

Site 73. Starlight Reserve, Rowville

Council reserve with bushland, a playground and minor relics of the Second World War. Melway ref. 81 G5.

Site Significance Level: *State*

- Two endangered Ecological Vegetation Classes are present: Valley Heathy Forest and Swampy Woodland;
- Some of the vegetation is in good ecological condition;
- There is a solitary plant of a nationally endangered species, the Matted Flax-lily (*Dianella amoena*), although the identity has not been confirmed to scientific standards;
- There are eight other plant species that are threatened in Knox or in the whole Melbourne area;
- The reserve also has some historical significance as part of a Second World War camp.



Boundaries

This 3.26 ha site is the whole of Starlight Reserve, as outlined in red above.

Land use & tenure: Council reserve for nature conservation, heritage conservation and public enjoyment, including a playground.

Site description

This site lies on the lower slope of a small hill, which drains toward Dandenong Creek 600 m to the southwest. The elevation range is 41-54 m and the slope is gentle (typically 6%), falling to the south but interrupted by an east-west drain.

The soil is shallow, poorly draining, light grey loam over clay subsoil, derived from decomposition of the underlying Lower Devonian sedimentary rocks of the Humevale formation.

The site was once part of a military camp that became a prisoner-of-war camp during the Second World War. This gives the site historical significance, highlighted on signs that have been erected in the reserve. The main uses of the land in those days appear to have been a latrine, an open sewer, a sewage treatment building and a vehicle track.

Given the reserve's history, it is surprising that it retains so much of biological significance.

The richest areas of indigenous plants are toward the northwest corner and just east of the playground. These two areas are quite different in character, the former being densely shrubby regrowth while the latter is open and grassy due to past mowing beneath old trees. Both areas belong to the endangered Ecological Vegetation Class, Valley Heathy Forest.

There is also a shallow drainage line with a band of the regionally endangered Ecological Vegetation Class, Swampy Woodland. This is marked on the aerial photograph on the previous page.

The other highlight of the reserve is a patch of *Dianella amoena* (Matted Flax-lily), which is listed as Endangered under the federal *Environment Protection and Biodiversity Conservation Act 1999* and is Critically Endangered in Knox. However, the identity has not been proved to scientific standards because no specimen can be taken from such a rare plant, and no expert on the genus *Dianella* has visited to confirm the identity.

More details about the reserve can be obtained from the 'Bushland Management Plan for Starlight Reserve, Rowville, 2001' by G.S. Lorimer (2001) for Knox City Council.

Relationship to other land

The immediate surroundings of Starlight Reserve are residential in character, with detached dwellings. Many of the residential lots in the neighbourhood retain one or more remnant eucalypts, but few retain any understorey. This means that possums and hardier native birds still find good habitat, but the range of wildlife species is low and imbalanced. For example, there are reasonable numbers of aggressive nectar-eating birds such as wattlebirds but few highly beneficial insect-eating birds.

The reserve lies approximately 200 metres from the public land corridor along Dandenong Creek, and 600 metres from the creek itself. The nearest part of the creek corridor contains the Tirhatuan Wetlands (Site 74), whose renowned waterbirds are unlikely to be attracted away from the water to Starlight Reserve. Forest birds also move along the creek's habitat corridor, and Starlight Reserve is visited daily by Eastern Rosellas that are nomadic along the valley. Birds such as these probably also use the woodland at the Rowville Electricity Terminal Station (Site 72), 200 m to the northeast.

The nearest large area of natural vegetation is 1½ km to the southeast, extending between Churchill National Park and the adjoining Dandenong Police Paddocks Reserve. Waverley Golf Club provides a partially treed link for much of the distance between Starlight Reserve and the Dandenong Police Paddocks, but the author has not observed wildlife movement along that alignment.

Because it appears that there may be little movement of birds or insects between Starlight Reserve and large areas of forest, there is probably little infusion of pollen and seeds of indigenous flora into Starlight Reserve and the less abundant plant species are therefore at risk of inbreeding and poor regenerative capacity.

