# Site 83. Lysterfield Valley

Residential and grazing land between Lysterfield Park and Lysterfield Rd, with patches of forest. Melway ref. 83 B3.

**Site Significance Level: *Regional* or potentially State** (see 'Significance ratings' below)

- There are remnants of threatened Ecological Vegetation Classes in poor ecological condition;
- Even though only part of the site could be visited, six plant species that are threatened in Knox were found, including two fern species that are extremely rare in the Melbourne region;
- Eastern Grey Kangaroos regularly appear in the site;
- The site's ecological values are threatened by urban expansion.

### Note

Permission was not obtained to enter most of the properties within this site. Instead, these properties were inspected from publicly accessible land, aided by aerial photographs. This may have caused some biologically significant attributes to be overlooked. The Precautionary Principle (see the Glossary at the end of Volume 1) should be applied when considering protection of this site in the absence of full scientific certainty about its attributes.

**Aerial photograph and plan**: See page 409.

### Boundaries

This 145·0 ha site is in two parts, one each side of Wellington Rd. The boundary of each part is outlined in red and marked '83' on the aerial photograph on p. 409. The site boundaries coincide with property boundaries, except where they cross streets.

**Land use & tenure**: Private property and reserves ('Lysterfield Reserve' and water supply reserves) leased for grazing.

### Site description

This site is at the head of the Corhanwarrabul Creek valley, with elevations ranging from approximately 86 m at Sherwood Way to just over 200 m near the dead end of Cornish Rd on the Lysterfield Hills ridge. The highest areas, on the southern and southwestern fringe, have steep slopes facing northeast. The gradient tapers rapidly toward Corhanwarrabul Ck, which has a shallow gradient toward the northwest. The creek does not flow perennially due to dams that intercept it. There is a timbered knoll within the site between the creek and Lysterfield Rd, reaching an elevation of just over 150 m.

The site has complex geology. It is at the intersection of the Lysterfield Granodiorite formation, the Kalorama Rhyodacite formation and an unnamed hornfels formation where Devonian sediments have been metamorphosed by volcanic flows of the other two formations. There is also alluvium along the Corhanwarrabul Ck valley and two tributary gullies, and colluvial deposits where hornfels has slipped down hills. There is extensive outcropping of granodiorite rocks and boulders toward Lysterfield Park.

The aerial photograph (p. 409) shows that the land use is mostly untreed or sparsely treed pasture, with some denser treed areas north of Wellington Rd. Every part of the site has been grazed for many decades. The northwestern part of the site is undergoing residential development, and the downstream section of Corhanwarrabul Ck has been replaced by a pipe covered with earth, since the aerial photograph was taken in April 2003.

Grazing has destroyed most of the native understorey in the site. However some native plants persist, including two fern species (*Cheilanthes sieberi* and *Pleurosorus rutifolius*) that had not been recorded at any site closer than the Yarra River prior to this study. Even the open pasture is of some environmental significance because it is regularly grazed by Eastern Grey Kangaroos (listed by the Land Conservation Council (1991) as 'Uncommon' in the Melbourne Region) and some of it forms the headwaters of Corhanwarrabul Ck.

A large part of the site's native vegetation could be classified as scattered trees with negligible native understorey. The less degraded areas on the upper slopes near Lysterfield Park belong to the Gippsland Plain form of the Grassy Forest EVC. Drainage lines and the floor of the Corhanwarrabul Ck valley support Swampy Woodland. Some of the Swampy Woodland has been reduced to rush-dominated wetland by the removal of trees, and there is a patch of Swamp Scrub near the corner of Wellington Rd and Brae Rd (marked on the aerial photograph). Between the Grassy Forest and the Swampy Woodland, there are overstorey remnants of Valley Grassy Forest near Cornish Rd and Valley Heathy Forest further to the east.

The unusual, complex geology north of Wellington Rd, combined with the history of grazing and clearing, cause difficulty in assigning EVCs to vegetation within the patches of trees there. The two patches of trees within the site between Kelletts Rd and Corhanwarrabul Ck are nearly pure stands of Narrow-leafed Peppermint (*Eucalyptus radiata*) with densely grassy

ground flora, fitting the Grassy Forest EVC much better than the Valley Heathy Forest shown on the Department of Sustainability & Environment's map of extant EVCs. Similarly, the stand of Messmate Stringybark (*Eucalyptus obliqua*) and occasional Narrow-leafed Peppermints just south of Logan Ct is a better fit to Grassy Forest than the Valley Grassy Forest depicted on the department's maps.

