

## Site 9. Boronia Heights College

This secondary school has rather modified native vegetation around the grounds, and much richer and more intact native vegetation in a ½ hectare sanctuary. Melway ref. 65D8.

### Site Significance Level: State

- The Ecological Vegetation Community that occurs on the site (Lowland Forest) is very rare in Knox;
- In the school's sanctuary there is a thriving population of a plant species (*Lepidosperma neesii*) that is very rare regionally;
- There are several other plant species that are rare in Knox.



Scale

0 20 40 60 80 100m

*Aerial photograph taken Feb 2001*

### Boundaries

The site is the school property, as outlined in red above, measuring 8.04 ha. The areas of native vegetation are outlined in white. The rest of the school is not biologically significant in itself, but the whole school is included within the site boundary because the welfare of the significant habitat is strongly linked to what occurs elsewhere in the school, and because the recommended planning scheme overlay is best applied to whole lots in such cases. Note that the overlay is not intended to affect maintenance of buildings, roads, playing fields or other school assets.

**Land use & tenure:** Secondary school, including a sanctuary.

### Site description

The site's elevation ranges from 132 to 162 m (Australian Height Datum) with a shallow slope facing northwest. The soil is loam and clay that originated from nearby Chandlers Hill and washed or slipped downhill.

By far the richest and most intact vegetation is in the sanctuary, at the northernmost (lowest and wettest) part of the school. The vegetation is structurally intact and there are many plants that are rare or unique in Knox and some that are rare in the whole of metropolitan Melbourne. The sanctuary is fenced, with an opening to the school grounds, and it is evident that children frequently enter, damage the vegetation and leave rubbish. Part of the sanctuary is slashed and the vegetation around the northwestern perimeter is rather badly degraded.

The sanctuary is the lowest-lying and least sloping part of the school. Its vegetation is Lowland Forest. There is a transition to Valley Heathy Forest a short distance uphill from the sanctuary, but the delineation between these vegetation types is indistinct (largely because of the degree of tree clearing and the heavy modification of the original understorey).

The southeastern corner of the school grounds (where there are cables suspended in the trees) is not particularly ecologically intact but it still retains each of the natural vegetation strata and a dominant cover of indigenous grasses, lilies and other ground flora. This area is being very actively degraded at the time of this study by insensitive use of herbicide on native vegetation while bypassing the declared noxious weed, Montpellier Broom (*Genista monspessulana*).

### Relationship to other land

The site is only 200 m from the Dandenong Ranges National Park. Many birds and insects no doubt visit the school from the park. This must assist with introduction of seeds and pollen to keep the indigenous flora viable, but note that the rare plant species in the school are absent from the park, or at least from nearby parts of the park.

The school is like Wicks Reserve (Site 15) in that they both support Lowland Forest on clay that has washed down from Chandlers Hill to the foot of the hill. There are also similarities in the vegetation and geomorphology of the Old Joes Creek bushland area (Site 29), Boronia Primary School (Site 8) and Millers Reserve (part of Site 23). These five sites are the only ones in Knox with Lowland Forest (or closely related community). The closest occurrence of Lowland Forest with intact understorey is in Montrose.

**Bioregion:** On the border between Highlands Southern Fall and Gippsland Plain. The various BioMaps of the Department of Sustainability & Environment's BioMaps show the bioregional boundary as passing either through, or just to the southeast of, the site, always with the Lowland Forest and at least part of the Valley Heathy Forest in the Gippsland Plain.

### Habitat types

**Lowland Forest (EVC 16, Vulnerable on the Gippsland Plain and 'Least Concern' in the Highlands Southern Fall):** Approximately 0.75 ha in total, of which approximately 0.5 ha is in the sanctuary.

*In the sanctuary*, approximately 350 m<sup>2</sup> is in excellent ecological condition (rating A), 2,300 m<sup>2</sup> is in good ecological condition (rating B), 1,550 m<sup>2</sup> in fair ecological condition (rating C) and 800 m<sup>2</sup> in poor ecological condition (rating D). 59 indigenous plant species were found on 26/3/02 (ignoring planted specimens) and about a dozen others were probably undetected due to the poor time of year. Mr Andrew Paget recorded two additional species in July 1985.

**Dominant canopy trees:** *Eucalyptus cephalocarpa* with fewer *E. obliqua* typically 18 m tall and with a foliage cover of 30-40%.

**Dominant lower trees:** *Acacia melanoxylon* approximately 10 m tall has foliage cover of 20%; *Kunzea ericoides* approximately 6 m tall is dense in patches due to past disturbance.

**Shrubs:** Moderately dense and rich, containing *Bursaria spinosa*, *Leptospermum continentale*, *L. scoparium*, *Banksia marginata*, *Hakea nodosa* (at least some of which are planted), *Pultenaea gunnii*, *Cassinia aculeata*, *Acacia verticillata* and *Ozothamnus ferrugineus*.

**Vines:** *Billardiera mutabilis* and *Pandorea pandorana* are abundant, but the latter represents only young plants.

**Ferns:** There are patches of dense bracken but the overall average foliage cover is much less than 10%. *Lindsaea linearis* is present, a characteristic species for Lowland Forest.