Bioregion: Gippsland Plain

Habitat types

Valley Heathy Forest (EVC 127, Endangered): Estimated to cover 1.95 ha, comprising 0.11 ha in good ecological condition (rating B), 1.50 ha in fair ecological condition (rating C) and 0.34 ha in poor ecological condition (rating D). 80 indigenous plant species have been recorded.

Canopy trees: Dominated by *Eucalyptus cephalocarpa* with smaller numbers of *E. radiata* and *E. goniocalyx*.

Lower trees: Rather dense, dominated by *Acacia mearnsii*, *Exocarpos cupressiformis*, *Allocasuarina littoralis* and *A. melanoxylon*.

Shrubs: The shrub layer is prickly and is dense in patches (depending on the history of slashing), being predominantly regrowth of *Bursaria spinosa*, *Acacia paradoxa* and *Leptospermum continentale* and *Leptospermum scoparium*.

Vines: The light twiner, *Billardiera mutabilis*, is abundant, and *Pandorea pandorana* is scattered.

Ferns: Absent.

Ground flora: Densely grassy and dominated by *Microlaena stipoides* and *Austrostipa rudis*, with plenty of *Dichondra repens*. Lilies and geophytes (i.e. plants that die back to underground storage organs during the unfavourable season of the year) are particularly well represented, characteristically including large colonies of *Pterostylis nutans*.

Swampy Woodland (EVC 937, **regionally Vulnerable**): Estimated to cover 0.3 ha, comprising 0.17 ha in fair ecological condition (rating C) and 0.13 ha in poor ecological condition (rating D). 41 indigenous plant species have been recorded.

Dominant canopy trees: *Eucalyptus ovata*.

Dominant lower trees: *Acacia melanoxyton* and *Exocarpos cupressiformis*.

Shrubs: Rather sparse due to a long history of slashing. *Leptospermum scoparium* and *Pomaderris racemosa* are the only shrub species in reasonable numbers. *Melaleuca ericifolia* is very scarce but helps to confirm the diagnosis of Swampy Woodland.

Vines: The light twiner, *Billardiera mutabilis*, is present.

Ferns: Absent.

Ground flora: Moderately to very dense, dominated by *Microlaena stipoides* and *Lomandra longifolia*. Other species that are characteristic of Swampy Woodland are *Centella cordifolia*, *Drosera peltata* subsp. *peltata* and *Eragrostis brownii*.

Plant species

The following plant species were observed by the author in 2000. 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, *Dianella amoena* is endangered nationally and *Diuris chryseopsis* and *Pomaderris racemosa* are rare in the Melbourne region.

