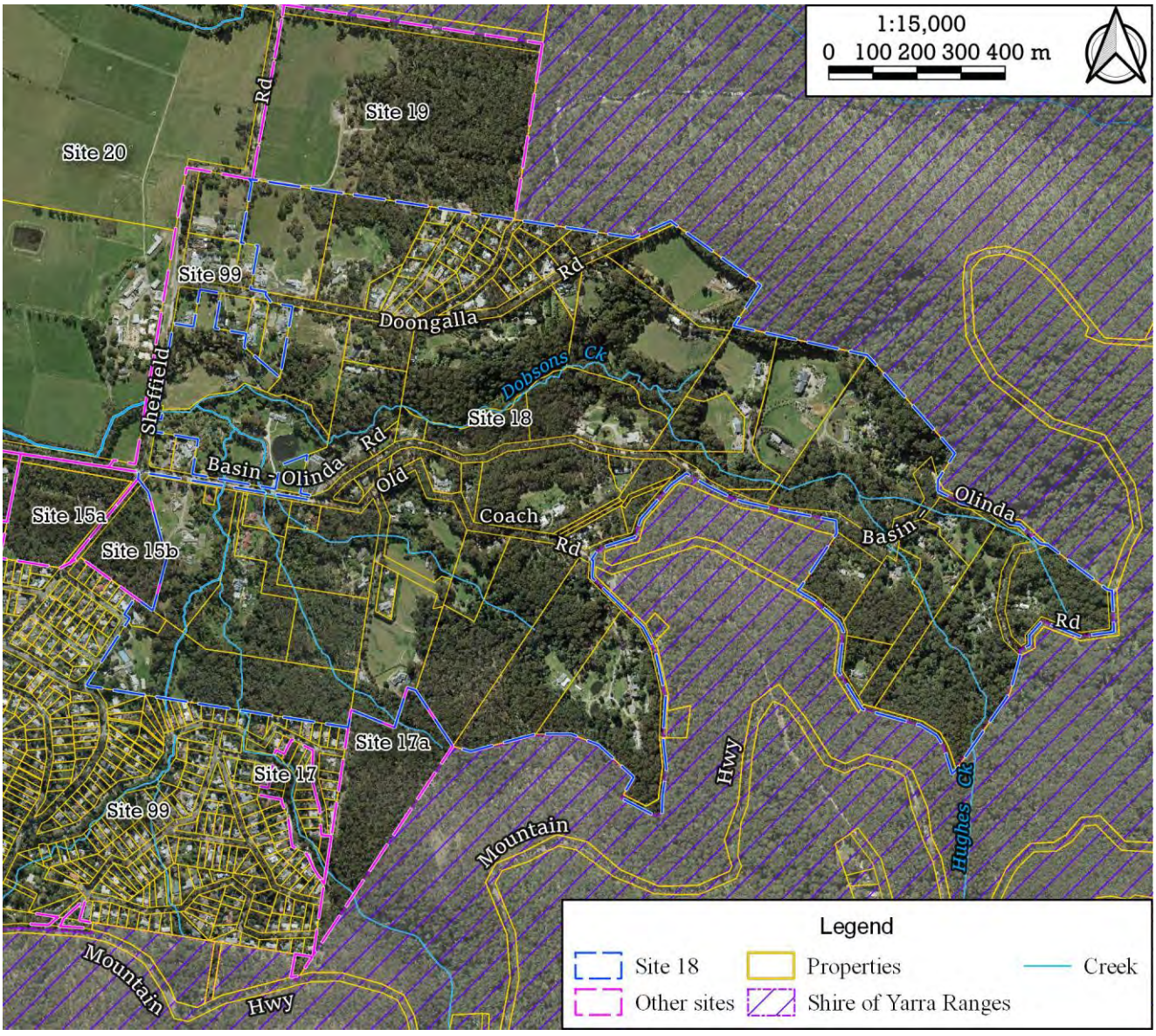
Site 18. The Basin - Sassafras Forest Precinct

A generally low-density residential area abutting the Dandenong Ranges National Park, with several perennial streams and variable coverage of native forest.

Summary of significant features:

- Nationally significant: an abundance of the flat-pea, *Platylobium infecundum*, which is Critically Endangered globally, and substantial numbers of the Dandenong Ranges Cinnamon Wattle (*Acacia stictophylla*), which is Endangered globally;
- Nationally significant: known habitat of the globally-threatened fauna species, Mountain Skink and Dandenong Freshwater Amphipod;
- State significance: known habitat of the globally-vulnerable Yellow-bellied Glider;
- State significance: apparent habitat of the globally-endangered Alpine Spiny Cray;
- State significance: large, intact examples of the regionally vulnerable vegetation type, Grassy Forest;
- Regionally to locally significant: large patches of non-threatened vegetation types, some in good condition;
- Regionally significant: apparently high-quality habitat for the listed vulnerable species, Powerful Owl;
- Locally significant: viable populations of scores of plant species threatened with dying out in Knox;
- Locally significant: streams with riparian vegetation in fairly good ecological condition;
- Locally significant: contribution to a large continuous area of significant flora and fauna habitat.



Note: The size of the site precluded intensive surveys of every part of every property. Three large, representative properties were surveyed intensively in 2002 and one of those was re-surveyed in 2024. The rest of the site was surveyed from public land, including roads, the national park and the Crown land reserve.

Boundaries

This 176-hectare site is outlined with blue dashes on the aerial photograph above. The eastern two-thirds (approximately) of the site is bounded by the municipal boundary. The remaining site boundary coincides with property boundaries except where it crosses roads. The boundary was drawn to include all properties that contribute to the canopy of indigenous trees that is contiguous (more or less) with the Dandenong Ranges National Park, or that include perennial streams.

Other sites shown on the aerial photograph above are outlined with magenta dashes and labelled with their site numbers.

Compared with the previous (2010) edition of this report: (a) Site 17a (part of the national park) has been cleaved off; (b) 70 Sheffield Rd has been transferred to Site 99 because it no longer abuts significant roadside vegetation; and (c) the boundary now follows edges of 9A and 9B Doongalla Rd, which did not exist in 2010.

Land use & tenure: Private land, road reservations and a Crown land reserve on the western corner of Basin-Olinda Rd and Ferndale Rd. There are residential lots in the size range 0.2–8.7 ha, farmlets, two wholesale plant nurseries and a private school.

Site description

This site is Knox's eastern extremity, extending well up the Dandenong Ranges into the outskirts of Sassafras. The Dandenong Ranges National Park abuts most of the boundary. Hughes Creek, Dobson Creek and tributaries flow through the site, mostly with well-defined, steep-sided gullies. Elevations are in the approximate range 150–350 m and the slope varies from slight to steep, including aspects from north, through west, to south. This topography generates a strong rise in annual average rainfall from west to east through the site.

The bedrock of this site is from the Dandenong Ranges volcanic system, overlaid with deposits of silty alluvium or colluvium on valley floors. The bedrock is exposed at intervals along the creeks.

Because this is the largest site in this report, with the greatest variation in topography, it also has the most complex spatial pattern of vegetation types. Where the native vegetation has not been removed by landowners or for roads:

- Fern gully vegetation like that described above for Sites 17 and 17a occurs along the most shaded sections of the perennial streams. It is flanked by Damp Forest;
- Damp Forest also lines the other sections of the perennial streams, extending further up the south-facing slopes than those with other orientations;
- Herb-rich Foothill Forest occurs upslope of the Damp Forest;
- Grassy Forest (listed as regionally vulnerable) occurs upslope of the Herb-rich Foothill Forest; except that
- Shrubby Foothill Forest occurs on 1½ ha abutting the most elevated part of Old Coach Rd in Knox.

