

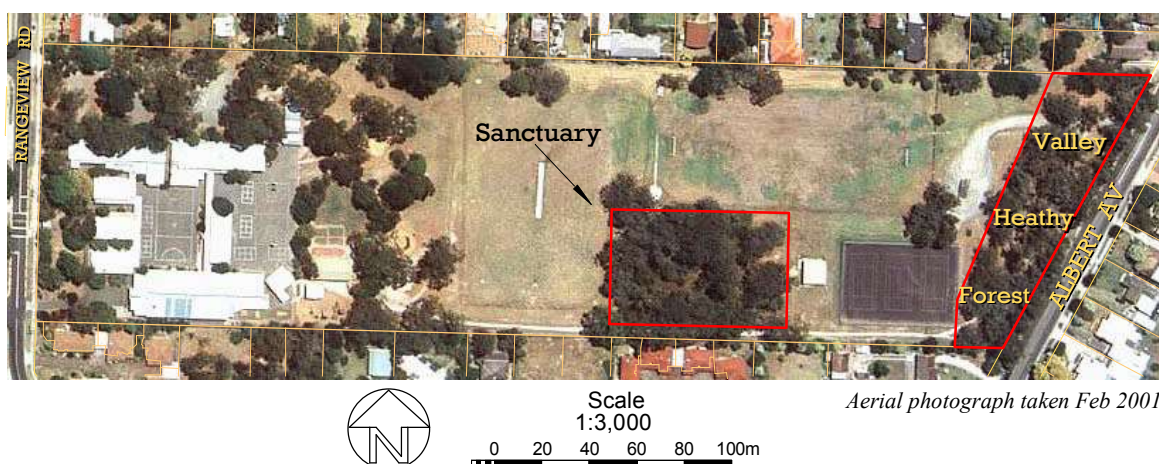
## Site 8. Boronia Primary School

This school has rather modified native vegetation in a strip along Albert Avenue and much richer and more intact native vegetation in a sanctuary of 2,700 m<sup>2</sup>, plus remnant eucalypts north and east of the buildings.

Melway ref. 65 B8.

### Site Significance Level: *State*

- Some of the vegetation belongs to the regionally endangered Valley Heathy Forest;
- The vegetation in the sanctuary is intermediate between Valley Heathy Forest and Lowland Forest, serving an important scientific role in helping to define the limits and relationships between these two communities;
- There are ten plant species that are rare or threatened in Knox, of which two are rare or threatened throughout the Melbourne area.



### Boundaries

The site comprises the two areas outlined in red above. The western part is a 75 m × 48.5 m rectangle (0.36 ha) that includes all of the school sanctuary as well as surrounding land with remnant ground flora and tree canopy. The eastern strip contains 0.40 ha of remnant vegetation beside Albert Av, matching cadastral boundaries to the north, south and east.

**Land use & tenure:** Primary school, including a sanctuary for nature conservation.

### Site description

The site is almost level at an elevation of approximately 122 m (Australian Height Datum). The soil is light grey loam over clay, derived from decomposition of hornfels, possibly with some alluvial deposit at the surface in the school's northeast corner.

By far the most significant vegetation is in the sanctuary, which is marked on the aerial photograph above. The sanctuary is fenced, with an opening to the school grounds. The vegetation there is structurally intact and eight of the species of plants are rare or threatened in Knox. Two of these species are rare in the whole of metropolitan Melbourne, and another (*Banksia marginata*) is represented by approximately 26 individuals – the second-largest population in Knox (next to Site 29).

The band of trees along the eastern edge of the school grounds retains largely indigenous understorey flora, but the diversity and structure are suppressed by slashing.

There are remnant trees immediately to the north and east of the school buildings, with negligible understorey.

### Relationship to other land

The site is 900 m from the Dandenong Ranges National Park and the intervening neighbourhood is relatively well treed, including the Boronia Heights College (Site 9). 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 any nearby parts of the park.

Eucalypts in the vicinity of the school buildings are expected to encourage visitation to the school generally by birds and insects. This would facilitate exchange of pollen and seeds between the school's significant vegetation and nearby areas, reducing inbreeding and other problems associated with small, isolated bushland remnants such as this.

