

Site 17. 'The Ravine', The Basin

A creek corridor whose Damp Forest provides a distinctive Dandenong Ranges atmosphere. Melway ref. 65 K9.

Site Significance Level: *Local*

- Contains Damp Forest with very large trees, some native understorey and extensive (but reducing) weed invasion;
- There are six plant species that are threatened in Knox and eight that are rare or threatened in the whole Melbourne area;
- The site represents a small extension to the flora and fauna habitat of the abutting Dandenong Ranges National Park;
- A range of fauna found in the national park, including rare species, are likely to periodically use the reserve.



Boundaries

This 2.25 hectare site is outlined in red on the aerial photograph above. Its boundaries coincide with property boundaries except the downstream (northwest) creek crossing, where a straight line is drawn between two property corners. The site includes private properties with native vegetation that forms part of the continuous corridor of native vegetation along the creek. A few of these properties retain no more native vegetation than a few indigenous trees at one end of their lots.

Land use & tenure: Residential land zoned 'Low Density Residential Zone' (LDRZ) and a reserve zoned Public Park and Recreation Zone (PPRZ) for Golden Grove and the adjacent creek.

Site description

This site follows a corridor of tall Damp Forest along a tributary of Dobsons Creek, at elevations of 198-228 m. The valley has historically been known as The Ravine*. The creek has carved a steep-sided channel several metres deep (hardly a true ravine), and Golden Grove has been constructed on the western bank, raised above the natural ground level. Above the eastern bank, the hillside has a slope of almost 30%, facing west. The slope west of Golden Grove faces north and is much shallower, at 10%.

The soil is an acidic, orange clay loam derived from the Ferny Creek rhyodacite formation. The uppermost volcanic stratum of the Dandenong Ranges.

Despite rampant weed invasion that pervades the understorey and climbs into some of the trees, the site retains populations of some plant species that are very rare or threatened in Knox. The rarity of these species results from the paucity in Knox of the Ecological Vegetation Class represented here (Damp Forest). The species and the EVC are much more common in the wetter parts of the Dandenong Ranges.

Road construction, residential development and weed invasion have decimated the shrub layer. Trees have been removed for the same reasons, but some of the remaining trees are very large and old. These trees and the tree ferns along the creek create the distinctive atmosphere of gullies in the Dandenong Ranges.

As is common in wet gullies, the worst weeds are vines such as Ivy, Wandering Jew and Banana Passionfruit.

A program of extensive weed control was under way in The Ravine when it was inspected for this report in 2008. A substantial fraction of the weeds had been removed, along with some inadvertent destruction of indigenous plants. Seeds were germinating in the exposed soil, including locally rare plants such as *Hydrocotyle geraniifolia* as well as weeds. The success of this program will depend on the extent of follow-up weed control. If successful, the site's conservation significance will increase (along with the site's undoubted scenic qualities).

Some of the private properties in the site retain most of the natural tree canopy and some understorey. Some others retain only a few remnant trees. Some also harbour serious environmental weeds, as does the reserve.

Relationship to other land

The Dandenong Ranges National Park, immediately east of this site, 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. Extensive movement of fauna was observed between the site and the park.

The degree of weed invasion in the national park is lower than along Golden Grove, but there is still a large reservoir of weeds whose seeds and fragments migrate down the creek into the site. Any weed control work in the site would benefit greatly from complementary weed control work in the national park to reduce the rate of re-infestation. Conversely, weeds with seeds dispersed by birds, such as Sweet Pittosporums and Cestrum, are presently migrating in both directions along the creek, so any weed control work in the national park would benefit from complementary work along Golden Grove and the surrounding private properties.

The part of the national park that abuts this site is also part of Site 18 (The Basin - Sassafras Forest Precinct) and the whole of the surrounding residential area is included in Site 99 (the Dandenong Ranges Buffer area).

Bioregion: Highlands Southern Fall

Habitat types

Damp Forest (EVC 29, conservation status listed as of 'Least Concern' in the bioregion): 1.4 ha, of which approximately 10% (0.4 ha) is in fair ecological condition (rating C) and the remainder (1.26 ha) is in poor ecological condition (rating D).

Dominant canopy trees: *Eucalyptus cyphellocarpa* with a few *E. obliqua* and *E. radiata*. Some trees are very large.

* 'Fire on the Hill, Flowers in the Valley – The Basin, 1868-1992' by Rick Coxhill, published by The Basin Progress Association, 1992.

Lower trees: *Acacia melanoxylon* and *Pomaderris aspera* are abundant. *Acacia dealbata* is also conspicuous. The characteristic species *Bedfordia arborescens* and *Olearia argophylla* are present but scarce.

