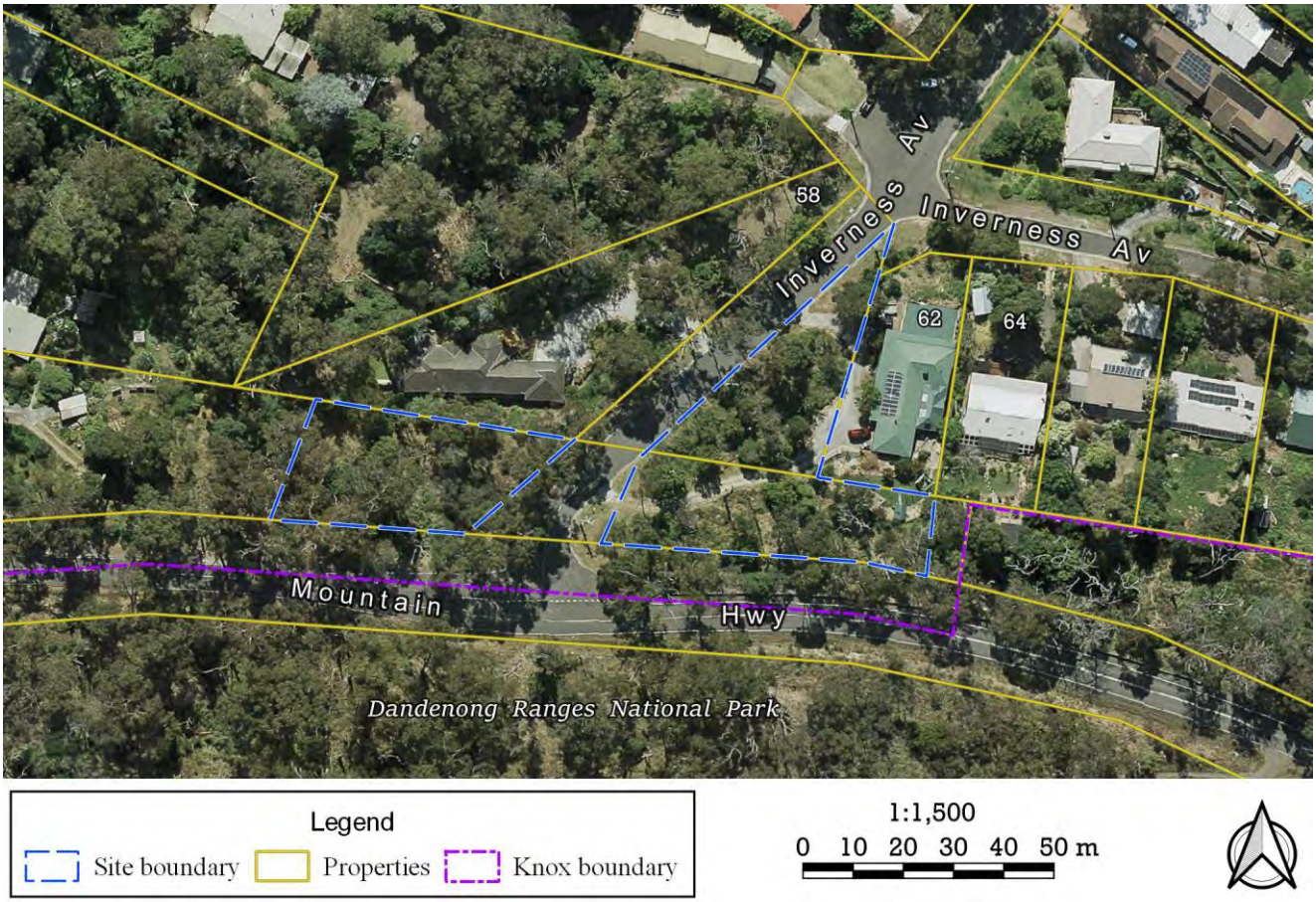
Site 16. Inverness Avenue Reserve, The Basin

Bushland on a broad road verge, with the Dandenong Ranges National Park opposite.

Summary of significant features:

- State significance: a fairly intact example of the regionally vulnerable vegetation type, Grassy Forest;
- Locally significant: viable populations of many plant species that are threatened with dying out in Knox;
- Locally significant: minor supplementation of the flora and fauna habitat of the neighbouring Dandenong Ranges National Park.