The treed backyards that can be seen on the aerial photograph above, immediately south of the school, no doubt encourage movement of many native birds and insects around the neighbourhood, and provide an ecological link to remnant vegetation in Chandler Park. These backyards have a good canopy of large Messmate Stringybarks (*Eucalyptus obliqua*) and Narrow-leaved Peppermints (*Eucalyptus radiata*) but no understorey other than hardy native species that persist in lawns.

**Bioregion:** Gippsland Plain

### Habitat types

**Valley Heathy Forest (EVC 127, regionally Endangered):** 0.4 ha in the strip near Albert Avenue, all in ecological condition rating D (poor) but with a full tree canopy. 15 indigenous plant species were found on 30/3/02 and several others were probably undetected due to the poor time of year.

Dominant canopy trees: Pure *Eucalyptus cephalocarpa* typically 12-15 m tall with crowns overlapping and trunks often separated by as little as 2m.

Dominant lower trees: Very sparse *Acacia melanoxylon* and *Exocarpos cupressiformis*, typically 6-8 m tall.

Shrubs: Probably much thinner and with fewer species than the natural state, with visibility approximately 200 m. The only species are *Bursaria spinosa* and *Leptospermum continentale*.

Vines: *Billardiera mutabilis* is abundant.

Ferns: The only ferns are patches of bracken.

Ground flora: Nearly all mown and hence heavily modified from the natural state. Dominant species are *Gahnia radula*, *Microlaena stipoides*, *Austrostipa rudis* and *Rytidosperma penicillatum*. *Lomandra longifolia* is abundant but with too little foliage cover to be dominant.

**Intermediate Valley Heathy Forest / Lowland Forest (EVCs 127 & 16 – the latter Vulnerable in the Gippsland Plain):** comprising 2,700 m<sup>2</sup> inside the fenced sanctuary and 2,000 m<sup>2</sup> with little understorey surrounding the sanctuary, as well as eucalypts near the school buildings that are probably remnants of the same community. Within the sanctuary, approximately 130 m<sup>2</sup> is in excellent ecological condition (rating A), 2,450 m<sup>2</sup> is in good ecological condition (rating B) and 130 m<sup>2</sup> is in fair ecological condition (rating C). Elsewhere, the ecological condition is poor (rating D).

64 indigenous plant species were found on 30/3/02 (of which, *Lomandra filiformis* has two subspecies present) and about a dozen other species were probably undetected due to the poor time of year. Mr Andrew Paget recorded six additional species in June 1985, all of which may still be present.

Dominant canopy trees: *Eucalyptus cephalocarpa* and *E. obliqua* typically 15 m tall, separated by typically 4-5 m. *E. ovata* and *E. radiata* are present in smaller numbers.

Dominant lower trees: Very sparse *Acacia melanoxylon* and *Exocarpos cupressiformis*, typically 4 m tall.

Shrubs: Rather dense and rich and mostly <1½ m tall, dominated by *Pultenaea gunnii*, *Leptospermum continentale*, *Daviesia latifolia*, *Epacris impressa* and *Banksia marginata*. Other species present in small numbers are *Cassinia aculeata*, *Acacia myrtifolia*, *A. verticillata* (one only), *Olearia lirata* and *Ozothamnus ferrugineus*.

Vines: *Billardiera mutabilis* is abundant.

Ferns: There are patches of bracken with low overall average foliage cover. *Lindsaea linearis* is also present.

Ground flora: Almost 100% foliage cover, roughly knee-deep where not trampled. Quite heathy in character, with the dominant species being *Gahnia radula* (most abundant), *Xanthorrhoea minor*, *Platylobium formosum*, *Rytidosperma pallidum*, *Themeda triandra* and *Lepidosperma gunnii*. The ecological order of dominance is [tough sedges and Xanthorrhoeaceae] > [heathy shrubs (incl. Proteaceae)] > grass > *Platylobium formosum*. The wiry species *Tetrarrhena juncea* and *Empodisma minus* that are typical of Lowland Forest are present but not as abundant as expected for Lowland Forest. The following species are abundant but with too little foliage cover to be dominant: *Acrotriche serrulata*, *Hibbertia riparia*, *Poa morrisii*, *Deyeuxia quadriseta* and *Cassytha pubescens*. Less abundant species that are good ecological indicators include *Persoonia juniperina*, *Acrotriche prostrata*, *Lindsaea linearis* and *Xanthosia dissecta*.

