# Site 82. Lysterfield Park

Part of a public park with eucalypt plantations and areas of native vegetation. Melway maps 82 and 83.

## Site Significance Level: *State*

- Some of the native vegetation present belongs to regionally threatened Ecological Vegetation Classes;
- Four plant species recorded from the park are listed as rare or threatened in Victoria, and at least some of these may be within the part of the park that lies within Knox;
- Due to incomplete botanical surveying, there is a strong possibility that further rare or threatened plant species are present;
- The site is known habitat for Powerful Owl and Speckled Warbler, which are both threatened in Victoria;
- Other rare or threatened fauna that have been recorded within the park may occur in the part that lies inside Knox.

### Note

The amount of fieldwork conducted during this study to assess Lysterfield Park was substantially less intensive than for all other sites proposed for overlays. This is because:

- The conservation and management of the park is within the jurisdiction of the State government and Parks Victoria;
- The park spans three municipalities and less than half of it is within Knox; and
- There is no apparent benefit from assessing or considering only the Knox part of the park in isolation from the whole park, or in isolation from the contiguous Churchill National Park (City of Casey), Dandenong Police Paddocks Reserve (City of Casey) and 'ZA Land' (north of Wellington Rd, in the Shire of Yarra Ranges).

While the treatment below is believed to be adequate for the purposes of a municipal biodiversity study like this, it is not intended to support management or administration of the park by Parks Victoria.

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

### Boundaries

The site boundary is outlined in red and marked '82' on the aerial photograph. It follows the park boundary and the municipal boundary, the latter solely because this study is confined to the municipality of Knox.

**Land use & tenure**: Public park.

### Site description

Lysterfield Park, also known as Lysterfield Lake Park, is part of a larger, contiguous area of public park extending from the Dandenong Police Paddocks Reserve in Dandenong North to Birdsland Reserve in Belgrave Heights. Most parts of this public land have previously been privately owned, then bought back by government at various times. They are now nearly all managed by Parks Victoria.

The part of Lysterfield Park that lies within Knox includes most of the southeastern slopes of the Lysterfield Hills, extending into a natural basin immediately upstream of Lysterfield Lake. There are moderate undulations, frequent granitic boulders and sandy to gravelly soil of low fertility, providing generally poor growing conditions for plants. Elevations vary from approximately 70m near Lysterfield Lake in the southeast to 220 m in the Lysterfield Hills.

Most of the land was largely cleared and grazed until it was reserved to provide a water catchment for the Mornington Peninsula, which it did from 1936 to 1975. The catchment was fenced to exclude cattle and the pasture was replaced by eucalypt plantations to protect the catchment.

The part of the site lying northwest of the dashed white curve on the aerial photograph (p. 409) has not been planted, according to vegetation mapping by botanist, Mr Damien Cook. However, a brief inspection during this study detected no old-growth trees and a dearth of understorey species, suggesting past clearing and a history of grazing long ago.

The site's westernmost lot (see p. 409) is outside the catchment of Lysterfield Lake. It was reserved only in recent years and is still largely pasture.

Some of the eucalypt plantations seem to be mixed with naturally occurring flora. Confusion between natural, semi-natural and artificial vegetation is probably why there is a great deal of discordance between at least four attempts to map the site's vegetation, namely:

- The Department of Sustainability & Environment's BioMap of 'extant EVCs' from c.2001;

- The department's BioMap of 'pre-1750 EVCs' from c.2001;
- Vegetation maps of Lysterfield Park prepared for Parks Victoria by botanist, Mr Damien Cook, in 1994; and
- A National Parks Service vegetation map prepared from a vegetation survey by P.G. Smith in 1978 with updating by P. Debicki in 1986.

All of these maps have inaccuracies. The habitat types listed below for the site are the author's best estimate of the site's EVCs based on incomplete data.

The native vegetation inspected by the author is in fair ecological condition (rating C), but it is not possible to extrapolate to the whole park.

Numerous species of flora and fauna that are threatened at local, regional or state level have been recorded in Lysterfield Park, but in most cases the author cannot tell whether they occur specifically within the part of the park that lies within Knox. Even though the author only spent one hour in the park, he found plant species not previously recorded anywhere in the park. It appears that the park's flora is not well known, with the prospect that a thorough investigation would detect even more significant plant species.

### Relationship to other land

Lysterfield Park is effectively part of a larger site of biological significance in combination with the Dandenong Police Paddocks Reserve, Heany Park (Site 80), Churchill National Park, the Lysterfield Hills (Site 81) and bushland to the northeast of Lysterfield Park. Many species of fauna undoubtedly move between these sites and some will rely on doing so in order to have enough habitat. Some fauna carry pollen or seeds, thereby linking plant populations across the area.