Boundaries

This site comprises the two areas outlined with blue dashes above – 1,955 m² east of Inverness Av and 1,054 m² to the west. The western extremity corresponds to the eastern edge of a driveway crossover, slightly further west than the boundary in the second edition of this report in 2010. The eastern polygon is slightly smaller than 2010 due to excision of what has become weedy lawn at the corner of Mountain Hwy and Inverness Av.

Land use & tenure: Council reserve and road reserve, partly serving as roadside verge and partly used by neighbours for domestic purposes (e.g. driveway, parking, planting).

Site description

This site is on the lower, north-facing slope of One Tree Hill. It has a moderately steep slope of 20–25% (excluding the steep embankment of Mountain Hwy) and an elevation range of 238–257 m. The slope is substantially steeper from Mountain Hwy to the summit of One Tree Hill, which results in the site having higher soil moisture than would otherwise be the case. The soil is an acidic, orange clay loam derived from the Ferny Creek rhyodacite formation – the uppermost volcanic stratum of the Dandenong Ranges.

The ecological condition of the vegetation was very good when it was inspected by the author in December 1997. By 2002, a neighbour had cleared part of the reserve for their own use, including a second driveway. Wood and garden waste were dumped in some of the most significant habitat and some indigenous plants were removed to facilitate planting of the environmental weed, Agapanthus.

The lasting consequences of these actions have led to a continuing deterioration in the condition of the habitat east of Inverness Av. A plant species of National significance (the Dandenong Range Cinnamon Wattle, *Acacia stictophylla*) that was present in 2009 could not be found in 2024, as with a number of other species.

Fortunately, some of the Small Tongue-orchids (*Cryptostylis leptochila*) have survived – one of only five colonies in Knox where the species is known to still occur.

Relationship to other land

The Dandenong Ranges National Park, on the opposite side of Mountain Hwy, is of high National significance for its native vegetation and wildlife. Its presence greatly increases the security of the flora in the Inverness Avenue site, because seeds and pollen from the park no doubt enter the reserve and hence prevent inbreeding of flora. Many birds were observed crossing the highway, which is also the municipal boundary.

The whole of the surrounding residential area is included in Site 99, the Dandenong Ranges Buffer area.

The site's conservation values have suffered greatly from its location next to 62 Inverness Av, as discussed above.

A much smaller level of environmental impact has arisen from use of the western part of the site by the adjoining landholders.

Bioregion: Highlands Southern Fall

Habitat types

Grassy Forest (EVC 128, **regionally Vulnerable**) grading into Herb-rich Foothill Forest in the west. Estimated area 2,400 m², of which it is estimated that 500 m² is in good ecological condition (rating B), 1,300 m² is in fair ecological condition (rating C) and 600 m² is in poor ecological condition (rating D). By comparison, the estimates in the 2010 were 1,200 m² in rating B, 900 m² C and 600 m² D,

Dominant canopy trees: The dominant eucalypt species grades from *Eucalyptus macrorhyncha* in the east to *E. cypellocarpa* in the west. *Eucalyptus obliqua, E. goniocalyx* and *E. radiata* are less abundant.

Dominant sub-canopy trees: *Exocarpos cupressiformis* trunks are typically 7 m apart, interspersed with similar numbers of *Acacia melanoxylon*. A solitary *Pomaderris aspera* that was present in 2010 can be interpreted as an outlier of the neighbouring Damp Forest and Herb-rich Foothill Forest. A suckering Muttonwood (*Myrsine howittiana*) is suspected to be planted, as it was absent in all botanical surveys of the site prior to 2024.

Shrubs: Depleted by manual removal, particularly adjacent to 62 The Avenue. The surviving species include *Acacia stricta, Cassinia aculeata, Coprosma quadrifida, Goodenia ovata, Kunzea* sp. (Upright form), *Polyscias sambucifolia, Pultenaea scabra, Spyridium parvifolium* and *Leptospermum continentale*.

Vines: *Clematis aristata* and *Pandorea pandorana* are fairly abundant.

Ferns: There are patches of *Adiantum aethiopicum* and *Pteridium esculentum*.

Groundcover: 80–90% ground coverage. Dominated variously by *Gahnia radula, Imperata cylindrica, Poa morrisii, Rytidosperma pallidum* or *Tetrarrhena juncea*. Other abundant species include *Gonocarpus tetragynus, Lepidosperma laterale* and (in the west) *Poa ensiformis*. Additional species that convey the character of the vegetation include *Acrotriche prostrata, Cryptostylis leptochila, Goodenia lanata* and *Thysanotus tuberosus*.