A substantial part of the native vegetation in the site is in very good ecological condition, which is very rare in the rest of Knox but much less so in the Dandenong Ranges. There are also numerous plant species that are threatened with dying out in Knox or more widely but a significant proportion of these are much less rare when viewed in the context of the whole Dandenong Ranges. This is the only known site in Knox for the Brown Stringybark (*Eucalyptus baxteri*), Slender Pennywort (*Hydrocotyle tripartita*), the moss *Austrohondaella limatum*, the pocket-moss *Fissidens tenellus* var. *australiensis* and the two liverworts, ?*Aneura alterniloba* and *Lejeunea* sp.; They were all discovered during the surveys for this edition in 2023–2024.

Of these unique records for Knox, all but the Brown Stringybark are growing in stream channels or on their banks. The streams are also home to by far the majority of Knox's plants of Fishbone Water-fern (*Blechnum nudum*) and Leafy Bog-rush (*Schoenus maschalinus*). Unfortunately, some landowners maintain their stream banks in a denuded state, which is deleterious not only for nature on the properties in question but for nature and water pollution further downstream.

Streams may well also be home to invertebrate species that are globally threatened, such as the Dandenong Freshwater Amphipod and four species of cray. No invertebrate survey has been done.

The abovementioned Brown Stringybarks are beside Basin-Olinda Rd at and near the Crown land reserve just west of Ferndale Rd. That reserve is also notable for its abundance of other locally-threatened plant species, including the majority of Knox's surviving plants of the Variable Sallow-wattle (*Acacia mucronata*), Small Tongue-orchid (*Cryptostylis leptochila*) and Rough Bush-pea (*Pultenaea scabra*).

Site 18 is also Knox's stronghold of the Southern Tick-trefoil (*Desmodium gunnii*).

Knox City Council has invested a concerted effort in managing two road verges with Site 18, as follows:

Basin-Olinda Rd, southern verge

This stretch of road verge extends from opposite 141 Basin-Olinda Rd to Ferndale Rd, as well as beside 212 Basin-Olinda Rd. There is a gap from Ferndale Rd to the western end of 212 Basin-Olinda Rd because that section is in the Shire of Yarra Ranges, abutting the Dandenong Ranges National Park. About two-thirds of the vegetation belongs to the regionally-vulnerable Ecological Vegetation Class, Grassy Forest; the rest is the 'Least concern' type, Herb-rich Foothill Forest.

West of the Crown land reserve, the ecological condition of the vegetation is very variable due to clearing, trenching, planting or mowing associated with the abutting properties or roadworks. Nevertheless, it contains several of the flat-pea *Platylobium infecundum* (which is Critically Endangered globally) and several of the Variable Sallow-wattle (*Acacia mucronata*), which is Critically Endangered with dying out in Knox.

The verge abutting the Crown land reserve contains Brown Stringybarks, some Variable Sallow-wattles and Small Tongue-orchids, and substantial numbers of *Platylobium infecundum* and Rough Bush-pea.

The road verge abutting 212 Basin-Olinda Rd is wide and has quite a low density of introduced plants. It is home to the locally-threatened species, Southern Tick-trefoil (*Desmodium gunnii*), Shade Plantain (*Plantago debilis*) and the bottle-daisy *Lagenophora adenosa/stipitata*.

Doongalla Rd, southern verge

With the aid of some recent revegetation, native vegetation on the southern verge is almost interrupted for 780 m between 9B Doongalla Rd and 33 Doongalla Rd, except for driveways. The vegetation type is the regionally-vulnerable Grassy Forest, tending toward Herb-rich Foothill Forest near the western end. The condition of the vegetation is very variable, depending on its treatment by adjacent landowners. Much of the verge has a full canopy of remnant eucalypts, some of which are very large and old. A highlight is that east from the Milleara St intersection, there is an abundance of the flat-pea, *Platylobium infecundum*. The Variable Sallow-wattle (*Acacia mucronata*) is represented by four tight clumps of stems (probably four suckering individuals) – a significant fraction of Knox's known population of the species.

Relationship to other land

This site is contiguous with the Dandenong Ranges National Park. There is undoubtedly extensive movement of seeds, pollen, spores and fauna between the park and the site, thereby contributing to a healthier and more robust ecosystem.

Environmental weeds are among the plants that cross each way between the site and the national park. Plant species that are spread by water or with the aid of gravity will not move rapidly from the site into the park because the park is uphill from the site. Some of the seeds that wash downstream from Site 18 will belong to indigenous species and help maintain biodiversity there; others will belong to environmental weed species that threaten biodiversity downstream.

Bioregion: Highlands Southern Fall except for a small part of the Gippsland Plain on the flats just north and east of the corner of Basin-Olinda Rd and Sheffield Rd.

Habitat types

The numbers of hectares that follow come from the first (2004) edition of this report, except for Shrubby Gully Forest. The 2023–2024 investigation has not found reason to believe those figures have become quite inaccurate.

Farm dams (wetland EVC 74, but not remnants of a natural habitat).

Herb-rich Foothill Forest (EVC 23, conservation status listed as of 'Least Concern' in the bioregion): Estimated as 42 ha, comprising 6.2 ha in excellent ecological condition (rating A), 10.2 ha in good ecological condition (rating B), 16.3 ha in fair ecological condition (rating C) and 9.3 ha in poor ecological condition (rating D).

Canopy trees: Dominated by *Eucalyptus cypellocarpa* and *E. obliqua* with fewer *E. radiata*.

Sub-canopy trees: Dominated by *Acacia melanoxylon* and sometimes *Exocarpos cupressiformis*. *Acacia dealbata* is locally abundant. *Pomaderris aspera* or *Bedfordia arborescens* occur at some locations near Damp Forest.

Shrubs: Very variable in density and composition. Sometimes there are few shrubs other than scattered *Coprosma quadrifida* and *Cassinia aculeata* (usually draped with climbers). In proximity to Shrubby Foothill Forest, there may be dense shrubs including those just mentioned, along with *Acacia verticillata, Acacia stictophylla, Goodenia ovata, Ozothamnus ferrugineus, Pimelea axiflora, Polyscias sambucifolia, Prostanthera lasianthos* and *Spyridium parvifolium*.

Vines: Abundant, including the light twiners *Billardiera mutabilis, Comesperma volubile* and *Glycine clandestina* and the vigorous vines, *Calystegia marginata, Clematis aristata* and *Pandorea pandorana*. *Rubus parvifolius* is often abundant and sometimes also the parasite *Cassytha pubescens*.

Ferns: Abundant. *Pteridium esculentum* is nearly always present and *Calochlaena dubia* is mostly present, often densely. *Adiantum aethiopicum* is often present and there are typically scattered tree ferns (usually *Cyathea australis*).

Groundcover: Along with the ferns, the dominant groundcover species are usually *Poa ensiformis* and *Tetrarrhena juncea*. The richness of herbs suggested by the name of this EVC is variable, depending on past management and recency of fire. Other species that are usually abundant are *Acaena novae-zelandiae, Carex breviculmis, Gonocarpus tetragynus, Microlaena stipoides, Oxalis perennans* and *Viola hederacea*.

Damp Forest (EVC 29, conservation status listed as of 'Least Concern' in the bioregion), tending toward Wet Forest in the east: Estimated as 34 ha, comprising 4 ha in excellent ecological condition (rating A), 6 ha in good ecological condition (rating B), 18 ha in fair ecological condition (rating C) and 6 ha in poor ecological condition (rating D).

Dominant canopy trees: *Eucalyptus obliqua* and/or *E. cypellocarpa*, sometimes with a few *E. radiata*.

