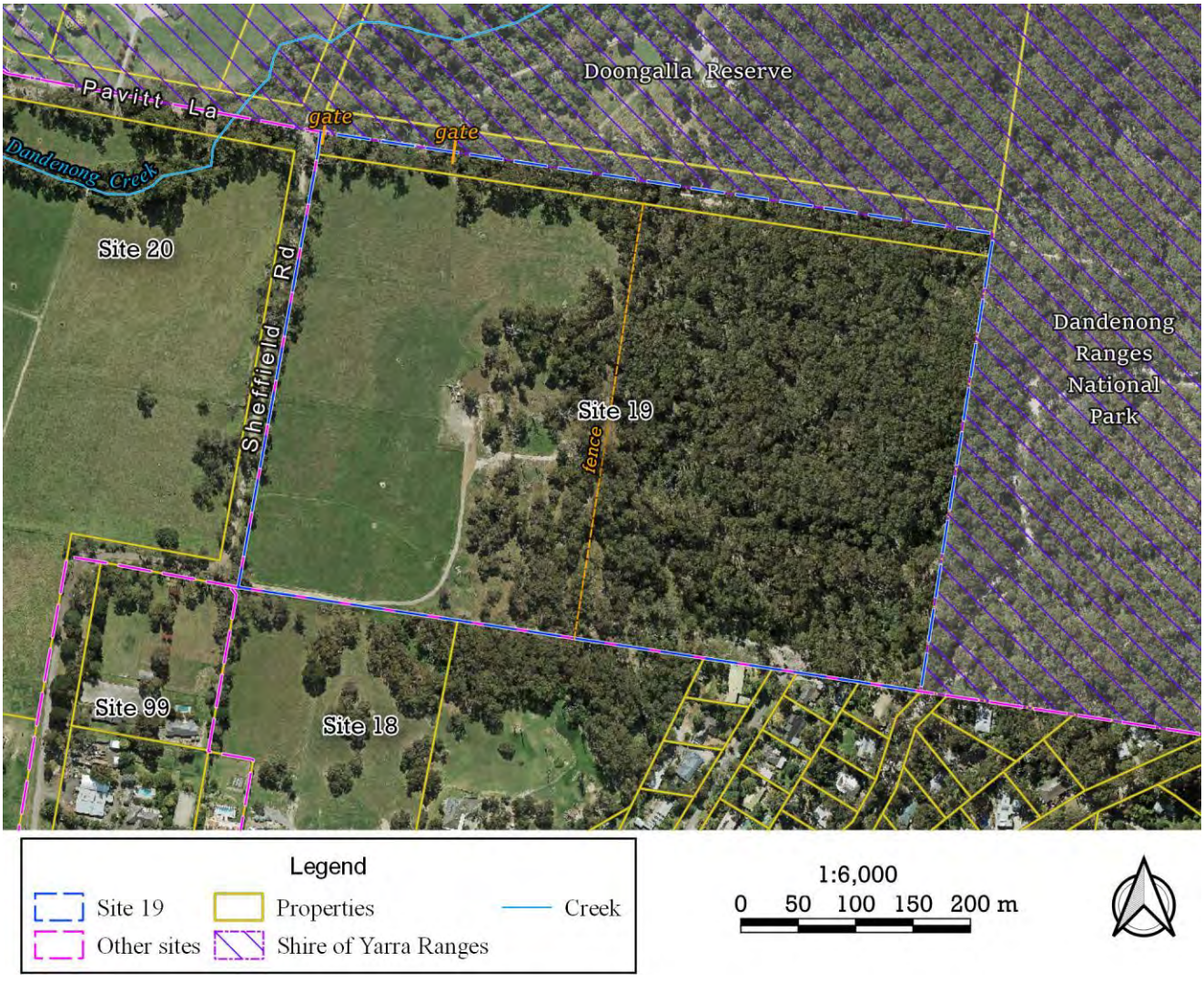
Site 19. Hillside above Sheffield Road, The Basin

A Salvation Army rural property and abutting forested road reserve.

