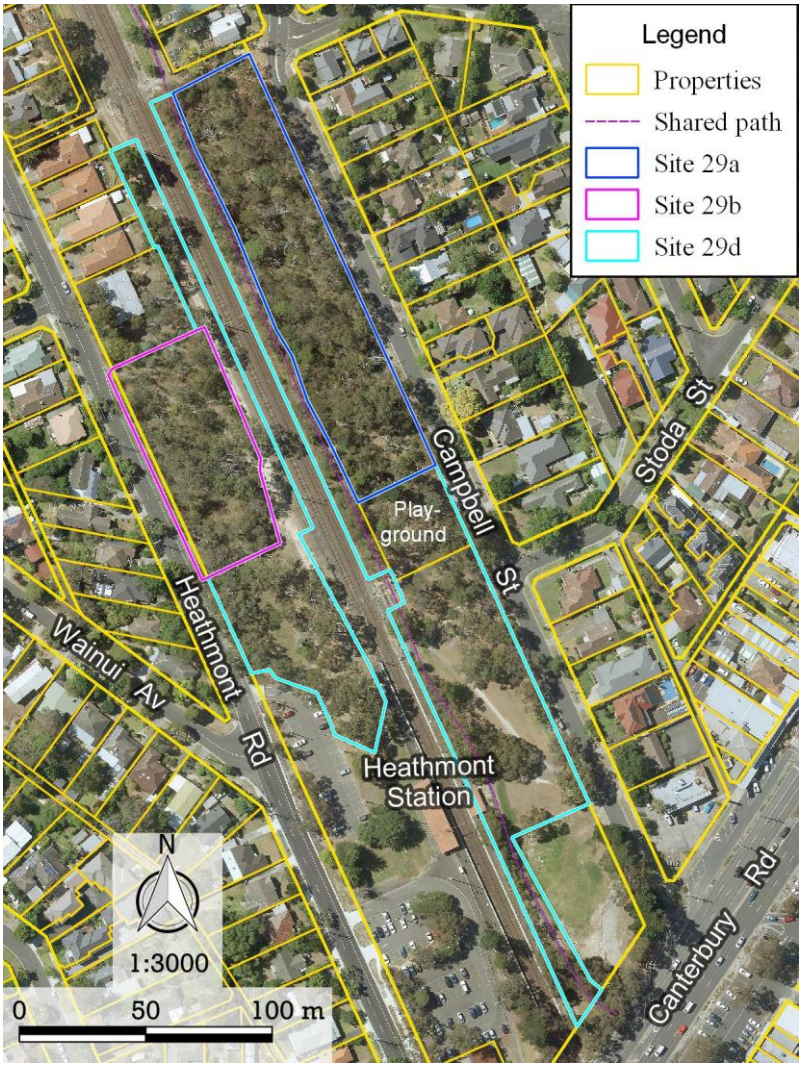
Site 29b. Heathmont Railway Station Sanctuary

Biological Significance Level: *National* due to the presence of an endangered species and *State* due to the presence of an endangered vegetation type



Boundary

The aerial photograph above is overlaid with relevant boundaries, including that of Site 29b shown in magenta. Site 29b contains two fenced enclosures separated by a footpath, as well as the abutting strip of land between the enclosures and the kerb of Heathmont Road.

The site corresponds to part of Site 29 in the 1997 report, *'Sites of Biological Significance in Maroondah'*.

Land use and tenure

The site is on railway land but it is leased by Maroondah City Council, who manages the land primarily for nature conservation.

General description

This site measures 0.36 ha. It is a piece of railway land that retains a remarkable range of indigenous plant species, including a flat-pea that is globally endangered (*Platylobium infecundum*) and a midge-orchid that

occurs nowhere else in (or near) Maroondah (*Corunastylis morrisii*). One hundred naturally-occurring, indigenous plant species were observed in the site during this study.

A 1945 aerial photograph shows Site 29b with a sparse cover of young trees, consistent with young regrowth following clearing. (Almost all of Maroondah had been cleared at least once by 1945.) The vegetation has since matured and now includes some large, old eucalypts.

The site was first documented as having value for nature conservation in the mid-1990s. As the land had not been used for railway purposes (other than dumping clay), the Public Transport Corporation leased the land to Maroondah City Council for conservation purposes in (or about) 1996.

