

Site 78. Bergins Rd Extension, Rowville

A 1.8 ha area with a drainage reserve, agistment area and roadside, each with native vegetation. Melway ref. 82 A7.

Site Significance Level: *Regional*

- The remnant vegetation belongs to two regionally endangered Ecological Vegetation Classes: Valley Heathy Forest and Swampy Woodland;
- Much of the site was subject to drainage works and mulching in 2004, which replaced substantial areas of native ground flora with mulch and newly planted tubestock.



Aerial photograph taken February 2007

Boundaries

This 1.84 ha site is outlined in red and labelled 'Site 78' on the aerial photograph. The southern edge follows the fence of Churchill National Park. The other boundaries mainly follow fences and the edges of the adjoining roads, diverting around the more intensely developed part of the kennels.

Land use: A substantial part of the site is occupied by treed parts of Diamond's Kennels. Other parts are used as road verge and for drainage and stormwater treatment. The stormwater treatment wetlands are on the road reservation for an extension of Police Rd.

Site description

This site lies at the foot of the Lysterfield Hills at elevations of approximately 60 m, with a gentle southwesterly slope. Prior to settlement, it would have been poorly drained but without an obvious watercourse. Now, a drain with a series of

stormwater treatment wetlands has been excavated (marked on the aerial photograph) to cope with the increased runoff and pollution created by urban development uphill.

The bedrock is the same as the Lysterfield Hills: hornfels created by metamorphosis of Lower Devonian sedimentary rock. In part of the site, along and adjacent to the Bergins Rd roadside, the soil is poorly drained clay loam formed from decomposition of the hornfels. The author believes that the soil in the rest of the site is silt that has washed from uphill, even though geological survey maps do not show the hill's colluvium extending that far south.

In the absence of silt, the native vegetation would be expected to be Valley Heathy Forest, and this is what one finds along most of the Bergins Rd edge of the site. A notable feature of this strip is the very large Lightwoods (*Acacia implexa*). Elsewhere, the vegetation is Swampy Woodland dominated by Swamp Gums (*Eucalyptus ovata*), corroborating the interpretation that much of the site's topsoil is silt washed from further uphill.

In the 2002 site inspection, the highest density of rare plant species was observed in the site's southwestern corner. Several such species regenerated following scalping of topsoil by machinery in c. 2000. These species flourish on exposed ground and are suppressed when covered by mulch or other, more competitive vegetation. In 2004, that location was covered with mulch, leaving no chance for the rare species to survive or regenerate.

When inspected in 2008, most of the plant species recorded from the site in 2002 were still present, but not the four significant ones (*Gratiola pubescens*, *Hypolepis rugosula*, *Drosera peltata* subsp. *peltata* and *Juncus holoschoenus*). All these species were destroyed by the stormwater project in 2004 and it seems highly likely that they will not reappear naturally. The revegetation that occurred in association with the stormwater project includes a mixture of indigenous species (some of them locally rare) and species from elsewhere in the Melbourne region. Overall, the stormwater works have had a bad effect on locally threatened plants but have reduced the average density of weeds and probably improved the habitat for fauna (particularly frogs).

Diamond's Kennels occupies a substantial part of the site and has little native vegetation other than mature trees, concentrated in the northwest.

Relationship to other land

Many native birds, bats, frogs and insects would be likely to move between this site, Churchill National Park, the Waverley Golf Club (Site 77), the Dandenong Creek habitat corridor (e.g. Site 75) and the Lysterfield Hills. The continuity of the tree canopy across all of these sites encourages such movements.

Bioregion: Gippsland Plain

Habitat types

Wetland (EVC 74, listed as regionally Endangered but in this case the wetlands are artificial): Estimated to contain 500 m² of vegetation (most of it planted) in fair ecological condition (rating C).

Trees, vines and ferns: Absent.

Shrubs: A small number of *Senecio minimus* have volunteered around the edges of the wetlands.

