Site 6. Vaughan Road Bushland, Ferntree Gully

A reserve and adjoining residential properties along a tributary of Blind Creek downstream of Koolunga Native Reserve. Melway ref. 65 B11.

Site Significance Level: *Regional*

- Contains canopy and understorey vegetation in fair to poor ecological condition;
- The vegetation's Ecological Vegetation Class (Herb-rich Foothill Forest) is arguably regionally vulnerable (although this depends on whether one treats the site as being in the 'Highlands Southern Fall' or 'Gippsland Plain' bioregion);
- Supports a moderately large population of the rare Dandenong Ranges variant of Cinnamon Wattle (*Acacia leprosa*) and two plant species that are rare or threatened in Knox;
- Provides habitat for small forest birds and possums (despite weed invasions and other disturbances);
- Forms a component of a somewhat interrupted habitat link between Koolunga Native Reserve and Blind Creek.

Aerial photograph: See page 23, which covers this site and Koolunga Native Reserve.

Boundaries

The site encompasses the whole 0·56-hectare reserve abutting Vaughan Rd as well as 1·37 hectares of private land. The private land comprises 9, 11 & 13 Vaughan Rd as well as 14 Carmel Av (excluding its driveway). The public walkway from the turning circle of Carmel Av is not included.

Land use & tenure: Council reserve and private residential properties.

Site description

The site follows the course of an unnamed minor tributary of Blind Creek. Elevations are 114-116 m along the creek, ascending to 131 m on the northwestern boundary.

Within the site, the creek has cut its course through a band of metamorphic rock (hornfels) at the edge of the Mt Dandenong volcanic flows. This has left a steep embankment (40% gradient) of light grey loam and clay subsoil on the northwestern side of the creek and alluvium along the creek and to its southeast.

The embankment supports a fair to good cover of remnant trees and understorey vegetation, although moderate to severe infestations of introduced shrubs, creepers and ground flora occur in this area. Weed control activities in this area have been limited due to the steepness and poor access. The creek is more accessible and a former infestation of Box Elders has been removed along the creek.

The reserve's road frontage contains scattered remnant trees with scant indigenous understorey.

The private properties within the site at the northern end of Vaughan Rd support a fair to good cover of remnant trees and some understorey vegetation, particularly within the *Land for Wildlife* property at 13 Vaughan Rd.

Relationship to other land

The site forms a component of a habitat link between Koolunga Native Reserve (Site 5) immediately to the east, the Belgrave Railway Line corridor (Site 88) and the Blind Creek corridor (Site 33). In addition, a somewhat fragmented tree canopy extends eastward beyond Koolunga Native Reserve, through residential properties to the extensive flora and fauna habitat of the Dandenong Ranges National Park around Chandlers Hill (1km to the east).

The remnant canopy trees and shrub layer vegetation provide habitat suitable for the movement of birds, possums, bats and insects, although the canopy and its associated habitat corridor becomes fragmented downstream (west) of the site. Remnant vegetation is substantially depleted in residential properties flanking the site, particularly on Carmel Av.

Bioregion: On the border between Highlands Southern Fall and Gippsland Plain. The Department of Sustainability & Environment's BioMaps show the site to be just inside the Gippsland Plain, but the boundary on these maps is not claimed to be precise and there are aspects of the site (e.g. its bedrock) which are associated with the Highlands Southern Fall.

Habitat type

Herb-rich Foothill Forest (EVC 23 – **Vulnerable** in the Gippsland Plain bioregion and 'Least Concern' in the Highlands Southern Fall), tending toward Valley Heathy Forest along the top of the embankment and Swampy Riparian Woodland along the downstream (southwestern) section of the creek.

Total area of native vegetation: 1.6 ha, comprising 0·3 ha in fair ecological condition (rating C) (mainly in areas with remnant understorey on northern side of creek) and 1.3 ha in poor condition (rating D).

Canopy trees: Dominated by *Eucalyptus goniocalyx*, *E. obliqua* and *E. radiata*, with a few *E. ovata* trees towards the downstream end of the creek. A fair cover of remnant trees, some over 25 m tall (mainly 50-80 years old). Moderate foliage dieback is apparent.

Lower trees: A few scattered specimens of *Acacia melanoxylon* and *Exocarpos cupressiformis*.

Shrubs: Moderately dense shrub layer, including *Acacia leprosa* (Dandenong Range variant), *Coprosma quadrifida* and *Prostanthera lasianthos*.

Vines: Some *Clematis aristata*, *Pandorea pandorana* and *Rubus parvifolius*.