Council has undertaken extensive weeding, leaving rather few introduced plants within the site today.

Council constructed fences and a surfaced path to avoid the previous haphazard creation of informal footpaths. The path takes substantial foot traffic to and from the Heathmont shops and train station, exposing many people to the site's natural ambience.

Relationship to other land

Few of the fauna species in Site 29b would be able to meet their full habitat needs solely within the site, so they must travel to and from other habitat. Similarly, many of the plants would be at heightened risk of inbreeding or failed reproduction if not for pollen or seeds being exchanged with plants elsewhere. Ecological connections are therefore very important for Site 29b's ecological viability.

The most important ecological connection is with F.J.C. Rogers Reserve (Site 29a) on the opposite side of the train tracks. Many birds can be seen flying between the two sites. Insects are also very likely to fly between them. The birds and insects are expected to carry pollen and seeds.

These interactions extend to the adjacent parts of Site 29d, which contain indigenous trees, grasses and a few wildflowers.

Across Canterbury Road, Site 29d provides a habitat corridor to the southeast, connecting with Site 32 ('Uambi'), Site 29c, Sites 73–75 and other sites along Dandenong Creek, Bungalook Creek and Tarralla Creek. These sites are depicted on p. 230. The native vegetation along the railway corridor in Site 29d is sometimes very narrow or interrupted but the ecological connection is strengthened by indigenous trees in neighbouring streets and gardens.

The *'Maroondah Habitat Corridors Strategy'* (Context 2005) gives the corridor along the railway line 'moderate conservation priority', from Bedford Park to Dandenong Creek. There is currently little habitat connection between Bedford Park and F.J.C. Rogers Reserve.

While Site 29b's strongest ecological connections are with F.J.C. Rogers Reserve (Site 29a) and to the southeast along the railway line, it was apparent during this study's fieldwork that many forest birds fly to and from the west. This provides circumstantial evidence of an ecological connection with Wieland Reserve (Site 119), which lies 180 m to the west. There may also be connections with Jubilee Park (Site 114), an additional 600 m to the west.

Regardless of the destinations to the west of Site 29b, the movement of birds in that direction mean that residents in the area traversed have the opportunity to enjoy those birds as they move through.

Bioregion: Gippsland Plain

Habitat type

The description of vegetation below includes only the more abundant or ecologically informative indigenous plant species. It is hoped that the full set of flora data will be made available online.

Valley Heathy Forest (Ecological Vegetation Class no. 127, **Endangered** in the bioregion)

Canopy trees: Red Stringybark (*Eucalyptus macrorhyncha*) is the most abundant species, closely followed by Messmate Stringybark (*E. obliqua*), then Narrow-leaved Peppermint (*E. radiata*). Mealy Stringybark (*E. cephalocarpa*) and Bundy (*E. goniocalyx*) are scarce.

Lower trees: Dominated variously by Cherry Ballart (*Exocarpos cupressiformis*) or Black Wattle (*Acacia mearnsii*). Blackwood (*A. melanoxylon*) is fairly abundant.

Medium to large shrubs: Quite dense, with abundant Sifton Bush (*Cassinia sifton*) and Golden Bush-pea (*Pultenaea gunnii*). The following species are scattered or fairly abundant: Myrtle Wattle (*Acacia myrtifolia*), Hedge Wattle (*Acacia paradoxa*), Common Correa (*Correa reflexa*), Common Heath (*Epacris impressa*), Hop Goodenia (*Goodenia ovata*) and Prickly Tea-tree (*Leptospermum continentale*). Other medium to large shrubs are scarce, notably including Silver Banksia (*Banksia marginata*).

Small shrubs: Fairly abundant, the most common species being Grey Parrot-pea (*Dillwynia cinerascens*), Erect Guinea-flower (*Hibbertia riparia* s.l.), Common Beard-heath (*Leucopogon virgatus*), Common Flat-pea (*Platylobium obtusangulum*) and Rough Fireweed (*Senecio hispidulus*).

Ferns: Austral Bracken (*Pteridium esculentum*) forms dense patches.

Climbers: Common Apple-berry (*Billardiera scandens*) is fairly abundant. Small-leafed Clematis (*Clematis decipiens*) is scarce and Downy Dodder-laurel (*Cassytha pubescens*) is represented by one individual.