**Bioregion**: Highlands Southern Fall

### Habitat types

Herb-rich Foothill Forest (EVC 23, conservation status rated 'Least Concern' in the bioregion)

Damp Forest (EVC 29, conservation status listed as of 'Least Concern' in the bioregion)

Swamp Scrub (EVC 53, **regionally Endangered**)

Grassy Forest (EVC 128, **regionally Vulnerable**) – the kind that is associated with the Gippsland Plain, not the Highlands Southern Fall.

Swampy Woodland (EVC 937, **regionally Vulnerable**)

Wetland (EVC 74, listed as regionally Endangered but in this case it is an artificial farm dam)

### Plant species

The following plant species were recorded by various observers in the years indicated. Additional species would no doubt be detectable if the park were to be systematically surveyed, which was outside this project's scope. 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* | 2004 |
| V | *Acacia melanoxylon* | 1986 |
| | *Acacia paradoxa* | 2004 |
| C | *Acacia verniciflua* | 2004 |
| V | *Acacia verticillata* | 1985 |
| V | *Acaena echinata* | 2003 |
| | *Acaena novae-zelandiae* | 1986 |
| V | *Adiantum aethiopicum* | 1985 |
| C | *Asperula conferta* | 2004 |
| | *Billardiera mutabilis* | 2004 |
| | *Bossiæa prostrata* | 1985 |
| | *Bursaria spinosa* | 2003 |
| | *Cassinia aculeata* | 2004 |
| | *Cassinia arcuata* | 2004 |
| E | *Centella cordifolia* | 1985 |
| V | *Clematis aristata* | 2004 |
| V | *Coprosma quadrifida* | 2004 |

| Risk | Indigenous Species | Year |
|---|---|---|
| V | *Crassula sieberiana* s.l. | 2003 |
| E | *Desmodium gunnii* | 1985 |
| | *Deyeuxia quadriseta* | 2004 |
| V | *Dianella longifolia* s.l. | 2003 |
| V | *Dianella tasmanica* | 2004 |
| | *Dichondra repens* | 2004 |
| V | *Drosera peltata* subsp. *auriculata* | 2003 |
| E | *Drosera peltata* subsp. *peltata* | 2003 |
| E | *Echinopogon ovatus* | 2004 |
| V | *Epacris impressa* | 1985 |
| | *Epilobium* sp. | 1985 |
| V | *Eucalyptus cypellocarpa* | 2004 |
| | *Eucalyptus goniocalyx* | 2003 |
| V | *Eucalyptus obliqua* | 2004 |
| V | *Eucalyptus ovata* | 2004 |
| E | *Eucalyptus radiata* | 2004 |
| E | *Eucalyptus viminalis* subsp. *viminalis* | 1985 |