Summary of significant features:

- Nationally significant: a large population of the flat-pea, *Platylobium infecundum*, which is Critically Endangered globally;
- State significance: an ecologically healthy, 13-hectare example of the regionally vulnerable Ecological Vegetation Class called Grassy Forest;
- Regionally significant: apparently high-quality habitat for the listed vulnerable species, Powerful Owl, which is known to occur in close proximity;
- Locally significant: viable populations of many plant species that are threatened with dying out in Knox;
- Locally significant: a substantial expanse of forest habitat that is part of a large area of contiguous, intact native vegetation on the western slopes of the Dandenong Ranges.



Boundaries

The 24 ha site is outlined with blue dashes on the aerial photograph, encompassing a whole property (part of the Salvation Army's farm) and the adjacent half-width of Pavitt Lane.

The full width of the Pavitt Lane road reservation east of the alignment of the fence shown above contains Nationally significant habitat. It would ideally be treated as an integral whole but this document can only deal with the half that is within Knox. The previous edition of this document did not include any of the road reservation because of uncertainty about the position of the municipal boundary.

Roughly one-third of the site has negligible native vegetation but it is included because it is still environmentally important, particularly in the sense that any development or change in land use there may impact on either the rest of the site, the National Park or Site 20.

Note: Permission was not obtained to enter the private land for this edition, so it was inspected from public land, assisted by aerial photographs. Some native understorey would have gone undetected.

Land use & tenure: Part of a Salvation Army farm. The site's western half is used for grazing of cattle and horses.

Site description

The site slopes toward the west. The western third of this site is on the floodplain of Dandenong Creek, with alluvial soil. The rest of the site is gently sloping land near the base of a west-facing slope in the Dandenong Ranges (approx. 160–200 m elevation). The soil on that slope is generally shallow loam over clay subsoil, derived from weathering of the underlying Mt Evelyn rhyodacite formation (part of the Mt Dandenong volcanic group). The exception is in some shallow drainage lines, where shallow alluvium has deposited.

The area east of the fence marked on the aerial photograph above supports the regionally-vulnerable vegetation type, Grassy Forest. It has a fairly natural tree canopy and groundcover but the shrub layer is depleted. The forest is of National significance for its high abundance of the Critically Endangered flat-pea species, *Platylobium infecundum*. That also applies to the forest on the abutting road reservation for Pavitt Lane, whose ecological condition is at least as good as the Salvation Army land. Because the road reservation has not had much history of grazing, it has more shrubs and more shrub species than the Salvation Army land, including locally-threatened species such as Variable Sallow-wattle (*Acacia mucronata*).

Slightly west of the fence marked on the aerial photograph above is a transitional zone between Grassy Forest to the east and Swampy Woodland to the west. Clearing and grazing has resulted in the vegetation being much less natural west of the fence than east. Along Pavitt Lane, the impacts of road construction and associated drainage have left little native understorey in the Swampy Woodland but some indigenous species are regenerating, e.g. *Solanum aviculare*, which is at high risk of dying out in Knox. On the Salvation Army land west of the fence, the treeless areas have negligible native vegetation and the treed areas have understorey that has been substantially depleted by cattle grazing. The surviving understorey is predominantly prickly shrubs such as Sweet Bursaria (*Bursaria spinosa*) and Prickly Moses (*Acacia verticillata*). Dieback and death of remnant trees has resulted from ringbarking by cattle and altered drainage.

The second edition of this document in 2010 reported that substantial recent clearing of remnant trees had recently occurred in a strip approximately 50 m wide along the Salvation Army land's southern boundary. The clearing was presumed to be for the establishment of a firebreak, with collection of firewood also apparent.

