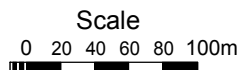
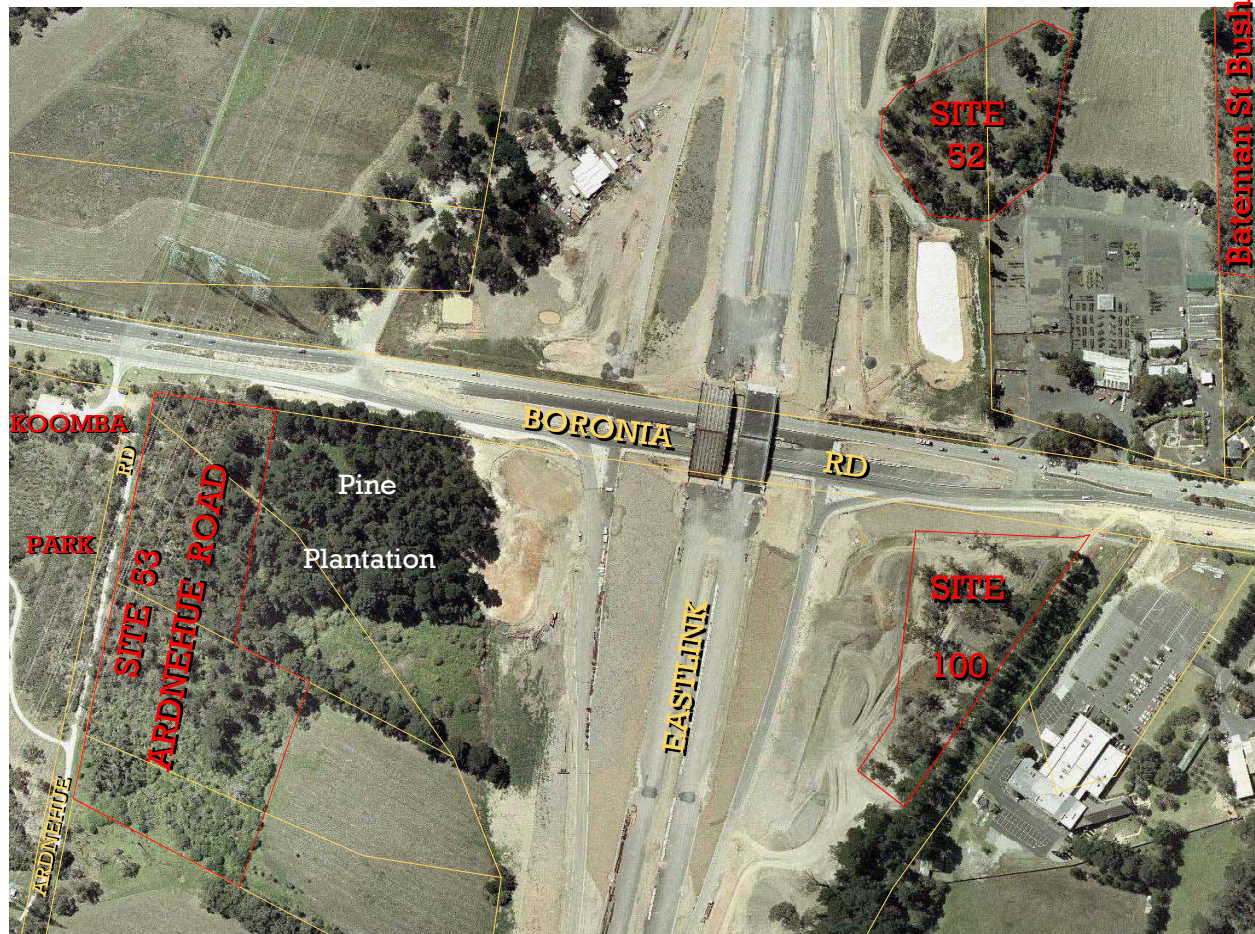


Site 53. Ardnehue Rd Land, Wantirna

Regenerating native vegetation on swampy public land, largely earmarked for possible future road construction. Melway ref. 63 D5.