Dominant sub-canopy trees: Abundant *Acacia melanoxylon* to 20 m tall; smaller numbers of *Pomaderris aspera* and/or *Bedfordia arborescens*. *Hedycarya angustifolia* is very scarce but characteristic of Damp Forest.

Shrubs: The range of visibility through the shrub layer is typically 30 m, but may be much less where the soil has been disturbed. The most common species are *Coprosma quadrifida, Ozothamnus ferrugineus* and *Prostanthera lasianthos*. The ecological indicator species, *Sigesbeckia orientalis*, is fairly abundant in good years. *Urtica incisa* was present until the height of the Millennium Drought but was not found in 2023–2024.

Vines: Abundant, dominated by *Pandorea pandorana* and *Clematis aristata*. *Rubus parvifolius* is often abundant and sometimes also the parasite *Cassytha pubescens*.

Ferns: Ferns are one of the dominant parts of the understorey. Tree ferns (mostly *Cyathea australis*) are abundant and consistently present. *Calochlaena dubia* or any of several *Blechnum* species are also abundant, representing a high foliage cover. Unlike Herb-rich Foothill Forest, *Pteridium esculentum* is not a significant part of the understorey.

Groundcover: Apart from the ferns, the groundcover is heavily dominated by *Lepidosperma elatius*, *Poa ensiformis* and/or *Tetrarrhena juncea*. Forbs are not rich due to suppression by the shade of the dominant species.

Shrubby Foothill Forest (EVC 45, conservation status listed as of 'Least Concern' in the bioregion): Estimated as 1.5 ha, comprising 1 ha in excellent ecological condition (rating A), 0.3 ha in good ecological condition (rating B) and 0.2 ha in fair ecological condition (rating C).

Dominant canopy trees: *Eucalyptus radiata* with fewer *E. obliqua* and often various other eucalypt species.

Dominant sub-canopy trees: *Acacia melanoxylon* and sometimes *Exocarpos cupressiformis* are present.

Shrubs: There is most commonly a dense layer of shrubs in the height range 1½ –3 metres, largely made up of shrubby wattles (characteristically including *Acacia mucronata* and *Acacia verticillata*), *Spyridium parvifolium, Pultenaea scabra* and/or *Pultenaea gunnii*. The smaller shrub, *Goodenia ovata*, is usually also abundant. The density of shrubs reduces with time since fire.

Ferns: *Pteridium esculentum* and *Adiantum aethiopicum* may be scattered beneath the shrubs.

Groundcover: Grassy but not densely so due to suppression by the dense shrubs. The species present are those found commonly in the adjacent EVCs, including *Gonocarpus tetragynus* and *Stylidium armeria*.

Grassy Forest (EVC 128, **regionally Vulnerable**). Estimated as 25.7 ha, comprising 6.0 ha in excellent ecological condition (rating A), 5.7 ha in good ecological condition (rating B), 7.6 ha in fair ecological condition (rating C) and 6.4 ha in poor ecological condition (rating D).

Dominant canopy trees: Usually dominated by a mixture of *Eucalyptus goniocalyx, E. macrorhyncha, E. obliqua* and *E. radiata*. *Eucalyptus baxteri, E. cypellocarpa* or *E. cephalocarpa* are sparingly present in some places.

Dominant sub-canopy trees: *Exocarpos cupressiformis, Acacia melanoxylon*.

Shrubs: Low to moderate density and rich in species, the most common of which are *Acacia mucronata, A. stricta, Bursaria spinosa, Cassinia aculeata, Goodenia ovata, Pultenaea scabra* and *Spyridium parvifolium.*

Vines: The light twiners *Billardiera mutabilis, Comesperma volubile* and *Glycine clandestina* are fairly abundant. There are fewer of the vigorous vines, *Clematis aristata* and *Pandorea pandorana*. The parasite *Cassytha pubescens* is also present in places.

Ferns: *Pteridium esculentum* is usually quite conspicuous and other ferns are scarce.

Groundcover: Fairly rich in species and densely grassy. Among the grassy species, the most widespread and abundant are *Gahnia radula, Rytidosperma pallidum, Lomandra filiformis* and *Poa morrisii*. The numbers of species of creepers and forbs are high. *Drosera auriculata, Gonocarpus tetragynus* and *Stylidium armeria* are typically abundant.

Swampy Woodland (EVC 937, **regionally Endangered**) in the form of a small strip beside the Basin-Olinda Rd just east of Wicks Rd, in the Gippsland Plain bioregion. Estimated to occupy 1,500 m², comprising 100 m² in fair ecological condition (rating C) and 1,400 m² in poor ecological condition (rating D).

Dominant canopy trees: *Eucalyptus ovata*.

Sub-canopy trees: *Acacia melanoxylon* and *Exocarpos cupressiformis*.

Shrubs: *Acacia mucronata, Goodenia ovata*.

Vines: None found.

Ferns: None found. This is not a natural condition.

Groundcover: Grassy, with *Gahnia radula, Microlaena stipoides, Austrostipa rudis, Poa ensiformis, Rytidosperma pilosum, Lomandra filiformis, Lomandra longifolia* and *Gonocarpus tetragynus*.

Shrubby Gully Forest (EVC 938, **regionally Vulnerable**): A small gully in the Fernbrook School property. The area was estimated in 2004 to occupy 300 m², in fair ecological condition (rating C). By 2023, the trees had all died, fallen and partly rotted away and the understorey had changed so much that the vegetation was no longer recognisable as Shrubby Gully Forest. The following describes the vegetation in 2002, for posterity.

Emergent eucalypts: One or two *Eucalyptus obliqua* as outliers of the adjacent Herb-rich Foothill Forest.

Tree canopy: *Melaleuca squarrosa* 6 m tall and fewer *Acacia melanoxylon*.

Shrubs: *Acacia verticillata, Prostanthera lasianthos,* plus a *Pomaderris aspera*.

Vines: The parasite, *Cassytha pubescens* was present.

Ferns: The tree fern, *Cyathea australis,* was dense in the shrub layer. *Calochlaena dubia* and fewer *Blechnum minus* were also present.

Groundcover: Dominated by the ferns above and *Lepidosperma elatius*.

Plant species

This section contains three plant lists: one for the site as a whole, followed by one for each of the two abovementioned roadsides that Knox City Council actively manages for nature conservation. Most of the indigenous species were recorded in this study's 2023–2024 surveys, the exceptions being indicated by the species' name being followed by the year of the last record (mostly the author's surveys in 1997 and 2002). The entries for introduced species come from the earlier surveys but the author believes almost all of them are still present. 'iNat' refers to an observation recorded on iNaturalist. Because the author has not visited most of the private properties, some species are bound to have escaped detection, particularly orchids.

The column headed 'Risk' indicates the indigenous species' risk of dying out in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; 'V'=Vulnerable; 'N'=Near threatened; 'X'=already locally extinct. In addition,

Acacia stictophylla and *Platylobium infecundum* are threatened globally and the species with names in bold are rare throughout the Melbourne region, including the Dandenong Ranges.

