside can greatly increase local fragmentation and open up areas for weed invasion. Over time trails tend to widen, and in some cases water may begin to flow across the newly created bare areas, causing erosion. Horses also commonly introduce a variety of weed species (particularly exotic grasses) through their droppings and on hooves. While local enthusiasts may currently not wish to cease riding horses along the road reserves, efforts should be taken wherever possible to divert trails away from high quality and significant areas. Riders should also take care not to widen existing trails.

Walkers have far less impact on roadside vegetation and are not frequent across the study area, but they can still potentially damage vegetation through trampling and introduction of weeds. Significant roadside and interpretive signs could be an effective way to notify both walkers and riders about important areas and to educate the public about ways of protecting and preserving native vegetation.

4.4 Inappropriate slashing

There is ever growing pressure to slash vegetation along roadsides to reduce fire risk, usually implemented each year in early summer. In grass dominated systems with few shrubs, regular slashing does not always have a negative impact on groundflora, and in some cases can have a positive effect by reducing grass biomass and removing weed seed heads. But in many cases slashing can have a serious effect on native vegetation, as it may continually trim herbs and low shrubs and prevent them from flowering and seeding. Ongoing slashing may drastically change the structure and composition of bushland, and if native species are damaged it is likely to favour the growth of weeds.

In most cases it is the way in which slashing is conducted that is the greatest problem. There are many examples throughout the study area, particular along Three Chain Road, where slashing has been undertaken during wet conditions, creating deep wheel ruts and leading to significant damage to the soil and vegetation layer. Additionally, if slashing blades are set too low, it can lead to frequent scalping of the soil and vegetation.

In cases where slashing is considered absolutely necessary, it is important that it is undertaken carefully. In areas that support significant groundflora, it may be necessary to fence off small areas

that contain the best values, which will reduce impacts to native vegetation without compromising the objective of reducing fire risk.

4.1 Clearing

Roadside vegetation remains significantly under-protected from clearing activities. Under relatively new exemptions introduced since the 2009 bushfires, road managers do not require a permit to clear roadside native vegetation if it is considered necessary to reduce fire risk, presumably regardless of the rarity or quality of the vegetation. While permission is still required from the Department of Environment, Land, Water and Planning (DELWP), this exemption has greatly reduced the protection for Victoria's roadside remnants. Landowners can also legally clear a combined width either side of the fence of four meters, which can seriously impact an important roadside. Illegal clearing is also widespread, both by adjacent landowners and for firewood collection.

4.2 Roadworks

The degradation of roadside vegetation is often an incremental process, whereby the gradual loss of small areas to activities such as roadworks in time accumulates into major degradation of high value areas. Roadworks have caused significant damage across the study area within the last two years. This has included along the verge of parts of Three Chain Road, where works were undertaken to scrape soil from the edge of the road which was then dumped onto significant areas of vegetation. Along Whitebridge Road, small areas of Plains Grassy Woodland were also cleared as part of roadwork in 2014. The creation and maintenance of drainage channels is another common activity that leads to the clearance of vegetation. While this activity is essential to maintain a road in good condition, channels are often dug far larger than necessary and soil is dumped inappropriately due to a lack awareness regarding native vegetation.

Preventing ongoing loss of roadside vegetation to roadworks could be achieved by installing additional and improved significant roadside signs and maintaining ongoing communication with Vicroads and Macedon Ranges Shire Council. These organisations need to communicate information regarding significant areas to ground staff so that further irreversible losses can be avoided.

5.0 SURVEY METHODS

5.1 Flora field survey

The study area was defined by Newham and District Landcare Group, who selected a series of roadsides known to be of best quality and marked their location on a map. These roadsides were then surveyed during eight site visits conducted between October-December 2015 (with the exception of part of Three Chain Road which was surveyed separately in spring 2014). The majority of the 2015 survey was conducted during October and early November to coincide with the peak-flowering of most flora species, although several site visits were completed in December to target grasses and late flowering herbs (e.g. *Lepidium hyssopifolium*). Each roadside was surveyed by walking the entire length, while highly diverse areas were traversed several times with the aim of recording all species present. The following data was collected at each site:

- A complete list of all indigenous and exotic flora observed (one list for both sides of the road).
- All significant plant taxa and notable high threat weeds were geographically referenced using a Garmin 62s GPS with an accuracy of 5-10 metres. For each of these species, notes were taken on their distribution, threats and population size.
- All large-old trees, in this case standardized to any tree >70cm DBH, was geographically referenced.
- 87 photo points were established across the study area to provide an aid for monitoring vegetation condition. The location and direction of the photo point was recorded and geographically referenced. Effort was taken to locate these points adjacent to obvious features such as fence corner posts to aid relocation.

5.2 Taxonomy

Plant taxonomy follows the Flora Information System (Department of Environment and Primary Industries, East Melbourne, Victoria), with consideration to the Census of Victoria Vascular Plants (Walsh and Stajic, 2007).

Throughout this report, an asterisk (*) denotes an exotic taxon while a hash (#) denotes a non-indigenous native taxon.

5.3 Status of significant flora

The status of Victorian threatened or poorly known plant taxa follows the Advisory List of Threatened Plants in Victoria (DEPI 2014).

The status of regional and locally significant vascular plants was determined as follows:

Locally significant: these species are uncommon to rare across the Newham roadsides study area and were recorded in less than five sub-populations. These species are likely to also be uncommon-rare across the remainder of Newham, although some may be more frequent in the few larger patches of remnant bushland.

Regionally significant: these species have been determined to be uncommon-rare in the region based on an analysis of data base records, cross-referenced with the knowledge of the author. Here the region is defined as the area bounded by Tylden in the west, Pastoria in the north, Macedon in the south and Lancefield in the east (an area roughly 20km from north to south and 30km from east to west).

5.4 Survey limitations

Plant surveys commonly fail to record the total diversity of species present within an area due to timing, seasonal and physical limitations. Many plant species can be difficult to detect due to cryptic life-cycles, seasonal dormancy or low population numbers, while plant populations tend to vary from year to year based on climatic conditions.

While the survey was undertaken during the peak flowering season for many flora species, it is likely that some species were in low numbers or even dormant due to below average rainfall and hot conditions experienced in 2015. Furthermore, while some time was spent re-visiting sites later in the season to identify grasses (which mostly flower around December), time was not available to traverse the entire study area a second time and so some grasses were likely over-looked. While the species lists collected during the current study are relatively comprehensive, further surveys would very likely record additional species.

6.0 BOLGERS LANE

6.1 Description

Bolgers Lane runs roughly north-south between Rochford Road and Three Chain Road. The area covered during the current survey included approximately 1.6 kilometres on both sides of the road, beginning south of Three Chain Road.

The northern section of the road reserve occurs on relatively fertile alluvial soils and rises slightly in the southern section onto sedimentary soils of the Castlemaine Group. The site is lightly dissected by several minor gullies.

6.2 Flora

During the flora survey a total of 123 vascular plant taxa were recorded along Bolgers Lane, including 86 (70%) that are indigenous and 37 (30%) that are introduced. A list of all species recorded is provided in Appendix 1.

A range of significant plant species were recorded across the site, including one species listed as endangered at the federal and state level and one species listed as rare in Victoria. In addition, four

species are considered to be of regional significance and eight species are considered to be of local significance.

All significant flora species recorded are shown in Table 2 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see Section 16.

Table 2 Significant plant species recorded at Bolgers Lane

Scientific name	Common Name	Status
Victorian Rare or Threatened (VROT)		
Dianella amoena	Matted Flax-lily	**En, e, L**
Geranium sp. 3	Pale-flower Crane's-bill	**r**
Regionally significant		
Acacia aculeatissima	Thin-leaf Wattle	**Regional**
Caesia calliantha	Blue Grass-lily	**Regional**
Eucalyptus ovata var. ovata	Swamp Gum	**Regional**
Plantago gaudichaudii	Narrow Plantain	**Regional**
Locally significant		
Arthropodium milleflorum s.l.	Pale Vanilla-lily	**Local**
Austrostipa pubinodis	Tall Spear-grass	**Local**
Carex iynx	Tussock Sedge	**Local**
Dianella tasmanica	Tasman Flax-lily	**Local**
Geranium retrorsum s.l.	Grassland Crane's-bill	**Local**
Senecio bathurstianus	Dissected Fireweed	**Local**
Stylidium graminifolium s.l.	Grass Trigger-plant	**Local**
Viola betonicifolia subsp. betonicifolia	Showy Violet	**Local**

Legend
En – listed as 'endangered' under the Environmental Protection and Biodiversity Conservation Act.
L – listed as a threatened taxon under the Flora and Fauna Guarantee Act.
e - listed as 'endangered' in Victoria under the Victorian Advisory List.
r - listed as 'rare' in Victoria under the Victorian Advisory List.
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

6.3 Vegetation description

The alluvial soils of the northern section of the site mostly supported Valley Grassy Forest (EVC 47) dominated by *Eucalyptus rubida* (Candlebark) and *Eucalyptus radiata* (Narrow-leaf Peppermint). The former species was more prominent on the lower flats while the latter dominated the rises. The understorey included scattered shrubs such as *Acacia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle) over a grassy, herb-rich ground layer. The sedimentary soils in the far southern section contained Grassy Forest (EVC 128), where the dominant tree was *Eucalyptus dives* (Broad-leaf Peppermint). Several of the flora species recorded on the alluvial soils to the north did not extend onto the sedimentary soils (e.g. *Dianella amoena, Caesia calliantha, Geranium* sp. 3*, Eucalyptus pauciflora),* while the cover of lilies was also lower. Several minor gullies dissected the site

which supported Creekline Herb-rich Woodland (EVC 164) dominated by *Eucalyptus ovata* (Swamp Gum), with a weed dominated understorey.

A total of 94 large-old trees (>70cm DBH) were recorded across Bolgers Lane.

Table 3 EVCs recorded at Bolgers Lane

EVC	EVC Number	Status
Creekline Herb-rich Woodland	164	Vulnerable
Grassy Forest	128	Vulnerable
Valley Grassy Forest	47	Vulnerable

6.4 Introduced flora

Weed cover was generally low across much of the site, although there were scattered high threat woody weeds such as **Crataegus monogyna* (Hawthorn), **Genista monspessulana* (Montpellier Broom) and **Prunus cerasifera* (Plum). Parts of the site had a relatively high cover of **Ulex europaeus* (Gorse), mostly including small to medium sized plants.

6.5 Photo points

Nine photo points were established at Bolgers Lane to assist with monitoring the condition of the site. These are shown in Table 4 below.

Table 4 Photopoints established at Bolgers Lane

ID	Description	Zone	Easting	Northing
PP1	Taken from stump/stag facing south-south-east	55	289429.92	5871370.79
PP2	Taken from fallen stump, app. 20m north of driveway facing north	55	289520.64	5871881.61
PP3	Taken from fence post facing east.	55	289383.76	5870965.80
PP4	Taken from white Telstra box facing south-east	55	289330.34	5870564.18
PP5	Taken 2m north of 283 letterbox facing north-east	55	289322.43	5870317.71
PP6	Facing south	55	289367.86	5870560.90
PP7	Taken from 348 letterbox facing south-east	55	289377.87	5870737.82
PP8	Facing north	55	289443.07	5871175.92
PP9	Taken 2m west of large Candlebark facing south	55	289455.53	5871333.35

6.6 Management Guidelines

High threat woody weeds should be controlled across the site, particularly the infestations of Gorse. Unless subject to control this weed has the potential to significantly degrade large areas of high quality vegetation.

See Section 17 for general management recommendations.

Plate 11 a white flow form of *Tetratheca ciliata* (Black-eyed Susan) at Bolgers Lane.

7.0 BOUNDARY ROAD

7.1 Description

Boundary Road runs roughly north-south from east of Woodend to Pipers Creek Road. The area covered during the current survey included approximately 2.4 kilometres on both sides of the road, between Three Chain Road and Pipers Creek Road.

The southern section of the road reserve begins in the low lying colluvial flats at 540 metres a.s.l and gradually rises onto the sandstones of the Castlemaine Group to reach 590 metres a.s.l, before descending onto the lower areas of the Beauvallet Granodiorite.

7.2 Flora

During the flora survey a total of 129 vascular plant taxa were recorded along Bolgers Lane, including 88 (68%) that are indigenous and 41 (32%) that are introduced. A list of all species recorded is provided in Appendix 1.

A range of significant plant species were recorded across the site, including one species listed as poorly known in Victoria. In addition, one species is considered to be of regional significance and eight species are considered to be of local significance.

All significant flora species recorded are shown in Table 5 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see section 16.

Table 5 Significant plant species recorded at Boundary Road

Scientific name	Common Name	Status
Victorian Rare or Threatened (VROT)		
Platylobium montanum ssp. *prostratum*	Prostrate Mountain Flat-pea	**k**
Regionally significant		
Montia australasica	White Purslane	**Regional**
Locally significant		
Amphibromus nervosus	Common Swamp Wallaby-grass	**Local**
Chiloglottis valida	Common Bird-orchid	**Local**
Dipodium roseum	Rosy Hyacinth-orchid	**Local**
Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush	**Local**
Ranunculus inundatus	River Buttercup	**Local**
Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily	**Local**
Viola betonicifolia subsp. betonicifolia	Showy Violet	**Local**
Xerochrysum viscosum	Shiny Everlasting	**Local**

Legend
k - listed as 'poorly known' in Victoria under the Victorian Advisory List.
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

7.3 Vegetation description

The colluvial soils in the far southern section of the site were dominated by Plains Grassy Woodland (EVC 55) with a canopy of *Eucalyptus ovata* (Swamp Gum), an open shrub layer and mostly weed-dominated groundflora. The slightly elevated rises, on better drained soils, supported Valley Grassy Forest (EVC 47) dominated by *Eucalyptus rubida* (Candlebark), *Eucalyptus radiata* (Narrow-leaf Peppermint) and *Eucalyptus obliqua* (Messmate Stringybark) with a small tree layer of *Acacia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle). A minor drainage-line crossing the road supported remnants of Swampy Riparian Woodland (EVC 83), including several wetland herbs such as *Ranunculus inundatus* (River Buttercup) and *Montia australasica* (White Purslane) growing amongst patches of sedges and grasses. The vegetation gradually shifted with increasing elevation onto the sedimentary soils, where Valley Grassy Forest was replaced by Herb-rich Foothill Forest (EVC 23) on the more sheltered aspects and Grassy Dry Forest (EVC 22) on more exposed ridgelines.

A total of 188 large-old trees (>70cm DBH) were recorded across Boundary Road.

Table 6 EVCs recorded at Boundary Road

EVC	EVC Number	Status
Grassy Dry Forest	22	Depleted
Herb-rich Foothill Forest	23	Depleted
Plains Grassy Woodland	55	Endangered
Swampy Riparian Woodland	83	Endangered
Valley Grassy Forest	47	Vulnerable

7.4 Introduced flora

Weed cover was relatively high on the colluvial soils in the far southern section of the site, where are a variety of exotic grasses dominated the ground layer. The central and northern sections had a much lower weed cover, with scattered high threat species recorded including **Crataegus monogyna* (Hawthorn), **Genista monspessulana* (Montpellier Broom) and **Ulex europaeus* (Gorse).

7.5 Photo points

Nine photo points were established at Boundary Road to assist with monitoring the condition of the site. These are shown in Table 7 below.

Table 7 Photopoints established at Boundary Road

ID	Description	Zone	Easting	Northing
PP62	From significant roadside facing north	55	284420.27	5871399.89
PP63	From large dead stag facing north	55	284445.49	5871595.41
PP64	From middle of patch opposite gate facing north	55	284470.15	5871688.98
PP65	From middle of patch adjacent to corner post facing north.	55	284570.07	5872589.85
PP66	Adjacent to significant roadside sign facing south.	55	284718.50	5873721.92
PP67	From road culvert facing south.	55	284684.82	5873495.20
PP68	From old track facing north.	55	284674.09	5873359.91
PP69	From old track facing south.	55	284674.09	5873359.91
PP70	From corner post facing north.	55	284600.40	5872715.10

7.6 Management Guidelines

Several areas in the southern section of the road reserve were recently damaged by roadworks (Penny Roberts pers. comm.). It is important that these areas are protected to prevent further weed invasion and loss of groundflora species. High threat woody weeds should be controlled across the site.

See Section 17 for general management recommendations.

8.0 FOREST ROAD

8.1 Description

Forest Road runs between Dohertys Road in the west and Croziers Road in the east. The area covered during the current survey included approximately 1.3 kilometres between Dohertys Road to just east of Egans Lane. The area west of Egans Lane was surveyed on the north side only, as the south side has been predominately cleared for residential use.

The majority of Forest Road occurs on sedimentary soils of the Castlemaine Group, while the section east of Egans Lane occurs on colluvial deposits. The roadside is relatively elevated from the valleys to the south and sits at approximately 540 metres a.s.l. The lands to the north support an extensive area of bushland.

8.2 Flora

During the flora survey a total of 79 vascular plant taxa were recorded along Forest Road, including 49 (62%) that are indigenous and 30 (38%) that are introduced. A list of all species recorded is provided in Appendix 1.

One species of regional significance and five locally significant plant species were recorded across the site (species that uncommon to rare across the Newham roadsides study area but not necessarily

throughout the region). All significant flora species recorded are shown in Table 8 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see section 16.

Table 8 Significant plant species recorded at Forest Road

Scientific name	Common Name	Status
Regionally significant		
Carex gaudichaudiana	Fen Sedge	**Regional**
Locally significant		
Acacia provincialis	Wirilda	**Local**
Amphibromus nervosus	Common Swamp Wallaby-grass	**Local**
Geranium gardneri	Rough Crane's-bill	**Local**
Xerochrysum viscosum	Shiny Everlasting	**Local**

Legend

Local – uncommon to rare across the Newham roadsides study area.

8.3 Vegetation description

Forest Road supported Valley Grassy Forest (EVC 47) dominated by *Eucalyptus rubida* (Candlebark) and *Eucalyptus radiata* (Narrow-leaf Peppermint). The understorey was relatively open with scattered shrubs such as such as *Acacia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle) in conjunction with patches of *Pteridium esculentum* (Austral Bracken) and a grassy ground-layer. A distinct vegetation change was apparent on the colluvial deposits east of Egans Lane, where the dominant tree transitions to *Eucalyptus viminalis* (Manna Gum) with a mostly weed-dominated ground layer.

A total of 56 large-old trees (>70cm DBH) were recorded on the northern side of Forest Road.

Table 9 EVCs recorded at Forest Road

EVC	EVC Number	Status
Herb-rich Foothill Forest	23	Depleted
Valley Grassy Forest	47	Vulnerable

8.4 Introduced flora

The roadside had a relatively moderate-high cover of grassy weeds such as **Anthoxanthum odoratum* (Sweet Vernal-grass), **Briza maxima* (Large Quaking-grass) and **Vulpia bromoides* (Squirrel-tail Fescue). The spread of these weeds has probably been aided by the narrow width of the remnant patch and the close proximity to the disturbed road edge. Other high threat weeds included **Cotoneaster pannosus* (Velvet Cotoneaster), **Crataegus monogyna* (Hawthorn), **Cytisus scoparius*

(English Broom), **Agapanthus praecox* (Agapanthus), **Watsonia meriana* (Bulbil Watsonia) and **Rosa rubiginosa* (Sweet Briar).