Site Significance Level: *State*

- The site is part of the State-significant Dandenong Creek flora and fauna corridor, and it makes a considerable contribution to the richness of flora in the corridor;
- Several of the plant species present are regionally rare;
- Being on Dandenong Creek, the site is on a major corridor for daily and seasonal movements of birds and insects.



Aerial photograph taken February 2007

Boundaries

The site comprises the area outlined in red and labelled 'Site 53 - Ardnehue Road' on the aerial photograph above. The western, northern and southern boundaries follow cadastral boundaries of three lots. Abutting to the west is the reservation for Ardnehue Rd, which is presently part of the Dandenong Creek trail. There is no distinct boundary between native vegetation in the site and the pine plantation to the east, so a boundary has been placed somewhat arbitrarily at 70 m from the Ardnehue Rd fence. From there, the boundary follows a cadastral boundary along the southern edge of the pine plantation for 50 m before heading to the site's southern corner. This corner is 110 m along a fence from the site's southwestern corner. The total area is 2.41 ha.

Land use & tenure: Of the four lots in the site, Knox City Council owns the largest one and VicRoads owns the others. The VicRoads properties are on alignments for proposed roads: a realignment of Boronia Rd and an interchange route between the Healesville Freeway and the EastLink road.

Site description

This site is on the alluvial floodplain of Dandenong Creek at an elevation of 75 m, 200 m east of the stream channel.

It contains some mature trees in the north, but most of the vegetation is young regrowth of Swampy Woodland and probably some Riparian Forest or Swampy Riparian Forest. The eucalypts are destined to ultimately dominate the vegetation (if they are not cut down or trimmed to protect electricity transmission lines), but at the moment they are not as dense as the shrub layer, which forms a dense scrub several metres tall over much of the site. The scrub is dominated by *Leptospermum scoparium* in the central and northern lots and by *Melaleuca ericifolia* in the southern lot (where there is also an open patch dominated by *Typha*).

The ground is swampy on the two more southerly lots, with channels and depressions that rarely dry out. The more northern property has older trees and the ground is somewhat drier.

On the Council's lot there is a rich diversity of ground flora despite the dense shade of the scrub, including many amphibious species (some of them rare) and a few species normally associated with drier soil (e.g. many *Pterostylis pedunculata*). Remarkably, *Gahnia radula* is absent, suggesting possible severe soil disturbance in the past. The richness of flora reduces progressively to the north and south of the Council lot.

The presence of scrub may suggest Swamp Scrub (EVC 53) except that this is likely to be only temporary. The vegetation is in a phase of rapid growth and development. The scrub can be expected to naturally decline over coming years, and the diversity and composition of ground flora will change as a result. As the eucalypts grow and drain the soil, species such as *Pterostylis* will benefit while water-lovers such as *Carex* and *Cyperus* will decline.

Pine trees have evidently been invading the site for many years, resulting in the indistinct transition between the native vegetation and the adjoining pine plantation. The effects are quite serious, and could destroy the native vegetation if not controlled regularly for as long as the pine plantation remains adjacent.

Also worthy of note is a dam 140 m southeast from the site, that was located at the southeastern tip of the Council property prior to construction of the EastLink road. Its embankment supported natural regrowth of *Acacia pycnantha*, *Gonocarpus tetragynus*, *Microlaena*, *Oxalis perennans* (s.l.), *Schoenus apogon* and *Senecio glomeratus*. This did not represent a natural vegetation community, and there was substantial growth of weeds such as Blackberry and Sweet Pittosporum. More importantly, the dam water and its margins supported amphibious and aquatic plants, including dominance by the locally endangered floating fern, *Azolla pinnata*. The dam was destroyed during EastLink construction, but a small amount of native vegetation may have survived.

Relationship to other land

The site is part of the Dandenong Ck flora and fauna corridor. Neighbouring areas of native vegetation are shown on the aerial photograph above.