Plant species

The following indigenous plant species have been recorded in the site by the author. Those not seen during the 2020s are indicated by the most recent year in parentheses. Entries in the 'Risk' column indicate species whose risk of dying out in Knox is rated as Critically endangered (C), Endangered (E), Vulnerable (V) or Near threatened (N). In addition, the species with names in bold are rare throughout the Melbourne region.

Risk	Indigenous plant species
	Mosses
	Campylopus introflexus, Heath Star Moss
	Hypnum cupressiforme, Common Hypnum
	Ferns and flowering species
V	*Acacia melanoxylon*, Blackwood
V	***Acacia stictophylla*, Dandenong Range Cinnamon Wattle (2009)**
E	*Acacia stricta*, Hop Wattle
V	*Acacia verticillata*, Prickly Moses (2009)
V	*Acrotriche prostrata*, Trailing Ground-berry
V	*Adiantum aethiopicum*, Common Maidenhair
	Austrostipa pubinodis, Tall Spear-grass
	Austrostipa rudis subsp. *rudis*, Veined Spear-grass
	Billardiera mutabilis, Common Apple-berry
V	*Caesia parviflora*, Pale Grass-lily (1997)
	Carex breviculmis, Short-stem Sedge
	Cassinia aculeata, Common Cassinia
	Cassinia longifolia, Shiny Cassinia
E	*Cassytha pubescens*, Downy Dodder-laurel
E	*Centella cordifolia*, Centella
V	*Clematis aristata*, Mountain Clematis
E	*Comesperma volubile*, Love Creeper (2009)
V	*Coprosma quadrifida*, Prickly Currant-bush
C	*Coronidium scorpioides*, Button Everlasting (1997)
E	***Cryptostylis leptochila*, Small Tongue-orchid**
C	***Cryptostylis* ?*subulata*, Large Tongue-orchid (2002)**
	Deyeuxia quadriseta, Reed Bent-grass
	Dianella revoluta, Black-anther Flax-lily (2009)
	Dianella tasmanica, Tasman Flax-lily
	Dichelachne rara, Common Plume-grass (2002)
E	*Dipodium roseum*, Rosy Hyacinth-orchid (2002)
V	*Drosera auriculata*, Tall Sundew (2009)
C	*Epacris impressa*, Common Heath (1997)
V	*Eucalyptus cypellocarpa*, Mountain Grey Gum
V	*Eucalyptus goniocalyx*, Bundy
C	*Eucalyptus macrorhyncha*, Red Stringybark
E	*Eucalyptus melliodora*, Yellow Box (planted)
E	*Eucalyptus obliqua*, Messmate Stringybark
E	*Eucalyptus radiata*, Narrow-leaved Peppermint
	Euchiton japonicus, Creeping Cudweed (2002)
V	*Exocarpos cupressiformis*, Cherry Ballart
E	*Exocarpos strictus*, Pale-fruit Ballart (2009)
C	*Gahnia radula*, Thatch Saw-sedge
E	*Gahnia sieberiana*, Red-fruit Saw-sedge
E	*Galium gaudichaudii*, Rough Bedstraw (2002)
E	*Glycine clandestina*, Twining Glycine (2009)
	Gonocarpus tetragynus, Common Raspwort
N	*Goodenia lanata*, Trailing Goodenia
	Goodenia ovata, Hop Goodenia
C	*Hakea nodosa*, Yellow Hakea
E	*Hypericum gramineum*, Small St John's Wort (2002)
C	*Imperata cylindrica*, Blady Grass
C	*Indigofera australis*, Austral Indigo (2009)