8.5 Photo points

One photo point was established at Forest Road to assist with monitoring the condition of the site. This is shown in Table 10 below.

Table 10 Photopoints established at Forest Road

ID	Description	Zone	Easting	Northing
PP82	Taken from 82 letterbox facing west.	55	287016.85	5872477.70

8.6 Management Guidelines

High threat woody and bulbous weeds should be controlled across the road reserve. The site is likely to be invaded by further environmental weeds which occur in adjacent residential gardens on the south side of the road.

See Section 17 for general management recommendations.

9.0 HENNEBERGS ROAD

9.1 Description

Hennebergs Road runs roughly north-south between Whitebridge Road and the Woodend-Lancefield Road. The area covered during the current survey included approximately 3.2 kilometres each side of the road, from south of Whitebridge Road in the north to the Deep Creek crossing in the south.

The dominant geology along Hennebergs Road includes sedimentary rocks of the Castlemaine Group as well as volcanics associated with two scoria cones. This latter geology dominates much of the northern section of the road reserve but also encompasses a small area in the south. The slopes of the two scoria cones are the highest points of area surveyed, where elevation reaches 570 metres a.s.l.

9.2 Flora

During the flora survey a total of 166 vascular plant taxa were recorded along Hennebergs Road, including 120 (72%) that are indigenous and 46 (28%) that are introduced. A list of all species recorded is provided in Appendix 1.

A high diversity of significant plant species were recorded across the site, including one species listed as endangered at the federal and state level and one species listed as rare in Victoria. In addition, six species are considered to be of regional significance and 17 species of local significance.

All significant flora species recorded are shown in Table 11 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see section 16.

Table 11 Significant plant species recorded at Hennebergs Road.

Scientific name	Common Name	Status
Victorian Rare or Threatened (VROT)		
Dianella amoena	Matted Flax-lily	**En, e, L**
Geranium sp. 3	Pale-flower Crane's-bill	**r**
Regionally significant		
Acacia aculeatissima	Thin-leaf Wattle	**Regional**
Caesia calliantha	Blue Grass-lily	**Regional**
Chrysocephalum apiculatum	Common Everlasting	**Regional**
Eucalyptus pauciflora subsp. pauciflora	White Sallee	**Regional**
Leptorhynchos squamatus subsp. squamatus	Scaly Buttons	**Regional**
Pimelea curviflora s.s.	Curved Rice-flower	**Regional**
Locally significant		
Austrostipa pubinodis	Tall Spear-grass	**Local**
Chrysocephalum semipapposum	Clustered Everlasting	**Local**
Craspedia variabilis	Variable Billy-buttons	**Local**
Cynoglossum suaveolens	Sweet Hound's-tongue	**Local**
Diuris pardina	Leopard Orchid	**Local**
Geranium retrorsum s.l.	Grassland Crane's-bill	**Local**
Glossodia major	Wax-lip Orchid	**Local**
Hypoxis vaginata ssp. vaginata	Yellow Star	**Local**
Leptorhynchos tenuifolius	Wiry Buttons	**Local**
Melicytus dentatus	Tree Violet	**Local**
Microseris sp. 3	Yam Daisy	**Local**
Opercularia ovata	Broad-leaf Stinkweed	**Local**
Pelargonium rodneyanum	Magenta Stork's-bill	**Local**
Stylidium graminifolium s.l.	Grass Trigger-plant	**Local**
Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily	**Local**
Triglochin striata	Streaked Arrowgrass	**Local**
Xerochrysum viscosum	Shiny Everlasting	**Local**

Legend
En – listed as 'endangered' under the Environmental Protection and Biodiversity Conservation Act.
L – listed as a threatened taxon under the Flora and Fauna Guarantee Act.
e - listed as 'endangered' in Victoria under the Victorian Advisory List.
r - listed as 'rare' in Victoria under the Victorian Advisory List.
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

9.3 Vegetation description

The sedimentary soils of the Castlemaine Group supported a combination of Valley Grassy Forest (EVC 47) and Grassy Forest (EVC 128). These areas were comprised of a low open forest of *Eucalyptus rubida* (Candlebark), *Eucalyptus dives* (Broad-leaf Peppermint) and *Eucalyptus radiata* (Narrow-leaf Peppermint) with a mostly sparse shrub-layer and herb-rich ground-layer. A notable patch just north of Sheltons Road supported a high cover of daisies, lilies and scattered orchids.

The vegetation occurring on the volcanic soils of the scoria cones, best described as Scoria Cone Woodland (EVC 894), was dominated by either *Eucalyptus viminalis* (Manna Gum) or *Eucalyptus pauciflora* (White Sallee). This latter species dominated large areas on the higher volcanic slopes in the northern section. The understorey varied from open to locally dense thickets of *Acacia dealbata* (Silver Wattle) while the ground layer was typically carpeted with lilies and other forbs. Such examples of Scoria Cone Woodland with intact and herb-rich groundflora are exceedingly rare in Victoria. Intact examples dominated by White Sallee are even rarer. The alluvial terraces of Deep Creek in the far southern section contained degraded remnants of Creekline Herb-rich Woodland (EVC 164).

A total of 243 large-old trees (>70cm DBH) were recorded across Hennebergs Road.

Table 12 EVCs recorded at Hennebergs Road

EVC	EVC Number	Status
Creekline Herb-rich Woodland	164	Vulnerable
Grassy Forest	128	Vulnerable
Scoria Cone Woodland	894	Endangered
Valley Grassy Forest	47	Vulnerable

9.4 Introduced flora

Weed cover was generally low across much of the site, although there were scattered high threat weeds such as **Ulex europaeus* (Gorse), **Cytisus scoparius* (English Broom), **Crataegus monogyna* (Hawthorn), **Rubus anglocandicans* (Blackberry), **Genista monspessulana* (Montpellier Broom) and **Prunus cerasifera* (Plum). The far southern section of the site along the terraces of Deep Creek had a very high cover of woody weeds, including **Ulex europaeus* (Gorse), **Cytisus scoparius* (English Broom) and **Genista monspessulana* (Montpellier Broom).

9.5 Photo points

Twenty three photo points were established at Hennebergs Road to assist with monitoring the condition of the site. These are shown in Table 13 below.

Table 13 Photopoints established at Hennebergs Road

ID	Description	Zone	Easting	Northing
PP39	Taken south of Billy Button patch facing north.	55	290927.89	5869289.45
PP40	Taken from corner-post facing north-east.	55	290930.68	5869387.35
PP41	Taken from third main post north of corner post facing north-east towards dam.	55	290954.53	5869572.59
PP42	Taken app. 10m east of Telstra post (next to fence) facing north.	55	290997.28	5869810.94
PP43	Taken from Telstra post facing south-east.	55	291025.43	5870154.73
PP44	Taken from Telstra post facing north-east	55	291025.43	5870154.73
PP45	Taken 3m east of large rock facing north-east.	55	291039.73	5870239.47
PP46	Taken from middle of patch adjacent to corner post facing north.	55	290955.90	5869343.56
PP47	Taken from significant roadside sign facing south.	55	291165.38	5871035.71
PP48	Taken from edge of driveway facing north.	55	291147.81	5870871.82
PP49	Taken from edge of driveway facing south.	55	291143.23	5870866.72
PP50	Taken from edge of driveway beneath 370 sign facing south.	55	291092.49	5870461.07
PP51	Taken from corner post facing north-east.	55	291058.37	5870413.59
PP52	Taken from centre of patch adjacent to Telstra post facing north	55	291112.48	5870868.95
PP53	Taken from north edge of driveway facing north	55	291122.10	5870892.28
PP54	Taken adjacent to Telstra post facing south.	55	290931.06	5869098.45
PP55	Taken from large Candlebark on fence facing south-west	55	290833.74	5868300.46
PP56	Taken from Enviromark post facing north-east.	55	290813.69	5868229.34
PP57	Taken from old fence post facing north.	55	290808.91	5868296.84
PP58	Taken from Telstra post facing north.	55	290883.75	5868996.78
PP59	Taken 2m east of star picket facing south.	55	290901.82	5869093.72
PP60	Taken 2m east of star picket facing north.	55	290901.82	5869093.72
PP61	Taken from Enviromark post facing south-west.	55	290929.43	5869117.50

9.6 Management Guidelines

The protection and management of high quality areas along Hennebergs Road should be a high priority. High threat weeds should be controlled, beginning in the best quality areas.

See Section 17 for general management recommendations.

Plate 12 *Craspedia variabilis* (Billy Buttons) at Hennebergs Road. This species is rare across the study area.

Plate 13 a mass emergence of queen *Crematogaster* ants out of a hollow in a *Eucalyptus pauciflora* (White Sallee) at Hennebergs Road

10.0 LAVENDER FARM ROAD

10.1 Description

Lavender Farm Road is located in the far south of the study area in the outer part of Woodend. This site was included within the current study due to a record of the nationally threatened *Lepidium hyssopifolium* (Basalt Peppercress) at the site. The road is approximately one kilometre long and runs south-east from the Lancefield-Woodend Road. Both sides of the road were surveyed.

Lavender Farm Road runs along a fertile colluvial plain that sits between the Macedon Volcanics above and the Newer Volcanics below. The elevation climbs from 600 metres a.s.l in the north-west to 660 metres in the far south-east.

10.2 Flora

During the flora survey a total of 79 vascular plant taxa were recorded along Lavender Farm Road, including 41 (52%) that are indigenous and 38 (48%) that are introduced. A list of all species recorded is provided in Appendix 1.

Several significant plant species were recorded across the site, including one species of regional significance and four species of local significance. Two of the locally significant plant species,

including *Clematis aristata* (Mountain Clematis) and *Polyscias sambucifolia* subsp. 3 (Mountain Panax) are outliers from the wetter shrubby forests of the Macedon Ranges.

All significant flora species recorded are shown in Table 14 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see section 16.

Table 14 Significant plant species recorded at Lavender farm Road

Scientific name	Common Name	Status
Regionally significant		
Austrostipa stuposa	Tasmanian Spear-grass	**Regional**
Locally significant		
Austrostipa pubinodis	Tall Spear-grass	**Local**
Clematis aristata	Mountain Clematis	**Local**
Polyscias sambucifolia subsp. 3	Mountain Panax	**Local**
Pultenaea pedunculata	Matted Bush-pea	**Local**

Legend
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

Targeted search for the *Lepidium hyssopifolium* (Basalt Peppercress)

A small population of *Lepidium hyssopifolium* (Basalt Pepper-cress) was recorded along Lavender Farm Road over ten years ago (Penny Roberts pers. comm.). While the habitat of the exact site is unknown, it was possibly growing in bare soil beneath the canopy of *Exocarpos cupressiformis* (Cherry Ballart), which forms dense thickets along the road reserve. A targeted search was undertaken during the current project in December 2015, at a time when the species should have been close to flowering, but no plants could be located.

Basalt Peppercress typically occurs in bare sites on relatively fertile ground, often beneath the canopy of both small indigenous trees and planted exotic conifer trees. The species is believed to be sensitive to sustained grazing by stock and rabbits, which can eliminate entire populations (Tumino 2010). While the Lavender Farm Road reserve is protected from stock, during the survey it was observed that there were rabbits and hares present, which may be responsible for its current absence. It is possible the species still persists at the site as soil-stored seed, as the seed is believed to remain viable for well over two years (Tumino 2010). However unless rabbit and hare numbers are reduced or the population is fenced, the species is unlikely to survive at the site over the long-term. The relatively high cover of grassy weeds at Lavender Farm Road also threatens the viability of the site for the species. For suggestions for reintroduction, see management guidelines below.

10.3 Vegetation description

The majority of the roadside supported Plains Grassy Woodland (EVC 55) dominated by *Eucalyptus ovata* (Swamp Gum) with occasional *Eucalyptus rubida* (Candlebark) and *Eucalyptus viminalis* (Manna Gum). Much of the ground-layer was dominated by weeds, although scattered patches supported a good cover of *Austrostipa* spp. (Spear Grass). As elevation increased to the south-east, the vegetation transitioned to Herb-rich Foothill Forest (EVC 23) with a higher prominence of *Eucalyptus viminalis* (Manna Gum). Large parts of the site had a high cover of *Exocarpos cupressiformis* (Cherry Ballart), often with a high cover of bare ground and leaf litter beneath the shaded canopy.

A total of 62 large-old trees (>70cm DBH) were recorded across Lavender Farm Road.

Table 15 EVCs recorded at Lavender Farm Road

EVC	EVC Number	Status
Herb-rich Foothill Forest	23	Depleted
Plains Grassy Woodland	55	Endangered

10.4 Introduced flora

Lavender Farm Road had a relatively high cover of weeds, particularly in the ground-layer which was often dominated by exotic annual grasses and herbs. Other high threat weeds scattered across the site included **Centranthus ruber* (Red Valerian), *#Hakea salicifolia* (Willow-leaf Hakea), **Hedera helix* (English Ivy), **Crataegus monogyna* (Hawthorn), **Rubus anglocandicans* (Blackberry) and **Prunus cerasifera* (Plum).

10.5 Management Guidelines

The record of *Lepidium hyssopifolium* (Basalt Peppercress) at Lavender Farm Road is of high significance, being one of few records of this nationally threatened species in the region. But as suggested above, it is unknown if the species persists at the site due to high rabbit grazing pressure and weed invasion. It is highly fortunate that an ex-situ population of this population has been established on private property at Newham by Penny Roberts, allowing the possibility of reintroduction to a suitable site. But the question is, should Basalt Peppercress be reintroduced at Lavender Farm Road? It is highly likely that the same pressures that have possibly eliminated the population would also overwhelm any attempts to reintroduce the species, suggesting it is more feasible to select a more intact and viable reintroduction site. Considering that the species is mostly known from basalt soils, but has also been recorded on fertile colluvium at Lavender Farm Road,

there are a wide range of potential sites in the local area. These include on the volcanics along Hennerbergs Road and on the colluvial soils along Three Chain Road. Several important attributes of any reintroduction site should include:

- relatively bare soil, as the species is out-competed in dense grass swards
- beneath the canopy of a small native tree such as *Allocasuarina verticillata* (Drooping Sheoke), *Banksia marginata* (tree form) (Honeysuckle), *Exocarpos cupressiformis* (Cherry Ballart), or *Acacia mearnsii* (Black Wattle). While only the latter two species remain within the study area, the former two can still be found locally.
- low weed cover, to prevent competition.

The site should be fenced to exclude rabbits and the cover of vegetation monitored over time. Periodic disturbance may be required to maintain an open grass sward and stimulate recruitment. As the species is grown relatively easily from seed, several reintroduction sites could be trialled to increase the chances of success. In addition, seed that is currently available from the Newham plants should be sent to the Royal Botanic Gardens Victoria to be stored for their Millennium Seedbank Project.

11.0 MCKINLEY TRACK

11.1 Description

McKinley Track occurs in the far north-east section of the study area in Cobaw, and runs through several freehold blocks that are surrounded by the Cobaw State Forest. The area covered during the current survey included approximately one kilometre each side of the road, approximately 1.2 kilometres north of Croziers Road. The remaining sections of the road support significant stands of vegetation, but these were not surveyed due to time constraints.

McKinley Track occurs on the southern edge of the Beauvallet Granodiorite and there are small outcrops of granite rock along the road reserve. The site occurs at around 520-530 metres a.s.l.

11.2 Flora

During the flora survey a total of 82 vascular plant taxa were recorded along McKinley Track, including 61 (74%) that are indigenous and 21 (26%) that are introduced. A list of all species recorded is provided in Appendix 1.

A range of significant plant species were recorded across the site, including one species listed as poorly known in Victoria. In addition, five species are considered to be of regional significance and 11

species are considered to be of local significance. Many of these species were recorded in Sedgy Riparian Woodland at the creek crossing.

All significant flora species recorded are shown in Table 16 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see Section 16.

Table 16 Significant plant species recorded at McKinley Track

Scientific name	Common Name	Status
Victorian Rare or Threatened (VROT)		
Platylobium montanum ssp. prostratum	Prostrate Mountain Flat-pea	**k**
Regionally significant		
Carex gaudichaudiana	Fen Sedge	**Regional**
Epilobium pallidiflorum	Showy Willow-herb	**Regional**
Hydrocotyle pterocarpa	Wing Pennywort	**Regional**
Lomandra micrantha subsp. micrantha	Small-flower Mat-rush	**Regional**
Montia australasica	White Purslane	**Regional**
Locally significant		
Austrostipa pubinodis	Tall Spear-grass	**Local**
Blechnum minus	Soft Water-fern	**Local**
Chrysocephalum semipapposum	Clustered Everlasting	**Local**
Clematis aristata	Mountain Clematis	**Local**
Crassula helmsii	Swamp Crassula	**Local**
Cynogeton procera	Common Water-ribbons	**Local**
Geranium gardneri	Rough Crane's-bill	**Local**
Glyceria australis	Australian Sweet-grass	**Local**
Leptospermum lanigerum	Woolly Tea-tree	**Local**
Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush	**Local**
Senecio bathurstianus	Dissected Fireweed	**Local**

Legend
k - listed as 'poorly known' under the Victorian Advisory List.
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

11.3 Vegetation description

The majority of the site supported Herb-rich Foothill Forest (EVC 23) dominated by *Eucalyptus viminalis* (Manna Gum) with a small tree layer containing *Acacia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle). The best quality sections occurred south of the bend in the track, where the ground layer supported a good cover of tussock grasses, *Pteridium esculentum* (Austral Bracken) and a range of forbs. The area east of the bend in the track was still recovering from a relatively high intensity fire that had damaged and killed many trees and affected the ground layer. A small creek crosses the track that supported a small patch of Sedgy Riparian Woodland (EVC 198). This vegetation contained a sparse canopy of *Eucalyptus ovata* (Swamp Gum) co-dominated by *Leptospermum lanigerum* (Woolly Tea-tree) with a dense, sedgy understorey dominated by

Phragmites australis (Common Reed). The saturated ground layer contained a variety of significant species, including *Epilobium pallidiflorum* (Showy Willow-herb), *Hydrocotyle pterocarpa* (Wing Pennywort), *Carex gaudichaudiana* (Fen Sedge) and *Blechnum minus* (Soft Water-fern). Habitat for all of these wetland species is very restricted in the region.

A total of 36 large-old trees (>70cm DBH) were recorded across McKinley Track.

Table 17 EVCs recorded at McKinley Track

EVC	EVC Number	Status
Herb-rich Foothill Forest	23	Depleted
Sedgy Riparian Woodland	198	Depleted

11.4 Introduced flora

Weed cover was generally low across the southern section of the site, whereas the areas east of the bend in the track had a high cover of annual weeds that had germinated in response to the fire event. The creek contained several high threat weeds including **Rubus anglocandicans* (Blackberry), **Ranunculus repens* (Creeping Buttercup) and **Nasturtium officinale* (Watercress).