Risk	Indigenous Species	Risk	Indigenous Species
V	<i>Acacia mearnsii</i>	V	<i>Hardenbergia violacea</i>
V	<i>Acacia melanoxyton</i>	V	<i>Hemarthria uncinata</i>
	<i>Acacia paradoxa</i>	V	<i>Hydrocotyle hirta</i>
V	<i>Acacia verticillata</i>	E	<i>Hypericum gramineum</i>
V	<i>Acaena echinata</i>		<i>Juncus amabilis</i>
	<i>Acaena novae-zelandiae</i>		<i>Juncus gregiflorus</i>
V	<i>Allocasuarina littoralis</i>		<i>Juncus pallidus</i>
C	<i>Amyema pendula</i>		<i>Juncus sarophorus</i>
V	<i>Amyema quandang</i>	E	<i>Juncus subsecundus</i>
	<i>Arthropodium strictum</i>		<i>Kunzea ericoides</i> spp. agg.
	<i>Austrostipa rudis</i> subsp. <i>rudis</i>	V	<i>Lagenophora gracilis</i>
	<i>Billardiera mutabilis</i>	E	<i>Lagenophora stipitata</i>
	<i>Bossiaea prostrata</i>	V	<i>Lepidosperma gunnii</i>
	<i>Burchardia umbellata</i>		<i>Leptospermum continentale</i>
	<i>Bursaria spinosa</i>	E	<i>Leptospermum scoparium</i>
	<i>Carex breviculmis</i>		<i>Lomandra filiformis</i> subsp. <i>coriacea</i>
	<i>Cassinia aculeata</i>		<i>Lomandra filiformis</i> subsp. <i>filiformis</i>
	<i>Cassinia arcuata</i>		<i>Lomandra longifolia</i>
E	<i>Centella cordifolia</i>	V	<i>Lythrum ?hyssopifolia</i>
E	<i>Cynoglossum suaveolens</i>	E	<i>Melaleuca ericifolia</i>
E	<i>Daviesia latifolia</i>		<i>Microlaena stipoides</i>
	<i>Deyeuxia quadriseta</i>	V	<i>Opercularia varia</i>
	<i>Dianella admixta</i>		<i>Oxalis exilis/perennans</i>
C	<i>Dianella amoena</i>	E	<i>Ozothamnus ferrugineus</i>
V	<i>Dianella longifolia</i> s.l.		<i>Pandorea pandorana</i>
	<i>Dichondra repens</i>		<i>Poa morrisii</i>
C	<i>Diuris chryseopsis</i>	C	<i>Pomaderris racemosa</i>
V	<i>Drosera peltata</i> subsp. <i>auriculata</i>		<i>Poranthera microphylla</i>
E	<i>Drosera peltata</i> subsp. <i>peltata</i>		<i>Pterostylis nutans</i>
V	<i>Drosera whittakeri</i>		<i>Rytidosperma geniculatum</i>
	<i>Eragrostis brownii</i>		<i>Rytidosperma laeve</i>
V	<i>Eucalyptus cephalocarpa</i>		<i>Rytidosperma linkii</i> var. <i>fulvum</i>
	<i>Eucalyptus goniocalyx</i>		<i>Rytidosperma pallidum</i>
V	<i>Eucalyptus ovata</i>		<i>Rytidosperma penicillatum</i>
E	<i>Eucalyptus radiata</i>	V	<i>Rytidosperma pilosum</i>
C	<i>Eucalyptus rubida</i>		<i>Rytidosperma setaceum</i>
V	<i>Euchiton collinus</i>		<i>Rytidosperma tenuius</i>
V	<i>Exocarpos cupressiformis</i>		<i>Schoenus apogon</i>
	<i>Gonocarpus tetragynus</i>		

Risk	Indigenous Species	Risk	Indigenous Species
	<i>Senecio glomeratus</i>	V	<i>Veronica gracilis</i>
	<i>Senecio hispidulus</i>	E	<i>Veronica plebeia</i>
V	<i>Thelymitra ?peniculata</i>	E	<i>Viola hederacea</i>
	<i>Themeda triandra</i>	E	<i>Wahlenbergia gracilis</i>
	<i>Tricoryne elatior</i>	E	<i>Xanthosia dissecta</i>
Introduced Species			
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>		<i>Dactylis glomerata</i>
	<i>Agrostis capillaris</i>		<i>Danthonia decumbens</i>
	<i>Allium triquetrum</i>		<i>Dodonaea viscosa</i>
	<i>Anthoxanthum odoratum</i>		<i>Ehrharta erecta</i>
	<i>Aster subulatus</i>		<i>Ehrharta longiflora</i>
	<i>Billardiera heterophylla</i>		<i>Freesia ?alba</i> × <i>leichtlinii</i>
	<i>Briza maxima</i>		<i>Galium aparine</i>
	<i>Centaurium erythraea</i>		<i>Gamochaeta purpurea</i>
	<i>Cerastium ?glomeratum</i> s.l.		<i>Hedera helix</i>
	<i>Coryza ?sumatrensis</i>		<i>Holcus lanatus</i>
	<i>Coprosma repens</i>		<i>Hypochoeris radicata</i>
	<i>Cotoneaster glaucophyllus</i>		<i>Leontodon taraxacoides</i>
	<i>Cotoneaster pannosus</i>		<i>Lotus subbiflorus</i>
	<i>Crassula multicava</i>		<i>Oxalis incarnata</i>
	<i>Crataegus monogyna</i>		<i>Oxalis pes-caprae</i>
	<i>Cynodon dactylon</i>		<i>Paspalum dilatatum</i>
	<i>Cyperus eragrostis</i>		<i>Pennisetum clandestinum</i>
			<i>Phalaris aquatica</i>
			<i>Pittosporum undulatum</i>
			<i>Plantago coronopus</i>
			<i>Plantago lanceolata</i>
			<i>Prunella vulgaris</i>
			<i>Prunus cerasifera</i>
			<i>Ranunculus muricatus</i>
			<i>Romulea rosea</i>
			<i>Rubus anglocandicans</i>
			<i>Solanum nigrum</i>
			<i>Sonchus oleraceus</i>
			<i>Taraxacum officinale</i> spp. agg.
			<i>Trifolium repens</i>
			<i>Ulex europaeus</i>
			<i>Viola odorata</i>