Site 18 as a whole

Risk	Wild indigenous species
	Liverworts
	?*Aneura alterniloba*, a liverwort
	Chiloscyphus semiteres, Green Worms
	Frullania clavata, a liverwort
	Heteroscyphus coalitus, Crestwort
	Heteroscyphus fissistipus, Crestwort
	Hymenophyton flabellatum, Fan-fern Liverwort
	Lejeunea sp., a liverwort
	Lunularia cruciata, Moonwort
	Metzgeria furcata, a liverwort
	Mosses
	Achrophyllum dentatum, a moss
	Atrichum androgynum, a moss
	Austrohondaella limata, a moss
	Austrothamnium pumilum, a moss
	Brachythecium salebrosum, Smooth-stalk Feather-moss
	Campylopus introflexus, Heath Star Moss
	Dawsonia longiseta, Small Dawsonia (iNat 2020)
	Ditrichum difficile, a moss
	Fissidens asplenioides, a pocket-moss
	Fissidens bifrons, a pocket-moss
	Fissidens tenellus var. *australiensis*, a pocket-moss
	Fissidens tenellus var. *tenellus*, Tiny Pocket-moss
	Hypnodendron spininervium subsp. *archeri*, Umbrella Moss
	Hypnodendron vitiense subsp. *australe*, Umbrella Moss
	Racopilum cuspidigerum var. *convolutaceum*, a moss
	Sematophyllum homomallum, a moss
	Thuidiopsis furfurosa, Golden Weft-moss
	Thuidiopsis sparsa, a weft-moss
	Wijkia extenuata, Spear Moss
	Ferns
V	*Adiantum aethiopicum*, Common Maidenhair
E	*Blechnum cartilagineum*, Gristle Fern
C	*Blechnum minus*, Soft Water-fern
V	*Blechnum nudum*, Fishbone Water-fern
C	***Blechnum patersonii*, Strap Water-fern** (R. Pergl 2023)
V	*Calochlaena dubia*, Common Ground-fern
C	*Cyathea australis*, Rough Tree-fern
C	*Dicksonia antarctica*, Soft Tree-fern
C	*Hypolepis glandulifera*, Downy Ground-fern

Site 18 as a whole

Risk	Wild indigenous species
C	***Hypolepis muelleri*, Harsh Ground-fern** (2002)
C	*Hypolepis rugosula*, Ruddy Ground-fern
C	*Lastreopsis acuminata*, Shiny Shield-fern
V	*Lindsaea linearis*, Screw Fern
E	*Polystichum proliferum*, Mother Shield-fern
	Pteridium esculentum, Austral Bracken
	Pteris tremula, Tender Brake (2002)
	Flowering species
	Acacia dealbata, Silver Wattle
C	*Acacia genistifolia*, Spreading Wattle (2002)
V	*Acacia melanoxylon*, Blackwood
E	***Acacia mucronata*, Variable Sallow Wattle**
E	*Acacia myrtifolia*, Myrtle Wattle
V	***Acacia stictophylla*, Dandenong Range Cinnamon Wattle** (2002)
E	*Acacia stricta*, Hop Wattle
V	*Acacia verticillata*, Prickly Moses
	Acaena novae-zelandiae, Bidgee-widgee
C	***Acianthus pusillus*, Small Mosquito Orchid** (iNat 2020)
V	*Acrotriche prostrata*, Trailing Ground-berry
E	*Acrotriche serrulata*, Honey-pots
C	*Amyema pendula*, Drooping Mistletoe (1997)
	Anthosachne scabra, Common Wheat-grass (1997)
	Arthropodium strictum, Chocolate Lily (1997)
C	*Asperula conferta*, Common Woodruff
C	*Asperula euryphylla*, Dandenongs Woodruff
E	*Australina pusilla* subsp. *muelleri*, Shade Nettle
	Austrostipa rudis subsp. *rudis*, Veined Spear-grass
C	*Banksia marginata*, Silver Banksia (1997)
C	*Bedfordia arborescens*, Blanket-leaf
	Billardiera mutabilis, Common Apple-berry
N	*Bossiaea prostrata*, Creeping Bossiaea (2002)
	Burchardia umbellata, Milkmaids (2002)
	Bursaria spinosa, Sweet Bursaria
V	*Caesia parviflora*, Pale Grass-lily
C	*Caladenia carnea*, Pink Fingers (2002)
E	***Calystegia marginata*, Forest Bindweed**
	Carex appressa, Tall Sedge
	Carex breviculmis, Short-stem Sedge
E	*Carex fascicularis*, Tassel Sedge
	Cassinia aculeata, Common Cassinia
E	*Cassytha pubescens*, Downy Dodder-laurel (2002)
E	*Centella cordifolia*, Centella (2002)
V	*Chiloglottis valida*, Common Bird-orchid
V	*Clematis aristata*, Mountain Clematis

Site 18 as a whole

Risk	Wild indigenous species
E	*Comesperma volubile*, Love Creeper (2002)
C	***Coprosma hirtella*, Rough Coprosma (2002)**
V	*Coprosma quadrifida*, Prickly Currant-bush
C	*Coronidium scorpioides*, Button Everlasting (2002)
C	*Correa reflexa* var. *reflexa*, Common Correa
V	*Crassula helmsii*, Swamp Crassula (2009)
E	***Cryptostylis leptochila*, Small Tongue-orchid**
C	***Cyperus lucidus*, Leafy Flat-sedge**
E	*Desmodium gunnii*, Southern Tick-trefoil
	Deyeuxia quadriseta, Reed Bent-grass
C	***Deyeuxia rodwayi*, Tasman Bent-grass** (2002)
	Dianella revoluta, Black-anther Flax-lily (1997)
	Dianella tasmanica, Tasman Flax-lily
	Dichelachne rara, Common Plume-grass (2002)
	Dichondra repens, Kidney-weed
E	*Dipodium roseum*, Rosy Hyacinth-orchid
V	*Drosera auriculata*, Tall Sundew (2002)
E	*Echinopogon ovatus*, Common Hedgehog-grass (1997)
C	*Epacris impressa*, Common Heath
V	*Epilobium billardiereanum* subsp. *cinereum*, Variable Willow-herb (1997)
	Epilobium cf. *billardiereanum* subsp. *intermedium*, a willow-herb
	Epilobium hirtigerum, Hairy Willow-herb
C	***Eucalyptus baxteri*, Brown Stringybark**
E	*Eucalyptus cephalocarpa*, Mealy Stringybark (2002)
V	*Eucalyptus cypellocarpa*, Mountain Grey Gum
V	*Eucalyptus goniocalyx*, Bundy
C	*Eucalyptus macrorhyncha*, Red Stringybark
E	*Eucalyptus melliodora*, Yellow Box (1997)
E	*Eucalyptus obliqua*, Messmate Stringybark
V	*Eucalyptus ovata*, Swamp Gum (1997)
E	*Eucalyptus radiata*, Narrow-leaved Peppermint
C	*Eucalyptus viminalis* subsp. *viminalis*, Manna Gum
E	*Euchiton involucratus*, Common Cudweed
	Euchiton japonicus, Creeping Cudweed
V	*Exocarpos cupressiformis*, Cherry Ballart
E	*Exocarpos strictus*, Pale-fruit Ballart (2002)
C	*Gahnia radula*, Thatch Saw-sedge
E	*Gahnia sieberiana*, Red-fruit Saw-sedge
E	*Galium gaudichaudii*, Rough Bedstraw (2002)
E	*Galium leiocarpum*, Maori Bedstraw (2002)
C	*Gastrodia sesamoides*, Cinnamon Bells (2002)
	Geranium homeanum, Rainforest Crane's-bill
E	*Geranium potentilloides*, Soft Crane's-bill (2002)
V	*Geranium* sp. 2, Variable Crane's-bill
E	*Glycine clandestina*, Twining Glycine