11.5 Photo points

One photo point was established at McKinley Track to assist with monitoring the condition of the site. This is shown in Table 18 below.

Table 18 Photopoints established at McKinley Track

ID	Description	Zone	Easting	Northing
PP87	Taken from west side of creek facing north-east.	55	289781.94	5874678.66

11.6 Management Guidelines

High threat weeds, particularly **Rubus anglocandicans* (Blackberry) should be controlled along the creekline to protect the locally rare Sedgy Riparian Woodland and its associated uncommon flora.

See Section 17 for general management recommendations.

12.0 SAUNDERS ROAD

12.1 Description

Saunders Road runs roughly east-west between Bolgers Lane and Hennerbergs Road. The area covered during the current survey included the entire length of the road, comprising approximately 1.7 kilometres each side of the road.

The roadside rises from approximately 500 metres a.s.l in the west to close to 550 metres a.s.l in the east. It encompasses three different geological units, including colluvium on the lower flats in the far west, sedimentary rocks of the Castlemaine Group in the central section and Newer Volcanics on the slopes of a scoria cone in the western section.

12.2 Flora

During the flora survey a total of 121 vascular plant taxa were recorded along Saunders Road, including 86 (71%) that are indigenous and 35 (29%) that are introduced. A list of all species recorded is provided in Appendix 1.

A variety of significant plant species were recorded across the site, including one species listed as rare in Victoria. In addition, four species are considered to be of regional significance and eight species of local significance.

All significant flora species recorded are shown in Table 19 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see Section 16.

Table 19 Significant plant species recorded at Saunders Road

Scientific name	Common Name	Status
Victorian Rare or Threatened (VROT)		
Geranium sp. 3	Pale-flower Crane's-bill	**r**
Regionally significant		
Acacia aculeatissima	Thin-leaf Wattle	**Regional**
Carex gaudichaudiana	Fen Sedge	**Regional**
Eucalyptus pauciflora subsp. pauciflora	White Sallee	**Regional**
Olearia myrsinoides	Silky Daisy-bush	**Regional**
Locally significant		
Centipeda elatinoides	Elatine Sneezeweed	**Local**
Chrysocephalum semipapposum	Clustered Everlasting	**Local**
Cynoglossum suaveolens	Sweet Hound's-tongue	**Local**
Geranium retrorsum s.l.	Grassland Crane's-bill	**Local**
Melicytus dentatus	Tree Violet	**Local**
Microseris sp. 3	Yam Daisy	**Local**
Stylidium graminifolium s.l.	Grass Trigger-plant	**Local**
Xerochrysum viscosum	Shiny Everlasting	**Local**

Legend
r - listed as 'rare' in Victoria under the Victorian Advisory List.
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

12.3 Vegetation description

The colluvial soils in the western section of the site supported Valley Grassy Forest (EVC 47) dominated by *Eucalyptus rubida* (Candlebark) and *Eucalyptus radiata* (Narrow-leaf Peppermint) with a grassy ground-layer. The quality of these areas varied from regularly mown patches with few flowering herbs to patches with a high cover of lilies. The central areas on sedimentary soils supported Grassy Forest (EVC 128) that was generally dominated by *Eucalyptus obliqua* (Messmate Stringybark), *Eucalyptus dives* (Broad-leaf Peppermint) and *Eucalyptus rubida* (Candlebark) with a sparse shrub layer and a ground layer dominated by *Rytidosperma pallidum* (Silver-top Wallaby Grass) and a diversity of herbs. This vegetation had floristic affinities with Grassy Dry Forest (EVC 22) that tends to occupy the steeper hills. As elevation increased onto the volcanic soils in the eastern section of the site, the vegetation transitioned into Scoria Cone Woodland (EVC 894). This vegetation

was largely dominated by a combination of *Eucalyptus rubida* (Candlebark), *Eucalyptus viminalis* (Manna Gum) and *Eucalyptus pauciflora* (White Sallee), the latter species forming some large stands that have suffered considerable die-back. The understorey contained thickets of *Acacia dealbata* (Silver Wattle) while the ground layer was dominated by grasses and occasional patches of lilies.

A total of 147 large-old trees (>70cm DBH) were recorded across Saunders Road.

Table 20 EVCs recorded at Saunders Road.

EVC	EVC Number	Status
Grassy Forest	128	Vulnerable
Scoria Cone Woodland	894	Endangered
Valley Grassy Forest	47	Vulnerable

12.4 Introduced flora

Most of the site had a relatively high cover of **Anthoxanthum odoratum* (Sweet Vernal-grass) while other high threat weeds were scattered throughout including **Ulex europaeus* (Gorse), **Cytisus scoparius* (English Broom), **Phalaris aquatica* (Toowoomba Canary-grass), **Crataegus monogyna* (Hawthorn), **Rubus anglocandicans* (Blackberry), **Rosa rubiginosa* (Sweet Briar), **Genista monspessulana* (Montpellier Broom) and **Prunus cerasifera* (Plum).

12.5 Photo points

Ten photo points were established at Saunders Road to assist with monitoring the condition of the site. These are shown in Table 21 below.

Table 21 Photopoints established at Saunders Road

ID	Description	Zone	Easting	Northing
PP10	Taken from LOT touching fence-line facing east south-east	55	289456.54	5871063.68
PP11	Taken from LO Candlebark touching fence-line facing west	55	289788.90	5871024.28
PP12	Taken from LO Broad-leaf Peppermint facing west	55	290278.97	5870964.94
PP13	taken from edge of road facing north-east	55	290888.22	5870878.90
PP14	Taken from fence post facing west north-west, includes Snow Gum trunk in picture	55	291053.86	5870850.50
PP15	Taken from centre of road adjacent to 1m high stump facing west	55	290959.40	5870870.57
PP16	Taken from small Broad-leaf Peppermint 80cm from fence-line facing west	55	290449.63	5870927.24
PP17	West of depression facing east looking at Fen Sedge patch	55	290332.13	5870942.84
PP18	Adjacent to shed facing west	55	290045.49	5870981.41
PP19	Taken from small Candlebark facing east	55	289442.89	5871048.79

12.6 Management Guidelines

Mowing of high quality areas of roadside vegetation by local residents should be discouraged if not considered to be of high fire danger. High threat weeds are at relatively controllable levels and should be managed before they increase beyond current levels.

See Section 17 for general management recommendations.

13.0 SHELTONS ROAD

13.1 Description

Sheltons Road runs south-east from Bolgers Lane to Pascalls lane. The area covered during the current survey included approximately 2.9 kilometres on both sides of the road from Bolgers Lane to just south of the Lancefield Number One Reservoir.

The dominant geology along Sheltons Road is sedimentary rock of the Castlemaine Group. The majority of the site is situated on the lower slopes, and part of the site sits below volcanic scoria cones that occur to the north and south. These parts of the site have likely received some outwash from the more fertile soils of these upslope volcanics. The western section of the site occurs just upslope from an ephemeral creekline that runs adjacent to part of the road while several minor gullies traverse the remainder of the site.

13.2 Flora

During the flora survey a total of 167 vascular plant taxa were recorded along Sheltons Road, including 127 (76%) that are indigenous and 40 (24%) that are introduced. An additional 10 species

were recorded by Paul Foreman during a survey in 2012, bringing the total tally of indigenous species to 137. A list of all species recorded between 2012-2015 is provided in Appendix 1.

A high diversity of significant plant species were recorded across the site, including two species listed as rare in Victoria. In addition, 12 species are considered to be of regional significance and 21 species of local significance.

A variety of additional significant species were observed just north of the roadside around the mudflats of the Lancefield No. 1 Reservoir which contains important wetland habitat. These included *Isolepis fluitans* (Floating Club-sedge)*, Eleocharis gracilis* (Slender Spike-sedge)*, Hypsela tridens* (Hypsela)*, Centipeda elatinoides* (Elatine Sneezeweed)*, Limosella australis* (Austral Mudwort), *Cyperus gunnii* (Flecked Flat-sedge) and *Dysphania glomulifera* (Globular Pigweed). This latter species is very rare in southern Victoria, with the only other regional database records occurring at Melton Reservoir and Lake Merrimu.

All significant flora species recorded are shown in Table 22 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see Section 16.

Table 22 Significant plant species recorded at Sheltons Road

Scientific name	Common Name	Status
Victorian Rare or Threatened (VROT)		
Geranium sp. 3	Pale-flower Crane's-bill	**r**
Senecio campylocarpus	Floodplain Fireweed	**r**
Regionally significant		
Acacia aculeatissima	Thin-leaf Wattle	**Regional**
*Austrostipa stuposa^*	Tasmanian Spear-grass	**Regional**
Callitriche sonderi	Matted Water-starwort	**Regional**
Carex gaudichaudiana	Fen Sedge	**Regional**
Chrysocephalum apiculatum	Common Everlasting	**Regional**
Eucalyptus pauciflora spp. pauciflora	White Sallee	**Regional**
Leptorhynchos squamatus spp. squamatus	Scaly Buttons	**Regional**
Montia australasica	White Purslane	**Regional**
Olearia myrsinoides	Silky Daisy-bush	**Regional**
Pimelea curviflora	Curved Rice-flower	**Regional**
Plantago gaudichaudii	Narrow Plantain	**Regional**
*Wahlenbergia victoriensis^*	Large-flowered Annual Bluebell	**Regional**
Locally significant		
Acacia stricta	Hop Wattle	**Local**
Arthropodium milleflorum s.l.	Pale Vanilla-lily	**Local**
Austrostipa pubinodis	Tall Spear-grass	**Local**
Carex iynx	Tussock Sedge	**Local**
Cassytha glabella	Slender Dodder-laurel	**Local**
Chrysocephalum semipapposum	Clustered Everlasting	**Local**
Cynogeton procera	Common Water-ribbons	**Local**
Eucalyptus melliodora	Yellow Box	**Local**
Geranium retrorsum s.l.	Grassland Crane's-bill	**Local**
Glyceria australis	Australian Sweet-grass	**Local**
Leptorhynchos tenuifolius	Wiry Buttons	**Local**
*Lomandra nana^*	Dwarf Mat-rush	**Local**
Melicytus dentatus	Tree Violet	**Local**
Microseris sp. 3	Yam Daisy	**Local**
Olearia lirata	Snowy Daisy-bush	**Local**
Podolobium procumbens	Trailing Podolobium	**Local**
Stylidium graminifolium s.l.	Grass Trigger-plant	**Local**
Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily	**Local**
Triglochin striata	Streaked Arrowgrass	**Local**
Wahlenbergia multicaulis	Branching Bluebell	**Local**
Xerochrysum viscosum	Shiny Everlasting	**Local**

Legend
r - listed as 'rare' in Victoria under the Victorian Advisory List.
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.
^ - recorded by Paul Foreman in 2012

13.3 Vegetation description

The lower slopes in the far western and eastern section of the site (the latter on the slopes above Deep Creek) supported Valley Grassy Forest (EVC 47) dominated by *Eucalyptus rubida* (Candlebark) and *Eucalyptus radiata* (Narrow-leaf Peppermint) with a grassy ground layer. The most diverse

section of the roadside included approximately 1.5 kilometres west of Hennebergs Road, which supported outstanding patches of Grassy Forest (128). These areas were typically dominated by *Eucalyptus dives* (Broad-leaf Peppermint) and *Eucalyptus rubida* (Candlebark) with a grassy, herb-rich field layer, often including carpets of daisies, lilies and other herbs. An ephemeral creekline that crosses the road in the western section of the site supported a small area of Creekline Herb-rich Woodland (EVC 164). A wetter variant of this EVC also occurred along Deep Creek in the far eastern section of the area surveyed. This area contained scattered deeper pools that still retained water in mid-summer and supported semi-aquatic herbs such as *Ranunculus amphitrichus* (Small River Buttercup) and *Cynogeton procera* (Water Ribbons).

A total of 147 large-old trees (>70cm DBH) were recorded across Saunders Road.

Table 23 EVCs recorded at Sheltons Road

EVC	EVC Number	Status
Creekline Herb-rich Woodland	164	Vulnerable
Grassy Forest	128	Vulnerable
Valley Grassy Forest	47	Vulnerable

13.4 Introduced flora

Weed cover was generally low across much of the site, although a wide range of high threat weeds were scattered throughout including #*Acacia floribunda* (White Sallow-wattle), **Ulex europaeus* (Gorse), **Cytisus scoparius* (English Broom), **Rosa rubiginosa* (Sweet Briar), **Crataegus monogyna* (Hawthorn), **Rubus anglocandicans* (Blackberry), **Euphorbia lathyris* (Caper Spurge), **Hedera helix* (English Ivy), **Genista monspessulana* (Montpellier Broom) and **Prunus cerasifera* (Plum). The far southern section of the site along the terraces of Deep Creek had a very high cover of woody weeds, including **Ulex europaeus* (Gorse), **Cytisus scoparius* (English Broom) and **Genista monspessulana* (Montpellier Broom).

13.5 Photo points

Nineteen photo points were established at Sheltons Road to assist with monitoring the condition of the site. These are shown in Table 24 below.

Table 24 Photopoints established at Sheltons Road

ID	Description	Zone	Easting	Northing
PP20	Taken from double-trunked Candlebark near rd facing east north-east	55	289417.24	5870424.57
PP21	Taken from young Candlebark 2m from rd facing west north-west.	55	289633.76	5870224.38
PP22	Taken from road culvert/drain facing east north-east	55	289640.98	5870212.35
PP23	From middle of path facing east north-east	55	290068.69	5869818.13
PP24	From middle of patch facing west	55	290077.59	5869809.81
PP25	Taken from edge of road, east of Everlasting patch facing west north-west	55	290080.76	5869796.79
PP26	Taken from corner post facing east south-east	55	290230.34	5869686.17
PP27	Taken from fencepost facing app. south south-east	55	290260.97	5869656.84
PP28	Taken from road looking south towards Everlasting patch	55	290338.84	5869547.65
PP29	Taken from behind significant roadside sign facing west	55	290318.34	5869554.68
PP30	Taken from behind significant roadside sign facing east	55	289985.96	5869873.47
PP31	From middle of patch facing west.	55	289678.91	5870153.78
PP32	One meter from corner of driveway facing north-west	55	290430.94	5869482.89
PP33	From second main post east of corner post facing south-east	55	290457.33	5869477.33
PP34	From second main post east of gate post facing south-east	55	290739.87	5869267.21
PP35	From fencepost facing north-west	55	290829.53	5869168.08
PP36	From Telstra post facing north	55	290764.60	5869210.99
PP37	Taken 6m west of Cherry Ballart facing west	55	290526.70	5869370.81
PP38	Taken from gate facing east.	55	291535.64	5868748.99

13.6 Management Guidelines

Sheltons Road, particularly west of Hennebergs Road, includes some of the most diverse vegetation in the Newham roadsides study area. Localised high threat weeds should be controlled wherever possible while efforts could be made to control grassy and herbaceous weeds within smaller core areas. Fencing of the best patches to protect from rabbit grazing could be considered, but this would require close monitoring to ensure that dense grass swards do not develop to the detriment of forb cover.

See Section 17 for general management recommendations.

Plate 14 ***Eucalyptus dives*** **(Broad-leaf Peppermint) in flower at Sheltons Road**

Plate 15 ***Chrysocephalum apiculatum*** **(Common Everlasting) at Sheltons Road. This species is uncommon in the region.**

14.0 THREE CHAIN ROAD

14.1 Description

Three Chain Road runs east-west between Carlsruhe and Lancefield. The area covered during the current survey included approximately 4.7 kilometres on both sides of the road, from north of Mowbrays Road to Wisemans Lane. This area was surveyed over three time periods, including in spring 2014 (north side, east and west of number 671), early summer 2014 (south side, 1600 metres east of Institute Road) and spring/early summer 2015 (remaining areas).

The majority of the area surveyed is situated on a relatively flat, low-lying colluvial plain, with a small area (600 metres) in the far eastern section extending onto the Newer Volcanics. The colluvium has been lightly dissected, creating a series of low rises intersected by minor depressions.

14.2 Flora

During the flora survey a total of 196 vascular plant taxa were recorded along Three Chain Road, including 132 (67%) that are indigenous and 64 (33%) that are introduced. A list of all species recorded is provided in Appendix 1.

A high diversity of significant plant species were recorded across the site, including one species listed as endangered at the federal and state level, two species listed as rare in Victoria and species listed as 'poorly known' in Victoria. In addition, 10 species are considered to be of regional significance and 20 species of local significance.

All significant flora species recorded are shown in Table 25 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see Section 16.

Table 25 Significant plant species recorded at Three Chain Road

Scientific name	Common Name	Status
Victorian Rare or Threatened (VROT)		
Dianella amoena	Matted Flax-lily	**En, L, e**
Geranium sp. 3	Pale-flower Crane's-bill	**r**
Poa labillardierei var. (Volcanic Plains)	Basalt Tussock-grass	**k**
Senecio campylocarpus	Floodplain Fireweed	**r**
Regionally significant		
Allittia cardiocarpa	Swamp Daisy	**Regional**
Allittia cardiocarpa	Swamp Daisy	**Regional**
Caesia calliantha	Blue Grass-lily	**Regional**
Calytrix tetragona	Common Fringe-myrtle	**Regional**
Diuris chryseopsis	Golden Moths	**Regional**
Eryngium vesiculosum	Prickfoot	**Regional**
Eucalyptus pauciflora subsp. pauciflora	White Sallee	**Regional**
Leptorhynchos squamatus subsp. squamatus	Scaly Buttons	**Regional**
Podolobium alpestre	Alpine Shaggy-pea	**Regional**
Senecio squarrosus	Leafy Fireweed	**Regional**
Wurmbea latifolia subsp. vanessae	Broad-leaf Early Nancy	**Regional**
Locally significant		
Amphibromus nervosus	Common Swamp Wallaby-grass	**Local**
Arthropodium milleflorum s.s.	Pale Vanilla-lily	**Local**
Carex iynx	Tussock Sedge	**Local**
Convolvulus angustissimus subsp. angustissimus	Blushing Bindweed	**Local**
Eucalyptus melliodora	Yellow Box	**Local**
Geranium retrorsum s.l	Grassland Crane's-bill	**Local**
Glyceria australis	Australian Sweet-grass	**Local**
Haloragis heterophylla	Varied Raspwort	**Local**
Leptorhynchos tenuifolius	Wiry Buttons	**Local**
Lobelia pedunculata	Matted Pratia	**Local**
Lomandra nana	Dwarf Mat-rush	**Local**
Microseris sp. 3	Yam Daisy	**Local**
Pterostylis nutans	Nodding Greenhood	**Local**
Rytidosperma laeve	Smooth Wallaby-grass	**Local**
Stylidium graminifolium s.s	Grass Trigger-plant	**Local**
Thelymitra ixioides	Spotted Sun-orchid	**Local**
Thelymitra rubra	Salmon Sun-orchid	**Local**
Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily	**Local**
Viola betonicifolia	Showy Violet	**Local**
Xerochrysum viscosum	Shiny Everlasting	**Local**

Legend
En – listed as 'endangered' under the Environmental Protection and Biodiversity Conservation Act.
L – listed as a threatened taxon under the Flora and Fauna Guarantee Act.
e - listed as 'endangered' in Victoria under the Victorian Advisory List.
r - listed as 'rare' in Victoria under the Victorian Advisory List.
k - listed as 'poorly known' in Victoria under the Victorian Advisory List.
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

14.3 Vegetation description

The low colluvial rises along Three Chain Road supported Valley Grassy Forest (EVC 47) dominated by *Eucalyptus rubida* (Candlebark) and *Eucalyptus radiata* (Narrow-leaf Peppermint) with occasional stands of *Eucalyptus pauciflora* (White Sallee). The shrub layer varied from open to locally dense areas dominated by *Acacia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle). Extensive areas of this EVC contained an outstanding groundflora dominated by grasses, lilies, orchids and other herbs. The low lying colluvial flats and volcanic soils in the far east supported Plains Grassy Woodland (EVC 55) dominated by *Eucalyptus ovata* (Swamp Gum). This vegetation has been heavily cleared throughout the valley and most of the remnants along Three Chain Road contain a generally degraded ground layer. The limited areas still carrying an intact groundflora supported species tolerant of water logged soils and occasional inundation such as *Eryngium vesiculosum* (Prickfoot), *Senecio squarrosus* (Leafy Fireweed), *Allittia cardiocarpa* (Swamp Daisy) and *Asperula conferta* (Common Woodruff). This vegetation has floristic and structural affinities with Plains Swampy Woodland (EVC 651) of the coastal plains to the south (e.g. around Donnybrook-Mernda).