Ferns: Includes a number of specimens of *Cyathea australis* up to 3 m tall along the creek and patches of *Adiantum aethiopicum*.

Ground flora: Remnant ground layer vegetation is generally restricted to the northern side of the creek where it is dominated by *Gahnia radula*, *Dianella tasmanica*, *Tetrarrhena juncea* and *Poa ensiformis*. Composition is substantially affected by weed infestations.

Plant species

The following plant species were observed by Mr Rik Brown on 23/4/02 except for the asterisked species, which were in a Knox Environment Society brochure in 1986. Several other species would probably be found in summer, particularly grasses. 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 listed by Walsh and Stajsic (2007) as rare nationally. There are over fifty in the site.

Risk	Indigenous Species
V	*Acacia leprosa* (Dandenong Range variant)
V	*Acacia melanoxylon*
V	*Adiantum aethiopicum*
	Arthropodium strictum
	Bursaria spinosa
V	*Calochlaena dubia*
	Cassinia aculeata
V	*Chiloglottis valida**
V	*Clematis aristata*
V	*Coprosma quadrifida*
E	*Cyathea australis*
	Dianella admixta
V	*Dianella longifolia* s.l.
V	*Dianella tasmanica*
	*Dichondra repens**
V	*Epacris impressa*
	Eucalyptus goniocalyx
E	*Eucalyptus macrorhyncha*
V	*Eucalyptus obliqua*
V	*Eucalyptus ovata*
E	*Eucalyptus radiata*
V	*Exocarpos cupressiformis*
	Gahnia radula
V	*Geranium potentilloides*
	Gonocarpus tetragynus
	Goodenia ovata
	Juncus sp.
E	*Lemna disperma*
	Lepidosperma elatius
	Lomandra filiformis subsp. *coriacea*
	Lomandra longifolia
V	*Olearia lirata*
	Oxalis exilis/perennans
	Pandorea pandorana
	Persicaria decipiens
V	*Platylobium formosum*
	Poa ensiformis
	Poa morrisii
E	*Poa tenera*
E	*Prostanthera lasianthos*
	Pteridium esculentum
E	*Rubus parvifolius*
	Rytidosperma penicillatum
C	*Solanum aviculare*
E	*Stylidium armeria/graminifolium**
	Tetrarrhena juncea
E	*Viola hederacea**

Introduced Species

Acer negundo	*Genista monspessulana*	*Prunus cerasifera*
Allium triquetrum	*Hedera helix*	*Ranunculus repens*
Cirsium vulgare	*Ilex aquifolium*	*Rubus anglocandicans*
Cordyline sp.	*Ligustrum vulgare*	*Salix × rubens*
Cotoneaster glaucophyllus	*Lonicera japonica*	*Solanum nigrum*
Cotoneaster pannosus	*Paraserianthes lophantha*	*Sonchus asper* s.l.
Crocosmia × crocosmiiflora	*Passiflora tarminiana*	*Tradescantia fluminensis*
Delairea odorata	*Pennisetum clandestinum*	*Zantedeschia aethiopica*
Eriobotrya japonica	*Pinus radiata*	
Fraxinus angustifolia	*Pittosporum undulatum*	

Fauna of special significance

Little Corella and Yellow-tailed Black-cockatoo were seen or heard flying over during the field survey for this study. Although historically uncommon in Melbourne suburbs, both these bird species have greatly increased in frequency around the urban fringe in the past decade. The mature trees in the site provide limited habitat for these species on their passage through the area.

Fauna habitat features

The cover of remnant trees throughout the site, and shrubby understorey on the northwestern side of the creek, provide fair habitat for birds and possums. This includes a good population of Grey Fantails (over 10 birds) and other small forest birds such as the White-browed Scrubwren, Spotted Pardalote and Striated Thornbill recorded during field surveys. A few Common Ringtail Possum dreys were also present. Woody weeds along the northern side of the creek contribute to habitat values for small birds and possums to some degree.

A few older trees and dead stags occurring within the site contain natural hollows suitable as shelter and breeding locations for birds, bats and possums.

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 & Viability

The site represents a habitat link in a local-scale corridor, as described under the heading 'Relationship to other land' above. This is of **Local** conservation significance according to criterion 1.2.6.

Regionally Threatened Ecological Vegetation Class

The habitat score of the site's most intact vegetation is predicted to be in the vicinity of 0·25-0·3. According to *'Victoria's Native Vegetation Management – A Framework for Action'* (NRE 2002a), it follows that the conservation significance would be Medium if the site is treated as within the Gippsland Plain bioregion (due to the Vulnerable status of Herb-rich Foothill Forest in that bioregion), or Low otherwise.