Aquatic and semi-aquatic flora: Dominated variously by *Typha domingensis*, *Persicaria decipiens*, *Eleocharis acuta*, *Eleocharis sphacelata*, *Juncus amabilis* or *Juncus sarophorus*. It is difficult to tell how much of this has been planted, but the mixture closely matches the non-planted wetland vegetation in a dam 300 m to the east.

Swampy Woodland (EVC 937, **regionally Endangered**): Estimated as 0.7 ha in area, comprising 0.2 ha in fair ecological condition (rating C) and 0.5 ha in poor ecological condition (rating D). 44 indigenous plant species were recorded in 2002, dropping to 30 in June 2008 (with an expectation of partial recovery).

Dominant canopy trees: *Eucalyptus ovata* is strongly dominant.

Dominant lower trees: *Acacia mearnsii* and *A. melanoxylon*.

Shrubs: The naturally occurring species are low in diversity and density due to clearing. The most abundant of these are *Kunzea ericoides*, *Leptospermum scoparium*, *Ozothamnus ferrugineus* and *Senecio minimus*.

Vines: Absent.

Ferns: There is a patch of *Pteridium esculentum* in the southwest. *Hypolepis rugosula* was destroyed in 2004.

Ground flora: Among the non-planted species, the dominant ground flora species are *Gahnia radula*, various *Juncus* species (particularly *J. amabilis*). Other characteristic species include *Carex appressa* and abundant *Epilobium hirtigerum*. Characteristic species that were destroyed in 2004 include *Centella cordifolia*, *Gratiola pubescens* and *Isolepis inundata*.

Valley Heathy Forest (EVC 127, **Endangered**) beside Bergins Rd: Estimated as 0.08 ha, all in poor ecological condition (rating D). 14 indigenous plant species were recorded, most or all of which were still present in June 2008.

Canopy trees: Dominated by *Eucalyptus radiata*, also with *E. cephalocarpa* and outliers of *E. ovata*.

Lower trees: *Acacia mearnsii*, *Allocasuarina littoralis*, *Exocarpos cupressiformis* and *Acacia implexa* to 10 m tall.

Shrubs: Very scant, but *Kunzea ericoides* is present (and formerly *Acacia paradoxa*).

Vines and ferns: Absent.

Ground flora: Predominantly introduced grass.

Plant species

The following plant species were observed by the author in the years indicated. Additional species would be detectable in seasons other than winter. 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.