A total of 131 large-old trees (>70cm DBH) were recorded across Three Chain Road, however only the eastern and western sections were counted (the central section was surveyed during a separate project in 2014 where the trees were not mapped).

Table 26 EVCs recorded at Three Chain Road

EVC	EVC Number	Status
Plains Grassy Woodland	55	Endangered
Valley Grassy Forest	47	Vulnerable

14.4 Introduced flora

Weed cover was generally low across much of the site, although a wide range of high threat weeds were scattered throughout including **Ulex europaeus* (Gorse), **Rosa rubiginosa* (Sweet Briar), **Crataegus monogyna* (Hawthorn), **Cytisus scoparius* (English Broom), **Rubus anglocandicans* (Blackberry), **Genista monspessulana* (Montpellier Broom) and **Prunus cerasifera* (Plum). The far southern section of the site along the terraces of Deep Creek had a very high cover of woody weeds, including **Ulex europaeus* (Gorse), **Cytisus scoparius* (English Broom) and **Genista monspessulana* (Montpellier Broom). The most threatening weed species recorded was several plants of **Nassella neesiana* (Chilean Needle-grass), located directly opposite the driveway of 709 (south side of the road). The plant was within one metre of a concrete electric cable access lid and was very likely introduced when this infrastructure was installed. The plants were eradicated by Newham landcare within several days of discovery.

14.5 Photo points

Eleven photo points were established at Three Chain Road to assist with monitoring the condition of the site. These are shown in Table 27 below.

Table 27 Photopoints established at Three Chain Road

ID	Description	Zone	Easting	Northing
PP71	Taken from Stakers Farm driveway facing east.	55	285884.83	5871125.20
PP72	Taken from Stakers Farm driveway facing west.	55	285884.83	5871125.20
PP73	Taken from corner post facing south-east.	55	285673.36	5871102.79
PP74	Taken from corner post facing south.	55	285673.36	5871102.79
PP75	Taken from 709 driveway facing east.	55	285264.43	5871136.85
PP76	Taken from edge of clearing facing west south-west	55	283070.28	5870986.52
PP77	Taken from Telstra post facing north-west	55	282937.97	5870949.45
PP78	App. 6m from road edge facing large Candlebark and Snow Gum	55	282401.00	5870785.17
PP79	Taken from Telstra sign facing south-west.	55	282260.31	5870766.87
PP80	Taken 10m west of large Silver Wattle facing west south-west	55	282076.10	5870654.92
PP81	Taken from driveway facing east	55	281942.39	5870610.69

14.6 Management Guidelines

Management of the sites outstanding vegetation has been ongoing by Newham Landcare for some time. Small fences have been installed to protect significant areas from the effects of mowing and horse riding while woody weeds have been controlled. Further weed control should be implemented along the road reserve to eliminate high threat species, while the area where the Chilean Needle-grass was recorded should be monitored for emerging plants. Just (2014) discussed several potential options for diverting horse riders away from significant areas, and these should be followed where possible.

See Section 17 for general management recommendations.

Plate 16 *Thelymitra rubra* (Salmon Sun-orchid) at Three Chain Road

Plate 17 *Thelymitra ixioides* (Spotted Sun-orchid) at Three Chain Road

15.0 WHITEBRIDGE ROAD

15.1 Description

Whitebridge Road runs south-east from Three Chain Road to the Woodend Lancefield Road. The area covered during the current survey included approximately 1.7 kilometres on both sides of the road, from near Three Chain Road to Hennebergs Road.

The highest point of the area surveyed is near Hennebergs Road which sits at 530 metres a.s.l on sedimentary soils of the Castlemaine Group. From there the land slowly descends onto low-lying alluvial soils in the north-west at 490 metres a.s.l.

15.2 Flora

During the flora survey a total of 120 vascular plant taxa were recorded along Whitebridge Road, including 81 (68%) that are indigenous and 39 (32%) that are introduced. A list of all species recorded is provided in Appendix 1.

Several significant plant species were recorded across the site, including three species considered to be of regional significance and four species of local significance.

All significant flora species recorded are shown in Table 28 below. For a more detailed discussion on species of regional, state and national significance recorded across the Newham roadsides study area, see Section 16.

Table 28 Significant plant species recorded at Whitebridge Road

Scientific name	Common Name	Status
Regionally significant		
Eucalyptus pauciflora subsp. pauciflora	White Sallee	**Regional**
Olearia myrsinoides	Silky Daisy-bush	**Regional**
Pultenaea humilis	Dwarf Bush-pea	**Regional**
Locally significant		
Geranium retrorsum s.l.	Grassland Crane's-bill	**Local**
Glyceria australis	Australian Sweet-grass	**Local**
Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush	**Local**
Stylidium graminifolium s.l.	Grass Trigger-plant	**Local**

Legend
Regional – rated as regional significance by the author based on analysis of database records.
Local – uncommon to rare across the Newham roadsides study area.

15.3 Vegetation description

The sedimentary soils in the south-eastern section supported relatively high quality remnants of Grassy Forest (EVC 128), although this vegetation had close affinities with Grassy Dry Forest (EVC 22). These areas were dominated by *Eucalyptus dives* (Broad-leaf Peppermint) and *Eucalyptus obliqua* (Messmate Stringybark) with a mostly open shrub layer comprised of *Acacia melanoxylon* (Blackwood), *Acacia dealbata* (Silver Wattle) and *Exocarpos cupressiformis* (Cherry Ballart). The ground layer was dominated by *Rytidosperma pallidum* (Silver-top Wallaby-grass) in association with a diverse cover of small shrubs, daisies, lilies and other herbs. This vegetation was continuous with a private block on the southern side of the road that supported a significant stand of remnant bushland. The vegetation transitioned into Valley Grassy Forest (EVC 47) to the north-west and then into mostly cleared remnants of Plains Grassy Woodland (EVC 55) on the alluvial soils. Several minor gullies contained degraded remnants of Swampy Riparian Woodland (EVC 83)

A total of 80 large-old trees (>70cm DBH) were recorded across Whitebridge Road.

Table 29 EVCs recorded at Whitebridge Road

EVC	EVC Number	Status
Grassy Forest	128	Vulnerable
Plains Grassy Woodland	55	Endangered
Swampy Riparian Woodland	83	Endangered
Valley Grassy Forest	47	Vulnerable

15.4 Introduced flora

The south side of the road in the south-eastern section contained a relatively low cover of weeds, while the northern side was less intact and included planted trees and shrubs such as *#Pittosporum undulatum* (Sweet Pittosporum), *#Melaleuca armillaris* (Giant Honey-myrtle) and *#Acacia pravissima* (Ovens Wattle). The north-western section was largely dominated by pasture grasses with occasional larger woody weeds such as **Crataegus monogyna* (Hawthorn), **Genista monspessulana* (Montpellier Broom) and **Prunus cerasifera* (Plum), while a minor drainage-line contained an infestation of *Salix* spp. (Willow). The most threatening weed species recorded across the site was over 20 plants of **Nassella neesiana* (Chilean Needle-grass), located on the eastern side of the road south of a newly constructed bridge. This weed was very likely introduced by machinery during the bridge construction. The plants were eradicated by Newham landcare within several days of discovery.

15.5 Photo points

Four photo points were established at Whitebridge Road to assist with monitoring the condition of the site. These are shown in Table 30 below.

Table 30 Photopoints established at Whitebridge Road

ID	Description	Zone	Easting	Northing
PP83	Taken from edge of road on driveway facing east south-east	55	290856.47	5871230.64
PP84	Taken 8m north-west of power-line pole facing south-east.	55	289664.36	5871921.30
PP85	Taken from large Candlebark facing west north-west.	55	290968.48	5871164.48
PP86	Taken from significant roadside sign facing south-east.	55	290779.06	5871267.68
PP83	Taken from edge of road on driveway facing east south-east	55	290856.47	5871230.64
PP84	Taken 8m north-west of power-line pole facing south-east.	55	289664.36	5871921.30
PP85	Taken from large Candlebark facing west north-west.	55	290968.48	5871164.48
PP86	Taken from significant roadside sign facing south-east.	55	290779.06	5871267.68

15.6 Management Guidelines

The high quality of roadside vegetation on the southern side of the road in the south-eastern section is partly due to its connectivity to good quality bushland in adjacent private property. It is important that this vegetation is maintained in future by preventing over-grazing and weed invasion. The site of the Chilean Needle-grass should be monitored for emerging plants.

See Section 17 for general management recommendations.

16.0 SIGNIFICANT FLORA OF THE NEWHAM ROADSIDES

The Newham road reserves support a relatively high diversity of plant species that are rare or threatened at the local, regional, state or national level. The surrounding plains and foothills have been heavily fragmented for agricultural use, so that many of the less common plant species are now largely confined to the most intact roadsides.

During the current survey a total of five flora species listed under the Victorian Advisory List 2014 and 22 species of regional significance recorded across the study area, while two additional species of regional significance were recorded at Sheltons Road by Paul Foreman in 2012. Many of these species are at threat from a range of processes including weed invasion, grazing and disturbance by exotic and native herbivores, inappropriate slashing and clearing of vegetation.

In this section, all species of regionally significance or higher are discussed separately, providing an overview of each species occurrence locally and in the region. Locally significant taxa are not discussed here, but each has been geographically referenced (see relevant mapping for each site).

Determining regional significance

The status of regionally significant species was determined by analysing existing database records and cross-referencing these with the knowledge of the author. These determinations have been made on the best available information; however future surveys may show that some of these determinations require alteration. The region for this project was roughly defined as the area bounded by Tylden in the west, Pastoria in the north, Macedon in the south and Lancefield in the east (an area roughly 20km from north to south and 30km from east to west). Each species has been assigned within one of three categories:

Regionally rare – only known from limited, mostly small populations in the region but not known to be at serious threat.

Regionally vulnerable - only known from scattered, mostly small populations and considered to be declining or at threat from a variety of processes.

Regionally endangered – only known from a very small number of populations and considered to be declining or at threat from a variety of processes.

16.1 Victorian Rare and Threatened (VROT)

A total of five species listed under the Victorian Advisory List 2014 were recorded across the study area.

Dianella amoena **(Matted Flax-lily) - Endangered under the EPBC Act, FFG-listed, endangered in Victoria**

Matted Flax-lily was restricted to the more fertile soils and was recorded along three roadsides, including Three Chain Road (over 30 patches spread along the entire area surveyed), Hennebergs Road (two patches) and Bolgers Lane (one patch). This species is listed as 'endangered' under the federal EPBC Act, is listed as threatened under the Victorian FFFG Act and is listed as 'endangered' under the Victorian Advisory List (DSE 2005). There are limited records of this species for the region, most of which are scattered around Riddells Creek.

Plate 18 ***Dianella amoena*** **(Matted Flax-lily)**

Geranium sp. 3 **(Pale-flower Crane's-bill) - Rare in Victoria**

Pale-flower Crane's-bill was recorded across five roadsides including Bolgers Lane (4 locations), Hennebergs Road (8 locations), Saunders Road (2 locations), Sheltons Road (10 locations) and Three Chain Road (4 locations). Pale-flowered Crane's-bill is only known from a small number of records in the region, including around Riddells Creek, Kyneton and Newham. It is characterised by its narrow leaf segments, combination of short and scattered long hairs on the stems and pedicels and pale pink

flowers. The species has a restricted distribution in Victoria where it is found in relatively fertile grasslands, grassy woodlands and open forests, mostly between north-east Melbourne and Harcourt (outlying records are also known from the Grampians-southern Wimmera area).

Platylobium montanum ssp. prostratum **(Prostrate Mountain Flat-pea) – Poorly known in Victoria**

Prostrate Mountain Flat-pea was recorded across two roadsides, both within Herb-rich Foothill Forest (EVC 23) at Boundary Road and McKinley Track. The species was recently segregated from within the *Platylobium formosum* complex. It commonly forms extensive mats across the forest floor where it spreads by suckering. It is common across the Cobaws and other nearby ranges (e.g. Mount Disappointment), but its overall distribution is currently uncertain.

Poa labillardieri **var. (volcanic plains) (Basalt Tussock-grass) - Poorly known in Victoria**

Several plants of Basalt Tussock-grass were recorded in the far eastern section of Three Chain Road on basalt soils of the Newer Volcanics. This species differs from *Poa labillardieri* var. *labillardieri* by the more rigid, often spiky, bluish (rather than green) leaves. It is relatively widespread across the volcanic plains. A similar, undescribed entity, also with bluish leaves has been recorded on colluvial soils in outer north-east Melbourne.

Senecio campylocarpus **(Floodplain Fireweed)- Rare in Victoria**

Several plants of Floodplain Fireweed were recorded across three roadsides, including Boundary Road, Sheltons Road and Three Chain Road, where occupying wet depression or minor gullies. Floodplain Fireweed is similar to the more widespread *S. quadridentatus* (Cotton Fireweed) but has fleshy, green and glabrous to near glabrous leaves and prefers wetland habitats. It is scattered and uncommon between the Melbourne area and the central floodplains of the Murray River. The next known occurrence is east of Woodend.

16.2 Regionally significant species

A total of 22 species considered to be of regional significance were recorded across the study area.

Acacia aculeatissima (Thin-leaf Wattle) – regional rare

Approximately six relatively small populations (<30 plants) of Thin-leaf Wattle were recorded across the study area, including at Forest Road, Saunders Road, Sheltons Road, Bolgers Lane and Whitebridge Road, where mostly occurring in Valley Grassy Forest. There are scattered records around Riddells Creek and Mount Macedon and the species is relatively common in the Lerderderg State Park.

Plate 19 *Acacia aculeatissima* (Thin-leaf Wattle) at Bolgers Lane

Allittia cardiocarpa (Swamp Daisy) – regionally endangered

One plant of Swamp Daisy was recorded in a poorly drained site in Plains Grassy Woodland along Three Chain Road, growing with other significant wetland plant species such as *Eryngium vesiculosum* (Prickfoot) and *Senecio squarrosus* (Leafy Fireweed). Swamp Daisy is very rare in south-central Victoria and much of its former wetland habitat has been cleared or degraded. The next closest records include a relatively large population at Gisborne Racecourse Swamp and one record near Woodend.

***Austrostipa stuposa* (Tasmanian Spear-grass) – regionally rare**

One patch of 20-30 plants of Tasmanian Spear-grass was recorded along the northern section of Lavender Farm Road where growing with *Austrostipa pubinodis* (Tall Spear-grass). Also recorded at Sheltons Road by Paul Foreman in 2012. Tasmanian Spear-grass is rare in the region, with the next occurrences being near Taradale and between Lancefield and Romsey.

***Blechnum minus* (Soft Water-fern) – regionally rare**

Several plants of Soft Water-fern were recorded in Sedgy Riparian Woodland along the creek that crosses McKinley Track. This species was recently recorded for the first time in the Cobaws by the author (ABZECO 2014). The next records are from the wetter forests around Macedon. Soft Water-fern typically grows in waterlogged soils along creeks, rivers and mountain swamps.

Plate 20 *Blechnum minus* (Soft Water-fern) at McKinley Track

***Caesia calliantha* (Blue Grass-lily) – regionally vulnerable**

Several small populations of Blue Grass-lily were recorded across three roadsides including Bolgers Lane, Hennebergs Road and Three Chain Road. The species is generally restricted to relatively fertile soils and has been depleted across its range. It has only been recorded from limited areas in the region including around Riddells Creek, Kyneton and Springfield.

Plate 21 ***Caesia calliantha*** **(Blue Grass-lily)**

Callitriche sonderi **(Matted Water-starwort) – regionally rare**

One plant of Matted Water-starwort was recorded in drying mud on the verges of Deep Creek on Sheltons Road. The next closest database record is near Mernda, although it was also recorded by the author in a wet depression at Black Hill Reserve in spring 2015 (east of Edgecombe).

Calytrix tetragona **(Common Fringe-myrtle) – regionally rare**

Several patches of Common Fringe-myrtle were recorded along Three Chain Road where presumed to be indigenous. While the species is relatively common in the drier woodlands north of Castlemaine, south of the ranges it is only known from scattered locations between the Cobaws and Diggers Rest.

Plate 22 *Calytrix tetragona* (Common Fringe-myrtle) at Three Chain Road

***Carex gaudichaudiana* (Fen Sedge) – regionally rare**

Several mostly small, localised patches of Fen Sedge were recorded along four roadsides including Forest Road, McKinley Track, Saunders Road and Sheltons Road. Fen Sedge is mostly found in the cooler areas of Victoria across creeks, rivers and swamps. There are only a few records for the region, including from near Hanging Rock and at the Gisborne Racecourse Swamp.

***Diuris chryseopsis* (Golden Moths) – regionally vulnerable**

Several hundred plants of Golden Moths were recorded along Three Chain Road, the majority in a high quality area west of the driveway of 671. The species is known from few records in the region and tends to prefer relatively fertile sites. Much of its original habitat has been cleared while remaining populations are threatened by weed invasion and grazing pressure.

Plate 23 ***Diuris chryseopsis*** **(Golden Moths) at Three Chain Road.**

Epilobium pallidiflorum **(Showy Willow-herb) – regionally endangered**

Less than five plants of Showy Willow-herb were recorded in Sedgy Riparian Woodland (EVC 198) at a creek crossing McKinley Track. Several populations were also recently recorded by the author along drainage lines within the Cobaw State Forest (ABZECO 2014), representing the northern edge of range for the species. Showy Willow-herb has large pink flowers and is relatively tall and robust. It is threatened locally by weed invasion and grazing pressure. The next closest record is at Woodend North.