Relationship to other land

Site 19 adjoins the extensive, intact forest vegetation and wildlife habitat in the Doongalla section of the Dandenong Ranges National Park, which is a site of National significance. To the north lies the Yarra Ranges Council's Doongalla Reserve, with forest habitat comparable to Site 19. Site 19's southern edge abuts Site 18 and the western edge abuts Site 20. There is no doubt extensive movement of native fauna, as well as the pollen and seeds that they carry, between these sites.

Many residential properties in the surrounding area to the south and east (along Milleara St, Simpsons Rd and Doongalla Rd) support remnant trees and some indigenous understorey vegetation. The treed areas on 4B and 6A Doongalla Rd, adjoining the southern edge of the site, also contain some understorey in good ecological condition (as reported in the previous edition of this document in 2010). Taken as a whole, the site and the surrounding land provide an effective extension of the habitat in the National Park, and act as an ecological buffer. However, they also function as a source of environmental weeds entering the park.

The site is located near the headwaters of Dandenong Creek, forming a component of the wildlife corridor along the creek.

Bioregion: The native vegetation almost wholly lies in the Highlands Southern Fall bioregion. The floodplain of Dandenong Ck is taken here to be part of the Gippsland Plain, although this differs from the boundary mapped by the Department of Energy, Environment & Climate Action.

Habitat types

Grassy Forest (EVC 128, **regionally Vulnerable**) east of the fence marked on the aerial photograph on p. 143 and extending slightly to the west. Area 13 ha, of which it is estimated that 2.5 ha is in good ecological condition (rating B), 9.5 ha is in fair ecological condition (rating C) and 1 ha is in poor ecological condition (rating D).

Canopy trees: Dominated by *Eucalyptus obliqua*, followed by *E. radiata* and with small numbers of *E. goniocalyx*.

Sub-canopy trees: There are scattered *Acacia melanoxylon* and a few *Exocarpos cupressiformis* and *Pomaderris aspera*. These indigenous trees are perhaps outnumbered by the introduced *Pittosporum undulatum*.

Shrubs: Mostly sparse, including *Acacia verticillata, Bursaria spinosa*, *Cassinia aculeata*, *Coprosma quadrifida, Goodenia ovata, Olearia lirata* and *Pultenaea gunnii*. The characteristic species, *Acacia mucronata* is present on the road reservation but not on the private land due to grazing.

Vines: *Clematis aristata* and *Pandorea pandorana* are fairly abundant. *Billardiera mutabilis* is scarce.

Scramblers: The scrambling grass, *Tetrarrhena juncea*, dominates the groundcover over much of the Grassy Forest. *Hardenbergia violacea* is scarce.

Creepers: *Acrotriche prostrata*, *Goodenia lanata*, *Hydrocotyle hirta*, *Oxalis exilis/perennans* and *Platylobium infecundum* are all fairly abundant. *Acaena novae-zelandiae* is scarce.

Ferns: Widespread *Pteridium esculentum* dominates some of the groundcover. There are a few *Cyathea australis*.

Other groundcover: Very grassy, dominated by *Rytidosperma pallidum* and with many other grass species such as *Austrostipa rudis* subsp. *rudis*, *Gahnia radula*, *Lomandra filiformis* subsp. *coriacea*, *Poa morrisii*, *Rytidosperma penicillatum* and *Themeda triandra*. The forbs, *Gonocarpus tetragynus*, *Lagenophora sublyrata* and *Poranthera microphylla* are fairly abundant. The characteristic species, *Brunonia australis*, *Coronidium scorpioides*, *Drosera auriculata* and *Pimelea humilis* are scarcer. The inspection for the previous edition of this document recorded substantial populations of *Cryptostylis leptochila* and *Dipodium roseum* and inferred a likelihood of additional terrestrial orchids and lilies but the inspection for this edition was unable to confirm this due to the time of year (winter) and having to be done from outside the property. The groundcover has remarkably few environmental weeds (unlike the understorey tree layer).

