

Site 16. Inverness Avenue Reserve, The Basin

Bushland on a broad road verge at the corner of Mountain Hwy, with the Dandenong Ranges National Park opposite. Melway ref. 65 J10.

Site Significance Level: *State*

- Most of the site supports the regionally Vulnerable Ecological Vegetation Class, Grassy Forest, much of which is in good ecological condition;
- The flora are uncommonly rich for Knox;
- There are six plant species that are threatened in Knox, two of which are also rare or threatened in the whole Melbourne area;
- The site represents a small extension to the flora and fauna habitat of the neighbouring Dandenong Ranges National Park;
- A variety of fauna found in the national park, including rare species, are likely to periodically use the reserve.



Scale 1:2,000
10 0 20 40 60 80 100m

Boundaries

This site comprises the two areas outlined in red above - 2,008 m² east of Inverness Av and 785 m² to the west. Boundaries along Inverness Av follow the kerbs. The western extremity corresponds to the current eastern edge of a driveway. The eastern boundary is the alignment of the eastern boundary of 62 Inverness Av (the property occupied by the house with the green roof on the aerial photograph). The remaining boundaries are property boundaries.

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, woodheap, garden waste).

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 between this elevation and 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. Since then, a neighbour has cleared part of the site for their own use, including a second driveway. Some indigenous plants were removed to facilitate planting of the environmental weed, *Agapanthus*.

Nevertheless, few if any indigenous plant species have been totally removed from the site between 1997 and the author's last detailed inspection in September 2009. Substantial numbers of orchids remain present.

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 reserve, 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 reserve's conservation values have suffered greatly from its location next to 62 Inverness Av, whose owners (past or present) have used the reserve for clearing, driveway construction, brushcutting, inappropriate gardening, dumping of garden waste and rubbish, vehicle parking, firewood storage and similar activities. Serious weeds have established as a result of vegetation disturbance during construction of driveways.

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**) with minor influences of the Herb-rich Foothill Forest immediately to the west. The area measures 2,700 m², of which it is estimated that 1,200 m² is in good ecological condition (rating B), 900 m² is in fair ecological condition (rating C) and 600 m² is in poor ecological condition (rating D).

Dominant canopy trees: *Eucalyptus macrorhyncha* with somewhat fewer *E. obliqua*, *E. goniocalyx* and *E. radiata*. *E. cypellocarpa* is scarce in the east and more common westward with transition toward Herb-rich Foothill Forest.

Dominant lower trees: *Exocarpos cupressiformis* are typically 7 m apart, interspersed with smaller numbers of *Acacia melanoxydon*. There is a *Pomaderris aspera* that can be interpreted as an outlier of the neighbouring Damp Forest and Herb-rich Foothill Forest.

Shrubs: Depleted by manual removal. Dominated by *Acacia stricta*, *Goodenia ovata*, *Pultenaea scabra*, *Cassinia aculeata*, *Leptospermum continentale*. Also present are *Olearia lirata*, *Polyscias sambucifolia*, *Spyridium parvifolium* and two *Exocarpos strictus*.

Vines: *Clematis aristata*, *Glycine clandestina*, *Comesperma volubile* and *Pandorea pandorana* are present.

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

Ground flora: 80% ground coverage. Dominated by *Rytidosperma pallidum*, *Poa morrisii*, *Tetrarrhena juncea*, *Lepidosperma laterale* and patches of *Gahnia radula*, as well as *Poa ensiformis* in the west. There are also abundant *Acrotriche prostrata*, *Gonocarpus tetragynus*, *Goodenia lanata*, *Thysanotus tuberosus* and *Viola hederacea*. *Dipodium roseum* is present in reasonable numbers, as is typically the case in Grassy Forest in the Dandenong Ranges.

Plant species

The author has observed the following plant species in the site, mostly in 2009. The column headed 'Risk' indicates the indigenous species' risk of extinction in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; and 'V'=Vulnerable. In addition, *Acacia leprosa* (Dandenong Range variant) is rare nationally and species whose names are in bold are rare throughout the Melbourne region.

Risk	Indigenous Species	Risk	Indigenous Species
V	<i>Acacia leprosa</i> (Dandenong Range variant)		<i>Campylopus introflexus</i>
V	<i>Acacia melanoxydon</i>		<i>Carex breviculmis</i>
E	<i>Acacia stricta</i>		<i>Cassinia aculeata</i>
V	<i>Acacia verticillata</i>	V	<i>Cassinia longifolia</i>
V	<i>Acrotriche prostrata</i>	E	<i>Cassytha pubescens</i>
V	<i>Adiantum aethiopicum</i>	V	<i>Clematis aristata</i>
	<i>Austrostipa pubinodis</i>	V	<i>Comesperma volubile</i>
	<i>Austrostipa rudis</i> subsp. <i>rudis</i>	V	<i>Coprosma quadrifida</i>
	<i>Billardiera mutabilis</i>	E	<i>Cryptostylis leptochila</i>
V	<i>Caesia parviflora</i>		<i>Deyeuxia quadriseta</i>