| Risk | Indigenous Species | Year |
|---|---|---|
| V | *Euchiton collinus* | 2004 |
| V | *Exocarpos cupressiformis* | 2003 |
| | *Funaria hygrometrica* | 2004 |
| | *Gahnia radula* | 2003 |
| E | *Gahnia sieberiana* | 2004 |
| DD | ***Galium australe*** | 2004 |
| E | *Galium propinquum* | 1985 |
| E | ***Geranium gardneri*** | 2003 |
| V | *Geranium potentilloides* | 2004 |
| V | *Geranium* sp. 2 | 2003 |
| V | *Glycine clandestina* | 2004 |
| E | ***Glycine microphylla*** | 2003 |
| | *Gonocarpus tetragynus* | 1985 |
| C | *Gratiola peruviana* | 2004 |
| V | *Hydrocotyle hirta* | 2004 |
| E | *Hypericum gramineum* | 1986 |
| E | *Imperata cylindrica* | 2003 |
| E | *Indigofera australis* | 2003 |
| | *Juncus bufonius* | 1986 |
| | *Juncus gregiflorus* | 2004 |
| C | *Juncus holoschoenus* | 1986 |
| | *Juncus pallidus* | 2004 |
| E | *Juncus planifolius* | 1986 |
| | *Kunzea ericoides* spp. agg. | 2003 |
| V | *Lagenophora* sp. | 1985 |
| | *Lepidosperma elatius* | 1985 |
| V | *Lepidosperma laterale* | 2004 |
| | *Lepidosperma longitudinale* | 2004 |
| | *Lepidosperma* sp. | 1985 |
| | *Leptospermum continentale* | 1986 |
| E | *Leptospermum scoparium* | 2004 |
| | *Lomandra filiformis* subsp. *coriacea* | 2003 |
| | *Lomandra longifolia* | 1986 |
| E | *Melaleuca ericifolia* | 1986 |
| | *Microlaena stipoides* | 2004 |
| E | ***Olearia argophylla*** | 2004 |
| V | *Opercularia varia* | 1985 |
| | *Oxalis exilis/perennans* | 2004 |
| E | *Ozothamnus ferrugineus* | 2004 |
| C | *Pelargonium inodorum* | 2003 |
| | *Poa ensiformis* | 2004 |
| E | *Poa labillardierei* var. *labillardierei* | 2004 |
| | *Poa morrisii* | 2004 |
| E | *Poa tenera* | 2004 |
| | *Pteridium esculentum* | 2004 |
| C | *Pterostylis pedunculata* | 1985 |
| E | *Rubus parvifolius* | 2003 |
| C | *Rumex brownii* | 2003 |
| | *Schoenus apogon* | 2004 |
| | *Senecio hispidulus* | 2004 |
| C | ***Senecio linearifolius*** | 2004 |
| E | *Senecio minimus* | 2004 |
| | *Senecio quadridentatus* | 2004 |
| C | ***Sigesbeckia orientalis*** | 2003 |
| C | *Solanum aviculare* | 2004 |
| C | *Stellaria pungens* | 2004 |
| | *Themeda triandra* | 1985 |
| | *Tricoryne elatior* | 1986 |
| E | *Triglochin striata* (flat leaf variant) | 1986 |
| E | *Veronica plebeia* | 2004 |
| E | *Viola hederacea* | 2004 |
| E | *Wahlenbergia gracilis* | 2004 |

Introduced Species

| | | |
|---|---|---|
| *Anagallis arvensis* | *Galium aparine* | *Pittosporum undulatum* |
| *Anthoxanthum odoratum* | *Helminthotheca echioides* | *Plantago lanceolata* |
| *Briza minor* | *Holcus lanatus* | *Prunella vulgaris* |
| *Chrysanthemoides monilifera* | *Hypochoeris radicata* | *Rosa rubiginosa* |
| *Cirsium vulgare* | *Isolepis levynsiana* | *Rubus anglocandicans* |
| *Conyza sumatrensis* | *Leontodon taraxacoides* | *Solanum nigrum* |
| *Cortaderia selloana* | *Lotus subbiflorus* | *Trifolium repens* |
| *Cynodon dactylon* | *Paspalum dilatatum* | *Vicia* sp. |

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

*Crassula sieberiana/tetramera* (Sieber Crassula). Reasonable numbers of were found in an area recently burned.

*Geranium gardneri* (Rough Cranesbill). Reasonable numbers of immature plants were found in an area recently burned.

*Geranium* sp. 2 (Variable Cranesbill). Small numbers were found

*Glycine microphylla* (Small-leaf Glycine). Reasonable numbers of immature plants were found in an area recently burned.

*Imperata cylindrica* (Blady Grass). Small numbers were found.

*Pelargonium inodorum* (Kopata). Reasonable numbers were found in an area recently burned.

*Rumex brownii* (Slender Dock). Several plants were seen.

*Sigesbeckia orientalis* (Indian Weed). Only one or two plants were found, in a recently burned area.

*Veronica plebeia* (Trailing Speedwell). Small numbers were found.

### Fauna of special significance

The following species are only a small fraction of the total for the park, being just those which the author is confident about occurring within the Knox part of the park.

Vulnerable in Victoria

Powerful Owl. Reported repeatedly from the area.

Speckled Warbler. Reported repeatedly from the area, including in the 1998 study by Mueck and Timewell on the abutting Hanson Quarry.

Uncommon in the Melbourne region

Australian King-parrot. Reported by neighbours to be not uncommon in the area.
Eastern Grey Kangaroo. Resident and becoming increasingly abundant.
Spotted Brown Butterfly. The Lysterfield Hills area is one of the strongholds of this generally localised species.

### Fauna habitat features

This list is likely to be incomplete:

- The tree canopy provides habitat for insects, bats, possums and forest birds;
- Fallen timber provides the sort of cover required by many reptiles and invertebrates;
- The grassy ground flora provides fodder for butterfly caterpillars and other invertebrates, including Spotted Brown butterflies;
- It is likely that butterflies congregate on the hilltops in the site (which is what many butterflies do on hilltops);
- Swampy vegetation probably provides habitat for frogs and aquatic invertebrates.

