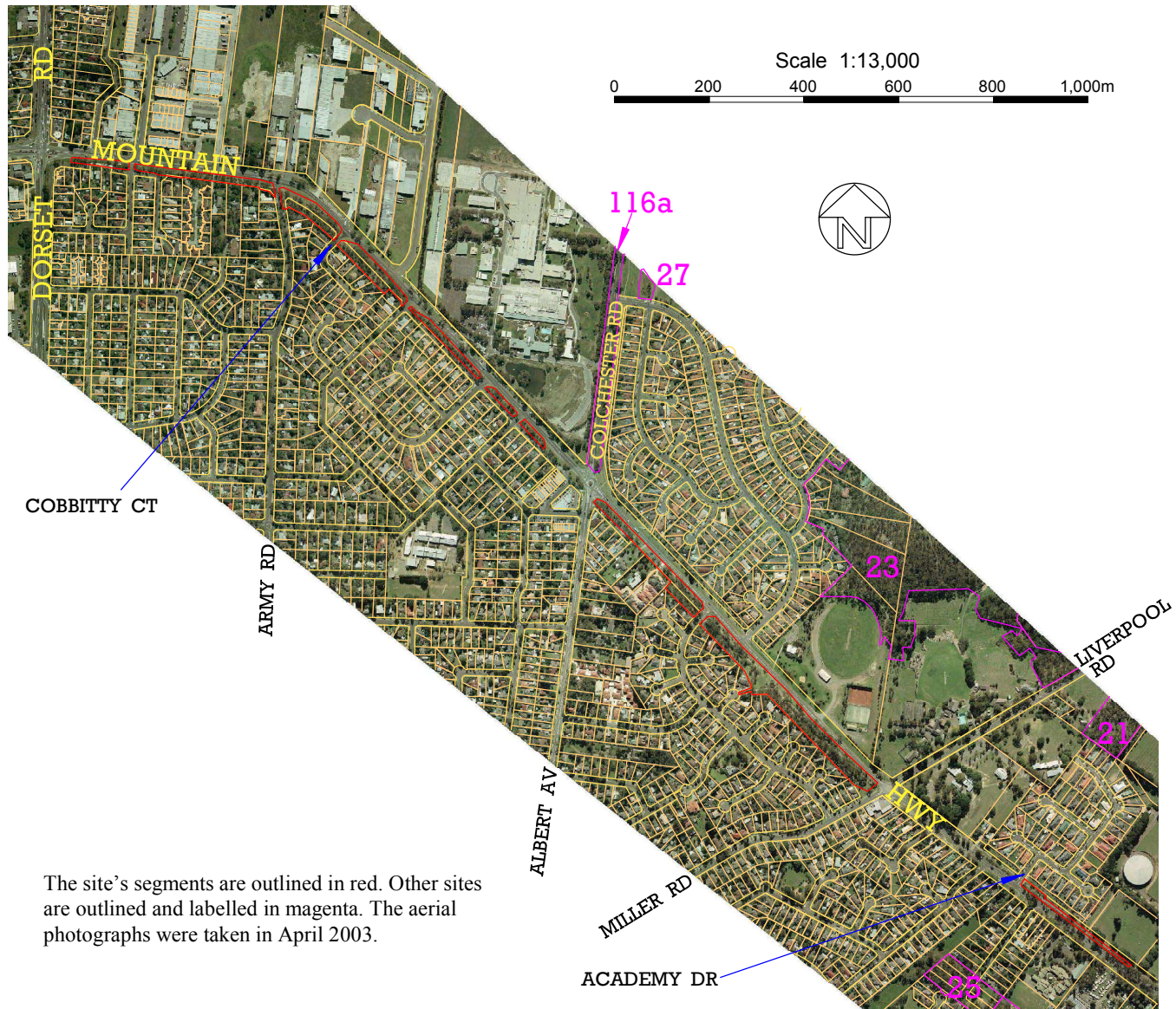


## Site 92. Mountain Hwy Roadside, Boronia to The Basin

A total of 2.23 kilometres of road reserve, in ten segments. Melway map 65.

### Site Significance Level: *State*

- The native vegetation all belongs to the endangered Ecological Vegetation Class, Valley Heathy Forest;
- Over ninety indigenous plant species are present, which is rich by Knox standards;
- Ecologically stable or improving vegetation with moderate diversity, except for some species that may have too few individuals for long-term viability in the absence of intervention.