### Relationship to other land

The site is effectively an ecological buffer or fringe to a larger site of biological significance that includes the Dandenong Police Paddocks Reserve, Heany Park (Site 80), Churchill National Park, Lysterfield Park (Site 82) and bushland to the northeast of Lysterfield Park. The Eastern Grey Kangaroos and birdlife found within the Lysterfield Valley site undoubtedly rely on the larger site of significance for much of their habitat needs.

**Bioregion**: Gippsland Plain north of Wellington Rd (and slightly to the south), and Highlands Southern Fall elsewhere.

### Habitat types

Full details about the structure and composition of each EVC are not given below because of variability across the site, the dearth of understorey and lack of permission to enter most of the private property.

Swamp Scrub (EVC 53, regionally **Endangered**): 0·19 ha, all in poor ecological condition (rating D).

Grassy Forest (EVC 128, **Endangered** in the Gippsland Plain bioregion and **Vulnerable** in the Highlands Southern Fall bioregion). Although Grassy Forest is in both bioregions of this site, it all belongs to the kind that is associated with the Gippsland Plain, not the Highlands Southern Fall. The area with native understorey is estimated as 13 ha, practically all in poor ecological condition (rating D). 57 indigenous plant species were found.

Swampy Woodland (EVC 937, regionally **Endangered** in the Gippsland Plain bioregion): The area with understorey is estimated to occupy 0·5 ha (but uncertain due to lack of permission to inspect some areas). All is in poor ecological condition (rating D).

Valley Grassy Forest (EVC 47, regionally **Vulnerable**): Mostly with negligible native understorey, but one patch at the intersection of Wellington Rd and Kelletts Rd is estimated to contain 0·3 ha with understorey, of which 0·08 ha is in good ecological condition (rating B), 0·15 ha is in fair ecological condition (rating C) and 0·07 is in poor ecological condition (rating D). Other areas may have escaped detection.

Valley Heathy Forest (EVC 127, regionally **Endangered**): There are patches of tree canopy from this EVC, but little native understorey could be seen in the absence of permission to inspect the private properties where these patches occur.

Wetland (EVC 74, listed as regionally Endangered but the occurrences in this site are not natural). There is a total of approximately 1·1 ha of farm dams with an indeterminate area of fringing vegetation, and roughly 0·5 ha of rushland that has replaced the natural Swampy Woodland due to clearing and grazing.

### Plant species

The following plant species were recorded by various observers in the years indicated. Records dated 2002-2005 are the author's. Additional species would no doubt be detectable if the whole of the area were to be surveyed. 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 |
|---|---|---|
| V | *Acacia mearnsii* | 2002 |
| V | *Acacia melanoxylon* | 2005 |
| E | *Acacia stricta* | 1997 |
| V | *Acacia verticillata* | 2002 |
| V | *Acaena echinata* | 2002 |
| | *Acaena novae-zelandiae* | 2002 |
| V | *Allocasuarina littoralis* | 2002 |
| C | *Amyema pendula* | 2002 |
| V | *Amyema quandang* | 1997 |
| | *Austrostipa rudis* subsp. *rudis* | 2002 |
| | *Billardiera mutabilis* | 2002 |
| | *Bossiæa prostrata* | 2002 |
| | *Bursaria spinosa* | 2002 |
| | *Carex appressa* | 2002 |
| | *Carex breviculmis* | 1996 |
| E | ***Carex gaudichaudiana*** | 2002 |
| | *Cassinia aculeata* | 2005 |
| C | ***Cheilanthes sieberi* subsp. *sieberi*** | 2002 |
| V | *Clematis aristata* | 1996 |
| V | *Crassula sieberiana* s.l. | 2002 |
| | *Dianella admixta* | 2002 |
| | *Dichondra repens* | 2005 |
| | *Elymus scaber* | 1997 |
| V | *Epacris impressa* | 2002 |
| | *Epilobium hirtigerum* | 2002 |
| | *Eragrostis brownii* | 2002 |
| V | *Eucalyptus cephalocarpa* | 2005 |
| | *Eucalyptus goniocalyx* | 2005 |
| V | *Eucalyptus obliqua* | 2002 |
| V | *Eucalyptus ovata* | 2002 |