**Ground flora:** Very dense, tangled and at least knee-deep where not damaged or mown. Rather heathy with *Gahnia radula* dominant (~75% cover) and an abundance of the wiry species *Tetrarrhena juncea* and *Empodisma minus*. The other dominant species are *Xanthorrhoea minor* and the regionally rare *Lepidosperma neesii* (which suggests a tendency toward Damp Heathy Woodland). The following species are abundant but with too little foliage cover to be dominant: *Gonocarpus humilis*, *G. tetragynus*, *Platylobium obtusangulum*, *Poa tenera*, *Themeda triandra*, *Rytidosperma penicillatum* and (in mown areas) *Austrostipa rudis* and *Microlaena stipoides*. Less abundant species that are good ecological indicators include *Acrotiche prostrata*, *Centella cordifolia* and what appears to be *Mazus pumilio*.

*Outside the sanctuary*, the indistinct boundary with the Valley Heathy Forest confounds an estimate of area, but a reasonable estimate would be 0.25 ha, all in poor ecological condition (rating D).

**Valley Heathy Forest (EVC 127, regionally Endangered):** 50-100 m<sup>2</sup> is in fair ecological condition (rating C, in the southeastern corner) and the remainder (2.0 ha) is in poor ecological condition (rating D). 33 indigenous plant species were found on 26/3/02 and no doubt others would be found at other times of year (depending on whether they survive the recent herbicide use).

**Dominant canopy trees:** *Eucalyptus cephalocarpa* with fewer *E. obliqua* typically 20 m tall, and a few *E. gonicalyx* and *E. macrorhyncha* where the vegetation tends toward Grassy Forest (EVC 128) at the southeastern corner.

**Dominant lower trees:** *Acacia melanoxylon* is present in varying density.

**Shrubs:** Heavily diminished by clearing; Includes *Bursaria spinosa*, *Leptospermum continentale* and *Dillwynia cinerascens*.

**Vines:** *Billardiera mutabilis* is fairly abundant.

**Ferns:** None.

**Ground flora:** Dominated by *Rytidosperma* species, *Gahnia radula* and *Austrostipa rudis*. The presence of *Arthropodium strictum*, *Dianella admixta* and particularly *Dianella longifolia* helps to justify the diagnosis of Valley Heathy Forest. The ecological indicator species *Acrotriche prostrata* is present in small numbers.

### Plant species

The following plant species were observed in March 2002 except for *Hibbertia riparia*. 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 the asterisked species are rare throughout the Melbourne region. At least ten additional naturally occurring indigenous species would no doubt be found in other seasons.

Risk	Indigenous Species	Risk	Indigenous Species
V	<i>Acacia leprosa</i> (Dandenong Range variant) – quite likely planted		<i>Kunzea ericoides</i> spp. agg.
V	<i>Acacia mearnsii</i> – perhaps planted	C	<i>Lepidosperma gunnii</i>
V	<i>Acacia melanoxylon</i>		<i>Lepidosperma neesii</i> *
E	<i>Acacia myrtifolia</i>	E	<i>Leptospermum continentale</i>
V	<i>Acacia verticillata</i>	V	<i>Leptospermum scoparium</i>
	<i>Acaena novae-zelandiae</i>		<i>Lindsaea linearis</i>
V	<i>Acrotriche prostrata</i>		<i>Lomandra filiformis</i> subsp. <i>coriacea</i>
	<i>Arthropodium strictum</i>		<i>Lomandra filiformis</i> subsp. <i>filiformis</i>
	<i>Austrostipa pubinodis</i>	C	<i>Lomandra longifolia</i>
	<i>Austrostipa rudis</i> subsp. <i>rudis</i>	C	? <i>Mazus pumilio</i> *
E	<i>Banksia marginata</i>	C	<i>Melaleuca squarrosa</i> – perhaps planted
	<i>Billardiera mutabilis</i>		<i>Microlaena stipoides</i>
	<i>Burchardia umbellata</i>	V	<i>Opercularia ovata</i>
	<i>Bursaria spinosa</i>	V	<i>Opercularia varia</i>
	<i>Carex breviculmis</i>		<i>Oxalis exilis/perennans</i>
	<i>Cassinia aculeata</i>	E	<i>Ozothamnus ferrugineus</i>
E	<i>Cassytha pubescens</i>		<i>Pandorea pandorana</i>
E	<i>Centella cordifolia</i>	V	<i>Platylobium obtusangulum</i>
	<i>Deyeuxia quadriseta</i>		<i>Poa ensiformis</i>
V	<i>Dianella longifolia</i> s.l.		<i>Poa morrisii</i>
	<i>Dichondra repens</i>	E	<i>Poa tenera</i>
V	<i>Dillwynia cinerascens</i>		<i>Poranthera microphylla</i>
V	<i>Empodisma minus</i> *		<i>Pteridium esculentum</i>
V	<i>Epacris impressa</i>	V	<i>Pultenaea gunnii</i>
	<i>Eragrostis brownii</i>		<i>Rytidosperma laeve</i>
V	<i>Eucalyptus cephalocarpa</i>		<i>Rytidosperma pallidum</i>
	<i>Eucalyptus goniocalyx</i>		<i>Rytidosperma penicillatum</i>
E	<i>Eucalyptus macrorhyncha</i>		<i>Rytidosperma racemosum</i>
V	<i>Eucalyptus obliqua</i>		<i>Rytidosperma setaceum</i>
V	<i>Exocarpos cupressiformis</i>		<i>Rytidosperma tenuius</i>
	<i>Gahnia radula</i>		<i>Schoenus apogon</i>
E	<i>Gonocarpus humilis</i>		<i>Senecio hispidulus</i>
	<i>Gonocarpus tetragynus</i>		<i>Senecio quadridentatus</i>
C	<i>Hakea nodosa</i> (planted and natural)		<i>Tetrarrhena juncea</i>
V	<i>Helichrysum scorpioides</i>	E	<i>Themeda triandra</i>
E	<i>Hibbertia riparia</i> (A. Paget, 1985)	V	<i>Viola hederacea</i>
			<i>Xanthorrhoea minor</i>
Introduced Species			
	<i>Anthoxanthum odoratum</i>		<i>Holcus lanatus</i>
	<i>Cotoneaster pannosus</i>		<i>Hypochoeris radicata</i> (A. Paget, 1985)
	<i>Crocasmia</i> × <i>crocosmiiflora</i>		<i>Lonicera japonica</i>
	<i>Genista monspessulana</i>		<i>Pennisetum clandestinum</i>
	<i>Hedera helix</i>		<i>Pittosporum undulatum</i>
			<i>Plantago lanceolata</i>
			<i>Prunus cerasifera</i>
			<i>Quercus robur</i>
			<i>Rubus anglocandicans</i>