### Boundaries

This site has ten sections totalling 4.82 ha. The edges closest to the road surface of Mountain Hwy are in the road gutter (but not enclosing any part of a gutter that is subject to periodic grading).

**Land use & tenure:** Verges of a secondary road.

## Site description

This site skirts the southern edge of Dandenong Creek valley, rising into the foothills of the Dandenong Ranges at its southeastern end. Elevations vary from 118m at the edge of the Dandenong Ck floodplain near Cobbitty Ct to 171 m at the site's southeastern end.

The site traverses three Devonian geological formations, comprising hornfels in the west, rhyolite in the middle and rhyodacite in the east. Despite the variable geological origins, the subsoil is clay throughout and the topsoil is poorly draining clay loam except for some shallow alluvium near Cobbitty Ct.

All the native vegetation belongs to the endangered Ecological Vegetation Class, Valley Heathy Forest, with tendencies toward Swampy Woodland near Cobbitty Ct, Lowland Forest just west of Miller Rd and Grassy Forest at the southeastern end.

Knox City Council has designated a section of the site at Academy Drive in The Basin as Significant Roadside KN1, and a section between Army Rd and Cobbitty Ct in Boronia as Significant Roadside KN2. The former was partly destroyed in c.1999 by construction of Academy Drive and associated housing. Both these sections contain small patches in good ecological condition (rating B). The ecological condition in the parts of the site outside the designated significant roadsides is predominantly poor (rating D), except for a tiny patch in good condition and some scattered small patches in fair condition (rating C).

## Relationship to other land

The other side of Mountain Hwy, and all land for more than one kilometre to the south, are within the Dandenong Ranges buffer (Site 99) that is proposed to be covered by a new Schedule 2 to the Environmental Significance Overlay. That is because of the extensive movement of native birds and insects through this area, even relatively ecologically sensitive species such as the Australian King-Parrot. These fauna transport pollen and seeds, helping plants to avoid becoming inbred.

Other, more localised sites from elsewhere in this report are outlined and labelled in magenta on the aerial photograph. The ecological links between them are likely to be weak.

It seems unlikely that this Mountain Highway site functions as a habitat corridor.

**Bioregion:** Gippsland Plain

## Habitat types

**Valley Heathy Forest (EVC 127, Endangered):** Estimated to contain 4.0 ha of native vegetation, comprising 0.08 ha in good ecological condition (rating B, mainly near Army Rd), 0.65 ha in fair ecological condition (rating C) and 3.3 ha in poor ecological condition (rating D).

**Canopy trees:** Dominated by a mixture of four or more eucalypt species, the staple ones being *Eucalyptus cephalocarpa*, *E. radiata* and *E. obliqua*. The additional species, *E. goniocalyx* and *E. macrorhyncha*, are present in drier areas.

**Lower trees:** Dominated by *Acacia melanoxylon* and *Exocarpos cupressiformis*.

**Shrubs:** Dense where not thinned by humans. Seventeen shrub species were found, the most abundant and widespread being *Bursaria spinosa*. Other species that are present and typically found in Valley Heathy Forest include *Acacia paradoxa*, *Cassinia aculeata*, *Daviesia latifolia*, *Goodenia ovata*, *Kunzea ericoides* and *Leptospermum continentale*.

**Vines:** The light twiner, *Billardiera mutabilis*, is abundant in much of the site.

**Ferns:** *Pteridium esculentum* is common in the site and dense in patches.

**Ground flora:** Densely grassy and with small shrubs where not destroyed by mowing. Mown areas are dominated by various *Rytidosperma* species (particularly *R. racemosum*). Less modified areas are dominated variously by *Themeda triandra*, *Rytidosperma pallidum*, *Microlaena stipoides*, *Austrostipa rudis*, *Lomandra longifolia* or *Gahnia radula*. There are also substantial patches dominated by *Dianella admixta*. Other species that are abundant in numbers but not dominant in foliage cover include *Arthropodium strictum*, *Lomandra filiformis*, *Platylobium formosum*, *Tricoryne elatior* and *Xanthorrhoea minor*. The characteristic species, *Hibbertia riparia* and *Platylobium obtusangulum*, are present but not abundant.