Site 18 as a whole

Risk	Wild indigenous species
V	*Gonocarpus humilis*, Shade Raspwort
	Gonocarpus tetragynus, Common Raspwort
N	*Goodenia lanata*, Trailing Goodenia
	Goodenia ovata, Hop Goodenia
C	***Goodia lotifolia*, Common Golden-tip**
E	*Gynatrix pulchella*, Hemp Bush
E	***Hackelia latifolia*, Forest Hound's-tongue**
E	*Hardenbergia violacea*, Purple Coral-pea
C	*Hedycarya angustifolia*, Austral Mulberry
C	*Hovea heterophylla*, Common Hovea (2002)
E	***Hydrocotyle geraniifolia*, Forest Pennywort**
V	*Hydrocotyle hirta*, Hairy Pennywort
C	***Hydrocotyle tripartita*, Slender Pennywort**
E	*Hypericum gramineum*, Small St John's Wort
C	*Imperata cylindrica*, Blady Grass (2002)
	Isolepis inundata, Swamp Club-rush
C	*Isolepis marginata*, Little Club-rush
	Juncus amabilis, Hollow Rush
C	*Juncus fockei*, Slender Joint-leaf Rush
	Juncus gregiflorus, Green Rush
	Juncus pallidus, Pale Rush
E	*Juncus pauciflorus*, Loose-flower Rush
E	*Juncus procerus*, Tall Rush
	Juncus sarophorus, Broom Rush (1997)
E	*Juncus subsecundus*, Finger Rush (2002)
	Kunzea ericoides group, Burgan
C	***Lachnagrostis aemula*, Purplish Blown-grass** (1997)
	Lachnagrostis filiformis, Common Blown-grass (2002)
E	*Lagenophora adenosa/stipitata*, a bottle-daisy
V	*Lagenophora sublyrata*, Slender Bottle-daisy
	Lepidosperma elatius, Tall Sword-sedge
	Lepidosperma gunnii, Slender Sword-sedge (2002)
V	*Lepidosperma laterale*, Variable Sword-sedge
C	*Leptospermum continentale*, Prickly Tea-tree
	Leptospermum scoparium, Manuka (2002)
	Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush
	Lomandra filiformis subsp. *filiformis*, Wattle Mat-rush
	Lomandra longifolia, Spiny-headed Mat-rush
	Lomandra longifolia subsp. *exilis*, Cluster-headed Mat-rush
C	***Lomatia ilicifolia*, Holly Lomatia**
V	*Luzula meridionalis*, Common Woodrush (2002)
E	*Melaleuca ericifolia*, Swamp Paperbark
C	*Melaleuca squarrosa*, Scented Paperbark (2002)
	Microlaena stipoides, Weeping Grass
E	*Microtis* ?*unifolia*, Common Onion-orchid (2002)
C	*Muellerina eucalyptoides*, Creeping Mistletoe

Site 18 as a whole

Risk	Wild indigenous species
E	*Olearia argophylla*, Musk Daisy-bush
?	*Olearia* aff. *argophylla*
E	*Olearia lirata*, Snowy Daisy-bush
C	*Olearia myrsinoides*, Silky Daisy-bush
V	*Opercularia varia*, Variable Stinkweed (2002)
	Oxalis exilis/perennans, Wood-sorrel
V	*Ozothamnus ferrugineus*, Tree Everlasting
	Pandorea pandorana, Wonga Vine
	Persicaria decipiens, Slender Knotweed
C	*Pimelea axiflora*, Bootlace Bush
E	*Pimelea humilis*, Common Rice-flower (2002)
C	***Pittosporum bicolor*, Banyalla (1997)**
C	***Plantago debilis*, Shade Plantain**
E	*Plantago varia*, Variable Plantain (1997)
E	***Platylobium infecundum*, a flat-pea**
	Poa ensiformis, Sword Tussock-grass
	Poa morrisii, Soft Tussock-grass
E	*Poa tenera*, Slender Tussock-grass
V	*Polyscias sambucifolia*, Elderberry Panax
V	*Pomaderris aspera*, Hazel Pomaderris
	Poranthera microphylla, Small Poranthera
V	*Prostanthera lasianthos*, Victorian Christmas-bush
C	*Pterostylis alpina*, Mountain Greenhood (iNat 2023)
E	*Pterostylis melagramma*, Tall Greenhood (2002)
V	*Pultenaea gunnii*, Golden Bush-pea
C	*Pultenaea scabra*, Rough Bush-pea
E	*Rubus parvifolius*, Small-leaf Bramble
	Rytidosperma fulvum, Leafy Wallaby-grass (1997)
E	*Rytidosperma pallidum*, Red-anther (or Silvertop) Wallaby-grass
	Rytidosperma penicillatum, Slender Wallaby-grass (2002)
	Rytidosperma pilosum, Velvet Wallaby-grass (1997)
	Rytidosperma racemosum, Clustered Wallaby-grass
	Rytidosperma setaceum, Bristly Wallaby-grass (2002)
C	*Sambucus gaudichaudiana*, White Elderberry (2002)
	Schoenus apogon, Common Bog-rush
C	***Schoenus maschalinus*, Leafy Bog-rush**
V	*Senecio glomeratus*, Annual Fireweed
	Senecio hispidulus, Rough Fireweed
C	*Senecio linearifolius* var. *linearifolius*, Fireweed Groundsel
	Senecio minimus, Shrubby Fireweed (2002)
	Senecio phelleus/prenanthoides, Narrow Groundsel
V	*Senecio prenanthoides*, Common Fireweed
	Senecio quadridentatus, Cotton Fireweed

Site 18 as a whole

Risk	Wild indigenous species
V	*Sigesbeckia orientalis*, Indian Weed
C	*Solanum aviculare*, Kangaroo Apple
C	*Solanum prinophyllum*, Forest Nightshade (2002)
V	*Spyridium parvifolium*, Australian Dusty Miller
E	*Stackhousia monogyna/subterranea*, Candles
C	*Stellaria flaccida*, Forest Starwort
E	*Stylidium armeria*, Common Triggerplant
	Tetrarrhena juncea, Forest Wire-grass
C	*Tetratheca ciliata*, Pink-bells
X	***Thelymitra* ?*media*, Tall Sun-orchid** (1997)
E	*Thelymitra peniculata*, Trim Sun-orchid
	Thelymitra sp., a Sun-orchid (2002)
	Themeda triandra, Kangaroo Grass
E	*Thysanotus patersonii*, Twining Fringe-lily
	Typha domingensis, Cumbungi (2002)
C	*Urtica incisa*, Scrub Nettle (2002)
C	*Veronica calycina*, Hairy Speedwell (2002)
E	*Viola hederacea*, Ivy-leaf Violet
	Wahlenbergia gracilis, Sprawling Bluebell (2002)
E	*Wahlenbergia stricta*, Tall Bluebell (1997)
E	*Xanthorrhoea minor*, Small Grass-tree
V	*Xanthosia dissecta*, Cut-leaf Xanthosia (2002)

Site 18 as a whole –
Wild introduced species

Acacia elata, Cedar Wattle
Acer pseudoplatanus, Sycamore Maple
Agapanthus praecox, Agapanthus
Agrostis capillaris, Brown-top Bent
Allium triquetrum, Angled Onion
Anthoxanthum odoratum, Sweet Vernal-grass
Arundo donax, Giant Reed
Asparagus scandens, Asparagus Fern
Berberis darwinii, Darwin's Barberry
Billardiera fusiformis, Bluebell Creeper
Briza maxima, Large Quaking-grass
Callitriche stagnalis, Pond (or Common) Water-starwort
Cardamine flexuosa/hirsuta, a bitter-cress
Centaurium erythraea, Common Centaury
Cestrum elegans, Red Cestrum
Cirsium vulgare, Spear Thistle
Coprosma robusta, Karamu
Cortaderia selloana, Pampas Grass
Cotoneaster glaucophyllus, Cotoneaster
Cotoneaster pannosus, Cotoneaster
Cotoneaster simonsii, Himalayan Cotoneaster
Crataegus monogyna, Hawthorn
Crocosmia × *crocosmiiflora*, Montbretia
Cyperus eragrostis, Drain Flat-sedge
Cytisus scoparius, English Broom