Eryngium vesiculosum **(Prickfoot) – regionally vulnerable**

Several plants of Prickfoot were recorded at one location in the western section of Three Chain Road. There are very few records for the region, with the largest known population occurring at the Gisborne Racecourse Swamp. The wetland habitat of this species has been heavily cleared across the region.

***Eucalyptus pauciflora* subsp. *pauciflora* (White Sallee) – regionally vulnerable**

White Sallee was recorded across six roadsides, including Bolgers Lane (one small patch), Hennebergs Road (several large patches), Saunders Road (several patches), Sheltons Road (one patch), Three Chain Road (several patches) and Whitebridge Road (one small patch). The species is of scattered occurrence on the lowland plains of southern Victoria. It is believed to have been more widespread during the last glacial period but retracted to scattered pockets following warming and drying in the last several thousand years. Protracted drought and climate change are a major threat to the species due to its preference for cooler climates. There is evidence of die-back throughout the study area, particularly along the eastern section of Saunders Road.

Plate 24 – *Eucalyptus pauciflora* subsp. *pauciflora* (White Sallee) at Three Chain Road

***Hydrocotyle pterocarpa* (Wing Pennywort) – regionally vulnerable**

One patch of Wing Pennywort was recorded in Sedgy Riparian Woodland (EVC 198) at a creek crossing McKinley Track. Several populations were also recently recorded by the author along drainage lines within the Cobaw State Forest (ABZECO 2014). The only other records for the region are just north of Trentham.

***Leptorhynchos squamatus* subsp. *squamatus* (Scaly Buttons) – regionally vulnerable**

Relatively small populations of Scaly Buttons were recorded across three roadsides including Hennebergs Road, Sheltons Road and Three Chain Road. While still surviving at many sites across the region, Scale Buttons is threatened by grazing pressure and weed invasion.

Plate 25 *Leptorhynchos squamatus* subsp. *squamatus* (Scaly Buttons) at Three Chain Road

***Lomandra micrantha* subsp. *micrantha* (Small-flower Mat-rush) – regionally rare**

One non-flowering plant of Small-flower Mat-rush was tentatively identified by leaf characteristics on McKinley Track. The next closest record is north-east of Lancefield.

***Montia australasica* (White Purslane) – regionally vulnerable**

Several small populations of White Purslane were recorded in wet depressions, gullies or creeklines across three roadsides, including Boundary Road, McKinley Track and Sheltons Road. There are very few records of White Purslane for the region, although it is likely more widespread than records suggest. Its wetland habitat has been heavily depleted.

***Olearia myrsinoides* (Silky Daisy-bush) – regionally rare**

Small populations of Silky Daisy-bush were recorded across three roadsides including McKinley Track, Sheltons Road and Whitebridge Road. The species is more common in the wetter foothill and mountain forests around Mount Macedon but does not extend north of the Cobaws.

Plate 26 *Olearia myrsinoides* (Silky Daisy-bush) at Whitebridge Road

***Pimelea curviflora* (Curved Rice-flower) – regionally rare**

Curved Rice-flower was recorded at six locations across Hennebergs Road and at one location at Sheltons Road. The species is scattered and uncommon in the region, with the majority of records occurring around Riddells Creek. Curved Rice-flower tends to occur in relatively fertile grassy woodland and forest.

Plate 27 ***Pimelea curviflora*** **(Curved Rice-flower)**

Plantago gaudichaudii **(Narrow Plantain) – regionally rare**

Narrow Plantain was recorded at Bolgers Lane and Sheltons Road in herb-rich, grassy vegetation. The only other regional records for the species area around Riddells Creek. Narrow Plantain has relatively narrow, fleshy green leaves and can form extensive rhizomatous colonies.

Podolobium alpestre **(Alpine Shaggy-pea) – regionally endangered**

One large old plant of Alpine Shaggy-pea was located in the far west of the study area by Penny Roberts in spring 2014 (identity confirmed by Melbourne Herbarium). This is a very important record, as it represents one of only two natural populations of this species outside of its stronghold in the montane to sub-alpine areas of eastern Victoria (the other western population is near Mount Cole north-west of Beaufort). This finding has high biogeographic significance, providing a remnant of the previous sub-alpine landscape that characterised the area during the last glacial maxima over 10,000 years ago.

Propagation via seed or cuttings from this plant is a high priority to ensure conservation of the population. The species was probably always naturally rare in the region so should only be planted in close proximity, such as along Three Chain Road.

Plate 28 *Podolobium alpestre* (Alpine Shaggy-pea) at Three Chain Road

***Pultenaea humilis* (Dwarf Bush-pea) – regionally rare**

One small plant of Dwarf Bush-pea was located in the eastern section of Whitebridge Road, on the south side of the road. Dwarf Bush-pea is of restricted occurrence in the region, with good populations found at the Mount Charlie Flora Reserve and Fryers Ridge Nature Conservation Reserve. It has relatively large, orange-yellow flowers.

Plate 29 *Pultenaea humilis* (Dwarf Bush-pea) at Whitebridge Road

***Senecio squarrosus* (Leafy Fireweed) – regionally endangered**

Two plants of Leafy Fireweed were recorded in water-logged soil within *Eucalyptus ovata* (Swamp Gum) woodland in the western section of Three Chain Road. It was growing with other significant wetland species such as *Allittia cardiocarpa* (Swamp Daisy) and *Eryngium vesiculosum* (Prickfoot). There are only three other records in the region at Woodend and Riddells Creek. Leafy Fireweed is restricted to relatively fertile soils in wetlands and swampy woodlands. It has likely been heavily depleted in the region.

***Wahlenbergia victoriensis* (Large-flowered Bluebell) – regionally endangered**

Large-flowered Bluebell was recorded at Sheltons Road by Paul Foreman in 2012. This is the only record for the region. The species more typically occupies heavier soils in open woodland and grassland.

***Wurmbea latifolia* subsp. *vanessae* (Broad-leaf Early Nancy) – regionally rare**

One plant of Broad-leaf Early Nancy that had previously finished flowering was tentatively identified in spring 2014 at Three Chain Road, east of the 671 driveway. There are very few records for the region and the species is usually found in slightly drier habitats. This record requires confirmation using flowering material.

17.0 CONCLUSIONS AND RECCOMENDATIONS

Flora assessments conducted across 10 road reserves in the Newham area documented extensive areas of significant native vegetation. Many of these road reserves support vegetation communities and flora species that have otherwise been cleared from the adjacent private lands. They therefore act as important refuges for the conservation of native flora in the region. The roadsides also have high habitat values, supporting many large-old hollow bearing trees and acting as key habitat links across predominately cleared landscapes.

The road reserves surveyed during the project are threatened by various processes and will require ongoing monitoring and management to retain their very high values. Recommendations for achieving this aim are provided below.

1. **Weed Control**

Over 100 introduced flora species were recorded during the project and this number is likely to increase over time. While both woody and herbaceous weeds are among the most threatening species recorded, the latter group can be difficult to control across large areas and so require an alternative management strategy.

It is recommended that high threat woody weeds are controlled across as many roadsides as possible, beginning with some of the most significant sites such as Sheltons Road, Hennebergs Road, Bolgers Lane and Three Chain Road. Most woody weeds should be controllable by hand pulling small plants (best implemented in winter-spring when the soils is moist) while larger plants should be cut at ground level and treated with an appropriate herbicide (best undertaken post spring when deciduous species are active). Work should begin in the best quality areas with few weeds and expand outwards into lower quality areas. A record should be compiled of areas treated, so that this information can be available for planning and assessment during future control efforts.

For the herbaceous weeds, efforts should be limited to controlling localised high threat species (such as **Nassella* spp.) across the entire study area, as well as choosing smaller high quality areas to undertake more intensive work. A series of plots could be established at the best quality sites and exotic grasses and herbs removed by hand-weeding and limited spraying. If considered necessary for grazing protection, such sites could also be fenced (see below).

The relevant land mangers such as Macedon Shire Council should be encouraged to contribute to weed control efforts.

2. Grazing exclusion

Rabbits and hares are widespread across the road reserves, while kangaroos and wallabies may on occasion over-graze some areas. Small areas within high quality sites could be protected from grazing pressure by constructing a series of mammal proof fences. These could also become the focus of more intensive weed control works targeting exotic herbs and grasses. But is should be noted that exclusion of grazing in grassy sites would very likely require an alternative method for reducing biomass to, such as occasional burning. If grassy areas are fenced and left unmanaged, it is likely they will become dominated by grasses to the detriment of the inter-tussock forbs.

3. Propagation and species enrichment

The Newham and District Landcare Group currently have an extensive plant propagation program and this should continue. An effective way of securing threatened plant species is to propagate them, which creates an ex-situ back-up population as well as allowing replanting into suitable sites. The great benefit of this approach has already been demonstrated by Landcare, with the propagation of the nationally threatened *Lepidium hyssopifolium* (Basalt Peppercress), which is possible extinct at its former site (see section 10). Some flora species recorded during this project are of very limited occurrence in the region and should be priority for propagation, including *Allittia cardiocarpa* (Swamp Daisy), *Senecio squarrosus* (Leafy Fireweed), *Podolobium alpestre* (Alpine Shaggy-pea) and *Epilobium pallidiflorum* (Showy Willow-herb).

Selected areas could also be chosen for species enrichment plantings, including the less diverse areas of Valley Grassy Forest and Grassy Forest. Where it appears likely these areas have lost species diversity due to grazing history or other processes, some replanting of key plants could be undertaken, including daisies, Flax-lilies and small shrubs.

4. Monitoring

Monitoring is an essential component of ecological management, allowing land managers to keep track of the changing condition of vegetation and habitat over time. During the current project, 87 photopoints were established in key areas. These should be repeated as often as possible, although once every 1-2 years would be sufficient. If the landcare find it difficult to repeat all of the photo points due to time constraints, a smaller selection of key points should be chosen for ongoing monitoring. This could include a selection of points considered representative for each roadside.

The status of significant flora species should also be monitored, either using a scientific method or by undertaking regular site visits. While agencies often devise relatively elaborate monitoring methods, even just a simple site visit to important plant populations undertaken once or twice a year can be highly valuable. This would be sufficient to identify emerging threats to the populations, such as physical disturbance, weed invasion or heavy grazing pressure. They key is to stay connected and informed with threatened plant populations, as entire species can vanish within 5-10 years if threats are not identified and managed.

5. Education

There are currently only limited significant roadsides across the study area. Additional signs could be installed along important sections of roadsides, including interpretation signs that aim to educate the community regarding the importance and threats to roadside vegetation. This could include a discussion on invasive garden plants, to inform the public about the potential for garden plants to become significant weeds of roadsides.

18.0 REFERENCES

ABZECO (2014) *Inventory of Values and Threats – Cobaw State Forest.* Report prepared for Melbourne Water

City of Greater Bendigo (2007) *Indigenous plants of Bendigo, A Gardeners Guide to Growing and Protecting Local Plants.* City of Greater Bendigo, Bendigo, Victoria.

DEPI (2005) *Advisory List of Threatened Plants in Victoria – 2014*. Department of Environment and Primary Industries, East Melbourne Victoria.

Edwards, J., Willman, C., McHaffie, I., Olshina, A. & Willocks, A (1997) *The geology and prospectivity of the Castlemaine, Woodend, Yea and part of Bacchus Marsh 1:100 000 map sheets.* Department of Natural Resources and Environment.

Gouldthorpe, J *et. al.* (2006). *Managing Gorse* Ulex europaeus *in Australia*. Department of Agriculture, Fisheries and Forestry.

Just & Aquilina (2014) *Flora assessment of a roadside reserve along Three Chain Road, Newham*. Prepared for Newham Landcare.

Just (2014) *Assessment of Three Grazing Exclusion Fences at Newham, Victoria***.** Prepared for Newham Landcare.

Just (2014b) *Flora assessment of roadside vegetation along Three Chain Road, Newham.* Prepared for Newham Landcare.

Tumino, M. (2010) *National Recovery Plan for the Basalt Pepper-cress* Lepidium hyssopifolium. Victorian Government Department of Sustainability and Environment (DSE)

Willman, C.E., Bibby, L.M., Radojkovic, A.M., Maher, S., Haydon, S.J., Hollis, J.D. & Osborne, C.R., (2002). Castlemaine 1:100 000 map area geological report. Geological Survey of Victoria Report 121.

Appendix 1 - FLORA SPECIES RECORDED ACROSS THE NEWHAM ROADSIDE RESERVES

Legend
En – listed as endangered under the Environment Protection and Biodiversity Conservation Act
L – listed as a threatened taxon under the Flora and Fauna Guarantee Act
e – listed as endangered under the Victorian Advisory List 2014
r - listed as rare under the Victorian Advisory List 2014
k - listed as poorly known under the Victorian Advisory List 2014
Regional – considered to be of regional significance by the author
Local – considered to be of local significance by the author

Bolgers Lane						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Local-regional**
	Acacia aculeatissima	Thin-leaf Wattle				**regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia melanoxylon	Blackwood				
#	*Acacia pravissima*	Ovens Wattle				
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche prostrata	Trailing Ground-berry				
	Acrotriche serrulata	Honey-pots				
*	*Agapanthus praecox subsp. orientalis*	Agapanthus				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Aira elegantissima*	Delicate Hair-grass				
	Anthosachne scabra (hairy form)	Common Wheat-grass				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
*	*Arctotheca calendula*	Cape Weed				
	Arthropodium milleflorum s.l.	Pale Vanilla-lily				**local**
	Arthropodium strictum s.l.	Chocolate Lily				
	Asperula conferta	Common Woodruff				**local**
	Asperula scoparia subsp. scoparia	Prickly Woodruff				
	Austrostipa pubinodis	Tall Spear-grass				**local**
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Austrostipa semibarbata	Fibrous Spear-grass				
	Austrostipa spp.	Spear Grass				
	Bossiaea prostrata	Creeping Bossiaea				
*	*Briza maxima*	Large Quaking-grass				
*	*Bromus diandrus*	Great Brome				
	Bulbine bulbosa	Bulbine Lily				
	Burchardia umbellata	Milkmaids				
	Caesia calliantha	Blue Grass-lily				**regional**
*	*Carduus tenuiflorus*	Winged Slender-thistle				
	Carex appressa	Tall Sedge				
	Carex iynx	Tussock Sedge				**local**
*	*Cirsium vulgare*	Spear Thistle				
	Clematis decipiens	Slender Clematis				
	Coronidium scorpioides	Button Everlasting				
	Crassula decumbens var. decumbens	Spreading Crassula				
*	*Crataegus monogyna subsp. monogyna*	Hawthorn				
*	*Crepis vesicaria subsp. taraxacifolia*	Dandelion Hawks-beard				

*	*Dactylis glomerata*	Cocksfoot				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				
	Dianella amoena	Matted Flax-lily	**En**	**L**	**e**	
	Dianella tasmanica	Tasman Flax-lily				**local**
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
	Drosera aberrans	Scented Sundew				
	Eleocharis acuta	Common Spike-sedge				
	Epilobium hirtigerum	Hairy Willow-herb				
	Eucalyptus dives	Broad-leaf Peppermint				
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus pauciflora subsp. pauciflora	White Sallee				
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus rubida subsp. rubida	Candlebark				
	Euchiton japonicus	Creeping Cudweed				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Festuca arundinacea*	Tall Fescue				
*	*Galium aparine*	Cleavers				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium retrorsum s.l.	Grassland Crane's-bill				**local**
	Geranium sp. 2	Variable Crane's-bill				
	Geranium sp. 3	Pale-flower Crane's-bill			**r**	
	Gonocarpus tetragynus	Common Raspwort				
	Hardenbergia violacea	Purple Coral-pea				
	Hemarthria uncinata var. uncinata	Mat Grass				
*	*Holcus lanatus*	Yorkshire Fog				
	Hovea heterophylla	Common Hovea				
	Hydrocotyle laxiflora	Stinking Pennywort				
*	*Juncus acutus subsp. acutus*	Spiny Rush				
	Juncus amabilis	Hollow Rush				
	Juncus australis	Austral Rush				
	Juncus pallidus	Pale Rush				
	Juncus sarophorus	Broom Rush				
	Juncus subsecundus	Finger Rush				
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Lomandra longifolia subsp. longifolia	Spiny-headed Mat-rush				
	Luzula meridionalis var. densiflora	Common Woodrush				
	Microlaena stipoides var. stipoides	Weeping Grass				
	Oxalis exilis	Shady Wood-sorrel				
	Oxalis perennans	Grassland Wood-sorrel				
*	*Phalaris aquatica*	Toowoomba Canary-grass				
	Pimelea humilis	Common Rice-flower				
	Pimelea linifolia subsp. linifolia	Slender Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
	Plantago gaudichaudii	Narrow Plantain				**regional**
*	*Plantago lanceolata*	Ribwort				
	Plantago varia	Variable Plantain				
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa morrisii	Soft Tussock-grass				
*	*Poa pratensis*	Kentucky Blue-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Poa sieberiana var. sieberiana	Grey Tussock-grass				
*	*Prunus cerasifera*	Cherry Plum				

*	*Prunus cerasifera 'Nigra'*	Purple-leaf Cherry-plum				
	Pteridium esculentum	Austral Bracken				
*	*Romulea rosea var. australis s.s.*	Common Onion-grass				
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus anglocandicans*	Common Blackberry				
*	*Rumex crispus*	Curled Dock				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma pilosum var. pilosum	Velvet Wallaby-grass				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass				
	Schoenus apogon	Common Bog-sedge				
	Senecio bathurstianus	Dissected Fireweed				**local**
	Senecio glomeratus	Annual Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
	Stylidium graminifolium s.l.	Grass Trigger-plant				**local**
*	*Taraxacum spp.*	Dandelion				
	Tetratheca ciliata	Pink-bells				
	Thelymitra arenaria	Forest Sun-orchid				
	Thelymitra spp.	Sun Orchid				
	Themeda triandra	Kangaroo Grass				
*	*Tragopogon porrifolius subsp. porrifolius*	Salsify				
	Tricoryne elatior	Yellow Rush-lily				
*	*Trifolium dubium*	Suckling Clover				
*	*Ulex europaeus*	Gorse				
	Veronica gracilis	Slender Speedwell				
*	*Vicia hirsuta*	Tiny Vetch				
*	*Vicia sativa subsp. sativa*	Common Vetch				
	Viola betonicifolia subsp. betonicifolia	Showy Violet				**local**
*	*Vulpia myuros f. myuros*	Rat's-tail Fescue				
	Wurmbea dioica subsp. dioica	Common Early Nancy				

Boundary Road						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Local-regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia mearnsii	Black Wattle				
	Acacia melanoxylon	Blackwood				
	Acacia paradoxa	Hedge Wattle				
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche serrulata	Honey-pots				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Aira caryophyllea subsp. caryophyllea*	Silvery Hair-grass				
*	*Aira elegantissima*	Delicate Hair-grass				
	Amphibromus nervosus	Common Swamp Wallaby-grass				**local**
*	*Anagallis arvensis var. arvensis*	Scarlet Pimpernel				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
*	*Arctotheca calendula*	Cape Weed				
	Arthropodium strictum s.l.	Chocolate Lily				