Shrubs: Clearing and weed invasion have reduced the indigenous shrubs to very sparse *Coprosma quadrifida*, *Ozothamnus ferrugineus*, *Pimelea axiflora* and *Sigesbeckia orientalis*.

Vines: Vine weeds are very abundant, dominated by *Delairea odorata*, *Hedera helix* and *Passiflora mollissima*. Indigenous vines are represented by *Clematis aristata*, *Pandorea pandorana* and a solitary *Calystegia marginata*. There is also the climbing grass, *Tetrarrhena juncea*.

Ferns: Very abundant, dominated by *Cyathea australis* and *Calochlaena dubia*, and with many *Dicksonia antarctica*, *Adiantum aethiopicum* and *Blechnum cartilagineum*.

Ground flora: Low in species-richness. Dominated by the weeds *Tradescantia albiflora* and *Delairea odorata*. The dominant indigenous species are the ferns mentioned above and the grass, *Poa ensiformis*. *Tetrarrhena juncea*, often along with *Poa ensiformis*. *Dianella tasmanica* is a good ecological indicator species.

Plant species

The following plant species were observed in the years indicated by the final column. 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
	<i>Acacia dealbata</i>	2002	E	<i>Hydrocotyle geraniifolia</i>	2008
V	<i>Acacia melanoxylon</i>	2002	V	<i>Isolepis inundata</i>	2002
	<i>Acaena novae-zelandiae</i>	1997	E	<i>Juncus procerus</i>	2002
V	<i>Adiantum aethiopicum</i>	2002		<i>Lepidosperma elatius</i>	2002
C	<i>Bedfordia arborescens</i>	2002		<i>Microlaena stipoides</i>	1997
E	<i>Blechnum cartilagineum</i>	2002	E	<i>Olearia argophylla</i>	1997
E	<i>Blechnum nudum</i>	2008		<i>Oxalis exilis/perennans</i>	1997
V	<i>Calochlaena dubia</i>	2002	E	<i>Ozothamnus ferrugineus</i>	1997
E	<i>Calystegia marginata</i>	2002		<i>Pandorea pandorana</i>	2002
V	<i>Clematis aristata</i>	2008		<i>Persicaria decipiens</i>	1997
V	<i>Coprosma quadrifida</i>	2002	C	<i>Pimelea axiflora</i>	2002
E	<i>Cyathea australis</i>	2002		<i>Poa ensiformis</i>	2002
V	<i>Dianella tasmanica</i>	1997	E	<i>Pomaderris aspera</i>	2002
E	<i>Dicksonia antarctica</i>	2002	E	<i>Prostanthera lasianthos</i>	1997
V	<i>Eucalyptus cypellocarpa</i>	2002		<i>Pteridium esculentum</i>	1997
V	<i>Eucalyptus obliqua</i>	2002		<i>Rytidosperma racemosum</i>	1997
E	<i>Eucalyptus radiata</i>	2002		<i>Senecio hispidulus</i>	1997
	<i>Gahnia radula</i>	1997	C	<i>Sigesbeckia orientalis</i>	2008
C	<i>Geranium homeanum</i>	2002	C	<i>Stellaria flaccida</i>	2002
C	<i>Histiopteris incisa</i>	2008		<i>Tetrarrhena juncea</i>	2002

Introduced Species

<i>Allium triquetrum</i>	<i>Delairea odorata</i>	<i>Pittosporum undulatum</i>
<i>Asparagus scandens</i>	<i>Ehrharta erecta</i>	<i>Prunus laurocerasus</i>
<i>Cestrum elegans</i>	<i>Hedera helix</i>	<i>Ranunculus repens</i>
<i>Coprosma repens</i>	<i>Hypericum tetrapterum</i>	<i>Rubus anglocandicans</i>
<i>Coprosma robusta</i>	<i>Jasminum polyanthemum</i>	<i>Selaginella kraussiana</i>
<i>Cortaderia selloana</i>	<i>Lonicera japonica</i>	<i>Tradescantia fluminensis</i>
<i>Cotoneaster glaucophyllus</i>	<i>Oxalis incarnata</i>	<i>Zantedeschia aethiopica</i>
<i>Crococsmia × crocosmiiflora</i>	<i>Passiflora tarminiana</i>	
<i>Dactylis glomerata</i>	<i>Pennisetum clandestinum</i>	

Notes concerning some of the locally threatened plant species

Bedfordia arborescens (Blanket-leaf). Scarce, but more abundant just upstream in the national park.

Blechnum cartilagineum (Gristle Fern). Numbers not recorded, but appearing secure and known to be abundant nearby in the national park.

Blechnum nudum (Fishbone Water-fern). Several, first found on 10/3/08 following weed removal.

Calystegia marginata (Forest Bindweed). A solitary plant, but probably more abundant just upstream.