Site 18 as a whole –
Wild introduced species

Dactylis glomerata, Cocksfoot
Delairea odorata, Cape Ivy
Ehrharta erecta, Panic Veldt-grass
Erica lusitanica, Spanish Heath
Erigeron karvinskianus, Seaside Daisy
Erigeron sumatrensis, Fleabane
Freesia leichtlinii, Freesia
Galium aparine, Cleavers
Genista linifolia, Flax-leafed Broom
Genista monspessulana, Montpellier Broom
Hedera helix/hibernica, Ivy
Helminthotheca echioides, Ox-tongue
Holcus lanatus, Yorkshire Fog
Hypericum androsaemum, Tutsan
Hypericum tetrapterum, Square-stem St John's Wort
Hypochaeris radicata, Cat's Ear
Ilex aquifolium, Holly
Jasminum polyanthum, Pink (or Winter) Jasmine
Leycesteria formosa, Himalayan Honeysuckle
Ligustrum lucidum, Large-leafed Privet
Lilium formosanum, Lily
Lonicera japonica, Japanese Honeysuckle
Mentha sp., Mint
Myosotis sylvatica, Wood Forget-me-not

Site 18 as a whole –
Wild introduced species

Oxalis incarnata, Pale Wood-sorrel
Passiflora tarminiana, Banana Passionfruit
Pinus radiata, Monterey Pine
Pittosporum undulatum, Sweet Pittosporum
Plantago lanceolata, Ribwort
Potentilla indica, Indian Strawberry
Prunella vulgaris, Self-heal
Prunus cerasifera, Cherry-plum
Ranunculus repens, Creeping Buttercup
Rubus anglocandicans, Blackberry
Salix sp., unidentified willow
Selaginella kraussiana, Garden Selaginella
Senecio jacobaea, Ragwort
Sisyrinchium micranthum, Blue Pigroot
Solanum mauritianum, Tobacco-bush
Solanum nigrum, Black Nightshade
Sonchus oleraceus, Sow-thistle
Taraxacum sect. *Taraxacum*, Garden Dandelion
Tradescantia fluminensis, Wandering Trad
Ulex europaeus, Gorse (Furze)
Vicia ?*hirsuta*, Tiny Vetch
Vicia sativa, Common Vetch
Vinca major, Blue Periwinkle
Zantedeschia aethiopica, White Arum Lily

Basin-Olinda Rd, southern verge (130–212)

Risk	Wild indigenous species
	Fern species
V	*Adiantum aethiopicum*, Common Maidenhair
V	*Calochlaena dubia*, Common Ground-fern
C	*Cyathea australis*, Rough Tree-fern
	Pteridium esculentum, Austral Bracken
	Flowering species
V	*Acacia melanoxylon*, Blackwood
E	***Acacia mucronata*, Variable Sallow Wattle**
E	*Acacia myrtifolia*, Myrtle Wattle
E	*Acacia stricta*, Hop Wattle
V	*Acacia verticillata*, Prickly Moses
V	*Acrotriche prostrata*, Trailing Ground-berry
	Billardiera mutabilis, Common Apple-berry
	Bursaria spinosa, Sweet Bursaria
	Cassinia aculeata, Common Cassinia
V	*Clematis aristata*, Mountain Clematis
V	*Coprosma quadrifida*, Prickly Currant-bush
E	***Cryptostylis leptochila*, Small Tongue-orchid**
	Dianella tasmanica, Tasman Flax-lily
	***Eucalyptus baxteri*, Brown Stringybark**
V	*Eucalyptus cypellocarpa*, Mountain Grey Gum
E	*Eucalyptus obliqua*, Messmate Stringybark
E	*Eucalyptus radiata*, Narrow-leaved Peppermint

Basin-Olinda Rd, southern verge (130–212)

Risk	Wild indigenous species
V	*Exocarpos cupressiformis*, Cherry Ballart
C	*Gahnia radula*, Thatch Saw-sedge
	Gonocarpus tetragynus, Common Raspwort
	Goodenia ovata, Hop Goodenia
C	*Leptospermum continentale*, Prickly Tea-tree
	Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush
	Lomandra longifolia subsp. *exilis*, Cluster-headed Mat-rush
	Microlaena stipoides, Weeping Grass
E	*Olearia lirata*, Snowy Daisy-bush
	Oxalis exilis/perennans, Wood-sorrel
V	*Ozothamnus ferrugineus*, Tree Everlasting
	Pandorea pandorana, Wonga Vine
E	***Platylobium infecundum*, a flat-pea**
	Poa ensiformis, Sword Tussock-grass
	Poa morrisii, Soft Tussock-grass
V	*Polyscias sambucifolia*, Elderberry Panax
C	*Pultenaea scabra*, Rough Bush-pea
E	*Rubus parvifolius*, Small-leaf Bramble
E	*Rytidosperma pallidum*, Red-anther (or Silvertop) Wallaby-grass
V	*Senecio prenanthoides*, Common Fireweed
V	*Spyridium parvifolium*, Australian Dusty Miller

Basin-Olinda Rd, southern verge (130–212)

Risk	Wild indigenous species
	Tetrarrhena juncea, Forest Wire-grass
E	*Thysanotus patersonii*, Twining Fringe-lily

Basin-Olinda Rd, southern verge (130–212)

Risk	Wild indigenous species
E	*Viola hederacea*, Ivy-leaf Violet
E	*Xanthorrhoea minor*, Small Grass-tree

Doongalla Rd, southern verge (9B–33)

Risk	Indigenous species
	Wild species
	Acacia dealbata, Silver Wattle
V	*Acacia melanoxylon*, Blackwood
E	*Acacia mucronata*, Variable Sallow Wattle
E	*Acacia stricta*, Hop Wattle
	Acaena novae-zelandiae, Bidgee-widgee
V	*Acrotriche prostrata*, Trailing Ground-berry
E	*Acrotriche serrulata*, Honey-pots
	Austrostipa rudis subsp. *rudis*, Veined Spear-grass
	Billardiera mutabilis, Common Apple-berry
	Bursaria spinosa, Sweet Bursaria
V	*Caesia parviflora*, Pale Grass-lily
	Carex breviculmis, Short-stem Sedge
V	*Clematis aristata*, Mountain Clematis
V	*Coprosma quadrifida*, Prickly Currant-bush
	Dianella tasmanica, Tasman Flax-lily
C	*Epacris impressa*, Common Heath
	Epilobium cf. *billardiereanum* subsp. *intermedium*, a willow-herb
V	*Eucalyptus cypellocarpa*, Mountain Grey Gum
V	*Eucalyptus goniocalyx*, Bundy
E	*Eucalyptus obliqua*, Messmate Stringybark
E	*Eucalyptus radiata*, Narrow-leaved Peppermint
	Euchiton japonicus, Creeping Cudweed
V	*Exocarpos cupressiformis*, Cherry Ballart
C	*Gahnia radula*, Thatch Saw-sedge
V	*Geranium* ?sp. 2, Variable Crane's-bill
	Gonocarpus tetragynus, Common Raspwort
N	*Goodenia lanata*, Trailing Goodenia
	Goodenia ovata, Hop Goodenia
E	*Hypericum gramineum*, Small St John's Wort
	Juncus amabilis, Hollow Rush
C	*Juncus fockei*, Slender Joint-leaf Rush
	Juncus gregiflorus, Green Rush
	Juncus pallidus, Pale Rush
	Kunzea ericoides group, Burgan
	Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush
	Lomandra filiformis subsp. *filiformis*, Wattle Mat-rush

Doongalla Rd, southern verge (9B–33)