| Risk | Indigenous Species | Year |
|---|---|---|
| E | *Eucalyptus radiata* | 2005 |
| V | *Euchiton collinus* | 2002 |
| V | *Exocarpos cupressiformis* | 2005 |
| | *Gahnia radula* | 2002 |
| V | *Geranium* sp. 2 | 2002 |
| | *Gonocarpus tetragynus* | 2002 |
| | *Goodenia lanata* | 2002 |
| C | *Gratiola peruviana* | 1996 |
| V | *Hemarthria uncinata* | 2002 |
| E | *Hypericum gramineum* | 2002 |
| V | *Isolepis* sp. | 1996 |
| | *Juncus amabilis* | 2002 |
| | *Juncus bufonius* | 2002 |
| | *Juncus gregiflorus* | 2002 |
| | *Juncus pallidus* | 2002 |
| E | *Juncus procerus* | 2002 |
| | *Juncus sarophorus* | 2002 |
| E | *Juncus subsecundus* | 2002 |
| | *Kunzea ericoides* spp. agg. | 2002 |
| E | *Lagenophora stipitata* | 1996 |
| | *Leptospermum continentale* | 2002 |
| E | *Leptospermum scoparium* | 2002 |
| | *Lomandra filiformis* subsp. *coriacea* | 2002 |
| | *Lomandra filiformis* subsp. *filiformis* | 1997 |
| | *Lomandra longifolia* | 2002 |
| V | *Lythrum hyssopifolia* | 2002 |
| E | *Melaleuca ericifolia* | 2002 |
| | *Microlaena stipoides* | 2005 |
| V | *Opercularia varia* | 2002 |

| Risk | Indigenous Species | Year |
|---|---|---|
| | *Oxalis exilis/perennans* | 2005 |
| E | *Ozothamnus ferrugineus* | 2002 |
| | *Pandorea pandorana* | 2002 |
| | *Persicaria decipiens* | 2002 |
| E | *Phragmites australis* | 2002 |
| V | *Platylobium formosum* | 1996 |
| C | ***Pleurosorus rutifolius*** | 2002 |
| | *Poa morrisii* | 2002 |
| E | *Pomaderris aspera* | 1996 |
| | *Poranthera microphylla* | 1996 |
| | *Pteridium esculentum* | 2002 |
| E | *Rubus parvifolius* | 1996 |
| C | *Rumex brownii* | 2005 |
| | *Rytidosperma laeve* | 1997 |
| | *Rytidosperma linkii* var. *fulvum* | 2002 |
| | *Rytidosperma penicillatum* | 2002 |
| | *Rytidosperma racemosum* | 2002 |
| E | *Rytidosperma semiannulare* | 1997 |
| | *Rytidosperma setaceum* | 1997 |
| | *Rytidosperma tenuius* | 1997 |
| | *Schoenus apogon* | 2002 |
| | *Senecio quadridentatus* | 2002 |
| V | *Solanum laciniatum* | 1997 |
| V | *Solenogyne dominii* | 2002 |
| | *Themeda triandra* | 2002 |
| | *Tricoryne elatior* | 2002 |
| V | *Veronica gracilis* | 2002 |
| E | *Veronica plebeia* | 1996 |
| E | *Viola hederacea* | 2002 |

Introduced Species

| | | |
|---|---|---|
| *Agrostis capillaris* | *Gamochaeta purpurea* | *Pinus radiata* |
| *Allium triquetrum* | *Genista monspessulana* | *Pittosporum undulatum* |
| *Anthoxanthum odoratum* | *Glyceria declinata* | *Plantago coronopus* |
| *Arctotheca calendula* | *Hedera helix* | *Plantago lanceolata* |
| *Briza maxima* | *Helminthotheca echioides* | *Poa annua* |
| *Bromus diandrus* | *Holcus lanatus* | *Prunella vulgaris* |
| *Bromus hordeaceus* | *Hordeum leporinum* | *Prunus cerasifera* |
| *Callitriche stagnalis* | *Hypochoeris radicata* | *Raphanus raphanistrum* |
| *Centaurium erythraea* | *Juncus articulatus* | *Romulea rosea* |
| *Cerastium glomeratum* s.l. | *Leontodon taraxacoides* | *Rosa rubiginosa* |
| *Chrysanthemoides monilifera* | *Lolium perenne* | *Rubus anglocandicans* |
| *Cirsium vulgare* | *Lonicera japonica* | *Rumex conglomeratus* |
| *Cortaderia selloana* | *Lotus subbiflorus* | *Rumex crispus* |
| *Crataegus monogyna* | *Lythrum junceum* | *Solanum nigrum* |
| *Cynodon dactylon* | *Medicago polymorpha* | *Sonchus asper* |
| *Cynosurus echinatus* | *Modiola caroliniana* | *Sonchus oleraceus* |
| *Cyperus eragrostis* | *Oxalis pes-caprae* | *Stellaria media* |
| *Dactylis glomerata* | *Paspalum dilatatum* | *Trifolium repens* |
| *Echium plantagineum* | *Paspalum distichum* | *Trifolium striatum* |
| *Ehrharta erecta* | *Pennisetum clandestinum* | *Trifolium subterraneum* |
| *Euphorbia peplus* | *Phalaris aquatica* | *Ulex europaeus* |
| *Galium aparine* | *Phytolacca octandra* | |