Swampy Woodland (EVC 937, **regionally Vulnerable**) Area 1.5 ha, mostly or wholly in poor ecological condition (rating D), as far as could be determined from public land.

Canopy trees: A fair to good cover of *Eucalyptus cephalocarpa* and *E. cephalocarpa* trees, with some *E. obliqua* and *E. radiata*.

Sub-canopy trees: Scarce *Acacia melanoxylon*.

Shrubs: *Bursaria spinosa* and *Acacia verticillata* are most abundant but still not dense. *Solanum aviculare* grows on the road reservation.

Vines and ferns: None recorded.

Ferns: *Pteridium esculentum* is abundant on the road reservation.

Groundcover: Depleted in the Salvation Army land by grazing, except for some *Microlaena stipoides*. A single *Gahnia sieberiana* grows on the road reservation.

Plant species

The following plant species have been recorded within the site. Asterisks indicate species that have only been recorded during the only thorough survey, which was by Rik Brown on 8th April 2002 for the first edition of this report. A year in parentheses indicates a verified record in the Atlas of Living Australia. All other species were seen by the author from public land on 15/6/24. The column headed 'Risk' indicates the indigenous species' risk of dying out in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; 'V'=Vulnerable and 'N'=Near threatened. In addition, *Lomatia ilicifolia* and *Cryptostylis leptochila* are rare throughout the Melbourne region. More than a dozen additional wild indigenous species would no doubt be found in spring and summer.

Risk	Wild indigenous species
V	*Acacia melanoxylon*, Blackwood
E	*Acacia mucronata*, Variable Sallow Wattle
E	*Acacia myrtifolia*, Myrtle Wattle
E	*Acacia stricta*, Hop Wattle

Risk	Wild indigenous species
V	*Acacia verticillata*, Prickly Moses
	Acaena novae-zelandiae, Bidgee-widgee
V	*Acrotriche prostrata*, Trailing Ground-berry
	Austrostipa rudis, Veined Spear-grass*
	Austrostipa rudis subsp. *rudis*, Veined Spear-grass
	Billardiera mutabilis, Common Apple-berry
V	*Brunonia australis*, Blue Pincushion
	Bursaria spinosa, Sweet Bursaria
	Caesia parviflora, Pale Grass-lily (2020)
	Carex breviculmis, Short-stem Sedge
	Cassinia aculeata, Common Cassinia
E	*Centella cordifolia*, Centella*
V	*Chiloglottis valida*, Common Bird-orchid (2015)
V	*Clematis aristata*, Mountain Clematis
E	*Comesperma volubile*, Love Creeper
V	*Coprosma quadrifida*, Prickly Currant-bush
C	*Coronidium scorpioides*, Button Everlasting
E	*Cryptostylis leptochila*, Small Tongue-orchid*
C	*Cyathea australis*, Rough Tree-fern*
C	*Daviesia leptophylla*, Narrow-leaf Bitter-pea
	Deyeuxia quadriseta, Reed Bent-grass
	Dianella revoluta, Black-anther Flax-lily*
	Dianella tasmanica, Tasman Flax-lily
	Dichondra repens, Kidney-weed
E	*Dipodium roseum*, Rosy Hyacinth-orchid (2015)
V	*Drosera auriculata*, Tall Sundew
C	*Epacris impressa*, Common Heath
E	*Eucalyptus cephalocarpa*, Mealy Stringybark*
V	*Eucalyptus goniocalyx*, Bundy*
E	*Eucalyptus obliqua*, Messmate Stringybark
V	*Eucalyptus ovata*, Swamp Gum
E	*Eucalyptus radiata*, Narrow-leaved Peppermint
	Euchiton sp., a cudweed
V	*Exocarpos cupressiformis*, Cherry Ballart
C	*Gahnia radula*, Thatch Saw-sedge
E	*Gahnia sieberiana*, Red-fruit Saw-sedge
E	*Galium gaudichaudii*, Rough Bedstraw
V	*Geranium* ?sp. 2, Variable Crane's-bill
C	*Glossodia major*, Wax-lip Orchid
	Gonocarpus tetragynus, Common Raspwort
N	*Goodenia lanata*, Trailing Goodenia
	Goodenia ovata, Hop Goodenia
E	*Hardenbergia violacea*, Purple Coral-pea
C	*Hovea heterophylla*, Common Hovea*
V	*Hydrocotyle hirta*, Hairy Pennywort
E	*Hypericum gramineum*, Small St John's Wort
	Juncus sp., Rush*
V	*Lagenophora sublyrata*, Slender Bottle-daisy
	Lepidosperma elatius, Tall Sword-sedge
V	*Lepidosperma laterale*, Variable Sword-sedge
C	*Leptospermum continentale*, Prickly Tea-tree
	Leptospermum scoparium, Manuka*