Risk	Indigenous species
	Lomandra longifolia subsp. *exilis*, Cluster-headed Mat-rush
E	*Melaleuca ericifolia*, Swamp Paperbark
	Microlaena stipoides, Weeping Grass
E	*Olearia lirata*, Snowy Daisy-bush
C	*Olearia myrsinoides*, Silky Daisy-bush
	Oxalis exilis/perennans, Wood-sorrel
V	*Ozothamnus ferrugineus*, Tree Everlasting
	Pandorea pandorana, Wonga Vine
E	***Platylobium infecundum*, a flat-pea**
	Poa ensiformis, Sword Tussock-grass
	Poa morrisii, Soft Tussock-grass
V	*Polyscias sambucifolia*, Elderberry Panax
	Poranthera microphylla, Small Poranthera
V	*Prostanthera lasianthos*, Victorian Christmas-bush
	Pteridium esculentum, Austral Bracken
V	*Pultenaea gunnii*, Golden Bush-pea
E	*Rytidosperma pallidum*, Red-anther (or Silvertop) Wallaby-grass
	Rytidosperma racemosum, Clustered Wallaby-grass
	Schoenus apogon, Common Bog-rush
	Senecio hispidulus, Rough Fireweed
V	*Senecio prenanthoides*, Common Fireweed
	Senecio quadridentatus, Cotton Fireweed
	Tetrarrhena juncea, Forest Wire-grass
E	*Thelymitra peniculata*, Trim Sun-orchid
	Themeda triandra, Kangaroo Grass
E	*Xanthorrhoea minor*, Small Grass-tree
	Planted species
	Dianella longifolia var. *longifolia*, Pale Flax-lily
E	*Eucalyptus melliodora*, Yellow Box
E	*Gahnia sieberiana*, Red-fruit Saw-sedge
	Goodenia ovata, Hop Goodenia
C	*Hakea nodosa*, Yellow Hakea
	Lomandra longifolia subsp. *longifolia*, Spiny-headed Mat-rush
	Olearia ramulosa, Twiggy Daisy-bush
V	*Ozothamnus ferrugineus*, Tree Everlasting
E	*Pomaderris lanigera*, Woolly Pomaderris
C	*Viminaria juncea*, Golden Spray

Notes concerning some of the plant species

Blechnum nudum (Fishbone Water-fern) and Leafy Bog-rush (*Schoenus maschalinus*) – The majority of Knox's known plants of these two species grow at the boggy source of Dobson Creek on private land at Knox's eastern extremity. Roughly 500 *Blechnum nudum* were seen in 2024 – the dominant groundcover.

Melaleuca squarrosa (Scented Paperbark) – The dominant species in a small patch of Shrubby Gully Forest on the Fernbrook School property in 2002, now apparently locally extinct in Knox due to the Millennium Drought.

Olearia aff. *argophylla* (a daisy-bush) – One or two plants found by the author more than twenty years ago may belong to a rare, undescribed taxon related to *Olearia argophylla* but distinguished by the smaller stature, drier habitat and different chemical composition of its leaves (as determined by flavonoid analysis of plants from 1½ km to the northeast).

Platylobium infecundum (a flat-pea) – Critically endangered globally; abundant and widespread within this site.

Senecio linearifolius var. *linearifolius* (Fireweed Groundsel) – The author found five plants in 2024 on the road verge beside 228 Basin-Olinda Rd, Sassafras. Others may have escaped detection. There are no other records of the species in Knox for over twenty years.

Fauna of special significance

Listed as Critically Endangered under Victorian law

Dandenong Freshwater Amphipod – Detected by stream ecologists from the Arthur Rylah Institute in 1995 and 1999 near the confluence of Hughes Ck and Dobson Ck. There is no publicly-available information to indicate that there has been any survey for the species in the catchment since 1999 or anywhere else since 2014.

Listed as Endangered under Commonwealth and Victorian law

Mountain Skink (*Liopholis montana*) – A 2020 photograph of a single individual at a residence is on iNaturalist, providing a reliable indication that the species was actually present there. Herpetologist Jules Farquhar accepts the record as indicating that the previously-accepted geographic range, elevation range and habitat for the species have to be significantly enlarged to include the occurrence in Site 18.

Greater Glider (*Petauroides volans*) – Brenna Thomson found a dead animal on Basin-Olinda Rd 170 m outside Knox's eastern extremity in 2023. There are no records of the species within Knox but it seems likely that individuals occur within Site 18, at least occasionally.

Listed as Endangered internationally and under Victorian law

Alpine Spiny Cray (*Euastacus crassus*) – There is a 1991 specimen of this species at the Queensland Museum, mapped in the Atlas of Living Australia in the Grumont Rd area but with coordinates randomised within a radius of 1 km from the actual coordinates. The lack of a more recent record could easily be due to the lack of surveys, which are hard to do for crays.

Listed as Vulnerable under Commonwealth and Victorian law

Yellow-bellied Glider (*Petaurus australis*) – Seen beside Basin-Olinda Rd by Jason Groves in 2023.

Listed as Vulnerable under Victorian law

Powerful Owl (*Ninox strenua*) – The comparatively large population of this species in the Dandenong Ranges uses this site as part of their habitat, for feeding and roosting.

Platypus (*Ornithorhynchus anatinus*) – Trapped and released in this site in Dobson Ck in 2002 (Williams 2002) but subsequent trapping in the upper Dandenong Creek catchment has failed to detect any Platypus.

Other species rare in Knox

The following locally-rare species are likely to be resident or regularly present in the site:

Spotted Skipper or Spotted Sedge-skipper (*Hesperilla ornata*) – Recorded most recently in 2020.
Banks Brown butterfly (*Heteronympha banksii*) – Recorded most recently in 2021.
Shouldered Brown (*Heteronympha penelope*) – Recorded most recently in 2024.

The site is probably also visited by other significant fauna such as Koala or Tree Goanna but there has been too little investigation to provide evidence.

Fauna habitat features

The comparatively large areas of mature, high quality native vegetation, contiguous with the Dandenong Ranges National Park, represent good habitat for many forest species, including gliders, other possums, bats, forest birds, reptiles and insects.

Waterbirds use the dams within the site and probably the streams. Frogs also use the dams.

Dobson Creek provides known habitat for Water Rat, Broadfin Galaxias and Shortfin Eel (and Platypus up to at least 2004). Other native fish may exist, undetected. Aquatic invertebrates are also present (see the reference to the Dandenong Freshwater Amphipod above).

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 and Viability

Criterion 1.1.1 attributes **Local** significance to 'All parts of riparian systems with riparian vegetation present', which applies to sections of the streams in Site 18.

Criterion 1.1.2 attributes **Local** significance to 'Areas of 100 ha or more of contiguous native vegetation in a heavily fragmented landscape'. That applies to the majority of the native vegetation in Site 18, being contiguous with the Dandenong Ranges National Park.

Vegetation Type and Condition

According to the criteria of *'Victoria's Native Vegetation Management – A Framework for Action'* (NRE 2002a), areas of native vegetation belonging to a regionally Vulnerable EVC (such as the Grassy Forest in this site) have a conservation significance rating of High or Very High provided their ecological condition is at least fair (with a habitat score of at least 0.3). A large part of the Grassy Forest in this site is in better ecological condition than this, thereby qualifying as **State** significance under criterion 3.2.3. Areas of Grassy Forest with a habitat score below 0.3 are of **Regional** significance under the same criterion.

The site's tiny, heavily modified area of the regionally Endangered Swampy Woodland is smaller than 0.25 ha and therefore too small to qualify as a 'remnant patch' in the terms of criterion 3.2.3.

The other EVCs in the site are classified as 'Least Concern' by the Department of Energy, Environment and Climate Action. The highest quality patches of them (with habitat scores of at least 0.6) meet criterion 3.2.3 for **Regional** significance; lower quality patches represent **Local** significance.