The author's notes concerning some of the locally threatened plant species

*Carex gaudichaudiana* (Fen Sedge). Found in June 2002 on Corhanwarrabul Ck near Sherwood Way, and possibly since destroyed when the creek was filled in and replaced by a pipe in that vicinity.

*Cheilanthes sieberi* subsp. *sieberi* (Narrow Rock Fern). Three plants were found among rocks in pasture near the southern end of Glen Rd.

*Crassula sieberiana* (Sieber Crassula). Substantial numbers were found among granodiorite rocks in pasture near the southern end of Glen Rd. Likely to occur around other outcropping rocks.

*Geranium* sp. 2 (Variable Cranesbill). Found in pasture near the end of Glen Rd, numbers not recorded.

*Pleurosorus rutifolius* (Blanket Fern). A patch of plants measuring 500 mm × 50 mm was found in a crevice between rocks in pasture near the southern end of Glen Rd.

*Rumex brownii* (Slender Dock). Several were found in pasture near the southern end of Glen Rd.

### Fauna of special significance

Vulnerable in Victoria and listed under the *Flora and Fauna Guarantee Act 1988*

Great Egret. The Atlas of Victorian Wildlife includes a record of the species along Corhanwarrabul Ck within the site during 2000.

Uncommon in the Melbourne Region

Australian King-Parrot

Uncommon in Knox

Red-browed Finch

Black Wallaby

### Fauna habitat features

- The tree canopy provides habitat for insects, bats, possums and forest birds;
- There are some very large, old trees with hollows that would suit native birds, bats, possums and insects;
- Corhanwarrabul Ck and swampy vegetation provide habitat for frogs and aquatic invertebrates;
- The mixture of open pasture and stands of trees suits Eastern Grey Kangaroos and is regularly used by 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*

Swamp Scrub is regionally endangered. It follows from Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a) that the swamp scrub in this site is necessarily of at least High conservation significance. Any site that contains a 'remnant patch' of such vegetation is of State significance under the criterion 3.2.3 of Amos (2004).

However, at the time Amos (2004) prepared the significance criteria, the unpublished convention was that native vegetation only qualified as a remnant patch if it covered at least 2,500 m². Because the area is only 1,900 m² in the present case, the author has reduced the significance level of the site to **Regional**.

The site's Swampy Woodland is also regionally endangered, and if a single area measuring at least 2,500 m² of it has a non-trivial density of native understorey, it would qualify as a 'remnant patch' and give the site State significance. It is unclear whether this applies because permission was not obtained to inspect most of the site's Swampy Woodland.

*Rare or Threatened Flora*

Blanket Fern (*Pleurosorus rutifolius*) is rare in the Highlands Southern Fall bioregion, according to an intensive review of the conservation status of flora in the Port Phillip and Westernport Catchment region by botanist, Mr Dale Tonkinson. The occurrence near Glen Rd is a remarkable outlier occurrence and is of **Regional** significance.

The author has confirmed that some of the other locally threatened plant species listed above have viable populations, thereby meeting criterion 3.1.5 for a site of **Local** significance.

*Rare or Threatened Fauna*

Wetlands in Corhanwarrabul Ck valley provide suitable foraging habitat for the listed vulnerable species, Great Egret, and it is not surprising that one was reported there in 2000. However, the site would be a minor and fairly dispensable part of that bird's large habitat. This represents **Local** significance under criterion 3.1.2.

The other species listed as 'Fauna of special significance' above are rare or threatened locally or in the Melbourne area, but not throughout the whole of the relevant bioregion. This represents **Local** significance on the same basis as for locally rare or threatened flora.