## Plant species

The following plant species were observed by the author on 10/9/97 and/or 16/4/03, or by Mr Damien Cook on 19/11/92-6/12/92, as indicated in the 'Year' 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, *Eucalyptus yarraensis* is rare nationally. In addition, *Thelymitra media* and the *Caladenia* rare throughout the Melbourne area.

Risk	Indigenous Species	Year	Risk	Indigenous Species	Year
C	<i>Acacia acinacea</i> s.l.	1992	E	<i>Hibbertia riparia</i>	2003
	<i>Acacia dealbata</i>	2003	V	<i>Hovea heterophylla</i>	2003
V	<i>Acacia mearnsii</i>	2003	E	<i>Hypericum gramineum</i>	2003
V	<i>Acacia melanoxylon</i>	2003		<i>Juncus sarophorus</i>	1997
E	<i>Acacia myrtifolia</i>	2003	E	<i>Juncus subsecundus</i>	2003
	<i>Acacia paradoxa</i>	2003	C	<i>Kennedia prostrata</i>	1992
E	<i>Acacia pycnantha</i>	2003		<i>Kunzea ericoides</i> spp. agg.	2003
E	<i>Acacia stricta</i>	2003	C	<i>Lachnagrostis aemula</i> s.l.	1992
V	<i>Acaena echinata</i>	2003		<i>Lachnagrostis filiformis</i>	2003
	<i>Acaena novae-zelandiae</i>	1997	V	<i>Lepidosperma laterale</i>	2003
V	<i>Acrotriche prostrata</i>	2003		<i>Leptospermum continentale</i>	2003
	<i>Acrotriche serrulata</i>	2003	E	<i>Linum marginale</i>	1992
C	<i>Amyema pendula</i>	2003		<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	2003
	<i>Arthropodium strictum</i>	2003		<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	2003
	<i>Austrostipa pubinodis</i>	2003		<i>Lomandra longifolia</i>	2003
	<i>Austrostipa rudis</i> subsp. <i>rudis</i>	2003	V	<i>Luzula meridionalis</i>	1992
E	<i>Banksia marginata</i>	2003	V	<i>Lythrum hyssopifolia</i>	1992
	<i>Billardiera mutabilis</i>	2003	E	<i>Melaleuca ericifolia</i>	2003
V	<i>Brunonia australis</i>	2003		<i>Microlaena stipoides</i>	2003
	<i>Bursaria spinosa</i>	2003		<i>Microtis parviflora/unifolia</i>	1992
V	<i>Caesia parviflora</i>	1992	C	<i>Muellerina eucalyptoides</i>	2003
C	<b><i>Caladenia</i> sp. (spider-orchid group)</b>	1992	E	<i>Olearia myrsinoides</i>	1992
	<i>Carex breviculmis</i>	2003	V	<i>Opercularia varia</i>	1992
	<i>Carex inversa</i>	1992		<i>Oxalis exilis/perennans</i>	2003
	<i>Cassinia aculeata</i>	2003	E	<i>Ozothamnus ferrugineus</i>	2003
	<i>Cassinia arcuata</i>	2003		<i>Pandorea pandorana</i>	2003
C	<i>Chamaescilla corymbosa</i>	1992	E	<i>Pentapogon quadrifidus</i>	1992
V	<i>Clematis aristata</i>	2003	V	<i>Pimelea humilis</i>	2003
E	<i>Correa reflexa</i>	2003	V	<i>Plantago varia</i>	2003
E	<i>Cynoglossum suaveolens</i>	2003	V	<i>Platylobium formosum</i>	2003
E	<i>Daviesia latifolia</i>	2003	V	<i>Platylobium obtusangulum</i>	2003
E	<i>Daviesia leptophylla</i>	1997		<i>Poa ensiformis</i>	2003
	<i>Deyeuxia quadriseta</i>	2003		<i>Poa morrisii</i>	2003
	<i>Dianella admixta</i>	2003		<i>Poranthera microphylla</i>	1992
V	<i>Dianella tasmanica</i>	2003		<i>Pteridium esculentum</i>	2003
	<i>Dichondra repens</i>	2003		<i>Pterostylis nutans</i>	2003
V	<i>Dillwynia cinerascens</i>	2003	V	<i>Pultenaea gunnii</i>	2003
V	<i>Drosera peltata</i> subsp. <i>auriculata</i>	1992		<i>Rytidosperma laeve</i>	1992
	<i>Elymus scaber</i>	2003		<i>Rytidosperma linkii</i> var. <i>fulvum</i>	2003
V	<i>Epacris impressa</i>	1997		<i>Rytidosperma pallidum</i>	2003
	<i>Eragrostis brownii</i>	1997		<i>Rytidosperma penicillatum</i>	2003
V	<i>Eucalyptus cephalocarpa</i>	2003		<i>Rytidosperma racemosum</i>	2003
	<i>Eucalyptus goniocalyx</i>	2003		<i>Rytidosperma setaceum</i>	2003
E	<i>Eucalyptus macrorhyncha</i>	2003		<i>Rytidosperma tenuius</i>	2003
V	<i>Eucalyptus obliqua</i>	2003		<i>Schoenus apogon</i>	1992
	<i>Eucalyptus ovata</i> hybrid	2003		<i>Senecio hispidulus</i>	2003
E	<i>Eucalyptus radiata</i>	2003		<i>Senecio quadridentatus</i>	2003
V	<i>Euchiton collinus</i>	1992	V	<i>Solenogyne dominii</i>	2003
V	<i>Exocarpos cupressiformis</i>	2003	E	<i>Stackhousia monogyna</i>	2003
E	<i>Exocarpos strictus</i>	2003	E	<i>Stylidium armeria/graminifolium</i>	1992
	<i>Gahnia radula</i>	2003		<i>Tetrarrhena juncea</i>	2003
V	<i>Glycine clandestina</i>	2003	C	<b><i>Thelymitra media</i> s.l.</b>	1992
	<i>Gonocarpus tetragynus</i>	2003		<i>Themeda triandra</i>	2003
	<i>Goodenia lanata</i>	2003	V	<i>Thysanotus patersonii</i>	1992
	<i>Goodenia ovata</i>	1997		<i>Tricoryne elatior</i>	2003
C	<i>Hakea ulicina</i>	2003	E	<i>Viola hederacea</i>	1992
V	<i>Hardenbergia violacea</i>	2003	V	<i>Xanthorrhoea minor</i>	2003
V	<i>Helichrysum scorpioides</i>	2003	E	<i>Xanthosia dissecta</i>	1992
V	<i>Hemarthria uncinata</i>	1992			