Threatened Plants

The flat-pea, *Platylobium infecundum*, is abundant in Site 18 – sometimes a co-dominant groundcover. 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* qualifies for **National** significance under criterion 3.1.2.

The site contains a modest number of the Dandenong Range Cinnamon Wattle (*Acacia stictophylla*) and more will probably germinate from seed in the soil when conditions are right. That species is listed as 'Endangered' in Victoria and it does not occur outside Victoria. As a result, the habitat provided for the species qualifies for **National** significance under criterion 3.1.2.

Neither *Platylobium infecundum* or *Acacia stictophylla* had 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.

The site's less abundant species include an *Olearia* which may belong to a rare, undescribed taxon related to *Olearia argophylla* but distinguished by the smaller stature, drier habitat and different chemical composition of its leaves (as determined by flavonoid analysis of plants from 1½ km to the northeast). This would be of State significance if the identity is confirmed.

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

Threatened Fauna

As discussed above in the section headed 'Fauna of special significance', Site 18 is known habitat for the globally-threatened species, Dandenong Freshwater Amphipod and Mountain Skink. The habitat that the site provides is of **National** significance, under criterion 3.1.1 in the former case and 3.1.2 in the latter case.

The Alpine Spiny Cray is recognised internationally (in the IUCN Red List) as Endangered. However, no-one has nominated it for a listing under the federal *Environment Protection and Biodiversity Conservation Act*. (Invertebrates do not get as much attention as vertebrates.) An odd quirk of Amos's (2004) standard criteria for sites of biological significance is that habitat of a globally Endangered or Critically Endangered species is given lower status if listed internationally than if listed under the Australian Commonwealth Act. Criterion 3.1.2 classifies habitat for the Alpine Spiny Cray as **State** significance.

The Yellow-bellied Glider is listed as vulnerable under Commonwealth and Victorian law. It was observed in 2007 and 2023 well inside Site 18, strongly suggesting that there is suitable habitat in the site (though unlikely to be an 'important site' in the terms of the standard criteria). Because the species is listed as Vulnerable under Commonwealth law, the known habitat in Site 18 meets criterion 3.1.1 for **State** significance.

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

Threats

- Human-induced climate change, which is predicted to cause more severe droughts, heatwaves, floods, fires and storms, as well as substantially lower rainfall (particularly in winter);
- Displacement of indigenous flora and fauna by environmental weeds such as Sweet Pittosporum, Karamu, English Broom, Montpellier Broom, Blackberry, Arum Lily, Sweet Vernal-grass, Ivy, Japanese Honeysuckle, Wandering Trad and Garden Selaginella;
- Damage to vegetation, fauna habitat and stream banks by deer, whose numbers are rapidly increasing;
- Loss or decline of plant species that are present in such precariously small numbers that they are vulnerable to inbreeding, poor reproductive success or vulnerability to the threats above or localised chance events such as being struck by a falling tree limb;
- Ongoing subdivision and residential development, resulting in loss of habitat and increased need for environmentally-damaging fire prevention work;
- Potential demands for increased fire prevention measures, arising from climate change and consequent increases in climatic fire risk;
- Stream pollution from fertiliser, manure, unsewered properties, gravel roads and poorly-vegetated ground.

Management

- There is plenty of scope for most landowners to improve their control of environmental weeds, particularly Sweet Pittosporum, Ivy and those species that they are legally required to control under the *Catchment and Land Protection Act*;
- The site's streams are of very high biological significance but are treated poorly by the occupants of some of the land through which the streams flow. Those occupants are unlikely to be aware of how significant their streams are, or the on-site and downstream impacts their actions are causing. The most serious actions include the suppression or removal of vegetation on the banks, the discharge or seepage of nutrients or sediment into the streams, and failure to sensitively control the environmental weeds listed above as threats. An awareness campaign by Knox City Council and Melbourne Water may help to reduce these problems;
- Basin-Olinda Rd discharges significant amounts of sediment into the streams, and roadworks have been creating ideal conditions for proliferation of environmental weeds. Knox City Council could seek more sensitive management of the road, e.g. installation of sediment traps, minimisation of vegetation destruction and weed control following roadworks that stimulate proliferation of weeds;
- The reaches of Hughes Creek in Knox and the national park are suffering from pollution and environmental weeds emanating from the Sassafras township. Dealing with this problem would ideally involve cooperative action by the two councils, Melbourne Water, Parks Victoria, the Friends of Hughes Creek and people who live in the upper catchment.

Strategic planning

- The previous (2010) edition of this report led to its slightly different version of Site 18 being covered by Schedule 2 of the Environmental Significance Overlay (ESO2). The reasons cited for applying ESO2 were the potential for ongoing subdivision and the known features of biological significance. Some of those features have now risen from State significance to National significance, and some additional matters of National and State significance have come to light (see above). Despite those changes, ESO2 remains an appropriate protective instrument for the slightly revised version of Site 18 delineated on the aerial photograph on p. 129. While not urgent, it is recommended to adjust the boundary between ESO2 and ESO3 to match this new version of Site 18, the main change being to 70 Sheffield Rd, The Basin;
- Many of the private lots within this site are all smaller than 0.4 ha and therefore exempt from the state-wide baseline planning controls over removal of native vegetation (clause 52.17). That exemption does not apply to the rest of the site;
- The whole site is covered by Schedule 4 of the Significant Landscape Overlay (SLO4) and the Bushfire Management Overlay (BMO);
- The site is outside the Urban Growth Boundary and is zoned Rural Conservation Zone - Schedule 1 (RCZ1) except for the road reservation of Basin-Olinda Rd, which is zoned Transport Zone 2 – Principal Road Network (TRZ2).

Information sources used in this assessment

- Vegetation field data and mapping along many roads in the site, gathered by Dr Lorimer in spring 1997, as described in 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.);
- Several days of site survey undertaken by Dr Lorimer between July and December 2002 for the first edition of this report. For at least part of each patch of each vegetation type, the survey included descriptions of the vegetation composition, compilation of a list of indigenous and introduced plant species, incidental fauna observations and checks for fauna habitat, ecological threats and management issues;
- From the two studies just mentioned, a total of 38 lists of plant species were compiled, each with descriptions of dominant species and other information about vegetation composition;
- Spotlighting observations by Dr Lorimer for approximately one hour on the night of 10th July 2002, including unsuccessful attempts to lure owls by playing taped owl calls;
- *'Distribution of Platypus along Upper Dandenong and Dobson Creeks. Results of Live Trapping Surveys, October 2001 - February 2002*', a report by G.A. Williams of the Australian Platypus Conservancy to Knox City Council, April 2002.
- The Action Statement for the Dandenong Freshwater Amphipod (last updated in 2000);
- Discussions with invertebrate expert, Nick Papas, in 2002 about the population of Dandenong Freshwater Amphipod;
- Subsequent scientific papers about the amphipod, e.g. this from 2004, this from 2007 and this from 2016;
- Detailed vegetation surveys by Dr Lorimer in 2023–2024 along the roads through the site, at the Crown land reserve, along the boundary with the national park and on 141 Basin-Olinda Rd;
- Records of flora and fauna observations stored in the Atlas of Living Australia and iNaturalist;
- Discussions with Jason Groves and Brenna Thomson about their recent observations of Greater Glider, Yellow-bellied Glider and other fauna;
- The Victorian Government's 'NatureKit' website;
- Aerial and satellite imagery from between 1946 and 2024;
- A map of EVCs within the adjoining Dandenong Ranges National Park prepared by Doug Frood for Parks Victoria in 2002;
- Maps of geology, topography and strategic planning information produced by agencies of the Victorian Government.

Acknowledgment

Thank you to the owners of 141 Basin-0linda Rd for permission to survey their land.