According to criterion 3.2.3 of the standard criteria, a site is of **Regional** significance if it includes any vegetation of Medium conservation significance resulting from the presence of a rare or threatened EVC. Similarly, vegetation of Low conservation significance gives the site **Local** significance.

There is a chance that a formally determined habitat score would reach or exceed 0·3 in the most intact part of the site, in which case the site's significance would rise to State level if regarded as part of the Gippsland Plain.

Rare or Threatened Flora

The Dandenong Range variant of *Acacia leprosa* is listed as 'rare' in Victoria. The population in this site is viable and substantial but it is still a small fraction of the total population of the taxon. This represents **Regional** significance under criterion 3.1.2 of the standard criteria.

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

Waterway Protection

Remnant vegetation along the creek is significant for waterway protection. The Framework (NRE 2002a) gives a 'land protection hazard rating' of Very High to riparian zone vegetation and High to vegetation adjoining a riparian zone (such as the steep slope above the creek).

Threats

- Residential development of 14 Vaughan Rd, which was (until recently) part of Vaughan Rd Reserve;
- Invasion by environmental weeds along the creek and from adjacent residential properties (particularly those on the northwestern side), including:
  - Very serious: Montbretia (*Crocosmia × crocosmiiflora*), Cape Ivy (*Delairea odorata*), Ivy (*Hedera helix*), Japanese Honeysuckle (*Lonicera japonica*), Kikuyu (*Pennisetum clandestinum*) and Creeping Buttercup (*Ranunculus repens*);
  - Serious: Common Privet (*Ligustrum vulgare*), Blackberry (*Rubus discolor*), Black Nightshade (*Solanum nigrum*) and Wandering Jew (*Tradescantia albiflora*);
- Eucalypt dieback disease and poor regeneration where trees have died;
- Loss or decline of plant species that are present in dangerously small numbers, due to inbreeding, poor reproductive success or elimination by incidents such as cubby house construction or digging by dogs;

- Moderate erosion of the creek banks is evident in some locations, particularly around adjoining drains;
- Threats to trees and other remnant vegetation by possible future residential development within properties at the northeastern end of Vaughan Rd;
- Potential demands for increased fire prevention measures from adjoining properties.

Management issues

- Selective weed control is required along the creek and on the slope on its northwestern side, particularly control of the species listed under 'Threats' above. Weed control should be integrated with measures for the restoration of indigenous vegetation to minimise erosion and loss of habitat for birds and possums along the northwestern side of the creek;
- Encourage the natural regeneration of indigenous plants in areas supporting remnant vegetation through selective weed control and by restricting mowing activities and other physical disturbances;
- Revegetate with indigenous plants where depleted to enhance habitat connectivity and extent. There are substantial opportunities for enhancing values of the reserve through appropriate revegetation to re-establish understorey vegetation in areas which are currently mown on the southeastern side of the creek, and through the planting of trees in areas where the canopy is fragmented. Such habitat restoration has effectively been undertaken within the nearby Koolunga Native Reserve over recent years;
- Clearing of any native vegetation within properties at the northern end of Vaughan Rd should be avoided;
- Protect remnant vegetation during drainage or bank stabilisation works along the creek;
- Fire prevention requirements should be addressed through weed control before considering actions that would harm the native vegetation.

Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of its biological significance (discussed above), the presence of a stream and the possibility of future subdivision of the private lots;
- Much of the site is included under the existing Vegetation Protection Overlay Schedule 1 of the Knox Planning Scheme, based on the description of Site 59 of the report by Water Ecoscience (1998). However, the boundary used here is substantially different to match cadastral boundaries and omit areas of little conservation value;
- The Planning Scheme zoning of the reserve is Public Park and Recreation Zone (PPRZ) and the rest of the site is zoned Residential 1 Zone (R1Z).

Information sources used in this assessment

- Detailed vegetation data 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, compiled by Rik Brown on 23rd April 2002. (Note that vegetation within the private properties was not surveyed in detail but these properties are unlikely to have additional significant attributes.);
- Incidental observations of birds, butterflies and signs of fauna generally while the above data was being gathered;
- A 1986 brochure titled *'Vaughan Road Bushland Regeneration Project'*, produced by the Knox Environment Society;
- Records from the Atlas of Victorian Wildlife;
- Aerial photography from February 2001, April 2003 and January 2009;
- Satellite imagery of the district;
- Department of Sustainability & Environment's BioMaps of the area (whose depiction of Valley Heathy Forest on this site is taken here to be inaccurate);
- Maps of geology and topography produced by agencies of the Victorian government.