Risk	Wild indigenous species
E	*Lobelia anceps*, Angled Lobelia*
	Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush
	Lomandra longifolia subsp. *exilis*, Cluster-headed Mat-rush
C	*Lomatia ilicifolia*, Holly Lomatia*
	Microlaena stipoides, Weeping Grass
E	*Microtis* ?*unifolia*, Common Onion-orchid*
E	*Olearia lirata*, Snowy Daisy-bush
C	*Olearia myrsinoides*, Silky Daisy-bush*
V	*Opercularia varia*, Variable Stinkweed
	Oxalis exilis/perennans, Wood-sorrel
V	*Ozothamnus ferrugineus*, Tree Everlasting*
	Pandorea pandorana, Wonga Vine
E	*Pimelea humilis*, Common Rice-flower
E	*Platylobium infecundum*, a flat-pea
	Poa ensiformis, Sword Tussock-grass*
	Poa morrisii, Soft Tussock-grass
E	*Poa tenera*, Slender Tussock-grass*
V	*Pomaderris aspera*, Hazel Pomaderris
	Poranthera microphylla, Small Poranthera
	Pteridium esculentum, Austral Bracken
E	*Pterostylis melagramma*, Tall Greenhood
V	*Pultenaea gunnii*, Golden Bush-pea
E	*Rytidosperma pallidum*, Red-anther (or Silvertop) Wallaby-grass
	Rytidosperma penicillatum, Slender Wallaby-grass
	Rytidosperma tenuius, Purplish Wallaby-grass
	Schoenus apogon, Common Bog-rush
V	*Senecio prenanthoides*, Common Fireweed
C	*Solanum aviculare*, Kangaroo Apple
E	*Stylidium armeria*, Common Triggerplant
	Tetrarrhena juncea, Forest Wire-grass
	Themeda triandra, Kangaroo Grass
C	*Veronica calycina*, Hairy Speedwell*
E	*Viola hederacea*, Ivy-leaf Violet
	Wahlenbergia gracilis, Sprawling Bluebell
E	*Xanthorrhoea minor*, Small Grass-tree

Introduced species
Acacia floribunda, White Sallow-wattle
Cirsium vulgare, Spear Thistle*
Hedera helix/hibernica, Ivy*
Hypochaeris radicata, Cat's Ear
Ilex aquifolium, Holly
Pittosporum undulatum, Sweet Pittosporum
Rubus anglocandicans, Blackberry
Senecio jacobaea, Ragwort*
Allium triquetrum, Angled Onion
Cortaderia selloana, Pampas Grass
Crocosmia × *crocosmiiflora*, Montbretia
Dactylis glomerata, Cocksfoot
Genista monspessulana, Montpellier Broom
Lysimachia arvensis, Pimpernel
Oxalis pes-caprae, Soursob

Introduced species

Paspalum dilatatum, Paspalum
Prunella vulgaris, Self-heal
Pseudoscleropodium purum, Neat Feather-moss

Introduced species

Vinca major, Blue Periwinkle
Zantedeschia aethiopica, White Arum Lily

Notes concerning some of the plant species

Cryptostylis leptochila (Small Tongue-orchid) – Over 100 were recorded in the only thorough survey of the sites (April 2002), scattered throughout the eastern section of the Salvation Army land.