Risk	Indigenous plant species
	Juncus amabilis, Hollow Rush (1997)
	Juncus pallidus, Pale Rush
	Kunzea sp. (Upright form), Forest Burgan (planted?)
C	*Lachnagrostis aemula*, Purplish Blown-grass (1997)
	Lachnagrostis filiformis, Common Blown-grass (2002)
E	*Lagenophora adenosa/stipitata*, a bottle-daisy (2009)
	Lepidosperma ?*elatius*, Tall Sword-sedge
V	*Lepidosperma laterale*, Variable Sword-sedge
C	*Leptospermum continentale*, Prickly Tea-tree
	***Lobelia gibbosa*, Tall Lobelia (2002)**
	Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush
	Lomandra filiformis subsp. *filiformis*, Wattle Mat-rush (2009)
	Lomandra longifolia subsp. *exilis*, Cluster-headed Mat-rush
	Microlaena stipoides, Weeping Grass
C	*Myrsine howittiana*, Muttonwood (planted?)
E	*Olearia lirata*, Snowy Daisy-bush (2002)
V	*Opercularia varia*, Variable Stinkweed
	Oxalis exilis/perennans, Wood-sorrel
V	*Ozothamnus ferrugineus*, Tree Everlasting
	Pandorea pandorana, Wonga Vine
C	*Pelargonium inodorum*, Kopata (2002)
	Pimelea axiflora, Bootlace Bush (1997)
E	*Pimelea humilis*, Common Rice-flower (1997)
E	***Platylobium infecundum*, a flat-pea (1997)**
	Poa ensiformis, Sword Tussock-grass
	Poa morrisii, Soft Tussock-grass
V	*Polyscias sambucifolia*, Elderberry Panax
V	*Pomaderris aspera*, Hazel Pomaderris (2002)
	Pteridium esculentum, Austral Bracken
E	*Pterostylis melagramma*, Tall Greenhood (2002)
V	*Pultenaea gunnii*, Golden Bush-pea
C	*Pultenaea scabra*, Rough Bush-pea
	Rytidosperma laeve, Smooth Wallaby-grass (2002)
E	*Rytidosperma pallidum*, Red-anther (or Silvertop) Wallaby-grass
	Rytidosperma penicillatum, Slender Wallaby-grass
	Rytidosperma racemosum, Clustered Wallaby-grass
	Rytidosperma setaceum, Bristly Wallaby-grass (2002)
	Schoenus apogon, Common Bog-rush (2002)
V	*Senecio glomeratus*, Annual Fireweed
	Senecio hispidulus, Rough Fireweed (2009)
V	*Senecio prenanthoides*, Common Fireweed (2002)
	Senecio quadridentatus, Cotton Fireweed
V	*Spyridium parvifolium*, Australian Dusty Miller
	Stackhousia monogyna, Creamy Candles
	Stylidium armeria, Common Triggerplant
	Tetrarrhena juncea, Forest Wire-grass
E	*Thelymitra* ?*peniculata*, Trim Sun-orchid (2002)

Risk	Indigenous plant species
	Themeda triandra, Kangaroo Grass
C	*Thysanotus tuberosus*, Common Fringe-lily (2002)
E	*Viola hederacea*, Ivy-leaf Violet
	Wahlenbergia gracilis, Sprawling Bluebell (2002)
E	*Xanthorrhoea minor*, Small Grass-tree

Notes concerning some of the locally-threatened plant species

Cryptostylis ?*subulata* (Large Tongue-orchid) – One leaf seen in 2002.

Cryptostylis leptochila (Small Tongue-orchid) – Dozens of leaves seen in 1997, nine in 2002 and at least 23 in 2024.

Gahnia sieberiana (Red-fruit Saw-sedge) – One plant, out of its typical habitat.

Galium gaudichaudii (Rough Bedstraw) – Six plants counted in 2002, none seen subsequently.

Lobelia gibbosa (Tall Lobelia) – Only two dead stems seen, which was on 31st May 2002.

Pterostylis melagramma (Tall Greenhood) – Two plants seen in 2002.

Pultenaea scabra (Rough Bush-pea) – Fairly abundant.

Thysanotus tuberosus (Common Fringe-lily) – Probably the largest population in Knox in 2002; subsequent surveys have been at the wrong time of year to detect this species.

Fauna of special significance

Because of the proximity to the Dandenong Ranges National Park, the site is bound to be regularly visited by various rare or threatened fauna from the park; e.g. Powerful Owl. The site provides a small extension to the native habitat available for such species.

Fauna habitat features

- There are large eucalypts with hollows that provide suitable roosting or nesting sites for certain fauna;
- The grassy ground layer is suitable habitat for reptiles and grass-reliant butterflies such as Xenicas and Common Browns.

Significance ratings

The following is an assessment of the site's biological significance against the Department of Energy, Environment & Climate Action's standard criteria (Amos 2004).

Vegetation type and condition

Grassy Forest is a regionally vulnerable EVC and the representation of it in the reserve is in fair to good ecological condition. No habitat score has been determined, but it is clear that a score above 0.3 would apply to most of the site. The strip beside Mountain Hwy east of Inverness Av extends beyond the site into the Shire of Yarra Ranges, with a total area large enough to qualify as a 'patch' for the purposes of the standard criteria. It then follows from Appendix 3 of *Victoria's Native Vegetation Management – a Framework for Action* (NRE 2002a) that the Grassy Forest vegetation is of at least High conservation significance. This, in turn, gives the vegetation **State** significance under criterion 3.2.3 of Amos (2004).