Creepers: Abundant and rich in species, dominated by Kidney-weed (*Dichondra repens*). The following species are moderately abundant: Bidgee-Widgee (*Acaena novae-zelandiae*), Trailing Goodenia (*Goodenia lanata*), Ivy-leaf Violet (*Viola hederacea*) and the wood-sorrel, *Oxalis exilis/perennans*. The remaining species are less abundant: Creeping Bossiaea (*Bossiaea prostrata*), Purple Coral-pea (*Hardenbergia violacea*) and the flat-pea, *Platylobium infecundum*.

Grasses, rushes and sedges: Abundant and very rich in species. Veined Spear-grass (*Austrostipa rudis* subsp. *rudis*) and Wattle Mat-rush (*Lomandra filiformis* subsp. *coriacea*) are the most abundant, followed by Weeping Grass (*Microlaena stipoides*), Red-anther Wallaby-grass (*Rytidosperma pallidum*) and Purplish Wallaby-grass (*R. tenuius*). The next most abundant group of species includes Tall Spear-grass (*Austrostipa pubinodis*), Thatch Saw-sedge (*Gahnia radula*), Slender Sword-sedge (*Lepidosperma gunnii*), Spiny-headed Mat-rush (*Lomandra longifolia* subsp. *longifolia*), Soft Tussock-grass (*Poa morrisii*), Leafy Wallaby-grass (*Rytidosperma fulvum*), Velvet Wallaby-grass (*R. pilosum*), Clustered Wallaby-grass (*R. racemosum*), Common Bog-rush (*Schoenus apogon*) and Kangaroo Grass (*Themeda triandra*). Notably, the scarcer species include Variable Sword-sedge (*Lepidosperma laterale*) and Small Grass-tree (*Xanthorrhoea minor*).

Other groundcover: Rich in species of orchid and lily. The most abundant species are Button Everlasting (*Coronidium scorpioides*), Black-anther Flax-lily (*Dianella revoluta*), Nodding Greenhood (*Pterostylis nutans*) and Trim Sun-orchid (*Thelymitra peniculata*). The next most abundant group of species includes Honeypots (*Acrotriche serrulata*), Chocolate Lily (*Arthropodium strictum*), Milkmaids (*Burchardia umbellata*), Blue Stars (*Chamaescilla corymbosa*), Wallflower Orchid (*Diuris orientis*), Scented Sundew (*Drosera aberrans*), Common Raspwort (*Gonocarpus tetragynus*), Common Hovea (*Hovea heterophylla*), Small StJohn's Wort (*Hypericum gramineum*), Wiry Buttons (*Leptorhynchos tenuifolius*), Slender Onion-orchid (*Microtis parviflora*), Variable Stinkweed (*Opercularia varia*), Common Rice-flower (*Pimelea humilis*), Blunt Greenhood (*Pterostylis curta*), Grass Trigger-plant (*Stylidium armeria*), Twining Fringe-lily (*Thysanotus patersonii*) and Yellow Rush-lily (*Tricoryne elatior*). Other groundcover species are scarce or very localised. Indigenous annual species have not been recorded because the flora surveys have been done at the wrong times of the year.

Significant plants

Globally endangered

The flat-pea *Platylobium infecundum* is listed by the Victorian Government as 'Endangered' in Victoria. It does not occur anywhere on Earth outside Maroondah and abutting municipalities. Six patches of the species were found during this study, each one comprising one or more individuals.

Critically endangered in Maroondah

The following naturally-occurring plant species recorded in Site 29b can be confidently regarded as being in the 'critically endangered' category of dying out in Maroondah:

- *Acianthus caudatus* (Mayfly Orchid) – one plant was seen on 8/10/10, presumably interbreeding with the larger number across the tracks in F.J.C. Rogers Reserve (Site 29a). No check could be made in this study due to the time of year;
- *Banksia marginata* (Silver Banksia) – 25 plants were mapped in a 1998 management plan for the site but only four could be found in this study;
- *Correa reflexa* var. *reflexa* (Common Correa) – eight plants were seen in this study, presumably interbreeding with the larger number across the tracks in F.J.C. Rogers Reserve (Site 29a);
- *Corunastylis morrisii* (Bearded Midge-orchid) – the only population left in Maroondah. Six individuals were seen in this study, compared with nine in 1998. That difference is within the expected variability from one year to another due to natural fluctuations in detectability;
- *Eucalyptus macrorhyncha* (Red Stringybark) – approximately 24 individuals, making Red Stringybark the dominant species even though it is less abundant than it once was. Many of the trees are not in good health;
- *Gompholobium huegelii* (Common Wedge-pea) – two individuals were seen in 1998. None could be found in this study;
- *Hypoxis hygrometrica* (Golden Weather-glass) – a cluster of 12 were seen in 1998. No check could be made in this study due to the time of year;
- *Lagenophora stipitata* (Blue (or Common) Bottle-daisy) – the first discovery of the species in this site was during this study, when one plant was found.