*Land protection hazard*

Land along the Corhanwarrabul Ck valley, on both sides of Wellington Rd, is moderately to highly susceptible to waterlogging. The land use there also affects protection of the waterway. These features give the site a land protection hazard rating of High to Very High according to Victoria's Native Vegetation Management Framework (NRE 2002a).

### Threats

- Subdivision;
- Invasion by environmental weeds, as follows;
  - Serious: Brown-top Bent (*Agrostis capillaris*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Couch (*Cynodon dactylon*), Panic Veldt-grass (*Ehrharta erecta*), Cat's Ear (*Hypochoeris radicata*), Water Couch (*Paspalum distichum*);
  - Moderate: Angled Onion (*Allium triquetrum*), Hawthorn (*Crataegus monogyna*), Yorkshire Fog (*Holcus lanatus*), Paspalum (*Paspalum dilatatum*), Toowoomba Canary-grass (*Phalaris aquatica*), Red-ink Weed (*Phytolacca octandra*), Sweet Pittosporum (*Pittosporum undulatum*), Blackberry (*Rubus discolor*), Gorse (*Ulex europaeus*), Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*), Pampas Grass (*Cortaderia selloana*), Montpellier Broom (*Genista monspessulana*);
- Grazing by stock;
- Cattle hoofs disturbing mud and trampling plants in areas of rushland and Swamp Scrub;
- Rabbit grazing;
- Loss or decline of plant species that have such small populations that they are vulnerable to inbreeding, poor reproductive success or random events such as trampling. This is particularly important for the two rare fern species.

### Management issues

- If further subdivision is to occur along Corhanwarrabul Ck, the creek and its native riparian vegetation (particularly rushland) should not be destroyed;
- It would be highly desirable for the two rare fern species to be propagated from spores collected from the site, so that the propagated plants can be established in Lysterfield Park where they might thrive, away from grazing by stock.

### Administration matters

- Any planning scheme applications to remove or destroy native vegetation from the patches north of Wellington Rd should be checked to ensure that the associated habitat hectare determination(s) are done using the most appropriate EVC benchmark (which is probably the one for the Gippsland Plain version of Grassy Forest). The benchmark for Grassy Forest in the Highlands Southern Fall bioregional is not presently valid for the type of Grassy Forest present south of Wellington Rd (as at August 2004);
- The Planning Scheme zoning of Lysterfield Park is Public Park and Recreation Zone (PPRZ). Other land south of Wellington Rd is zoned Green Wedge Zone Schedule 2 (GWZ2). The land north of Wellington Rd is variously zoned Green Wedge Zone Schedule 1 (GWZ1), Residential Conservation Zone Schedule 2 (RCZ2) or Public Use Zone - Service and Utility (PUZ1);
- The site is outside the Urban Growth Boundary;
- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of the endangered EVCs, the matters discussed under the heading 'Significance ratings', and the potential for subdivision;
- Part of the site is included under the existing Vegetation Protection Overlay Schedule 1 of the Knox Planning Scheme, based on the description and mapping of Sites 49 and 53 of the report by Water Ecoscience (1998). The boundary shown on p. 409 does not include all of Water Ecoscience's Sites 49 and 53 because clause 52-17 of the Planning Scheme is deemed adequate for the excluded parts. The site boundary used here has been aligned with property boundaries, unlike the boundaries mapped by Water Ecoscience.

### Information sources used in this assessment

- Surveys of various parts of the site by Dr Lorimer on 18/6/02, 11/10/02, 29/10/02, 25/4/03 and 7/8/03 for a total of approximately eight hours, following this study's standard procedures discussed in Section 2.4 of Volume 1. This included:
  - Compilation of lists of indigenous and introduced plant species;
  - Description of the structural and floristic composition of the native vegetation;
  - Documentation of rare species populations and the ecological condition of the vegetation;
  - Incidental fauna observations;
  - Checks for fauna habitat, ecological threats and management issues;
- A brief visit by Dr Lorimer during winter 2004 to determine to what degree the site of significance had reduced in area as a result of ongoing residential development since the 2003 survey;
- Verbal records of wildlife observations by Mrs Jo Hauler of 25 Glen Rd, Lysterfield over many years;
- The Atlas of Victorian Wildlife;
- 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.

**Acknowledgment**

Thanks to Mr and Mrs Hauler of 25 Glen Rd for permission to inspect their property, and for information about observations of local wildlife over many years.