	Asperula conferta	Common Woodruff				**local**
	Astroloma humifusum	Cranberry Heath				
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Bossiaea prostrata	Creeping Bossiaea				
*	*Briza maxima*	Large Quaking-grass				
*	*Briza minor*	Lesser Quaking-grass				
*	*Bromus diandrus*	Great Brome				
	Brunonia australis	Blue Pincushion				
	Bulbine bulbosa	Bulbine Lily				
	Burchardia umbellata	Milkmaids				
*	*Carduus tenuiflorus*	Winged Slender-thistle				
	Carex breviculmis	Common Grass-sedge				
	Cassinia arcuata	Drooping Cassinia				
*	*Centaurium erythraea*	Common Centaury				
	Centella cordifolia	Centella				
	Chiloglottis valida	Common Bird-orchid				**local**
*	*Cirsium vulgare*	Spear Thistle				
	Clematis decipiens	Slender Clematis				
	Coronidium scorpioides	Button Everlasting				
*	*Crataegus monogyna subsp. monogyna*	Hawthorn				
*	*Crepis vesicaria subsp. taraxacifolia*	Dandelion Hawks-beard				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
	Dipodium roseum s.l.	Rosy Hyacinth-orchid				**local**
	Drosera auriculata	Tall Sundew				
*	*Ehrharta erecta var. erecta*	Panic Veldt-grass				
*	*Elytrigia repens*	English Couch				
	Eucalyptus dives	Broad-leaf Peppermint				
	Eucalyptus goniocalyx s.l.	Bundy				
	Eucalyptus obliqua	Messmate Stringybark				
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus rubida	Candlebark				
	Euchiton japonicus	Creeping Cudweed				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Festuca arundinacea*	Tall Fescue				
*	*Galium aparine*	Cleavers				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium sp. 2	Variable Crane's-bill				
	Gompholobium huegelii	Common Wedge-pea				
	Gonocarpus tetragynus	Common Raspwort				
	Hardenbergia violacea	Purple Coral-pea				
	Hemarthria uncinata var. uncinata	Mat Grass				
*	*Holcus lanatus*	Yorkshire Fog				
	Hovea heterophylla	Common Hovea				
	Hydrocotyle laxiflora	Stinking Pennywort				
	Hypericum gramineum	Small St John's Wort				
*	*Hypochaeris glabra*	Smooth Cat's-ear				
*	*Hypochaeris radicata*	Flatweed				
	Indigofera australis	Austral Indigo				
	Juncus amabilis	Hollow Rush				
*	*Juncus articulatus*	Jointed Rush				

	Juncus holoschoenus	Joint-leaf Rush				
	Lachnagrostis filiformis s.l.	Common Blown-grass				
	Lagenophora stipitata	Common Bottle-daisy				
	Lepidosperma laterale var. laterale	Variable Sword-sedge				
	Leucopogon virgatus var. virgatus	Common Beard-heath				
*	*Lolium perenne*	Perennial Rye-grass				
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush				**local**
	Lythrum hyssopifolia	Small Loosestrife				
*	*Malus pumila*	Apple				
	Microlaena stipoides var. stipoides	Weeping Grass				
	Montia australasica	White Purslane				**regional**
*	*Narcissus spp.*	Narcissus				
	Opercularia varia	Variable Stinkweed				
	Oxalis perennans	Grassland Wood-sorrel				
	Ozothamnus obcordatus	Grey Everlasting				
	Persicaria prostrata	Creeping Knotweed				
	Pimelea humilis	Common Rice-flower				
	Pimelea linifolia subsp. linifolia	Slender Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
*	*Plantago coronopus subsp. coronopus*	Buck's-horn Plantain				
*	*Plantago lanceolata*	Ribwort				
	Plantago varia	Variable Plantain				
	Platylobium montanum ssp. *prostratum*	Prostrate Mountain Flat-pea			**k**	
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa morrisii	Soft Tussock-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Poranthera microphylla s.l.	Small Poranthera				
*	*Prunus cerasifera*	Cherry Plum				
	Pteridium esculentum	Austral Bracken				
	Ranunculus inundatus	River Buttercup				**local**
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus anglocandicans*	Common Blackberry				
	Rumex brownii	Slender Dock				
*	*Rumex conglomeratus*	Clustered Dock				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma spp.	Wallaby Grass				
	Schoenus apogon	Common Bog-sedge				
	Senecio glomeratus	Annual Fireweed				
	Senecio minimus	Shrubby Fireweed				
	Senecio phelleus	Stony Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Stellaria pungens	Prickly Starwort				
	Themeda triandra	Kangaroo Grass				
	Thysanotus patersonii	Twining Fringe-lily				
	Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily				**local**
	Tricoryne elatior	Yellow Rush-lily				
*	*Trifolium dubium*	Suckling Clover				
*	*Trifolium subterraneum*	Subterranean Clover				
*	*Ulex europaeus*	Gorse				

	Veronica plebeia	Trailing Speedwell				
*	*Vicia sativa subsp. sativa*	Common Vetch				
	Viola betonicifolia subsp. betonicifolia	Showy Violet				**local**
	Viola hederacea sensu Entwisle (1996)	Ivy-leaf Violet				
*	*Vulpia bromoides*	Squirrel-tail Fescue				
	Wahlenbergia stricta subsp. stricta	Tall Bluebell				
	Xerochrysum viscosum	Shiny Everlasting				**local**

Forest Road						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Regional-local**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia melanoxylon	Blackwood				
	Acacia provincialis	Wirilda				**local**
	Acaena novae-zelandiae	Bidgee-widgee				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche prostrata	Trailing Ground-berry				
	Acrotriche serrulata	Honey-pots				
*	*Agapanthus praecox subsp. orientalis*	Agapanthus				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
	Amphibromus nervosus	Common Swamp Wallaby-grass				**local**
	Anthosachne scabra s.l.	Common Wheat-grass				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
	Astroloma humifusum	Cranberry Heath				
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Austrostipa semibarbata	Fibrous Spear-grass				
*	*Briza maxima*	Large Quaking-grass				
*	*Bromus diandrus*	Great Brome				
*	*Bromus hordeaceus subsp. hordeaceus*	Soft Brome				
	Carex gaudichaudiana	Fen Sedge				**regional**
*	*Chamaecytisus palmensis*	Tree Lucerne				
*	*Cirsium vulgare*	Spear Thistle				
*	*Cotoneaster pannosus*	Velvet Cotoneaster				
*	*Crataegus monogyna*	Hawthorn				
*	*Cynosurus echinatus*	Rough Dog's-tail				
*	*Cytisus scoparius*	English Broom				
*	*Dactylis glomerata*	Cocksfoot				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				
	Eleocharis acuta	Common Spike-sedge				
	Eucalyptus dives	Broad-leaf Peppermint				
	Eucalyptus goniocalyx s.l.	Bundy				
	Eucalyptus obliqua	Messmate Stringybark				
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus rubida subsp. rubida	Candlebark				

	Eucalyptus viminalis	Manna Gum				
	Euchiton involucratus s.l.	Common Cudweed				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Festuca arundinacea*	Tall Fescue				
	Geranium gardneri	Rough Crane's-bill				**local**
	Hardenbergia violacea	Purple Coral-pea				
*	*Hedera helix*	English Ivy				
	Hemarthria uncinata var. uncinata	Mat Grass				
*	*Holcus lanatus*	Yorkshire Fog				
	Hydrocotyle laxiflora	Stinking Pennywort				
	Juncus amabilis	Hollow Rush				
	Juncus pallidus	Pale Rush				
	Juncus subsecundus	Finger Rush				
*	*Leontodon taraxacoides subsp. taraxacoides*	Hairy Hawkbit				
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Microlaena stipoides var. stipoides	Weeping Grass				
	Opercularia varia	Variable Stinkweed				
	Oxalis perennans	Grassland Wood-sorrel				
	Pimelea humilis	Common Rice-flower				
	Pimelea linifolia subsp. linifolia	Slender Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
	Plantago varia	Variable Plantain				
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa sieberiana var. sieberiana	Grey Tussock-grass				
	Pteridium esculentum	Austral Bracken				
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus fruticosus spp. agg.*	Blackberry				
	Rytidosperma duttonianum	Brown-back Wallaby-grass				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma spp.	Wallaby Grass				
	Schoenus apogon	Common Bog-sedge				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Tetratheca ciliata	Pink-bells				
	Themeda triandra	Kangaroo Grass				
*	*Trifolium dubium*	Suckling Clover				
*	*Trifolium repens var. repens*	White Clover				
*	*Trifolium striatum*	Knotted Clover				
*	*Ulex europaeus*	Gorse				
*	*Vicia sativa subsp. nigra*	Narrow-leaf Vetch				
*	*Vulpia bromoides*	Squirrel-tail Fescue				
*	*Watsonia meriana var. bulbillifera*	Bulbil Watsonia				
	Xerochrysum viscosum	Shiny Everlasting				**local**

Hennebergs Road						
Origin	Scientific name	Common Name	EPBC	FFG	VROT	Local-regional
	Acacia aculeatissima	Thin-leaf Wattle				**regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia mearnsii	Black Wattle				
	Acacia melanoxylon	Blackwood				
	Acacia paradoxa	Hedge Wattle				
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena echinata var. echinata	Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche prostrata	Trailing Ground-berry				
	Acrotriche serrulata	Honey-pots				
*	*Agapanthus praecox subsp. orientalis*	Agapanthus				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Aira elegantissima*	Delicate Hair-grass				
	Alisma plantago-aquatica	Water Plantain				
	Amyema pendula	Drooping Mistletoe				
	Anthosachne scabra s.l.	Common Wheat-grass				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
*	*Arctotheca calendula*	Cape Weed				
	Arthropodium strictum s.l.	Chocolate Lily				
	Asperula conferta	Common Woodruff				**local**
	Asperula scoparia subsp. scoparia	Prickly Woodruff				
	Astroloma humifusum	Cranberry Heath				
	Austrostipa pubinodis	Tall Spear-grass				**local**
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Austrostipa semibarbata	Fibrous Spear-grass				
	Bossiaea prostrata	Creeping Bossiaea				
*	*Briza maxima*	Large Quaking-grass				
*	*Briza minor*	Lesser Quaking-grass				
*	*Bromus diandrus*	Great Brome				
*	*Bromus hordeaceus subsp. hordeaceus*	Soft Brome				
	Brunonia australis	Blue Pincushion				
	Bulbine bulbosa	Bulbine Lily				
	Burchardia umbellata	Milkmaids				
	Caesia calliantha	Blue Grass-lily				**regional**
*	*Callitriche stagnalis*	Common Water-starwort				
*	*Carduus tenuiflorus*	Winged Slender-thistle				
	Carex appressa	Tall Sedge				
*	*Chamaecytisus palmensis*	Tree Lucerne				
	Chrysocephalum apiculatum s.l.	Common Everlasting				**Regional**
	Chrysocephalum semipapposum	Clustered Everlasting				**local**
*	*Cirsium vulgare*	Spear Thistle				
	Comesperma volubile	Love Creeper				
	Coronidium scorpioides	Button Everlasting				
	Craspedia variabilis	Variable Billy-buttons				**local**
	Crassula helmsii	Swamp Crassula				
*	*Crataegus monogyna subsp. monogyna*	Hawthorn				
	Cynoglossum suaveolens	Sweet Hound's-tongue				**local**
*	*Cynosurus echinatus*	Rough Dog's-tail				
*	*Cytisus scoparius*	English Broom				

*	*Dactylis glomerata*	Cocksfoot				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				
	Dianella amoena	Matted Flax-lily	**En**	**L**	**e**	
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
	Diuris pardina	Leopard Orchid				**local**
	Drosera aberrans	Scented Sundew				
	Drosera auriculata	Tall Sundew				
	Drosera peltata	Pale Sundew				
	Drosera whittakeri aberrans	Scented Sundew				
	Eucalyptus dives	Broad-leaf Peppermint				
	Eucalyptus obliqua	Messmate Stringybark				
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus pauciflora subsp. pauciflora	White Sallee				**regional**
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus rubida subsp. rubida	Candlebark				
	Eucalyptus viminalis subsp. viminalis	Manna Gum				
	Euchiton japonicus	Creeping Cudweed				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Galium aparine*	Cleavers				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium retrorsum s.l.	Grassland Crane's-bill				**local**
	Geranium sp. 2	Variable Crane's-bill				
	Geranium sp. 3	Pale-flower Crane's-bill			**r**	
	Glossodia major	Wax-lip Orchid				**local**
	Gonocarpus tetragynus	Common Raspwort				
	Hardenbergia violacea	Purple Coral-pea				
*	*Holcus lanatus*	Yorkshire Fog				
	Hovea heterophylla	Common Hovea				
	Hydrocotyle hirta	Hairy Pennywort				
	Hydrocotyle laxiflora	Stinking Pennywort				
	Hypericum gramineum	Small St John's Wort				
*	*Hypochaeris glabra*	Smooth Cat's-ear				
*	*Hypochaeris radicata*	Flatweed				
	Hypoxis vaginata ssp. *vaginata*	Yellow Star				**local**
	Indigofera australis	Austral Indigo				
*	*Isolepis levynsiana*	Tiny Flat-sedge				
	Juncus amabilis	Hollow Rush				
*	*Juncus articulatus*	Jointed Rush				
	Juncus flavidus	Gold Rush				
	Juncus holoschoenus	Joint-leaf Rush				
	Juncus pallidus	Pale Rush				
	Juncus sarophorus	Broom Rush				
	Juncus subsecundus	Finger Rush				
	Lachnagrostis filiformis s.l.	Common Blown-grass				
	Lepidosperma laterale var. laterale	Variable Sword-sedge				
	Leptorhynchos squamatus subsp. squamatus	Scaly Buttons				**regional**
	Leptorhynchos tenuifolius	Wiry Buttons				**local**
	Leucopogon virgatus var. virgatus	Common Beard-heath				
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Lomandra filiformis subsp. filiformis	Wattle Mat-rush				
	Lomandra longifolia subsp. longifolia	Spiny-headed Mat-rush				
	Luzula meridionalis var. densiflora	Common Woodrush				

*	*Medicago polymorpha*	Burr Medic				
	Melicytus dentatus s.l.	Tree Violet				**local**
	Microlaena stipoides var. stipoides	Weeping Grass				
	Microseris sp. 3	Yam Daisy				**local**
*	*Moenchia erecta*	Erect Chickweed				
	Opercularia ovata	Broad-leaf Stinkweed				**local**
	Oxalis exilis	Shady Wood-sorrel				
	Oxalis perennans	Grassland Wood-sorrel				
*	*Oxalis purpurea*	Large-flower Wood-sorrel				
	Ozothamnus obcordatus	Grey Everlasting				
	Pelargonium rodneyanum	Magenta Stork's-bill				**local**
	Pimelea curviflora s.s.	Curved Rice-flower				**regional**
	Pimelea humilis	Common Rice-flower				
	Pimelea linifolia subsp. linifolia	Slender Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
*	*Plantago lanceolata*	Ribwort				
	Plantago varia	Variable Plantain				
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa morrisii	Soft Tussock-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Poa sieberiana var. sieberiana	Grey Tussock-grass				
	Poranthera microphylla s.l.	Small Poranthera				
*	*Prunus cerasifera*	Cherry Plum				
*	*Prunus cerasifera 'Nigra'*	Purple-leaf Cherry-plum				
	Pteridium esculentum	Austral Bracken				
*	*Romulea rosea var. australis s.s.*	Common Onion-grass				
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus anglocandicans*	Common Blackberry				
	Rytidosperma caespitosum	Common Wallaby-grass				
	Rytidosperma fulvum	Copper-awned Wallaby-grass				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma laeve	Smooth Wallaby-grass				
	Rytidosperma pallidum	Silvertop Wallaby-grass				
	Rytidosperma pilosum var. pilosum	Velvet Wallaby-grass				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass				
	Rytidosperma spp.	Wallaby Grass				
	Schoenus apogon	Common Bog-sedge				
	Senecio glomeratus	Annual Fireweed				
	Senecio hispidulus s.l.	Rough Fireweed				
	Senecio minimus	Shrubby Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Stackhousia monogyna s.l.	Creamy Stackhousia				
*	*Stellaria media*	Chickweed				
	Stylidium graminifolium s.l.	Grass Trigger-plant				**local**
*	*Taraxacum officinale spp. agg.*	Garden Dandelion				
	Thelymitra arenaria	Forest Sun-orchid				
	Themeda triandra	Kangaroo Grass				
	Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily				**local**
*	*Tragopogon porrifolius subsp. porrifolius*	Salsify				
	Tricoryne elatior	Yellow Rush-lily				

	Triglochin striata (flat leaf variant)	Streaked Arrowgrass				**local**
*	*Ulex europaeus*	Gorse				
	Veronica gracilis	Slender Speedwell				
*	*Vicia hirsuta*	Tiny Vetch				
*	*Vicia sativa subsp. nigra*	Narrow-leaf Vetch				
*	*Vicia sativa subsp. sativa*	Common Vetch				
*	*Viola odorata*	Common Violet				
*	*Vulpia bromoides*	Squirrel-tail Fescue				
	Wurmbea dioica subsp. dioica	Common Early Nancy				
	Xerochrysum viscosum	Shiny Everlasting				**local**

Lavender Farm Road						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Local-regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia melanoxylon	Blackwood				
	Acaena novae-zelandiae	Bidgee-widgee				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche prostrata	Trailing Ground-berry				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Anagallis arvensis var. arvensis*	Scarlet Pimpernel				
	Anthosachne scabra s.l.	Common Wheat-grass				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
	Austrostipa pubinodis	Tall Spear-grass				local
	Austrostipa stuposa	Tasmanian Spear-grass				regional
P	*Banksia marginata* (tree form)	Silver Banksia				
*	*Bromus catharticus var. catharticus*	Prairie Grass				
*	*Bromus diandrus*	Great Brome				
*	*Bromus hordeaceus subsp. hordeaceus*	Soft Brome				
	Bursaria spinosa subsp. spinosa	Sweet Bursaria				
	Cassinia aculeata	Common Cassinia				
*	*Centranthus ruber subsp. ruber*	Red Valerian				
*	*Cirsium vulgare*	Spear Thistle				
	Clematis aristata	Mountain Clematis				local
*	*Crataegus monogyna subsp. monogyna*	Hawthorn				
*	*Cynosurus echinatus*	Rough Dog's-tail				
*	*Cytisus scoparius*	English Broom				
*	*Dactylis glomerata*	Cocksfoot				
	Dianella admixta	Black-anther Flax-lily				
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
*	*Ehrharta erecta var. erecta*	Panic Veldt-grass				
*	*Elytrigia repens*	English Couch				
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus rubida subsp. rubida	Candlebark				
	Eucalyptus viminalis subsp. viminalis	Manna Gum				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Festuca arundinacea*	Tall Fescue				
*	*Galium aparine*	Cleavers				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium sp. 2	Variable Crane's-bill				