Notes concerning some of the locally threatened plant species

Cynoglossum suaveolens (Sweet Hound's-tongue). There is a patch measuring 1 m across, perhaps a single plant.

Dianella amoena (Matted Flax-lily). A single patch, in the Swampy Woodland.

Diuris chryseopsis (Golden Moths). One plant was reported by Mr John Erwin (of Knox City Council) to have flowered in September 2001.

Drosera peltata subsp. *peltata* (Pale Sundew). Hundreds of plants were found in the swale in the southeast.

Eucalyptus rubida (Candlebark). Two individuals were found.

Hydrocotyle ?foveolata (Yellow Pennywort). Several tens of plants found in 2000 near the eastern fence.

Lagenophora stipitata (Common Lagenophora). Numbers not recorded.

Pomaderris racemosa (Cluster Pomaderris). Six plants were found.

Veronica plebeia (Trailing Speedwell). Five separate patches were found. The number of individuals is unclear due to intertwining stems.

Fauna of special significance

None detected. The Atlas of Victoria Wildlife includes a 1988 record of five Little Egrets in or near Starlight Reserve, but this seems very likely to be more properly attributed to the nearby section of Dandenong Creek (allowing for inaccurate specification of coordinates).

Fauna habitat features

- Some of the larger eucalypts have hollows that may be usable for nests or roosting by birds, bats, possums or insects;
- There is a modest number of logs and branches on the ground which, combined with dense shrubs and ground flora, represent good habitat for reptiles and invertebrates;
- The high density and diversity of shrubs in the reserve's northwest significantly improves the habitat for native insects and birds. The prickliness of many of the shrubs helps protect birds from cats. However, a fox also inhabited the shrubby area when the reserve's management plan was being prepared in 2001;
- The dense ground flora may provide fodder for butterflies and their relatives;
- Fragmentation of the site's native vegetation is to some degree offset by the diversity of habitat (dense to open, damp to dry), which is beneficial to some native fauna.

Significance ratings

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

Endangered Vegetation Types

Valley Heathy Forest and Swampy Woodland are endangered. It follows from Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a) that all of the reserve'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).

Rare or Threatened Plants

Criterion 3.1.1 confers at least **State** significance on a site with known habitat for a nationally threatened species such as *Dianella amoena*. The identity is yet to be confirmed to scientific standards, but it is very likely to be correct and the Precautionary Principle means that it should be treated essentially the same as if the identity is certain. (The Precautionary Principle is explained in the Glossary at the end of Volume 1.)

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

Threats

- Invasion by environmental weeds, of which Gorse (*Ulex europaeus*) is the most serious followed by Sweet Vernal-grass (*Anthoxanthum odoratum*), Ribwort (*Plantago lanceolata*) and Common Onion-grass (*Romulea rosea*). The other species rated as serious threats are Blackberry (*Rubus discolor*), Cat's-Ear (*Hypochoeris radicata*), Paspalum (*Paspalum dilatatum*), Veldt-grasses (*Ehrharta erecta* and *E. longiflora*) beneath Cherry Ballarts, and Drain Flat-sedge (*Cyperus eragrostis*) in a swale in the reserve's southeastern corner;
- Critically small population sizes of several plant species, including the nationally endangered *Dianella amoena*;
- Possible future progression of moderately severe eucalypt dieback disease in the reserve's northwestern corner;
- Fragmentation of habitat, leading to reduced visitation by small insect-eating birds and hence a risk of worsening plant pests and diseases.
- Predation by foxes;
- Trampling;
- Damage to vegetation by children, particularly cubby houses in the northwest of the reserve.