### Plant species

The following plant species were observed in March 2002 except where otherwise noted. 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, *Comesperma ericinum* and *Lepidosperma filiforme* are rare throughout the Melbourne region. The 2002 survey would no doubt have missed at least ten naturally occurring indigenous species due to the time of year.

Risk	Indigenous Species	Risk	Indigenous Species
V	<i>Acacia melanoxylon</i>	E	<i>Hibbertia riparia</i>
E	<i>Acacia myrtifolia</i>	E	<i>Hypericum gramineum</i>
E	<i>Acacia stricta</i>	C	<i>Lachnagrostis aemula</i> s.l.
V	<i>Acacia verticillata</i>	E	<b><i>Lepidosperma filiforme</i></b>
V	<i>Acaena echinata</i>		<i>Lepidosperma gunnii</i>
	<i>Acaena novae-zelandiae</i>		<i>Leptospermum continentale</i>
V	<i>Acrotriche prostrata</i>	V	<i>Lindsaea linearis</i>
	<i>Acrotriche serrulata</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>		<i>Lomandra longifolia</i>
	<i>Austrostipa rudis</i> subsp. <i>rudis</i>		<i>Microlaena stipoides</i>
E	<i>Banksia marginata</i>	V	<i>Olearia lirata</i>
	<i>Billardiera mutabilis</i>	V	<i>Opercularia varia</i>
	<i>Burchardia umbellata</i>		<i>Oxalis exilis/perennans</i>
	<i>Bursaria spinosa</i>	E	<i>Ozothamnus ferrugineus</i>
	<i>Carex breviculmis</i>		<i>Pandorea pandorana</i>
	<i>Cassinia aculeata</i>	C	<i>Patersonia occidentalis</i> (1985)
E	<i>Cassytha pubescens</i>	C	<i>Persoonia juniperina</i>
C	<b><i>Comesperma ericinum</i></b> (M. Belvedere, 2000)	V	<i>Pimelea humilis</i> (1985)
C	<i>Cryptostylis subulata</i>	V	<i>Platylobium formosum</i>
E	<i>Daviesia latifolia</i>	V	<i>Platylobium obtusangulum</i>
	<i>Deyeuxia quadrisetia</i>		<i>Poa morrisii</i>
	<i>Dianella admixta</i>	E	<i>Polyscias sambucifolia</i>
V	<i>Dianella longifolia</i> s.l.		<i>Poranthera microphylla</i>
	<i>Dichelachne rara</i>		<i>Pteridium esculentum</i>
V	<i>Dillwynia cinerascens</i> (1985)	V	<i>Pultenaea gunnii</i>
V	<i>Epacris impressa</i>		<i>Rytidosperma pallidum</i>
V	<i>Eucalyptus cephalocarpa</i>		<i>Rytidosperma penicillatum</i>
V	<i>Eucalyptus obliqua</i>		<i>Schoenus apogon</i>
V	<i>Eucalyptus ovata</i>		<i>Senecio hispidulus</i>
E	<i>Eucalyptus radiata</i>	E	<i>Stylidium armeria/graminifolium</i>
V	<i>Exocarpos cupressiformis</i>		<i>Tetrarrhena juncea</i>
	<i>Gahnia radula</i>		<i>Themeda triandra</i>
E	<i>Galium gaudichaudii</i>	V	<i>Thysanotus patersonii</i> (1985)
	<i>Gonocarpus tetragynus</i>	E	<i>Viola hederacea</i>
	<i>Goodenia lanata</i> (1985)	V	<i>Xanthorrhoea minor</i>
	<i>Goodenia ovata</i>	E	<i>Xanthosia dissecta</i>
V	<i>Helichrysum scorpioides</i>		
<b>Introduced Species</b>			
	<i>Agrostis capillaris</i>		<i>Cytisus scoparius</i>
	<i>Anthoxanthum odoratum</i>		<i>Dactylis glomerata</i>
	? <i>Billardiera heterophylla</i>		<i>Hedera helix</i>
	<i>Briza maxima</i>		<i>Hypochoeris radicata</i>
	<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>		<i>Ilex aquifolium</i>
	<i>Conyza sumatrensis</i>		<i>Oxalis ?incarnata</i>
	<i>Cotoneaster pannosus</i>		<i>Paspalum dilatatum</i>
	<i>Crataegus monogyna</i>		<i>Pennisetum clandestinum</i>
	<i>Crocosmia</i> × <i>crocosmiiflora</i>		<i>Pitopsis undulatum</i>
			<i>Plantago lanceolata</i>
			<i>Prunus cerasifera</i>
			<i>Rosa rubiginosa</i>
			<i>Rubus anglocandicans</i>
			<i>Tradescantia fluminensis</i> *
			<i>Viburnum tinus</i>
			<i>Watsonia meriana</i> var. <i>bulbillifera</i>