Risk	Indigenous Species	Risk	Indigenous Species
	<i>Dianella admixta</i>		<i>Lomandra longifolia</i>
V	<i>Dianella tasmanica</i>		<i>Microlaena stipoides</i>
	<i>Dichelachne rara</i>	V	<i>Olearia lirata</i>
E	<i>Dipodium roseum</i>	V	<i>Opercularia varia</i>
V	<i>Drosera peltata</i> subsp. <i>auriculata</i>	V+	<i>Orchidaceae</i> sp.
V	<i>Epacris impressa</i>		<i>Oxalis exilis/perennans</i>
V	<i>Eucalyptus cypellocarpa</i>	E	<i>Ozothamnus ferrugineus</i>
	<i>Eucalyptus goniocalyx</i>		<i>Pandorea pandorana</i>
E	<i>Eucalyptus macrorhyncha</i>	C	<i>Pelargonium inodorum</i>
V	<i>Eucalyptus obliqua</i>	C	<i>Pimelea axiflora</i>
E	<i>Eucalyptus radiata</i>	V	<i>Pimelea humilis</i>
V	<i>Euchiton collinus</i>	V	<i>Platylobium formosum</i>
V	<i>Exocarpos cupressiformis</i>		<i>Poa ensiformis</i>
E	<i>Exocarpos strictus</i>		<i>Poa morrisii</i>
	<i>Gahnia radula</i>	E	<i>Polyscias sambucifolia</i>
E	<i>Gahnia sieberiana</i>	E	<i>Pomaderris aspera</i>
E	<i>Galium gaudichaudii</i>		<i>Pteridium esculentum</i>
V	<i>Glycine clandestina</i>	E	<i>Pterostylis melagramma</i>
	<i>Gonocarpus tetragynus</i>	C	<i>Pultenaea scabra</i>
	<i>Goodenia lanata</i>		<i>Rytidosperma laeve</i>
	<i>Goodenia ovata</i>		<i>Rytidosperma pallidum</i>
C	<i>Hakea nodosa</i>		<i>Rytidosperma penicillatum</i>
V	<i>Helichrysum scorpioides</i>		<i>Rytidosperma setaceum</i>
E	<i>Hypericum gramineum</i>		<i>Schoenus apogon</i>
E	<i>Imperata cylindrica</i>		<i>Senecio glomeratus</i>
E	<i>Indigofera australis</i>		<i>Senecio hispidulus</i>
	<i>Juncus amabilis</i>	E	<i>Senecio prenanthoides</i>
	<i>Juncus pallidus</i>		<i>Senecio quadridentatus</i>
	<i>Kunzea ericoides</i> spp. agg.	E	<i>Spyridium parvifolium</i>
C	<i>Lachnagrostis aemula</i> s.l.	E	<i>Stackhousia monogyna</i>
	<i>Lachnagrostis filiformis</i>	E	<i>Stylidium armeria/graminifolium</i>
E	<i>Lagenophora stipitata</i>		<i>Tetrarrhena juncea</i>
V	<i>Lepidosperma laterale</i>		<i>Themeda triandra</i>
	<i>Leptospermum continentale</i>	E	<i>Thysanotus tuberosus</i>
C	<i>Lobelia gibbosa</i>	E	<i>Viola hederacea</i>
	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	E	<i>Wahlenbergia gracilis</i>
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	V	<i>Xanthorrhoea minor</i>
Introduced Species			
	<i>Agapanthus praecox</i>		<i>Oxalis pes-caprae</i>
	<i>Agrostis capillaris</i>		<i>Paspalum dilatatum</i>
	<i>Allium triquetrum</i>		<i>Pennisetum clandestinum</i>
	<i>Anthoxanthum odoratum</i>		<i>Piptatherum miliaceum</i>
	<i>Asparagus scandens</i>		<i>Pittosporum undulatum</i>
	<i>Billardiera heterophylla</i>		<i>Plantago lanceolata</i>
	<i>Centaurium erythraea</i>		<i>Prunus cerasifera</i>
	<i>Chamaecytisus palmensis</i>		<i>Rubus anglocandicans</i>
	<i>Conyza</i> sp.		<i>Sonchus oleraceus</i>
	<i>Cortaderia selloana</i>		<i>Ulex europaeus</i>
	<i>Cotoneaster glaucophyllus</i>		<i>Vicia hirsuta</i>
	<i>Crocoshia</i> × <i>crocoshii</i> flora		
	<i>Cytisus scoparius</i>		
	<i>Dactylis glomerata</i>		
	<i>Danthonia procumbens</i>		
	<i>Daucus carota</i>		
	<i>Ehrharta erecta</i>		
	<i>Erica lusitanica</i>		
	<i>Galium aparine</i>		
	<i>Genista monspessulana</i>		
	<i>Hedera helix</i>		
	<i>Hypochoeris radicata</i>		
	<i>Lonicera japonica</i>		
	<i>Oxalis incarnata</i>		

Notes concerning some of the locally threatened plant species

- Agrostis aemula* (Purplish Blown Grass). Not seen in the 2002 inspection, but likely to reappear occasionally.
- Cryptostylis ?subulata* (Large Tongue-orchid). One concolorous leaf seen.
- Cryptostylis leptochila* (Small Tongue-orchid). Dozens seen in 1997; nine seen in 2002 (due to the time of year).
- Gahnia sieberiana* (Red-fruit Saw-sedge). One plant, out of its usual habitat.
- Galium gaudichaudii* (Rough Bedstraw). Six plants counted in 2002.
- Lobelia gibbosa* (Tall Lobelia). Only two dead stems seen, which was on 31st May 2002.
- Pimelea axiflora* (Bootlace Bush). Scant, representing outliers from neighbouring Herb-rich Foothill Forest

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

Pultenaea scabra (Rough Bush-pea). Abundant, one of the dominant shrubs on this site.