Risk	Indigenous Species	Year	Risk	Indigenous Species	Year
V	<i>Acacia implexa</i>	2008	E	<i>Indigofera australis</i> (planted)	2008
V	<i>Acacia mearnsii</i>	2008	V	<i>Isolepis inundata</i>	2002
V	<i>Acacia melanoxylon</i>	2008		<i>Juncus amabilis</i>	2008
	<i>Acacia paradoxa</i>	2008		<i>Juncus bufonius</i>	2002
	<i>Acaena novae-zelandiae</i>	2008		<i>Juncus gregiflorus</i>	2002
V	<i>Allocasuarina littoralis</i>	2008	C	<i>Juncus holoschoenus</i>	2002
C	<i>Amyema pendula</i>	2008		<i>Juncus pallidus</i>	2008
	<i>Bursaria spinosa</i> (planted)	2008	E	<i>Juncus planifolius</i>	2002
	<i>Carex appressa</i> (wild and planted)	2002		<i>Juncus sarophorus</i>	2008
E	<i>Carex fascicularis</i> (planted)	2008	E	<i>Juncus subsecundus</i>	2002
	<i>Cassinia arcuata</i>	2008		<i>Kunzea ericoides</i> spp. agg.	2008
E	<i>Centella cordifolia</i>	2002		<i>Lachnagrostis filiformis</i>	2008
V	<i>Coprosma quadrifida</i> (planted)	2008	E	<i>Leptospermum scoparium</i>	2008
E	<i>Crassula helmsii</i> (planted)	2008		<i>Lomandra longifolia</i>	2002
V	<i>Dianella longifolia</i> s.l.	2002	V	<i>Lythrum hyssopifolia</i>	2008
	<i>Dichondra repens</i>	2008	E	<i>Melaleuca ericifolia</i> (planted)	2008
E	<i>Drosera peltata</i> subsp. <i>peltata</i>	2002	E	<i>Melicytus dentatus</i> (planted)	2008
V	<i>Eleocharis acuta</i>	2008		<i>Microlaena stipoides</i>	2008
	<i>Eleocharis sphacelata</i>	2008	C	<i>Muellerina eucalyptoides</i>	2002
V	<i>Epilobium billardierianum</i> ssp. <i>cinereum</i>	2008	E	<i>Ozothamnus ferrugineus</i>	2008
	<i>Epilobium hirtigerum</i>	2002		<i>Persicaria decipiens</i> (perhaps planted)	2008
V	<i>Eucalyptus cephalocarpa</i>	2008	E	<i>Poa labillardierei</i> (planted)	2008
V	<i>Eucalyptus ovata</i>	2008		<i>Poa morrisii</i>	2002
E	<i>Eucalyptus radiata</i>	2002	C	<i>Pomaderris racemosa</i> (planted)	2008
V	<i>Euchiton collinus</i>	2002		<i>Poranthera microphylla</i>	2002
V	<i>Exocarpos cupressiformis</i>	2002		<i>Pteridium esculentum</i>	2008
	<i>Gahnia radula</i>	2008		<i>Schoenus apogon</i>	2002
E	<i>Gahnia sieberiana</i> (planted)	2008	E	<i>Senecio minimus</i>	2008
E	<i>Geranium gardneri</i>	2008		<i>Senecio quadridentatus</i>	2008
	<i>Goodenia ovata</i> (wild & planted)	2008		<i>Themeda triandra</i> (planted)	2008
C	<i>Gratiola pubescens</i>	2002	C	<i>Triglochin procera</i> (planted)	2008
E	<i>Hypericum gramineum</i>	2002	E	<i>Triglochin striata</i> (planted)	2008
C	<i>Hypolepis rugosula</i>	2002	E	<i>Typha domingensis</i>	2008

Introduced Species

<i>Agrostis capillaris</i>	<i>Ehrharta erecta</i>	<i>Phytolacca octandra</i>
<i>Allium triquetrum</i>	<i>Fumaria officinalis</i> spp. agg.	<i>Ranunculus repens</i>
<i>Aster subulatus</i>	<i>Galium aparine</i>	<i>Rubus anglocandicans</i>
<i>Chrysanthemoides monilifera monilifera</i>	<i>Holcus lanatus</i>	<i>Rumex crispus</i>
<i>Cirsium vulgare</i>	<i>Juncus articulatus</i>	<i>Ulex europaeus</i>
<i>Conium maculatum</i>	<i>Oxalis incarnata</i>	<i>Watsonia meriana bulbifera</i>
<i>Conyza sumatrensis</i>	<i>Paspalum dilatatum</i>	<i>Zantedeschia aethiopica</i>
<i>Cyperus eragrostis</i>	<i>Paspalum distichum</i>	
<i>Dactylis glomerata</i>	<i>Pennisetum clandestinum</i>	

Notes concerning some of the locally threatened plant species

Drosera peltata subsp. *peltata* (Pale Sundew). A single plant was found beneath the transmission lines in July 2002, destroyed in 2004.

Gratiola pubescens (Glandular Brooklime). One group of ten plants was found beneath the transmission lines in July 2002, destroyed in 2004 by installation of stormwater treatment ponds.

Hypolepis rugosula (Ruddy Ground-fern). Several were growing in the eastern corner of the site in July 2002, but have not recovered from being buried in mulch in 2004.