Management issues

- Guidance for management of the reserve's habitat is discussed in detail in the *'Bushland Management Plan for Starlight Reserve, Rowville, 2001'* by G.S. Lorimer (2001) for Knox City Council;
- A strategy for burning parts of the reserve, initially as a trial, was developed by Dr Lorimer in consultation with Council and the Rowville Fire Brigade, as described in the report, *'Fire in Knox Bushland Reserves 2001'*;
- Grass weeds beneath Cherry Ballarts (*Exocarpos cupressiformis*) could be controlled using grass-specific herbicide;
- Council has approached the Department of Sustainability & Environment about conserving the nationally Endangered *Dianella amoena*, but further action is required. Firstly, the identity should ideally be confirmed by an expert on *Dianellas*, who would probably have to visit the site. Depending on permit requirements, seed should be collected and propagated. To avoid inbreeding, consideration should be given to propagating plants from one or more of the closest other populations of the species, for exchange between these sites. Great care would be needed to safeguard against possible introduction of plant disease when planting, so as not to risk infecting the existing plant;
- If possible, pollen from a *Diuris chryseopsis* plant at Roselyn Crescent Reserve (Site 45) should be used to manually pollinate the plant (or perhaps plants) of that species at Starlight Reserve, for outbreeding. This needs to be done by someone with experience in pollinating orchids, and during September. Pollen from a plant at Starlight Reserve could also be used to pollinate one or two plants at Roselyn Crescent Reserve, but this is less important;
- The plight of other scarce plant species should be improved by planting more individuals after propagating them from seeds collected nearby. This applies to *Acacia verticillata*, *Cynoglossum suaveolens*, *Rytidosperma geniculatum*, *Daviesia latifolia*, *Hardenbergia violacea* and *Xanthosia dissecta*;
- Seeds (or if necessary, cuttings) should be collected from as many as possible of the *Pomaderris racemosa* for propagation and planting at one or more similar sites, to provide security in case the ones at Starlight Reserve decline, die out or suffer misadventure.
- All propagations and plantings should be documented in Council's files about the reserve.

Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of its State significance, the rare and threatened plants and the endangered EVCs;
- The Planning Scheme zoning is Public Park and Recreation Zone (PPRZ);
- The largest lot that makes up most of the reserve is included under the existing Vegetation Protection Overlay Schedule 1 of the Knox Planning Scheme, based on the description of Site 15 of the report by Water Ecoscience (1998).

Information sources used in this assessment

- 9½ hours of site survey by Dr Lorimer on 28/2/00, 2/3/00 and 26/6/00 for the 'Bushland Management Plan for Starlight Reserve, Rowville, 2001' for Knox City Council. This included:
 - Compilation of lists of indigenous and introduced plants within each of five parts of the reserve;
 - Detailed mapping and documentation of rare species populations and the ecological condition of the vegetation;
 - A description of the vegetation's structural and floristic composition;
 - Incidental fauna observations;
 - Checks for fauna habitat, ecological threats and management issues; and
 - Taking photographs that capture the main ecological features of the reserve and that will be useful for long-term monitoring of the reserve;
- Re-inspection of the site by Dr Lorimer on 3/10/01 for the report, 'Fire in Knox Bushland Reserves 2001' by Lorimer (2001). This included:
 - An update to the lists of indigenous and introduced plants; and
 - Development of a strategy for ecological burning of the reserve, in consultation with Council and the Rowville Fire Brigade;
- Aerial photography from 1968, 1972, 1982, 1992, 1996, 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.