**Introduced Species**

<i>Acacia longifolia</i> subsp. <i>longifolia</i>	<i>Delairea odorata</i>	<i>Paspalum dilatatum</i>
<i>Agapanthus praecox</i>	<i>Ehrharta erecta</i>	<i>Pennisetum clandestinum</i>
<i>Agrostis capillaris</i>	<i>Galium aparine</i>	<i>Pinus radiata</i>
<i>Aira caryophyllea</i>	<i>Gamochaeta purpurea</i>	<i>Pittosporum undulatum</i>
<i>Allium triquetrum</i>	<i>Genista monspessulana</i>	<i>Plantago lanceolata</i>
<i>Anagallis arvensis</i>	<i>Grevillea rosmarinifolia</i>	<i>Prunella vulgaris</i>
<i>Anthoxanthum odoratum</i>	<i>Hedera helix</i>	<i>Prunus</i> sp.
<i>Arctotheca calendula</i>	<i>Holcus lanatus</i>	<i>Quercus robur</i>
<i>Asparagus asparagoides</i>	<i>Hypochoeris radicata</i>	<i>Romulea rosea</i>
<i>Asparagus scandens</i>	Iridaceae sp.	<i>Rubus anglocandicans</i>
<i>Billardiera heterophylla</i>	<i>Isolepis levynsiana</i>	<i>Sisyrinchium iridifolium</i>
<i>Briza maxima</i>	<i>Juncus microcephalus</i>	<i>Sporobolus africanus</i>
<i>Centaureum erythraea</i>	<i>Leontodon taraxacoides</i>	<i>Taraxacum officinale</i> spp. agg.
<i>Cerastium glomeratum</i>	<i>Lolium perenne</i>	<i>Tradescantia fluminensis</i>
<i>Cotoneaster glaucophyllus</i>	<i>Lonicera japonica</i>	<i>Trifolium repens</i>
<i>Cotoneaster pannosus</i>	<i>Lotus subbiflorus</i>	<i>Vicia</i> sp.
<i>Crataegus monogyna</i>	<i>Malus pumila</i>	<i>Vinca major</i>
<i>Crococsmia</i> × <i>crococsmiiflora</i>	<i>Medicago polymorpha</i>	<i>Viola odorata</i>
<i>Cynodon dactylon</i>	<i>Melaleuca armillaris</i>	
<i>Dactylis glomerata</i>	<i>Oxalis purpurea</i>	