Lomatia ilicifolia (Holly Lomatia) – A few plants were recorded in 2002 along the eastern boundary, more numerous in the adjacent National Park.

Platylobium infecundum (a flat-pea) – Critically endangered globally; Abundant in both the Salvation Army land and the road reservation.

Veronica calycina (Hairy Speedwell) – Over 30 were found scattered through the Grassy Forest in 2002.

The substantial population of Rosy Hyacinth-orchid (*Dipodium roseum*) scattered within higher quality groundcover in the Grassy Forest is notable for its size and extent.

Additional significant terrestrial orchids, lilies and grasses potentially occur within the least-disturbed areas. They were not likely to be visible during the field surveys, which were in April and June.

Fauna of special significance

None recorded during field surveys, although significant fauna occurring within the adjoining Dandenong Ranges National Park are bound to visit the site (e.g. Tree Goanna and Powerful Owl).

Fauna habitat features

The extensive cover of remnant trees within the site provides substantial habitat for forest birds, including extensive foraging habitat for parrots and potential owl roosting sites. A substantial population of Crimson Rosellas was apparent during field surveys and a diverse range of small forest birds was present, including the Eastern Spinebill, Grey Fantail, Striated Thornbill, Superb Fairy-wren, White-eared Honeyeater and White-throated Treecreeper. A Southern Boobook owl feather was also found in 2002.

A number of the larger remnant trees (around 100 years old) scattered within the site contain natural hollows suitable as shelter and breeding locations for birds, possums and bats.

Substantial habitat is provided for butterflies by Sweet Bursaria shrubs and remnant groundcover within much of the forested parts of the site.

Significance ratings

The following is an assessment of the site's biological significance against the Department of Energy, Environment & Climate Action's standard criteria (Amos 2004).

Ecological Integrity & Viability

This site is part of over 100 ha of contiguous, intact native vegetation on the western slopes of the Dandenong Ranges, within an otherwise heavily fragmented landscape. This qualifies for **Local** significance under criterion 1.1.2.

The site forms a component of a buffer to more extensive habitat within the adjoining Dandenong Ranges National Park, and a link between the park and other sites such as the Dandenong Creek wildlife corridor. This represents **Local** significance under criterion 1.2.6.

Vegetation Type and Condition

According to *'Victoria's Native Vegetation Management – A Framework for Action'* (NRE 2002a), remnants of a regionally vulnerable EVC (including Grassy Forest) have a conservation significance rating of Medium to Very High, depending on their habitat score. Most of the Grassy Forest in this site would have a habitat score well above 0.3 (although it has not been measured) and this would put the conservation significance as High or Very High according to the Framework. In either case, criterion 3.2.3 of Amos (2004) translates this to **State** significance.

Swampy Woodland is also listed as regionally vulnerable but the quality of the site's vegetation of this EVC is poorer than the Grassy Forest and its extent is smaller. Therefore, the presence of the Swampy Woodland is of **Local** significance.

Threatened Plants

The flat-pea, *Platylobium infecundum*, is abundant in the Grassy Forest on both the Salvation Army land and the road reservation. That species is listed under the *Flora and Fauna Guarantee Act* as Critically Endangered and it does not occur outside Victoria. As a result, the habitat provided for *Platylobium infecundum* in the site qualifies as **National** significance under criterion 3.1.2.

Platylobium infecundum had not been scientifically described in 2010 when the previous edition of this report was written. As a result, the site's significance level has risen from State to National.

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

Threatened Fauna

The Powerful Owl is a vulnerable species in Victoria. It is known to frequent nearby parts of the Dandenong Ranges National Park and the vegetation in the site is apparently high-quality habitat for Powerful Owls. Criterion 3.1.3 confers **Regional** significance upon such habitat.