Thysanotus tuberosus (Common Fringe-lily). Abundant, probably the largest population in Knox.

Fauna of special significance

Australian King-Parrots are rather abundant. This species is listed by the Land Conservation Council (1991) as uncommon in the 'Melbourne Area District 2', which extends eastwards slightly beyond Walhalla.

Short-beaked Echidnas and Black Wallaby droppings were observed on the opposite side of Mountain Hwy and probably visit the reserve occasionally.

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 excellent habitat for reptiles and grass-reliant butterflies such as Xenicas and Common Browns, except that brushcutting and domestic activities by neighbours would kill or displace some such fauna;
- This type of vegetation has been observed in nearby Montrose to be excellent ant habitat, but no survey was done on this site.

Significance ratings

The following is an assessment of the site's significance against the Department of Sustainability & Environment'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. It would then follow 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 site **State** significance under criterion 3.2.3 of Amos (2004).

Rare or Threatened Flora

Many of the locally threatened plant species listed above have viable populations, thereby meeting criterion 3.1.5 for a site of **Local** significance.

Threats

- Damage to the native vegetation by use of the reserve for domestic purposes by the neighbours;
- Invasion by environmental weeds as listed below, with asterisks marking those that are controlled under the *Catchment and Land Protection Act 1994*:
 - Serious: English Broom* (*Cytisus scoparius*) invading the reserve from the weedy embankment of Mountain Hwy, as well as Sweet Pittosporum (*Pittosporum undulatum*); and
 - Moderate: African Lily or Agapanthus (*Agapanthus praecox*), Brown-top Bent (*Agrostis capillaris*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Pampas Grass (*Cortaderia selloana*), Cotoneaster (*Cotoneaster glaucophyllus*), Montbretia (*Crocasmia ×crocosmiiflora*), Spanish Heath* (*Erica lusitanica*), Cleavers (*Galium aparine*), Montpellier Broom* (*Genista monspessulana*), Ivy (*Hedera helix*), Cat's Ear (*Hypochoeris radicata*), Japanese Honeysuckle (*Lonicera japonica*), Pale Wood-sorrel (*Oxalis incarnata*), Blackberry* (*Rubus discolor*) and Tiny Vetch (*Vicia hirsuta*).

Management issues

- The effectiveness of any land management by Council will be greatly diminished as long as neighbours use the reserve for domestic purposes;
- Weed control should have two focuses: preventing serious weeds on the embankment of Mountain Hwy from migrating downhill into the intact understorey; and hand weeding elsewhere. The planted Agapanthus should also be dug out;
- The site's fire risk needs to be managed, and this can be done harmoniously with proper care of the native vegetation. Careful brushcutting in the Christmas - New Year period would be appropriate, ideally combined with burning at the same time that Parks Victoria burns the national park over the road;
- The neighbours' stockpiling of firewood on the reserve may provide habitat for fauna but it could be hazardous in case of fire.

Administration matters

- The most important measure to conserve the site's State significance is to remove damaging domestic uses from the land. Fences between the site and the adjacent residential properties would help. The need for the house to have two driveways through the reserve's State-significant forest should be critically reconsidered;
- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of the threatened EVC, the significant plant species, the richness of the site's native vegetation and the habitat that it provides for fauna;
- The part of the reserve west of 62 Inverness Av is zoned 'Low Density Residential Zone', despite it being a Council reserve. The remainder of the site is zoned 'Public Park and Recreation Zone';
- The site is included under the existing Vegetation Protection Overlay Schedule 1 and of the Knox Planning Scheme and the Significant Landscape Overlay Schedule 2 covers the part of the site west of 62 Inverness Av;
- The site was included in 'Composite Area A' by Water Ecoscience (1998) without any substantial assessment.

Information sources used in this assessment

- A site survey undertaken during this study by Dr Lorimer on 31/5/02 using this study's standard procedures discussed in Section 2.4 of Volume 1. This 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;
- Discussions with the neighbouring landowners on the same occasion;
- Another botanical survey by Dr Lorimer on 2/9/09, expanded to include more detailed assessment of the area west of Inverness Avenue (including a list of plant species and their abundances);
- A prior investigation 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 flora species;
- A brief viewing of the site by Dr Lorimer on 16/7/04, which confirmed the ongoing use of the land by the neighbours;
- Aerial photography from February 2001, April 2003, January 2009 and December 2009;
- Satellite imagery of the district;
- The Department of Sustainability & Environment's BioMaps of the area;
- Maps of geology and topography produced by agencies of the Victorian government.