Dicksonia antarctica (Soft Tree-fern). Abundant.

Hydrocotyle geraniifolia (Forest Pennywort). First found in exposed soil on 10/3/08. No search was conducted to determine the population size, but only one was seen.

Olearia argophylla (Musk Daisy-bush). Very scarce.

Pimelea axiflora (Bootlace Bush). Numbers not recorded, but abundant in the adjacent national park.

Sigesbeckia orientalis (Indian Weed). Only one seen, but likely to turn up frequently in the right conditions.

Stellaria flaccida (Forest Starwort). Formerly growing densely on the fence at 10 Golden Grove but not visible in 2008.

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.

The Eastern Whipbird, observed during fieldwork, is very uncommon in Knox, but more common in the adjacent national park.

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, including Powerful Owl. The site provides a small extension to the native habitat available for such species.

Fauna habitat features

- There are very large eucalypts with hollows that provide suitable roosting or nesting sites for certain fauna;
- The stream may provide habitat for important fauna, based on the presence of the rare Dandenong Freshwater Amphipod nearby on Dobsons Creek. No stream survey has been done to check.

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 1.1.1 attributes **Local** significance to 'All parts of riparian systems with riparian vegetation present', which applies to this site. Criterion 1.2.6 might also be taken to accord Local significance to the site as 'Important at local scale - Link between individual remnant habitat blocks or within subcatchment'.

Vegetation Type and Condition

Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a) states that vegetation of an EVC rated as 'Least Concern' (as in this case) is of either Medium or Low conservation significance, depending on whether the habitat score is above or below 0.6. Although no habitat score has been determined in this site, it seems likely that the highest habitat score in the site would be below 0.6, corresponding to a Low conservation significance. This, in turn, confers **Local** significance on the site under criterion 3.2.3.

If the site's significance rating were to become an important issue, the habitat score of the best native vegetation would have to be determined by fieldwork to see whether it really is below the threshold of 0.6.

Rare or Threatened Plants

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 as listed below, with asterisks marking those that are controlled under the *Catchment and Land Protection Act 1994*:
 - Very serious: Cape Ivy (*Delairea odorata*), Ivy (*Hedera helix*), Wandering Jew (*Tradescantia albiflora*);
 - Serious: Angled Onion* (*Allium triquetrum*), Red Cestrum (*Cestrum elegans*), Banana Passionfruit (*Passiflora mollissima*), Kikuyu Grass (*Pennisetum clandestinum*);
 - Moderate: Asparagus fern (*Asparagus scandens*), Montbretia (*Crocasmia × crocosmiiflora*), Cocksfoot (*Dactylis glomerata*), Panic Veldt-grass (*Ehrharta erecta*), Pale Wood-sorrel (*Oxalis incarnata*), Sweet Pittosporum (*Pittosporum undulatum*), Creeping Buttercup (*Ranunculus repens*), Blackberry* (*Rubus discolor*), Garden Selaginella (*Selaginella kraussiana*) and White Arum Lily (*Zantedeschia aethiopica*).
- Dumping of weeds in garden waste.

Management issues

- The combination of occasional floodwaters and a huge reservoir of weed seeds around the site means that weeds will tend to reinfest the site fairly quickly after weed control work. Nevertheless, this should not discourage putting some effort into restraining the worst and most tractable weeds. For example, it is desirable to periodically cut the climbing stems of the very serious vine weeds before they smother their host plants, even though this will not kill the weeds. The

most significant species of plants should receive highest priority for removal of vine weeds. Angled Onion may be gradually reduced in severity on the slopes of the embankment beside Golden Grove by appropriate use of herbicide, commencing at the upstream end and on the upper slope near the street. Additional weed control advice would require a more detailed investigation of the site than is possible in this study.

Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of the reasons listed above for attributing it Local significance and because it has a substantial amount of understorey (including locally significant species);
- The reserve for the road and creek is zoned 'Public Park and Recreation Zone' and the private land is zoned 'Low Density Residential Zone';
- The site is included under the existing Vegetation Protection Overlay Schedule 1 and Significant Landscape Overlay Schedule 2 of the Knox Planning Scheme;
- The site was described by Water Ecoscience (1998) under the title 'Site 37. Golden Grove Creekside'.

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;
- A brief reinspection of the site on 10/3/08 to update the site description, finding several additional plant species;
- A prior investigation of the site by Dr Lorimer on 23-24/12/97 for *A Survey and Management Strategy for Significant Roadside Vegetation in Knox* (published by Knox City Council in May 1998). This included compilation of lists of flora and fauna species;
- Satellite imagery of the district and aerial photography from February 2001 and April 2003;
- The Department of Sustainability & Environment's BioMaps of the area;
- Maps of geology and topography produced by agencies of the Victorian government.