**Notes concerning some of the locally threatened plant species**

A spider-orchid (*Arachnorchis/Caladenia*) was recorded by Mr Damien Cook on 24/11/92 just southeast of Army Rd. If correct, it is likely to be referable to *Caladenia oenochila*, being the most common spider-orchid in the local area. This species is listed as vulnerable in Victoria. However, the date of the recording is not within the season when spider-orchids would be flowering or in seed, suggesting that Mr Cook may have relied on someone else's observation. The record is therefore treated here as highly worthy of further investigation, but not a good guide to the likelihood of the current existence of a spider-orchid within the site.

*Acacia acinacea* (Gold-dust Wattle). Last recorded in 1992 and evidently no longer present.

*Banksia marginata* (Silver Banksia). One individual was found opposite Kalman Dr, Boronia.

*Correa reflexa* (Common Correa). One was found northwest of Army Rd and another between Army Rd and Cobbitty Ct.

*Cynoglossum suaveolens* (Sweet Hound's-tongue). Three individuals were found just northwest of Dorrigo Dr.

*Daviesia leptophylla* (Narrow-leaf Bitter-pea). Found just southeast of Academy Dr, The Basin. Numbers not recorded.

*Hakea ulicina* (Furze Hakea). There is one individual (or a close pair) at the edge of the road outside 992 Mountain Hwy, Boronia (380 m east of Dorset Rd).

*Kennedia prostrata* (Running Postman). Recorded in 1992 as being scarce.

*Microtis parviflora/unifolia* (an Onion-orchid). Recorded in 1992 as being numerous. Probably undetected in 2002 due to seasonal factors.

*Pentapogon quadrifidus* (Five-awned Spear-grass). Recorded in 1992 as fairly plentiful.

*Thelymitra media* (Tall Sun-orchid). Recorded in 1992 as being scarce.

*Thysanotus patersonii* (Twining Fringe-lily). Recorded in 1992 as being scarce.

**Fauna of special significance**

None detected

**Fauna habitat features**

- Some large trees have hollows that would suit habitation by native birds, bats, possums or insects;
- The prickly shrub layer in parts of the site, particularly just northwest of Dorrigo Drive, could provide protection for small native birds. Even the very serious environmental weed, Hawthorn, may have some habitat value in this respect. Removal of Hawthorn should therefore be done progressively, accompanied by planting of prickly indigenous species as replacements.

**Significance ratings**

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

### Endangered Ecological Vegetation Class

Valley Heathy Forest is endangered. It follows from Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a) that the site's native vegetation is necessarily of at least High conservation significance. This, in turn, gives the site **State** significance under criterion 3.2.3 of Amos (2004).

It should be recognised that some of the site is of lower significance when taken in isolation.

### Locally Threatened Plant Species

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

### Richness of Species

Over ninety indigenous plant species are present, which is rich by Knox standards and represents a good cross-section of the species that inhabit Valley Heathy Forest. However, this level of richness is not recognised as significant under the standard criteria.

### Threats

- Invasion by environmental weeds:
  - Very serious: Japanese Honeysuckle (*Lonicera japonica*) – concentrated strongly near Miller Rd;
  - Serious: Bridal Creeper (*Asparagus asparagoides*), Asparagus Fern (*Asparagus scandens*), Large Quaking-grass (*Briza maxima*), Cotoneaster (*Cotoneaster glaucophyllus forma serotinus*), Cotoneaster (*Cotoneaster pannosus*), Hawthorn (*Crataegus monogyna*), Panic Veldt-grass (*Ehrharta erecta*), Ivy (*Hedera helix*), Cat's Ear (*Hypochoeris radicata*), an Irid (possibly *Montbretia* or *Watsonia*), a wood-sorrel (*Oxalis ?incarnata*), Kikuyu (*Pennisetum clandestinum*) and Sweet Pittosporum (*Pittosporum undulatum*);
- Overly frequent mowing of native ground flora and seedlings;
- Slasher damage to trees and shrubs between Miller Rd and Albert Av;
- Loss or decline of plant species whose populations are so small and isolated that they are vulnerable to inbreeding, poor reproductive success or elimination by incidents such as disease or mower damage. This applies to *Acacia myrtifolia*, *Acaena echinata*, *Correa reflexa*, *Cynoglossum suaveolens*, *Daviesia leptophylla*, *Hakea ulicina*, *Hardenbergia violacea*, *Hovea linearis*, *Muellerina eucalyptoides*, *Plantago varia*, *Platylobium obtusangulum*, *Pultenaea gunnii* and *Stackhousia monogyna*.