Bioregion: Gippsland Plain

Habitat type

Regrowth of Swampy Woodland (EVC 937, **regionally Endangered**) and probably either Swampy Riparian Woodland (EVC 83 – **regionally Endangered**) or Riparian Forest (EVC 18 – **regionally Vulnerable**), covering approximately 2.3 ha in total, comprising 0.23 ha in good ecological condition (rating B) (on the Council property), 0.78 ha in fair ecological condition (rating C) and 1.3 ha in poor ecological condition (rating D). On 15/5/02, 28 indigenous plant species were found on the northern property, 47 on the Council property and 8 on the southern property.

Dominant canopy trees: In the southernmost lot, eucalypts are effectively absent and *Melaleuca ericifolia* forms the canopy. Further north, the dominant eucalypts are *Eucalyptus viminalis*, or *E. cephalocarpa* near Boronia Rd. *E. ovata* is uncharacteristically scarce. These species may be in quite different proportions from their original state, but they suggest the eventual condition will tend toward Riparian Forest over most of the land and Swampy Woodland close to Boronia Rd.

Dominant lower trees: *Acacia mearnsii* is rather dense and *A. melanoxylon* is less dense. *Leptospermum scoparium* could be regarded as a small tree that is forming a dense scrub over the Council lot and some of the lot to the north.

Shrubs: Mostly dense, dominated by *Coprosma quadrifida*, *Ozothamnus ferrugineus* and *Bursaria spinosa*. *Prostanthera lasianthos* is also present on the Council property and the one to the north, supporting the expectation that the vegetation is tending toward Riparian Forest rather than Swampy Woodland over most of the land.

Vines: Very scarce or absent.

Ferns: Scarce: There are single plants of *Hypolepis rugosula*, *Histiopteris incisa* and *Blechnum minus* on the Council property and *Lindsaea linearis* is scattered around the boundary between that lot and the one to the north. Ferns may well proliferate as the vegetation develops.

Ground flora: *Microlaena stipoides* and *Austrostipa rudis* dominate on the drier ground of the northernmost property, with abundant moss, *Acaena novae-zelandiae* and *Gonocarpus tetragynus*. These species are joined on the Council property by *Lomandra longifolia* and, in the wettest areas, water-loving sedges such as *Carex* and *Cyperus*. *Lobelia anceps* and *Centella cordifolia* are abundant on this property. Rushes become dominant among the ground flora (along with the weed, *Ranunculus repens*) on the southernmost lot, although *Typha* dominates a large patch. The combination of *Centella cordifolia*, *Gonocarpus micranthus*, *Goodenia humilis*, *Isotoma ?fluviatilis*, *Lindsaea linearis* and *Lobelia anceps* on the Council property are suggestive of Swampy Woodland, but they are intermixed with species such as *Cyperus lucidus*, *Eucalyptus viminalis* and *Prostanthera lasianthos* that are more indicative of Riparian Forest.

Plant species

The following plant species were observed by the author on 30th August 2002. Additional species would no doubt be detectable in other seasons. 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, the species with names in bold are rare throughout the Melbourne region. Of the species found, 47 were on the Council property, 28 to the north and 8 to the south.