### Fauna habitat features

Some of the large eucalypts (particularly *E. cephalocarpa*) have hollows that may be used by birds, possums and bats.

The 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. The abundant sedges probably support many skipper butterflies, with good prospects that locally rare species are among them.

## Significance ratings

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

### *Richness of Flora*

The 64 indigenous plant species recorded in the sanctuary in March 2002 is high for an area as small as 2,700 m<sup>2</sup> in Knox. This could reasonably be taken to represent Local significance but it is not formally recognised by the standard criteria.

### *Regionally Threatened Ecological Vegetation Class*

According to the criteria of *'Victoria's Native Vegetation Management – A Framework for Action'* (NRE 2002a), the conservation significance rating of the site's most intact vegetation is at least High and quite probably reaches Very High, due to the presence of moderately intact vegetation in a regionally threatened Ecological Vegetation Class. It follows from criterion 3.2.3 of Amos (2004) that the site is of **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.

### *Representativeness*

Oates and Taranto (2002) state that 'Valley Heathy Forest represents vegetation that is transitional...', 'Further sampling and analysis are required to clarify its status', and 'On the higher rainfall eastern edge of the study area, Valley Heathy Forest merges into Lowland Forest'. It seems likely that there are few (if any) better sites than the Boronia Primary School sanctuary to demonstrate the intergradation and relationship between Valley Heathy Forest and Lowland Forest. Criterion 4.2 of the standard criteria confer State or National significance to a site 'considered to represent a significant variant ... or marginal form ... of a particular ecological community or class or wetland type', depending on whether or not the EVC is common outside Victoria (which is unknown in this case). By contrast, NRE (2002a, Appendix 3) allows also for Regional significance for 'edge of range or other non-species values'. In view of the uncertainty, it appears reasonable to opt for **State** significance in this case.

## Threats

- The main ecological threat to the site is invasion by environmental weeds in the sanctuary, particularly Sweet Pittosporum, Ivy, Watsonia and Blackberry. Boneseed is presently sparse but could undergo a population explosion if not controlled soon;
- Exclusion of fire represents a mild threat to the sanctuary's biodiversity in the long term;
- Some indigenous plant species have such small population sizes that they are at risk of loss or decline due to inbreeding, poor reproductive success or elimination by incidents such as cubby house construction or digging by dogs. This includes *Acacia verticillata*, *Acaena echinata*, *Agrostis aemula*, *Galium gaudichaudii* and *Polyscias sambucifolia*.
- Reduced visitation of the school's bushland by small insect-eating birds due to its isolation from other areas with indigenous understorey, possibly leading to a worsening of plant pests and diseases;

## Management issues

During the field survey it was clear that a very competent effort had been made in prior months to control blackberry and woody weeds in the sanctuary. However, over a longer time frame the vegetation appeared to be slowly succumbing to environmental weeds for want of a higher level of effort. Additional skilled effort will be required to retain the high conservation value that the sanctuary holds, and even to make the effects of the recent work long-lasting.

## Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of its State biological significance (discussed above);
- The site approximately corresponds to areas presently covered by Vegetation Protection Overlay VPO1 in the Knox Planning Scheme, which was based on recognition of the habitat by Water Ecoscience (1998).
- Native vegetation in parts of the school outside the site delineated here are protected by Clause 52.17 of the Victoria Planning Provisions and are also proposed to be covered by ESO3 as part of Site 99 (the Dandenong Ranges buffer);
- The school is zoned 'Public Use Zone - Education'.

## 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 2¼ hours on 30th March 2002;

- Field data, drawings and photographs by biologist Ms Maria Belvedere in November 2000;
- One quadrat record (N13174) from Andrew Paget in June 1985 (Paget 1985);
- 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.