	Gonocarpus tetragynus	Common Raspwort				
	Goodenia ovata	Hop Goodenia				
*	*Hakea salicifolia subsp. salicifolia*	Willow-leaf Hakea				
*	*Hedera helix*	English Ivy				
	Hemarthria uncinata var. uncinata	Mat Grass				
*	*Holcus lanatus*	Yorkshire Fog				
*	*Hypochaeris radicata*	Flatweed				
	Juncus amabilis	Hollow Rush				
	Juncus pallidus	Pale Rush				
P	*Kunzea ericoides spp. agg.*	Burgan				
	Lepidosperma laterale var. majus	Variable Sword-sedge				
*	*Lolium perenne var. perenne*	Perennial Rye-grass				
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Lomandra filiformis subsp. filiformis	Wattle Mat-rush				
	Lomandra longifolia	Spiny-headed Mat-rush				
	Microlaena stipoides var. stipoides	Weeping Grass				
?P	*Olearia argophylla*	Musk Daisy-bush				
	Oxalis perennans	Grassland Wood-sorrel				
*	*Pinus radiata var. radiata*	Radiata Pine				
*	*Plantago lanceolata*	Ribwort				
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Polyscias sambucifolia subsp. 3	Mountain Panax				local
*	*Prunella vulgaris*	Self-heal				
*	*Prunus cerasifera*	Cherry Plum				
*	*Prunus cerasifera 'Nigra'*	Purple-leaf Cherry-plum				
	Pteridium esculentum	Austral Bracken				
	Pultenaea pedunculata	Matted Bush-pea				local
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus anglocandicans*	Common Blackberry				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma spp.	Wallaby Grass				
	Senecio glomeratus subsp. glomeratus	Annual Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
	Solanum aviculare	Kangaroo Apple				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Themeda triandra	Kangaroo Grass				
	Veronica gracilis	Slender Speedwell				
*	*Vinca major*	Blue Periwinkle				
*	*Vulpia bromoides*	Squirrel-tail Fescue				
*	*Vulpia myuros*	Rat's-tail Fescue				

McKinley Track						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Local-regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia melanoxylon	Blackwood				
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
*	*Acetosella vulgaris*	Sheep Sorrel				

*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Agrostis stolonifera*	Creeping Bent				
*	*Aira cupaniana*	Quicksilver Grass				
*	*Aira elegantissima*	Delicate Hair-grass				
	Amyema pendula	Drooping Mistletoe				
	Asperula scoparia subsp. scoparia	Prickly Woodruff				
	Austrostipa pubinodis	Tall Spear-grass				**local**
	Billardiera mutabilis	Common Apple-berry				
	Blechnum minus	Soft Water-fern				**local**
*	*Briza maxima*	Large Quaking-grass				
*	*Bromus diandrus*	Great Brome				
	Carex appressa	Tall Sedge				
	Carex gaudichaudiana	Fen Sedge				**regional**
	Cassinia aculeata	Common Cassinia				
	Cassinia arcuata	Drooping Cassinia				
	Chrysocephalum semipapposum	Clustered Everlasting				**local**
	Clematis aristata	Mountain Clematis				**local**
	Crassula helmsii	Swamp Crassula				**local**
*	*Cynosurus echinatus*	Rough Dog's-tail				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				
	Epilobium pallidiflorum	Showy Willow-herb				**regional**
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus viminalis subsp. viminalis	Manna Gum				
	Euchiton japonicus	Creeping Cudweed				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Galium aparine*	Cleavers				
	Geranium gardneri	Rough Crane's-bill				**local**
	Glyceria australis	Australian Sweet-grass				**local**
*	*Holcus lanatus*	Yorkshire Fog				
	Hydrocotyle laxiflora	Stinking Pennywort				
	Hydrocotyle pterocarpa	Wing Pennywort				**regional**
*	*Hypochaeris radicata*	Flatweed				
	Isolepis inundata	Swamp Club-sedge				
*	*Juncus articulatus*	Jointed Rush				
	Juncus pallidus	Pale Rush				
	Juncus sarophorus	Broom Rush				
	Leptospermum lanigerum	Woolly Tea-tree				**local**
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Lomandra filiformis subsp. filiformis	Wattle Mat-rush				
	Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush				**local**
	Lomandra longifolia subsp. longifolia	Spiny-headed Mat-rush				
	Lomandra micrantha subsp. micrantha	Small-flower Mat-rush				**regional**
*	*Lotus uliginosus*	Greater Bird's-foot Trefoil				
	Microlaena stipoides var. stipoides	Weeping Grass				
	Montia australasica	White Purslane				**regional**
*	*Nasturtium officinale*	Watercress				
	Ozothamnus obcordatus	Grey Everlasting				
	Persicaria decipiens	Slender Knotweed				
	Phragmites australis	Common Reed				
	Plantago varia	Variable Plantain				
	Platylobium montanum ssp. prostratum	Prostrate Mountain Flat-pea			**k**	

	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Pteridium esculentum	Austral Bracken				
*	*Ranunculus repens*	Creeping Buttercup				
*	*Rubus anglocandicans*	Common Blackberry				
	Rumex brownii	Slender Dock				
	Rytidosperma erianthum	Hill Wallaby-grass				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass				
	Senecio bathurstianus	Dissected Fireweed				**local**
	Senecio glomeratus subsp. glomeratus	Annual Fireweed				
	Senecio hispidulus s.l.	Rough Fireweed				
	Senecio linearifolius var. linearifolius	Fireweed Groundsel (type variant)				
	Senecio minimus	Shrubby Fireweed				
	Senecio phelleus	Stony Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Stellaria pungens	Prickly Starwort				
*	*Trifolium striatum*	Knotted Clover				
	Triglochin procera (broad erect leaf variant)	Common Water-ribbons				**local**
*	*Ulex europaeus*	Gorse				
*	*Vulpia bromoides*	Squirrel-tail Fescue				

Saunders Road						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Local-regional**
	Acacia aculeatissima	Thin-leaf Wattle				**regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia mearnsii	Black Wattle				
	Acacia melanoxylon	Blackwood				
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche prostrata	Trailing Ground-berry				
	Acrotriche serrulata	Honey-pots				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Aira elegantissima*	Delicate Hair-grass				
	Anthosachne scabra s.l.	Common Wheat-grass				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
*	*Arctotheca calendula*	Cape Weed				
	Arthropodium strictum s.l.	Chocolate Lily				
	Asperula conferta	Common Woodruff				**local**
	Astroloma humifusum	Cranberry Heath				
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Austrostipa semibarbata	Fibrous Spear-grass				
	Bossiaea prostrata	Creeping Bossiaea				
*	*Briza maxima*	Large Quaking-grass				
*	*Bromus catharticus var. catharticus*	Prairie Grass				
*	*Bromus diandrus*	Great Brome				
	Brunonia australis	Blue Pincushion				

	Bulbine bulbosa	Bulbine Lily				
	Burchardia umbellata	Milkmaids				
	Carex appressa	Tall Sedge				
	Carex gaudichaudiana	Fen Sedge				**regional**
	Cassinia arcuata	Drooping Cassinia				
	Centipeda elatinoides	Elatine Sneezeweed				**local**
	Chrysocephalum semipapposum	Clustered Everlasting				**local**
*	*Cirsium vulgare*	Spear Thistle				
	Clematis decipiens	Slender Clematis				
	Comesperma volubile	Love Creeper				
	Coronidium scorpioides	Button Everlasting				
*	*Crataegus monogyna subsp. monogyna*	Hawthorn				
*	*Cupressus macrocarpa*	Monterey Cypress				
	Cynoglossum suaveolens	Sweet Hound's-tongue				**local**
*	*Cytisus scoparius*	English Broom				
*	*Dactylis glomerata*	Cocksfoot				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
	Drosera auriculata	Tall Sundew				
	Eucalyptus dives	Broad-leaf Peppermint				
	Eucalyptus obliqua	Messmate Stringybark				
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus pauciflora subsp. pauciflora	White Sallee				**regional**
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus rubida	Candlebark				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Festuca arundinacea*	Tall Fescue				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium retrorsum s.l.	Grassland Crane's-bill				**local**
	Geranium sp. 2	Variable Crane's-bill				
	Geranium sp. 3	Pale-flower Crane's-bill			**r**	
	Gonocarpus tetragynus	Common Raspwort				
	Hardenbergia violacea	Purple Coral-pea				
	Hemarthria uncinata var. uncinata	Mat Grass				
*	*Holcus lanatus*	Yorkshire Fog				
	Hydrocotyle hirta	Hairy Pennywort				
	Hydrocotyle laxiflora	Stinking Pennywort				
*	*Hypochaeris radicata*	Flatweed				
	Isolepis inundata	Swamp Club-sedge				
	Juncus amabilis	Hollow Rush				
	Juncus sarophorus	Broom Rush				
	Juncus subsecundus	Finger Rush				
	Kennedia prostrata	Running Postman				
	Lachnagrostis filiformis s.l.	Common Blown-grass				
	Lagenophora stipitata	Common Bottle-daisy				
	Leucopogon virgatus var. virgatus	Common Beard-heath				
	Lomandra longifolia subsp. longifolia	Spiny-headed Mat-rush				
	Lythrum hyssopifolia	Small Loosestrife				
*	*Malus pumila*	Apple				
	Melicytus dentatus s.l.	Tree Violet				**local**
	Microlaena stipoides var. stipoides	Weeping Grass				
	Microseris sp. 3	Yam Daisy				**local**

*	*Narcissus spp.*	Narcissus				
	Olearia myrsinoides	Silky Daisy-bush				**regional**
	Opercularia varia	Variable Stinkweed				
	Oxalis corniculata s.l.	Yellow Wood-sorrel				
	Oxalis perennans	Grassland Wood-sorrel				
*	*Phalaris aquatica*	Toowoomba Canary-grass				
	Pimelea humilis	Common Rice-flower				
	Pimelea linifolia subsp. linifolia	Slender Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
*	*Plantago lanceolata*	Ribwort				
	Plantago varia	Variable Plantain				
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa morrisii	Soft Tussock-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Poa sieberiana var. sieberiana	Grey Tussock-grass				
*	*Prunus cerasifera*	Cherry Plum				
*	*Romulea rosea var. australis s.s.*	Common Onion-grass				
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus anglocandicans*	Common Blackberry				
*	*Rumex crispus*	Curled Dock				
	Rytidosperma erianthum	Hill Wallaby-grass				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass				
	Rytidosperma spp.	Wallaby Grass				
	Senecio glomeratus	Annual Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Stackhousia monogyna s.l.	Creamy Stackhousia				
	Stylidium graminifolium s.l.	Grass Trigger-plant				**local**
*	*Taraxacum officinale spp. agg.*	Garden Dandelion				
	Tetratheca ciliata	Pink-bells				
	Themeda triandra	Kangaroo Grass				
*	*Tragopogon porrifolius subsp. porrifolius*	Salsify				
	Tricoryne elatior	Yellow Rush-lily				
*	*Trifolium subterraneum*	Subterranean Clover				
*	*Ulex europaeus*	Gorse				
	Veronica gracilis	Slender Speedwell				
*	*Vicia sativa subsp. sativa*	Common Vetch				
*	*Viola odorata*	Common Violet				
*	*Vulpia bromoides*	Squirrel-tail Fescue				
	Wurmbea dioica subsp. dioica	Common Early Nancy				
	Xerochrysum viscosum	Shiny Everlasting				**local**

Sheltons Road						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Local-regional**
	Acacia aculeatissima	Thin-leaf Wattle				**regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
#	*Acacia floribunda*	White Sallow-wattle				
	Acacia mearnsii	Black Wattle				
	Acacia melanoxylon	Blackwood				

	Acacia stricta	Hop Wattle				**local**
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena echinata	Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
	Acaena ovina	Australian Sheep's Burr				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche serrulata	Honey-pots				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
	Alisma plantago-aquatica	Water Plantain				
	Amyema pendula	Drooping Mistletoe				
*	*Anagallis arvensis var. arvensis*	Scarlet Pimpernel				
	Anthosachne scabra s.l.	Common Wheat-grass				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
*	*Arctotheca calendula*	Cape Weed				
	Arthropodium milleflorum s.l.	Pale Vanilla-lily				**local**
	Arthropodium strictum s.l.	Chocolate Lily				
	Asperula conferta	Common Woodruff				**local**
	Astroloma humifusum	Cranberry Heath				
	Austrostipa mollis	Supple Spear-grass				
	Austrostipa pubinodis	Tall Spear-grass				**local**
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Austrostipa semibarbata	Fibrous Spear-grass				
	Austrostipa stuposa	Tasmanian Spear-grass				**regional**
*	*Avena barbata*	Bearded Oat				
	Bossiaea prostrata	Creeping Bossiaea				
*	*Briza maxima*	Large Quaking-grass				
*	*Briza minor*	Lesser Quaking-grass				
*	*Bromus diandrus*	Great Brome				
*	*Bromus hordeaceus subsp. hordeaceus*	Soft Brome				
	Brunonia australis	Blue Pincushion				
	Bulbine bulbosa	Bulbine Lily				
	Burchardia umbellata	Milkmaids				
	Callitriche sonderi	Matted Water-starwort				**regional**
*	*Callitriche stagnalis*	Common Water-starwort				
	Carex appressa	Tall Sedge				
	Carex breviculmis	Common Grass-sedge				
	Carex gaudichaudiana	Fen Sedge				**regional**
	Carex iynx	Tussock Sedge				**local**
	Cassinia aculeata	Common Cassinia				
	Cassinia arcuata	Drooping Cassinia				
	Cassytha glabella	Slender Dodder-laurel				**local**
	Centipeda cunninghamii	Common Sneezeweed				
	Chrysocephalum apiculatum	Common Everlasting				**Regional**
	Chrysocephalum semipapposum	Clustered Everlasting				**local**
*	*Cirsium vulgare*	Spear Thistle				
	Clematis decipiens	Slender Clematis				
	Coronidium scorpioides	Button Everlasting				
*	*Crataegus monogyna subsp. monogyna*	Hawthorn				
*	*Cynosurus echinatus*	Rough Dog's-tail				
*	*Cytisus scoparius*	English Broom				
*	*Dactylis glomerata*	Cocksfoot				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				

	Dichelachne rara	Common Plume-grass				
	Dichondra repens	Kidney-weed				
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
	Drosera aberrans	Scented Sundew				
	Drosera auriculata	Tall Sundew				
	Drosera peltata	Pale Sundew				
	Eucalyptus dives	Broad-leaf Peppermint				
	Eucalyptus melliodora	Yellow Box				**local**
	Eucalyptus obliqua	Messmate Stringybark				
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus pauciflora subsp. pauciflora	White Sallee				**regional**
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus rubida subsp. rubida	Candlebark				
	Euchiton collinus s.l.	Clustered/Creeping Cudweed				
	Euchiton involucratus s.l.	Common Cudweed				
*	*Euphorbia lathyris*	Caper Spurge				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Festuca arundinacea*	Tall Fescue				
*	*Galium aparine*	Cleavers				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium retrorsum s.l.	Grassland Crane's-bill				**local**
	Geranium sp. 2	Variable Crane's-bill				
	Geranium sp. 3	Pale-flower Crane's-bill			**r**	
	Glyceria australis	Australian Sweet-grass				**local**
	Gompholobium huegelii	Common Wedge-pea				
	Gonocarpus tetragynus	Common Raspwort				
	Hardenbergia violacea	Purple Coral-pea				
*	*Hedera helix*	English Ivy				
	Helichrysum rutidolepis s.l.	Pale Everlasting				
*	*Holcus lanatus*	Yorkshire Fog				
	Hovea heterophylla	Common Hovea				
	Hydrocotyle laxiflora	Stinking Pennywort				
	Hypericum gramineum	Small St John's Wort				
*	*Hypochaeris radicata*	Flatweed				
	Isolepis inundata	Swamp Club-sedge				
*	*Isolepis levynsiana*	Tiny Flat-sedge				
	Juncus amabilis	Hollow Rush				
	Juncus bufonius	Toad Rush				
	Juncus gregiflorus	Green Rush				
	Juncus holoschoenus	Joint-leaf Rush				
	Juncus sarophorus	Broom Rush				
	Juncus subsecundus	Finger Rush				
	Lachnagrostis filiformis s.l.	Common Blown-grass				
	Lepidosperma laterale var. laterale	Variable Sword-sedge				
	Leptorhynchos squamatus subsp. squamatus	Scaly Buttons				**regional**
	Leptorhynchos tenuifolius	Wiry Buttons				**local**
	Leucopogon virgatus var. virgatus	Common Beard-heath				
*	*Lolium perenne var. perenne*	Perennial Rye-grass				
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Lomandra longifolia subsp. longifolia	Spiny-headed Mat-rush				
	Lomandra nana	Dwarf Mat-rush				**local**
	Luzula meridionalis var. densiflora	Common Woodrush				
	Lythrum hyssopifolia	Small Loosestrife				

	Melicytus dentatus s.l.	Tree Violet				**local**
	Microlaena stipoides var. stipoides	Weeping Grass				
	Microseris sp. 3	Yam Daisy				**local**
	Montia australasica	White Purslane				**regional**
	Olearia lirata	Snowy Daisy-bush				**local**
	Olearia myrsinoides	Silky Daisy-bush				**regional**
	Oxalis exilis	Shady Wood-sorrel				
	Oxalis perennans	Grassland Wood-sorrel				
*	*Phalaris aquatica*	Toowoomba Canary-grass				
	Pimelea curviflora s.l.	Curved Rice-flower				**regional**
	Pimelea humilis	Common Rice-flower				
	Pimelea linifolia subsp. linifolia	Slender Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
#	*Pittosporum undulatum*	Sweet Pittosporum				
	Plantago gaudichaudii	Narrow Plantain				**regional**
*	*Plantago lanceolata*	Ribwort				
	Plantago varia	Variable Plantain				
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa morrisii	Soft Tussock-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Poa sieberiana var. sieberiana	Grey Tussock-grass				
	Podolobium procumbens	Trailing Podolobium				**local**
*	*Prunella vulgaris*	Self-heal				
*	*Prunus cerasifera 'Nigra'*	Purple-leaf Cherry-plum				
	Pteridium esculentum	Austral Bracken				
*	*Romulea rosea var. australis s.s.*	Common Onion-grass				
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus anglocandicans*	Common Blackberry				
	Rytidosperma caespitosum	Common Wallaby-grass				
	Rytidosperma erianthum	Hill Wallaby-grass				
	Rytidosperma fulvum	Copper-awned Wallaby-grass				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma pilosum var. pilosum	Velvet Wallaby-grass				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass				
	Rytidosperma spp.	Wallaby Grass				
	Rytidosperma tenuius	Purplish Wallaby-grass				
	Schoenus apogon	Common Bog-sedge				
	Senecio campylocarpus	Floodplain Fireweed			**r**	
	Senecio glomeratus	Annual Fireweed				
	Senecio hispidulus s.l.	Rough Fireweed				
	Senecio phelleus	Stony Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Stackhousia monogyna s.l.	Creamy Stackhousia				
	Stylidium graminifolium s.l.	Grass Trigger-plant				**local**
	Themeda triandra	Kangaroo Grass				
	Thysanotus patersonii	Twining Fringe-lily				
	Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily				**local**
	Tricoryne elatior	Yellow Rush-lily				
	Triglochin procera (broad erect leaf variant)	Common Water-ribbons				**local**