Juncus holoschoenus (Joint-leaf Rush). At least two plants were in the drainage line opposite Wallingford Place in July 2002, destroyed in 2004.

Fauna of special significance

Eastern Grey Kangaroos frequent the site, as with all other bushland and open space in the vicinity.

Fauna habitat features

There are some old eucalypts with hollows that would suit roosting or nesting sites of native birds, bats, possums or insects.

Significance ratings

The following is an assessment of the site's significance against the Department of Sustainability & Environment's standard criteria (Amos 2004).

Ecological Integrity and Viability

Criterion 1.1.2 awards **Regional** significance to the largest blocks of contiguous native vegetation in regions where habitat is extensively cleared and fragmented. This applies to the large tract of native vegetation made up from Site 78, Churchill National Park and adjoining bushland; However the peripheral character of Site 78 in this context means that the site represents only a tiny contribution to the regional significance.

As explained under the heading 'Relationship to other land' on the previous page, this site's landscape context makes it part of a corridor for wildlife movement around the local area. This qualifies for **Local** significance under criterion 1.2.6.

Endangered Vegetation Types

Valley Heathy Forest and Swampy Woodland are endangered. It follows from Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a) that native vegetation of these types is necessarily of at least High conservation significance. Any 'remnant patch' of such vegetation gives a site State significance under criterion 3.2.3 of Amos (2004).

The native vegetation on a small part of the site meets the Department of Sustainability & Environment's definition of a remnant patch. Because this area is so small, the author deems the significance level of the site to be reduced to **Regional**.

Locally 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

- Invasion by environmental weeds. The main weeds are as follows:
 - Serious: Angled Onion (*Allium triquetrum*), Panic Veldt-grass (*Ehrharta erecta*), Jointed Rush (*Juncus articulatus*), Pale Wood-sorrel (*Oxalis incarnata*), Creeping Buttercup (*Ranunculus repens*);
 - Moderate: Brown-top Bent (*Agrostis capillaris*), Spear Thistle (*Cirsium vulgare*), Drain Flat-sedge (*Cyperus eragrostis*), Cocksfoot (*Dactylis glomerata*), Fumitory (*Fumaria* sp.), Cleavers (*Galium aparine*), Hemlock (*Conium maculatum*), Paspalum (*Paspalum dilatatum*), Red-ink Weed (*Phytolacca octandra*), Blackberry (*Rubus discolor*), Bulbil Watsonia (*Watsonia meriana*), Arum Lily (*Zantedeschia aethiopica*);
- Rabbit grazing.

Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of the matters discussed under the heading, 'Significance ratings' and the possibility of future development. Part of the justification is related to the following statement from the Department of Planning and Community Development's Biodiversity Practice Note: *'The ESO contains additional controls over the construction of buildings, works, fence construction and subdivision. The VPO should be used in preference to the ESO only where impacts on biodiversity caused by the clearing of vegetation are the sole concern'*;
- This site and some neighbouring land are presently covered by the Vegetation Protection Overlay Schedule 1 of the Knox Planning Scheme, based on the description of Site 35 of the report by Water Ecoscience (1998);

- The site is outside the Urban Growth Boundary;
- The Planning Scheme zoning is Green Wedge Zone Schedule 2 (GWZ2). The associated minimum subdivision area of 4 ha means the site presently has no subdivision potential without a planning scheme amendment.

Information sources used in this assessment

- Site surveys by Dr Lorimer on 15th April and 31st July 2002 and on 5th June 2008 using this study's standard approach described in Section 2.4 of Vol.1. This included:
 - Compilation of lists of indigenous and introduced plant species in each of four parts of the site;
 - Description of the structural and floristic composition of each type of native vegetation;
 - Incidental fauna observations; and
 - Checks for fauna habitat, ecological threats and management issues;
- Brief observations of the site on 25th July 2004, when the native understorey had been removed and replaced by mulch and newly planted tubestock;
- 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.