Risk	Indigenous Species	Risk	Indigenous Species
V	<i>Acacia mearnsii</i>	C	?<i>Isotoma fluviatilis</i>
V	<i>Acacia melanoxydon</i>		<i>Juncus gregiflorus</i>
	<i>Acacia paradoxa</i>	C	<i>Juncus holoschoenus</i>
E	<i>Acacia pycnantha</i>		<i>Juncus pallidus</i>
	<i>Acaena novae-zelandiae</i>	E	<i>Juncus planifolius</i>
V	<i>Adiantum aethiopicum</i>	E	<i>Juncus procerus</i>
	<i>Alisma plantago-aquatica</i>		<i>Juncus sarophorus</i>
	<i>Austrostipa rudis</i> subsp. <i>rudis</i>	E	<i>Leptospermum scoparium</i>
C	<i>Baumea acuta</i>	V	<i>Lindsaea linearis</i>
C	<i>Blechnum minus</i>	E	<i>Lobelia anceps</i>
	<i>Bursaria spinosa</i>		<i>Lomandra filiformis</i> subsp. <i>coriacea</i>
E	<i>Carex fascicularis</i>		<i>Lomandra longifolia</i>
E	<i>Centella cordifolia</i>	E	<i>Melaleuca ericifolia</i>
V	<i>Coprosma quadrifida</i>		<i>Microlaena stipoides</i>
E	<i>Cyathea australis</i>		<i>Oxalis exilis/perennans</i>
V	<i>Dianella longifolia</i> s.l.	E	<i>Ozothamnus ferrugineus</i>
V	<i>Eucalyptus cephalocarpa</i>		<i>Persicaria decipiens</i>
E	<i>Eucalyptus viminalis</i> subsp. <i>viminalis</i>	E	<i>Poa tenera</i>
	<i>Eucalyptus</i> – two hybrids		<i>Prostanthera microphylla</i>
V	<i>Exocarpos cupressiformis</i>	E	<i>Prostanthera lasianthos</i>
C	<i>Gonocarpus micranthus</i>	C	<i>Pterostylis pedunculata</i>
	<i>Gonocarpus tetragynus</i>	E	<i>Rytidosperma semiannulare</i>
E	<i>Goodenia humilis</i>		<i>Schoenus apogon</i>
	<i>Goodenia ovata</i>	E	<i>Senecio minimus</i>
C	<i>Histiopteris incisa</i>	V	<i>Solanum laciniatum</i>
C	<i>Hypericum japonicum</i>	E	<i>Typha</i> sp.
C	<i>Hypolepis rugosula</i>	E	<i>Viola hederacea</i>
V	<i>Isolepis inundata</i>	E	<i>Xanthosia dissecta</i>
Introduced Species			
	<i>Acacia baileyana</i>		<i>Galium aparine</i>
	<i>Anthoxanthum odoratum</i>		<i>Genista monspessulana</i>
	<i>Callitriche stagnalis</i>		<i>Gladiolus undulatus</i>
	<i>Centaurium erythraea</i>		<i>Hedera helix</i>
	<i>Cirsium vulgare</i>		<i>Holcus lanatus</i>
	<i>Cotoneaster pannosus</i>		<i>Hypochoeris radicata</i>
	<i>Crataegus monogyna</i>		<i>Leontodon taraxacoides</i>
	<i>Cyperus eragrostis</i>		<i>Lonicera japonica</i>
	<i>Ehrharta erecta</i>		<i>Oxalis incarnata</i>
	<i>Erica lusitanica</i>		<i>Pinus radiata</i>
			<i>Pittosporum undulatum</i>
			<i>Prunella vulgaris</i>
			<i>Prunus cerasifera</i>
			<i>Ranunculus repens</i>
			<i>Rubus anglocandicans</i>
			<i>Salix</i> sp.
			<i>Solanum americanum</i>
			<i>Sonchus oleraceus</i>
			<i>Ulex europaeus</i>
			<i>Watsonia meriana</i> var. <i>bulbillifera</i>

Notes concerning some of the locally threatened plant species

Baumea acuta (Pale Twig-rush). Abundant on the Council property.

Blechnum minus (Soft Water-fern). One individual seen on the Council property.

Carex fascicularis (Tassel Sedge). At least several on the Council property.
Cyperus ?lucidus (Leafy Flat-sedge). At least several plants.
Gonocarpus micranthus (Creeping Raspwort). Approximately ten scattered plants were found.
Goodenia humilis (Swamp Goodenia). One large colony was found.
Histiopteris incisa (Bat's Wing Fern). One patch was found.
Hypericum japonicum (Matted StJohn's Wort). Seen on the Council property, where numbers would vary seasonally.
Hypolepis rugosula (Ruddy Ground-fern). A single plant was found.
?Isotoma fluviatilis (Swamp Isotome). Scattered on the Council property.
Juncus holoschoenus (Joint-leaf Rush). Number of plants not recorded.
Pterostylis pedunculata (Maroon-hood). Rather abundant in the dense scrub.

Fauna habitat features

- Frogs breed in the near-permanent water;
- The scrub and other native vegetation were observed to be occupied by plenty of White-browed Scrubwrens and Superb Fairy-wrens;
- Many birds and insects would find abundant food when the paperbarks and tea-trees are in flower.