Fauna habitat

- The structure and composition of the native vegetation are suitable for a range of forest birds, bats and invertebrates;
- Tree hollows offer roost sites or nest sites for some animals;
- The native vegetation and its litter provide food and cover for a range of invertebrates, some of which then become food for vertebrates such as lizards, bats and birds;
- The presence of shrubs and leaf litter from native plants is important for providing lizards with the cover they need (as discussed in Section 7.1.2 of Volume 1).

Ecological condition

Using the A–D scale of ecological condition used in *'Sites of Biological Significance in Maroondah'* (Lorimer *et al.* 1997), the site has approximately 0.1 ha in excellent condition (rating 'A'), 0.2 ha in good condition ('B') and 0.1 ha in fair ecological condition ('C').

Biological significance ratings

This section assesses the site's biological significance against the state government's standard criteria (see p. 2).

Overall biological significance level: State

Threatened plant species

The flat-pea *Platylobium infecundum* is listed as 'Endangered' in the state government's 'Advisory List of Rare or Threatened Plants in Victoria – 2014'. It occurs in Site 29b and its global distribution is confined to Victoria. It follows that the site meets standard criterion 3.1.2 for a site of **National** significance.

At least three of the other plant species listed in the section above headed 'Significant plants' have apparently viable populations in the reserve and they fall into the 'critically endangered' category of risk of dying out in Maroondah. Those species fit the description in standard criterion 3.1.5, 'An important site for population of the [locally threatened] taxon in the local area under consideration [*viz.* Maroondah], or believed to be a viable population in its own right or with suitable management or as part of a wider ranging population'. These conditions lead to a Local significance rating.

Regionally threatened Ecological Vegetation Class

The whole site easily meets the definition of a 'patch' of native vegetation adopted by the standard criteria, i.e. at least 0.25 ha with native understorey cover of 10% or more. Valley Heathy Forest is listed as 'endangered' in the relevant bioregion (the Gippsland Plain). As a consequence, the site meets standard criterion 3.2.3 for a site of **State** significance.

Ecological corridor

In combination with Site 29a, Site 29b appears to act as an ecological 'stepping stone' or 'node' for forest birds. It fits the following description in standard criterion 1.2.6: "Corridor or component of 'stepping stones'… Local scale link between individual remnant habitat blocks or within subcatchment". Standard criterion 1.2.6 accords Local significance to such a site. The specific 'remnant habitat blocks' in this case include Sites 29a–d, 32, 73–76 and 119.

The site's overall 'National' significance rating differs from the 'Municipal' rating of Site 29 in the *'Sites of Biological Significance in Maroondah'* report (Lorimer *et al.* 1997) due to differences in the criteria and the state government's recognition in the interim of the conservation status of *Platylobium infecundum* and Valley Heathy Forest.

Other values

This section assesses the site's ecosystem services, natural heritage values and capacity to satisfy or foster people's attachment to nature, as per Section 1.3 of Volume 1. These values are not considered in the criteria applied above for biological significance ratings.

The tree canopy reduces wind speed. It cools the local microclimate in hot weather through shade and transpiration. It also keeps the local microclimate warmer on cold winter nights and mornings through atmospheric mixing and infrared radiation from the canopy. These effects of microclimate moderation benefit people walking through the site and also immediate neighbours, including the scouts. As part of the 'urban forest', the trees also help reduce the urban heat island effect and sequester carbon dioxide from the atmosphere.

The site's natural ambience is expected to be beneficial to the health, wellbeing and quality of life of people who walk through it. Many of those people do so on their way to and from work by train, and the ambience may provide a welcome grounding and contrast to the working day.

Birds, butterflies and other animals move to and from the site via neighbouring streets and gardens. This spreads nature's benefits to the health, wellbeing, childhood development and quality of life of the local community.