Threatened Plants

The Dandenong Range Cinnamon Wattle (*Acacia stictophylla*) is listed as 'Endangered' in Victoria and it does not occur outside Victoria. It has not been seen in the site since 2009 but it is likely that seeds remain in the soil and that it will reappear in future. If more than one or two individuals reappear, this will be a matter of National significance under criterion 3.1.2. (*Acacia stictophylla* had not been scientifically described in 2010 when the previous edition of this report was written, so its National significance was not recognised).

There are viable populations of some of the locally-threatened plant species that are listed above without a year next to their names. Such populations meet criterion 3.1.5 for **Local** significance. In this regard, *Cryptostylis leptochila*, *Eucalyptus macrorhyncha* and *Pultenaea scabra* are of particular note.

Ecological integrity and viability

The eucalypt canopy of the site's western polygon is connected over Mountain Hwy to the canopy of the Dandenong Ranges National Park. The forest in the eastern polygon continues uninterrupted into the national

park to the east. It seems certain that pollen, spores, seeds and many fauna species are exchanged between the site and the national park. Overall, the habitat fits the description in standard criterion 1.1.2 of 'Areas of 100 ha or more of contiguous native vegetation in a heavily fragmented landscape', which rates **Local** significance.

Threats

- Human-induced climate change, which is predicted to cause more severe droughts, heatwaves, fires and storms, as well as substantially lower rainfall (particularly in winter). The Millennium Drought caused significant harm to the site's habitat, from which it has not fully recovered;
- Damage to the native vegetation by use of the site for domestic purposes by the neighbours;
- Displacement of indigenous flora and fauna by environmental weeds, exacerbated by debilitation of the native vegetation by the impacts of the other threats listed here;
- Loss or decline of plant species that are present in such precariously small numbers that they are vulnerable to inbreeding, poor reproductive success or elimination by chance incidents;
- Potential demands for increased fire prevention measures from adjoining properties due to climate change and consequent increases in climatic fire risk.

Strategic planning

- Schedule 2 of the Environmental Significance Overlay (ESO2) covers the version of this site that was delineated in the 2nd edition of this report. That edition cited the presence of the threatened EVC, the significant plant species, the richness of the site's native vegetation and the habitat that it provides for fauna. Since then, there have been positive and negative influences on the site's significance and its need for planning protection. On one hand, the habitat's condition has deteriorated (see above) and some indigenous plant species have been lost. On the other hand, many of the site's indigenous plant species are now regarded as being threatened with local extinction but were not so in 2010, and the ecological condition of habitat has deteriorated in most other sites. On balance, the justification for applying ESO2 remains about as strong now as in 2010. However, the site's boundary has changed slightly, so it would be desirable to amend the ESO2 boundary to match, when a convenient opportunity arises;
- The property between 58 and 62 Inverness Avenue (on which the street has been constructed) is smaller than 0.4 ha. It therefore qualifies for the size-based exemption from the state-wide baseline planning controls over removal of native vegetation (clause 52.17). That exemption does not apply to the rest of the site;
- The Planning Scheme zoning of the triangle west of 62 Inverness Av is Low Density Residential Zone (LDRZ). The rest of the site is zoned Public Park and Recreation Zone (PPRZ).

Information sources used in this assessment

- A botanical survey of the site by Dr Lorimer on 23/12/97 for *A Survey and Management Strategy for Significant Roadside Vegetation in Knox* (published by Knox City Council in May 1998). This included compilation of a list of plant species;
- An ecological survey undertaken by Dr Lorimer on 31/5/02 for the first edition of this report. The survey included a description of the vegetation composition, compilation of lists of indigenous and introduced plant species, incidental fauna observations and checks for fauna habitat, ecological threats and management issues;
- Another botanical survey by Dr Lorimer on 2/9/09 for the second edition, expanded to include more detailed assessment of the area west of Inverness Avenue (including a list of plant species and their abundances);
- A botanical survey by Dr Lorimer on 7/6/24 for this edition;
- Records of flora and fauna observations stored in the Atlas of Living Australia (of which there is only one from within the site);
- The Victorian Government's 'NatureKit' website;
- Aerial and satellite imagery from between 1946 and 2024;
- Maps of geology, topography and strategic planning information produced by agencies of the Victorian Government.