### Management issues

- Large Quaking-grass (*Briza maxima*) in the area between Army Rd and Cobbitty Ct should be sprayed in late July or early August with the minimum recommended dose of a grass-specific herbicide such as Fusilade<sup>®</sup>;
- Frequent mowing of exotic grass and weeds is desirable, but slashing has been extending into native ground flora of good to fair ecological condition in the patch to the northwest of Dorrigo Drive. This should be amended. A skilled mower operator may be required to recognise the appropriate limits;
- Greater care should be exercised by tractor operators slashing grass, to avoid a continuation of the damage that has been done to trees and shrubs between Miller Rd and Albert Av;
- Even the very serious environmental weed, Hawthorn, may have some habitat value near Dorrigo Drive as protection and nest sites for small native birds. Hawthorn should be removed from this area, but progressively, accompanied by planting of prickly indigenous species as replacements;
- The conservation significance of the site could be enhanced by planting of some of the species whose numbers are dangerously small (as listed above). The verges signposted as KN1 and KN2 would be the best areas for planting.

### Administration matters

- It would be highly desirable to seek the spider-orchid that was recorded near Army Rd in 1992. If it exists, it is likely to be a statewide-vulnerable species;
- The Planning Scheme zoning of the road reservation is Road Zone Category 1 (RDZ1), but note that this is flanked by tree reserves that are variously zoned Public Park and Recreation Zone (PPRZ) or Residential 1 Zone (R1Z);
- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of the endangered EVC and the rare species present. The boundary defined here takes in all the significant native vegetation apart from scattered trees. The remainder of the road reservation is proposed to be covered by the new Environmental Significance Overlay Schedule 2. Routine roadwork and utility maintenance is exempt under both of these proposed schedules;
- It is recommended to remove the existing Vegetation Protection Overlay Schedule 1 of the Knox Planning Scheme, which covers the full width of the Mountain Hwy road reservation from Forest Rd (southeast of the site described here) almost to Cobbitty Ct. This is evidently partly because of the description of the report by Water Ecoscience (1998), in

which a longer stretch of road reservation comprised their Site 84. However, the overlay does not extend further northwest than Kalman Dr, thereby omitting the most significant vegetation in the whole site.

#### **Information sources used in this assessment**

- Site surveys by Dr Lorimer totalling just over 4½ hours on 16/4/03 and 23/4/03 following this study's standard procedures discussed in Section 2.4 of Volume 1. This included:
  - Compilation of lists of indigenous and introduced plants for each of six parts of the site;
  - A description of the vegetation's structural and floristic composition within each of the parts;
  - Documentation of the vegetation's ecological condition;
  - Documentation of rare species populations; and
  - Checks for fauna habitat, ecological threats and management issues.
- A similar site survey of Mountain Hwy southeast of Liverpool Rd by Dr Lorimer on 10/9/97 for the report, '*A Survey and Management Plan for Significant Vegetation of Roadsides in Knox*' by G.S. Lorimer for Knox City Council (May 1998, 137 pp.);
- Plant records presented by Water Ecoscience (1998);
- Data from a 300 m<sup>2</sup> quadrat (number N01901 in the Victorian Flora Information System), gathered by Mr Damien Cook on 19/11/92, as described by Mark Allaway and Associates in '*Indigenous Vegetation survey to Major Road Reserves – Phase 2 – A Management Strategy for Remnant Roadside Vegetation*' for City of Knox (1993). Some of the records are treated here as of questionable accuracy, and the duplication of some species in the species list suggests that the preparation of the list was imperfect. The inclusion of a spider-orchid also raises the question of whether Mr Cook may have used records from someone else, because spider-orchids would not normally be identifiable in late November;
- 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.