### 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 and Viability*

Lysterfield Park meets criterion 1.1.2 for **Local** significance because it contains '100 ha or more of contiguous native vegetation in a heavily fragmented landscape'.

This park is also a substantial part of a large habitat corridor extending from Dandenong Ck in the Dandenong Police Paddocks Reserve to Birdsland Reserve in Belgrave Heights, and beyond. Criterion 1.2.6 attributes **Regional** significance to any corridor that meets the description 'Important at regional scale (link within bioregion or catchment)', which is a reasonable description of the corridor of interest here.

*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 native vegetation of this EVC is of at least High conservation significance, and this translates to a site of **State** significance under criterion 3.2.3. Quadrat data from Mr Andrew Paget tends to confirm the presence of Swamp Scrub in the Knox part of the park.

The regionally vulnerable EVCs, Grassy Forest and Swampy Woodland, would also give the site State significance if it were determined that at least part of them have a habitat score of 0·3 or above (i.e. not severely degraded). This seems quite likely. Note that the current (2004) 'EVC benchmarks' for Grassy forest in the Gippsland Plain and the Highlands Southern Fall bioregions are for quite different communities, and the former is the one applicable to Lysterfield Park despite the park being generally mapped as part of the other bioregion.

*Rare or Threatened Flora*

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

Some other plant species recorded for the park are significant at higher levels. The most important is *Amphibromus fluitans*, which is listed as vulnerable under the federal *Environment Protection and Biodiversity Conservation Act 1999*. Under criterion 3.1.1, the presence of this species gives the park **State or National** significance, depending on whether the population within the park is estimated to represent at least 1% of the national population. However, this semi-aquatic species is most likely at Lysterfield Lake and may not extend far enough from the normal water level to extend into Knox.

In the case of plant species in the park that are listed as rare or threatened in Victoria, the author does not know whether they have been seen in the Knox part of the park or elsewhere. The species involved are *Caladenia aurantiaca, Helichrysum* sp. aff. *rutidolepis* (Lowland Swamps), *Pomaderris oraria* and *Pterostylis* × *ingens*. Any of these could give the park significance at the Local to National level, depending on the size and viability of the populations.

*Rare or Threatened Fauna*

The Powerful Owl is a vulnerable species in Victoria. It is known to frequent and roost in the Lysterfield Hills and there is evidently good quality habitat for it there. The population in the area is a small fraction of the bioregional total, but would be viable as part of the wider ranging population around the Dandenong Ranges. This represents **Regional** significance under criterion 3.1.2.

The Speckled Warbler population is of **Regional** significance on the same basis as the Powerful Owl.

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.

The Southern Brown Bandicoot and the Warty Bell Frog (or Growling Grass Frog) are resident at Lysterfield Lake (unless they have recently died out). These species are listed under the federal *Environment Protection and Biodiversity Conservation Act 1999*. Their presence gives the park at least **State** significance under criterion 3.1.1. The part of the park within Knox would be of the same significance if either species is determined to be present there.

### Threats and Management issues

Refer to the Churchill National Park and Lysterfield Park Management Plan, August 1998.

### Administration matters

- The Planning Scheme zoning of the most westerly lot is Public Park and Recreation Zone (PPRZ) and the rest of the site is zoned 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 likelihood of biodiversity significance in parts of the site that have not been adequately studied;
- The site is not affected by a Vegetation Protection Overlay to the Knox Planning Scheme and was not identified as a site of significance by Water Ecoscience (1998).

### Information sources used in this assessment

- Parks Victoria's 'Park Notes', the 1998 management plan, fauna lists and several vegetation maps for the park;
- Cook D. (1994). *'Vegetation Community Survey for Lysterfield Lake Park, Churchill National Park, ZA Land and Link Land'*, a report and associated maps for the Department of Conservation and Natural Resources;
- A site survey by Dr Lorimer for one hour on 7th August 2003 (following a fire the previous summer) within a 40m-wide strip around the park perimeter, from Glen Rd to the edge of the Boral Quarry land. This included :
  - Compilation of a list 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 plant list and data from nine quadrats (DSE numbers N13242-N13250) compiled by Mr Andrew Paget in April and May 1985;
- Field data from celebrated naturalist, the late Mr Cliff Beauglehole, from his visit to the park on 18/11/82 with L.K.M Elmore;
- A specimen of the nationally vulnerable River Swamp Wallaby-grass (*Amphibromus fluitans*) collected by Mr Beauglehole in the park on 18/11/82 and kept at the National Herbarium of Victoria (specimen number MEL 119352);
- 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 Parks Victoria, and particularly Mr Michael Van de Vreede, for providing documentation about the park.