The site's vegetation preserves something of the area's natural landscape. It, and the associated wildlife, help to pass on an appreciation of the area's natural heritage from generation to generation in the local community. The prominence of the location maximises the contribution that the site makes to Heathmont's 'green and leafy' or 'bushy' character.

Changes

Change in the extent of habitat

There has been no change in the extent of native vegetation within the site since at least as far back as 1998, when the vegetation was mapped for a management plan (Lorimer 1998f).

Change in the ecological condition of habitat

The health of the eucalypt canopy has declined markedly over the past two decades. Many eucalypts are now dead and few of the survivors are healthy.

Compared with the vegetation described in a 1998 management plan for the site (Lorimer 1998f), the cover of introduced species of shrubs and small trees has reduced.

Another gauge of change can be obtained by comparing the information in the paragraph above headed 'ecological condition' with the equivalent information in a 1998 management plan for the site. Within the precision that such a comparison allows, no difference can be discerned.

Changes in the species present

The number of indigenous plant species found in this study is very close to the number found in 1998. It seems likely that the Common Wedge-pea (*Gompholobium huegelii*) has died out, having been represented by only two plants in 1998. The population of Silver Banksia (*Banksia marginata*) has declined markedly, as it has more generally in Maroondah and surrounding areas. Conversely, there are now six patches of the globally endangered flat-pea, *Platylobium infecundum*, whereas there were none in 1998, and there are several other new indigenous plant species. Most other differences between the species detected in this study and those recorded previously could be explained by natural variability between years.

Threats

This study has identified the following threats to the site's biodiversity, in approximately decreasing order:

- Development of the land for car parking to serve the needs of train travellers;
- Current trends in climate change and global greenhouse gas emissions, which pose a serious threat to most life on Earth – particularly ecological communities and their constituents;
- Continuing premature death and decline of eucalypts, mainly during droughts, which are predicted to worsen with climate change; and
- Continuing loss of plant species with low populations due to slow attrition and poor reproductive success. This may represent a vicious spiral because less diverse ecosystems have less capacity to adapt to changes such as drought and climate change, leading to further loss of species.

Strategic planning

The narrow strip of road reserve is zoned General Residential Zone (GRZ1). The rest of the site is zoned 'Public Use Zone – Transport' (PUZ4).

The whole site is affected by the state-wide native vegetation planning controls of clause 52.17 of the Victoria Planning Provisions, as well as Schedule 4 of the Significant Landscape Overlay.

The Vegetation Protection Overlay (VPO) was intended to cover this site but due to an apparent mapping error, the VPO covers the abutting scout property to the north-northwest and only 60% of Site 29b. The VPO should be removed from 29b and the scout property.

Consistent with the principles in Section 11.1.2 of Volume 1, it is recommended to apply the proposed schedule ESO1 of the Environmental Significance Overlay to Site 29b, i.e. the area outlined in magenta on the aerial photograph on p. 208. As described in the sections of this report dedicated to Sites 29a, 29c and 29d, those sites are also recommended to be covered by ESO1.

Information sources

The analysis above draws on the following sources of information about the site:

- A total of approximately 6 hours of flora survey specifically for this study on 20/5/17, 21/5/17, 24/5/17, 24/1/18 and 26/5/18. This work produced a list of indigenous and introduced plant species (including mosses and liverworts) and their abundances. One herbarium specimen was taken;
- Incidental fauna observations during the work just described (41 species observed);
- A search for orchids on 24/8/10;
- The *'Maroondah Habitat Corridors Strategy'* (Context 2005);
- Information in the *'Heathmont Railway Reserve Management Plan 1998'* (Lorimer 1998f), which included a flora survey of approximately eight hours duration in May 1998;
- *'Sites of Biological Significance in Maroondah'* (Lorimer *et al.* 1997), which included a flora survey and incidental fauna observations of the rail corridor on 12/4/96 (without separately itemising species present in Site 29b);
- A plant list titled 'Brief Surveys, Heathmont Railway Station Land, 11/9/95, 20/9/95, 26/9/95' by Helen Moss; and
- Aerial photographs from 1945, 2001, 2011 and 2017.

No useful information could be found in the Victorian Biodiversity Atlas, the Atlas of Living Australia or eBird. Note that the state government's mapping of the extent of native vegetation in and around the site is quite imprecise.