	Triglochin striata	Streaked Arrowgrass				**local**
*	*Ulex europaeus*	Gorse				
*	*Ulmus procera*	English Elm				
	Veronica gracilis	Slender Speedwell				
	Viola hederacea sensu Entwisle (1996)	Ivy-leaf Violet				
*	*Vulpia bromoides*	Squirrel-tail Fescue				
	Wahlenbergia gracilis	Sprawling Bluebell				
	Wahlenbergia multicaulis	Branching Bluebell				**local**
	Wahlenbergia stricta subsp. stricta	Tall Bluebell				
	Wahlenbergia victoriensis	Large-flowered Annual-bluebell				**regional**
	Wurmbea dioica subsp. dioica	Common Early Nancy				
	Xerochrysum viscosum	Shiny Everlasting				**local**

Three Chain Road						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**Local-regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia melanoxylon	Blackwood				
	Acacia provincialis	Wirilda				
	Acacia verniciflua	Varnish Wattle				
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena echinata var. echinata	Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
	Acaena ovina	Australian Sheep's Burr				
*	*Acetosella vulgaris*	Sheep Sorrel				
	Acrotriche prostrata	Trailing Ground-berry				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Aira cupaniana*	Quicksilver Grass				
*	*Aira elegantissima*	Delicate Hair-grass				
	Allittia cardiocarpa	Swamp Daisy				**regional**
	Amphibromus nervosus	Common Swamp Wallaby-grass				**local**
	Amyema miquelii	Box Mistletoe				
	Amyema pendula	Drooping Mistletoe				
*	*Anagallis arvensis var. arvensis*	Scarlet Pimpernel				
*	*Anthemis cotula*	Stinking Mayweed				
	Anthosachne scabra s.l.	Common Wheat-grass				
*	*Anthoxanthum odoratum*	Sweet Vernal-grass				
	Arthropodium milleflorum s.s.	Pale Vanilla-lily				**local**
	Arthropodium strictum s.l.	Chocolate Lily				
	Asperula conferta	Common Woodruff				**local**
	Astroloma humifusum	Cranberry Heath				
	Austrostipa mollis	Supple Spear-grass				
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Austrostipa semibarbata	Fibrous Spear-grass				
*	*Avena barbata*	Bearded Oat				
	Bossiaea prostrata	Creeping Bossiaea				
*	*Briza maxima*	Large Quaking-grass				
*	*Briza minor*	Lesser Quaking-grass				
*	*Bromus catharticus*	Prairie Grass				
*	*Bromus diandrus*	Great Brome				
*	*Bromus hordeaceus subsp. hordeaceus*	Soft Brome				

*	*Bromus madritensis*	Madrid Brome				
	Brunonia australis	Blue Pincushion				
	Bulbine bulbosa	Bulbine Lily				
	Burchardia umbellata	Milkmaids				
	Caesia calliantha	Blue Grass-lily				**regional**
	Calytrix tetragona	Common Fringe-myrtle				**regional**
	Carex appressa	Tall Sedge				
	Carex breviculmis	Common Grass-sedge				
	Carex inversa	Knob Sedge				
	Carex iynx	Tussock Sedge				**local**
	Cassinia arcuata	Drooping Cassinia				
*	*Centaurium erythraea*	Common Centaury				
*	*Centaurium tenuiflorum*	Slender Centaury				
	Centella cordifolia	Centella				
	Centipeda cunninghamii	Common Sneezeweed				
*	*Cirsium vulgare*	Spear Thistle				
	Convolvulus angustissimus subsp. angustissimus	Blushing Bindweed				**local**
	Coronidium scorpioides	Button Everlasting				
*	*Crataegus monogyna subsp. monogyna*	Hawthorn				
*	*Cupressus macrocarpa*	Monterey Cypress				
*	*Cytisus scoparius*	English Broom				
*	*Dactylis glomerata*	Cocksfoot				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Deyeuxia quadriseta	Reed Bent-grass				
	Dianella admixta	Black-anther Flax-lily				
	Dianella amoena	Matted Flax-lily	**En**	**L**	**e**	
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
	Diuris chryseopsis	Golden Moths				**regional**
	Drosera auriculata	Tall Sundew				
	Drosera peltata	Pale Sundew				
	Eleocharis acuta	Common Spike-sedge				
	Epilobium hirtigerum	Hairy Willow-herb				
	Eryngium vesiculosum	Prickfoot				**regional**
	Eucalyptus melliodora	Yellow Box				**local**
	Eucalyptus ovata var. ovata	Swamp Gum				
	Eucalyptus pauciflora subsp. pauciflora	White Sallee				**regional**
	Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint				
	Eucalyptus rubida subsp. rubida	Candlebark				
	Eucalyptus viminalis	Manna Gum				
	Euchiton collinus s.s.	Creeping Cudweed				
	Euchiton japonicus	Creeping Cudweed				
	Exocarpos cupressiformis	Cherry Ballart				
*	*Festuca arundinacea*	Tall Fescue				
*	*Galium aparine*	Cleavers				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium retrorsum s.l.	Grassland Crane's-bill				**local**
	Geranium sp. 2	Variable Crane's-bill				
	Geranium sp. 3	Pale-flower Crane's-bill			**r**	
	Glyceria australis	Australian Sweet-grass				**local**
	Gonocarpus tetragynus	Common Raspwort				
*	*Grevillea spp.*	Grevillea (cultivar)				
	Haloragis heterophylla	Varied Raspwort				**local**
	Hardenbergia violacea	Purple Coral-pea				

	Hemarthria uncinata var. uncinata	Mat Grass				
*	*Holcus lanatus*	Yorkshire Fog				
	Hovea heterophylla	Common Hovea				
	Hydrocotyle laxiflora	Stinking Pennywort				
	Hypericum gramineum	Small St John's Wort				
*	*Hypochaeris glabra*	Smooth Cat's-ear				
*	*Hypochaeris radicata*	Flatweed				
*	*Isolepis hystrix*	Awned Club-sedge				
	Isolepis inundata	Swamp Club-sedge				
	Isolepis marginata	Little Club-sedge				
	Juncus amabilis	Hollow Rush				
*	*Juncus articulatus*	Jointed Rush				
	Juncus australis	Austral Rush				
	Juncus holoschoenus	Joint-leaf Rush				
	Juncus pallidus	Pale Rush				
	Juncus sarophorus	Broom Rush				
	Juncus subsecundus	Finger Rush				
	Lachnagrostis filiformis s.l.	Common Blown-grass				
*	*Leontodon taraxacoides subsp. taraxacoides*	Hairy Hawkbit				
	Leptorhynchos squamatus subsp. squamatus	Scaly Buttons				**regional**
	Leptorhynchos tenuifolius	Wiry Buttons				**local**
	Lobelia pedunculata s.s.	Matted Pratia				**local**
	Lomandra filiformis subsp. coriacea	Wattle Mat-rush				
	Lomandra longifolia subsp. longifolia	Spiny-headed Mat-rush				
	Lomandra nana	Dwarf Mat-rush				**local**
	Luzula meridionalis var. flaccida	Common Woodrush				
	Luzula meridionalis var. meridionalis	Common Woodrush				
	Lythrum hyssopifolia	Small Loosestrife				
*	*Malus pumila*	Apple				
#	*Melaleuca parvistaminea*	Rough-barked Honey-myrtle				
	Microlaena stipoides var. stipoides	Weeping Grass				
	Microseris sp. 3	Yam Daisy				**local**
	Microtis unifolia	Common Onion-orchid				
*	*Moenchia erecta*	Erect Chickweed				
*	*Nassella neesiana*	Chilean Needle-grass				
	Oxalis perennans	Grassland Wood-sorrel				
*	*Paspalum dilatatum*	Paspalum				
*	*Phalaris aquatica*	Toowoomba Canary-grass				
	Pimelea humilis	Common Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
*	*Plantago coronopus subsp. coronopus*	Buck's-horn Plantain				
*	*Plantago lanceolata*	Ribwort				
	Plantago varia	Variable Plantain				
	Poa labillardierei var. (Volcanic Plains)	Basalt Tussock-grass			**k**	
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa morrisii	Soft Tussock-grass				
*	*Poa pratensis*	Kentucky Blue-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Poa sieberiana var. sieberiana	Grey Tussock-grass				
	Podolobium alpestre	Alpine Shaggy-pea				**regional**
*	*Prunus cerasifera*	Cherry Plum				
	Pterostylis nutans	Nodding Greenhood				**local**
*	*Pyrus communis*	Pear				

*	*Romulea rosea var. australis s.s.*	Common Onion-grass				
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus anglocandicans*	Blackberry				
*	*Rumex crispus*	Curled Dock				
	Rytidosperma caespitosum	Common Wallaby-grass				
	Rytidosperma duttonianum	Brown-back Wallaby-grass				
	Rytidosperma erianthum	Hill Wallaby-grass				
	Rytidosperma fulvum	Copper-awned Wallaby-grass				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma laeve	Smooth Wallaby-grass				**local**
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass				
	Rytidosperma spp.	Wallaby Grass				
*	*Salix fragilis*	Crack Willow				
*	*Salix matsudana 'Tortuosa'*	Tortured Willow				
	Schoenus apogon	Common Bog-sedge				
	Senecio campylocarpus	Floodplain Fireweed			**r**	
	Senecio glomeratus subsp. glomeratus	Annual Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
	Senecio squarrosus s.l.	Leafy Fireweed				**regional**
*	*Sisymbrium officinale*	Hedge Mustard				
	Solenogyne dominii	Smooth Solenogyne				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Stylidium graminifolium s.s	Grass Triggerplant				**local**
*	*Taraxacum officinale spp. agg.*	Garden Dandelion				
*	*Taraxacum Sect. Hamata*	Garden Dandelion				
	Thelymitra arenaria	Forest Sun-orchid				
	Thelymitra brevifolia	Peppertop Sun-orchid				
	Thelymitra ixioides s.l.	Spotted Sun-orchid				**local**
	Thelymitra pauciflora s.s.	Slender Sun-orchid				
	Thelymitra peniculata	Trim Sun-orchid				
	Thelymitra rubra	Salmon Sun-orchid				**local**
	Thelymitra spp.	Sun Orchid				
	Themeda triandra	Kangaroo Grass				
	Thysanotus patersonii	Twining Fringe-lily				
	Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily				**local**
*	*Tragopogon porrifolius subsp. porrifolius*	Salsify				
	Tricoryne elatior	Yellow Rush-lily				
*	*Trifolium angustifolium var. angustifolium*	Narrow-leaf Clover				
*	*Trifolium campestre var. campestre*	Hop Clover				
*	*Trifolium dubium*	Suckling Clover				
*	*Trifolium repens var. repens*	White Clover				
*	*Trifolium striatum*	Knotted Clover				
*	*Trifolium subterraneum*	Subterranean Clover				
	Typha domingensis	Narrow-leaf Cumbungi				
*	*Ulex europaeus*	Gorse				
	Veronica gracilis	Slender Speedwell				
	Viola betonicifolia	Showy Violet				**local**
*	*Vulpia bromoides*	Squirrel-tail Fescue				
*	*Vulpia myuros f. myuros*	Rat's-tail Fescue				
	Wurmbea dioica subsp. dioica	Common Early Nancy				

	Wurmbea latifolia subsp. vanessae	Broad-leaf Early Nancy				**regional**
	Xerochrysum viscosum	Shiny Everlasting				**local**

Whitebridge Road						
Origin	**Scientific name**	**Common Name**	**EPBC**	**FFG**	**VROT**	**local-regional**
	Acacia dealbata subsp. dealbata	Silver Wattle				
	Acacia melanoxylon	Blackwood				
#	*Acacia pravissima*	Ovens Wattle				
	Acaena agnipila	Hairy Sheep's Burr				
	Acaena novae-zelandiae	Bidgee-widgee				
	Acrotriche prostrata	Trailing Ground-berry				
	Acrotriche serrulata	Honey-pots				
*	*Agrostis capillaris var. capillaris*	Brown-top Bent				
*	*Aira cupaniana*	Quicksilver Grass				
*	*Aira elegantissima*	Delicate Hair-grass				
	Alisma plantago-aquatica	Water Plantain				
	Amyema pendula	Drooping Mistletoe				
	Anthosachne scabra s.l.	Common Wheat-grass				
	Arthropodium strictum s.s.	Chocolate Lily				
	Asperula conferta	Common Woodruff				**local**
	Asperula scoparia subsp. scoparia	Prickly Woodruff				
	Austrostipa rudis subsp. rudis	Veined Spear-grass				
	Austrostipa semibarbata	Fibrous Spear-grass				
	Bossiaea prostrata	Creeping Bossiaea				
*	*Briza maxima*	Large Quaking-grass				
*	*Bromus diandrus*	Great Brome				
*	*Bromus hordeaceus subsp. hordeaceus*	Soft Brome				
	Brunonia australis	Blue Pincushion				
	Burchardia umbellata	Milkmaids				
	Carex appressa	Tall Sedge				
	Centella cordifolia	Centella				
	Centipeda cunninghamii	Common Sneezeweed				
	Centipeda elatinoides	Elatine Sneezeweed				
	Coronidium scorpioides	Button Everlasting				
*	*Cynosurus echinatus*	Rough Dog's-tail				
*	*Dactylis glomerata*	Cocksfoot				
	Daviesia leptophylla	Narrow-leaf Bitter-pea				
	Dianella admixta	Black-anther Flax-lily				
	Dillwynia cinerascens s.l.	Grey Parrot-pea				
	Eleocharis acuta	Common Spike-sedge				
	Eucalyptus dives	Broad-leaf Peppermint				
	Eucalyptus obliqua	Messmate Stringybark				
	Eucalyptus pauciflora subsp. pauciflora	White Sallee				**regional**
	Eucalyptus radiata s.l.	Narrow-leaf Peppermint				
	Eucalyptus rubida	Candlebark				
	Euchiton involucratus s.l.	Common Cudweed				
	Exocarpos cupressiformis	Cherry Ballart				**local**
*	*Festuca arundinacea*	Tall Fescue				
*	*Genista monspessulana*	Montpellier Broom				
	Geranium retrorsum s.l.	Grassland Crane's-bill				
	Geranium sp. 2	Variable Crane's-bill				
	Glyceria australis	Australian Sweet-grass				**local**

	Gonocarpus tetragynus	Common Raspwort				
	Hardenbergia violacea	Purple Coral-pea				
*	*Holcus lanatus*	Yorkshire Fog				
	Hovea heterophylla	Common Hovea				
	Hydrocotyle laxiflora	Stinking Pennywort				
*	*Hypochaeris radicata*	Flatweed				
	Juncus amabilis	Hollow Rush				
*	*Juncus articulatus*	Jointed Rush				
	Juncus australis	Austral Rush				
	Juncus holoschoenus	Joint-leaf Rush				
	Juncus pallidus	Pale Rush				
	Juncus sarophorus	Broom Rush				
	Kennedia prostrata	Running Postman				
	Leucopogon virgatus var. virgatus	Common Beard-heath				
*	*Ligustrum lucidum*	Large-leaf Privet				
*	*Lolium rigidum*	Wimmera Rye-grass				
	Lomandra filiformis subsp. filiformis	Wattle Mat-rush				
	Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush				**local**
*	*Malus pumila*	Apple				
#	*Melaleuca armillaris subsp. armillaris*	Giant Honey-myrtle				
	Microlaena stipoides var. stipoides	Weeping Grass				
*	*Nassella neesiana*	Chilean Needle-grass				
	Olearia myrsinoides	Silky Daisy-bush				**regional**
	Opercularia varia	Variable Stinkweed				
	Oxalis perennans	Grassland Wood-sorrel				
	Pimelea humilis	Common Rice-flower				
	Pimelea linifolia subsp. linifolia	Slender Rice-flower				
*	*Pinus radiata var. radiata*	Radiata Pine				
#	*Pittosporum undulatum*	Sweet Pittosporum				
*	*Plantago coronopus*	Buck's-horn Plantain				
*	*Plantago lanceolata*	Ribwort				
	Plantago varia	Variable Plantain				
	Poa labillardierei var. labillardierei	Common Tussock-grass				
	Poa sieberiana var. hirtella	Grey Tussock-grass				
	Poa sieberiana var. sieberiana	Grey Tussock-grass				
	Poranthera microphylla s.l.	Small Poranthera				
*	*Prunus cerasifera*	Cherry Plum				
*	*Prunus cerasifera 'Nigra'*	Purple-leaf Cherry-plum				
	Pteridium esculentum	Austral Bracken				
	Pultenaea humilis	Dwarf Bush-pea				**regional**
*	*Rosa rubiginosa*	Sweet Briar				
*	*Rubus fruticosus spp. agg.*	Blackberry				
	Rumex brownii	Slender Dock				
	Rytidosperma duttonianum	Brown-back Wallaby-grass				
	Rytidosperma geniculatum	Kneed Wallaby-grass				
	Rytidosperma pallidum	Silver-top Wallaby-grass				
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass				
	Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass				
*	*Salix cinerea*	Grey Sallow				
*	*Salix fragilis*	Crack Willow				
	Senecio glomeratus	Annual Fireweed				
	Senecio hispidulus s.l.	Rough Fireweed				
	Senecio phelleus	Stony Fireweed				

	Senecio prenanthoides	Beaked Fireweed				
	Senecio quadridentatus	Cotton Fireweed				
*	*Sonchus asper s.l.*	Rough Sow-thistle				
*	*Sonchus oleraceus*	Common Sow-thistle				
	Stackhousia monogyna s.l.	Creamy Stackhousia				
	Stylidium graminifolium s.l.	Grass Trigger-plant				**local**
	Tetratheca ciliata	Pink-bells				
	Thelymitra brevifolia	Pepper-top Sun-orchid				
	Themeda triandra	Kangaroo Grass				
*	*Tragopogon porrifolius subsp. porrifolius*	Salsify				
	Tricoryne elatior	Yellow Rush-lily				
*	*Trifolium campestre var. campestre*	Hop Clover				
*	*Trifolium dubium*	Suckling Clover				
*	*Trifolium fragiferum var. fragiferum*	Strawberry Clover				
*	*Trifolium subterraneum*	Subterranean Clover				
	Veronica gracilis	Slender Speedwell				
*	*Vicia hirsuta*	Tiny Vetch				
*	*Vulpia bromoides*	Squirrel-tail Fescue				
*	*Vulpia myuros*	Rat's-tail Fescue				
	Wahlenbergia stricta subsp. stricta	Tall Bluebell				