### Fauna habitat features

There are many large eucalypts (particularly *E. cephalocarpa*) with hollows that may be used by birds, possums and bats. Some have scratch marks at their entrance.

The thickets of dense shrubs in the sanctuary are good habitat for small birds, but the benefit of this is somewhat diminished by the distance to the nearest bushland with understorey (which is large relative to the dimensions of the sanctuary).

The ground flora, logs and forest litter in the sanctuary probably provide habitat for skinks and frogs. The abundant sedges probably support many skipper butterflies, with a substantial possibility of locally rare species among them.

### Significance ratings

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

#### *Regionally Threatened Ecological Vegetation Classes*

This site contains a 'remnant patch' of an endangered EVC, namely Valley Heathy Forest. According to 'Victoria's Native Vegetation Management – A Framework for Action' (NRE 2002a), vegetation belonging to an endangered EVC has a conservation significance rating of either High or Very High, depending on its ecological condition. In either case, any site containing a remnant patch of such vegetation is of **State** significance under criterion 3.2.3.

If the Lowland Forest is taken to be in the Gippsland Plain bioregion (as shown on the Department of Sustainability & Environment's BioMaps), it must then be treated as regionally vulnerable and the conservation significance of the most intact parts of the sanctuary would rate as High to Very High conservation significance under the Framework. This would again be taken to represent **State** significance.

#### *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

The following are the main pressures currently threatening to lessen the site's conservation significance:

- Invasion by environmental weeds, particularly Sweet Pittosporum and Ivy in the sanctuary;
- Vegetation damage in the sanctuary by trampling, hacking and smothering with rubbish, evidently by students;
- In the southeastern corner, spraying of herbicide onto native vegetation while avoiding the very serious weed, Montpellier Broom (which is Regionally Controlled under the *Catchment and Land Protection Act 1994*);
- Loss or decline of plant species whose populations are so small that they are vulnerable to inbreeding, poor reproductive success or elimination by incidents such as cubby house construction or trampling. This problem is less serious than the problems listed above;
- Reduced visitation of the school's bushland by small insect-eating birds due to isolation from other areas with indigenous understorey, possibly leading to a worsening of plant pests and diseases.

### Management issues

Vegetation management, and particularly weed control, should be conducted with a greater level of expertise, commensurate with the vegetation's State significance;

Use of the sanctuary should ideally be regulated or supervised.

### Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay ESO2 because of its State biological significance. Much of the school has no biological significance, but decisions and actions in the built part of the school directly and indirectly influence the significant vegetation. ESO2 should exempt normal maintenance of existing sports facilities, car parks, buildings and other structures;
- The sanctuary would be more ecologically secure and could be given much better care and protection under Council ownership than under present management. It would make a significant contribution to the total conservation values within Council's network of bushland reserves.

### 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 two lists of indigenous and introduced plant species (one for the sanctuary and one for the rest of the school) compiled by Dr Lorimer over 2¾ hours on 26th March 2002;

- Incidental observations of birds while the above data was being gathered;
- One quadrat record (N13175) from Andrew Paget in July 1985 (Paget 1985);
- Aerial photography from February 2001 and April 2003;
- 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.