Threats

- Impacts on remnant vegetation associated with grazing;
- Clearing of native trees and understorey for fire prevention and firewood;
- Human-induced climate change, which is predicted to cause more severe droughts, heatwaves, fires and storms, as well as substantially lower rainfall (particularly in winter);
- Loss or decline of plant species that are present in such precariously small numbers that they are vulnerable to inbreeding, poor reproductive success, the threats above or elimination by chance incidents;
- Displacement of indigenous flora and fauna by environmental weeds (particularly Sweet Pittosporum), exacerbated by debilitation of the native vegetation by the impacts of the threats above.

Management

- The forest east of the alignment of the fence marked on the aerial photograph on p. 143 is the most significant part of the site, on both the Salvation Army property and the road reservation. Control of Sweet Pittosporum in that area would provide the greatest ecological return on effort;
- Grazing east of the abovementioned fence causes considerable environmental harm;
- Ecological burning would be suitable in the same area and might be achievable in conjunction with a burn conducted in the adjacent part of the national park;
- Remnant trees within paddock areas would ideally be fenced to prevent further dieback and ringbarking by cattle, and to provide opportunities for regeneration. Shade for stock will become increasingly important as the climate changes and there have already been many tree deaths over the past two decades.

Strategic planning

- As a result of the second edition of this report in 2010, the Salvation Army land is covered by Schedule 2 of the Environmental Significance Overlay (ESO2). That edition cited the threatened EVC (Grassy Forest), the locally-threatened plant species, the potential Powerful Owl habitat and the effective extension of habitat that the site provides to the Dandenong Ranges National Park. As discussed above, the site's significance has since risen to the National level due to the recognition of *Platylobium infecundum* as a newly-described species that is Critically Endangered globally. In addition, it appears that the ecological condition of the Grassy Forest may have improved. Despite those changes, ESO2 remains an appropriate protective instrument;
- The previous edition of this document did not include any of the road reservation within the site because it was not realised that the southern half-width of the road reservation lay just inside Knox's municipal boundary. As a result, the road reservation's nationally-significant habitat escaped coverage by ESO2. Although not urgent, it would be desirable to extend ESO2 to cover that strip;
- The whole site is covered by Schedule 4 of the Significant Landscape Overlay (SLO4) and almost all of it is covered by the Bushfire Management Overlay (BMO);

- The Salvation Army Land and the road reservation are each larger than 0.4 hectare and therefore do not have the size-based exemption from the state-wide baseline planning controls over removal of native vegetation (clause 52.17);
- The Salvation Army land and the road reservation are zoned 'Special Use Zone 1' for 'Community, Recreation, Education and Religious Purposes', under which agriculture is subject to a permit;
- The site is outside the Urban Growth Boundary for Melbourne.

Information sources used in this assessment

- A map of EVCs within the adjoining Dandenong Ranges National Park prepared by Doug Frood for Parks Victoria in 2002;
- An ecological survey of the Salvation Army land by Rik Brown on 8th April 2002 for the first edition of this document. The survey included vegetation mapping, descriptions of the composition and condition of the vegetation types, compilation of a list of indigenous and introduced plant species in each of three parts of the property, incidental fauna observations, and checks for fauna habitat, ecological threats, management issues and populations of scarce or threatened plant species;
- An inspection by Dr Lorimer in June 2024 for this edition, covering the road reservation and the parts of the Salvation Army land visible from the fenceline. The inspection included compilation of a list of indigenous plant species for the road reservation and another one for the Salvation Army land. Significant plants were mapped;
- Records of flora and fauna observations stored in the Atlas of Living Australia;
- The Victorian Government's 'NatureKit' website;
- Aerial and satellite imagery from between 1946 and 2024;
- Maps of geology, topography and strategic planning information produced by agencies of the Victorian Government.