Significance ratings

This property is part of the Dandenong Creek flora and fauna corridor, which is of State significance. Of course, not every part of the corridor is as significant as every other part, so the following paragraphs describe the significant attributes of this particular site, as assessed against the Department of Sustainability & Environment's standard criteria (Amos 2004):

Ecological Integrity & Viability

The site adds to the Dandenong Creek corridor nearly 2½ ha of dense bushland of a kind that is scarce elsewhere in the corridor, thereby providing diversity of habitat. Its relationship to neighbouring bushland (see above) is also important as a 'stepping stone' for local fauna movements. It follows that the site is of **Local** significance under criterion 1.2.6 of Amos (2004).

Richness of Flora

57 indigenous plant species is a good tally for Knox, taking into account the size of the site, the type of vegetation and that the survey was conducted in winter. The DSE significance criteria provide no recognition for such an attribute.

Regionally Threatened Ecological Vegetation Class

The vegetation represents early developmental stages of a regionally endangered EVC (Swampy Woodland) and perhaps some Swampy Riparian Woodland or Riparian Forest (both of which are also regionally threatened). If one uses the formula in Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a), any occurrence of an endangered EVC is of at least High conservation significance. Taking into account the immature stage of the vegetation's development, the Ardnehue Rd site would be unlikely to reach the level of Very High conservation significance under the Framework, but a habitat score would have to be determined to confirm this with certainty.

Under criterion 3.2.3 of Amos (2004), the site is of **State** significance because it includes vegetation of High conservation significance on the basis of threatened EVCs.

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.

Rare or Threatened Fauna

This site was reported in the Scoresby Transport Corridor Environment Effects Statement to support Sugar Gliders. If the population remains and is viable, it would give the site Local significance under criterion 3.1.5.

Threats

- The electricity transmission lines above the site must be kept clear of risks from the vegetation. Depending on the care that is taken, the vegetation cutting may have a serious or mild impact on the vegetation.
- Environmental weed invasion has had a major impact on the site but a moderate amount of effort is being made to control this on the northern property and the Council land. The species that were recorded as 'Very Serious' during the field survey for this report were Hawthorn, Gorse, Blackberry, Japanese Honeysuckle and Creeping Buttercup. Six others were rated 'Serious': Cleavers, Wild Gladiolus, Water Couch, Sweet Pittosporum, Blue Periwinkle and Bulbil Watsonia.
- Some indigenous plant species (particularly ferns) have population sizes so small that they are vulnerable to inbreeding, poor reproductive success or elimination by incidents such as cubby house construction or digging by dogs;

- The two VicRoads properties are earmarked for possible road construction in the long term.

Management issues

- Transmission line clearance should be done in accordance with a management plan that gives full regard to the significance of the vegetation and minimises the harm to the vegetation's ecology;
- Vegetation that is to be retained during any road construction should be protected by careful planning and hard fencing;
- Any loss of vegetation due to transmission line clearance, road construction or other reasons should be compensated by offsets according to the Victorian Native Vegetation Framework (e.g. by strengthened weed control at the site);
- The site needs and well deserves a greater effort at weed control in order to avoid gradual ecological decline.

Administration matters

- As a site of considerable biological significance, this site meets the criteria for an Environmental Significance Overlay as given in the Biodiversity Practice Note for the Victoria Planning Provisions;
- Those responsible for managing vegetation beneath the electricity transmission lines should be approached regarding this report with a view toward addressing the management issues above.

Information sources used in this assessment

- Detailed vegetation data and mapping in accord with this study's standard approach described in Section 2.4 of Vol.1, including a list of indigenous and introduced plant species for each of the three properties, compiled by Dr Lorimer over approximately two hours on 30th August 2002. Herbarium voucher specimens were taken of *Baumea acuta* and *Hypolepis rugosula* and are being offered to the National Herbarium of Victoria;
- A fauna list for the whole site plus the adjoining Forest Lodge (see below), as observed incidentally during the vegetation survey;
- The 1998 '*Scoresby Transport Corridor Environment Effects Statement*', particularly Supplement Volume H: Flora and Fauna by Williams L.M., Yugovic J.V., McGuckin J., Humphrey P. and Larwill S. (1998);
- Aerial photography from February 2001, April 2003 and February 2007;
- 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.