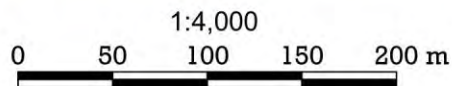
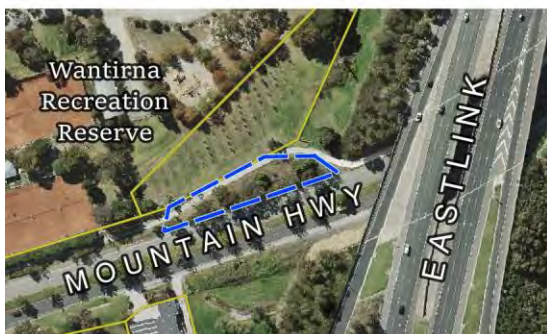


Site 91. Mountain Hwy Roadside, Wantirna

Four sections of road verge, mostly with remnant vegetation.

Summary of significant features:

- **State significance:** a population of the spear-grass, *Austrostipa rudis* subspecies *australis*, which is listed as Endangered under Victorian law;
- **Locally significant:** viable populations of some plant species that are threatened with dying out in Knox;
- A linear oasis of native vegetation in a neighbourhood where native vegetation is scarce;
- Remnants and regrowth of the endangered Ecological Vegetation Class, Valley Heathy Forest.



Legend	
	Site 91
	Site 54
	Site 55
	Properties

Site 91 is outlined with blue dashes. The bottom-left corner of the panel above is 390 m northeast of the top-right corner of the panel at left.

Boundaries

This site has four sections, outlined with blue dashes on the aerial photographs above, totalling 2.32 ha. Except for the section west of EastLink, the edges closest to the road surface are either title boundaries or the road gutter (but not enclosing any part of a gutter that is subject to periodic grading).

The following changes have been made to the boundaries since the previous (2010) edition of this report:

- The site's segment west of the EastLink overpass has been reduced by about one-third due to clearing;
- 187 Harold St has been excised due to remnant vegetation being replaced by a house and garden; and
- Land abutting 13-19 Minkell Ct has been added because it has been reserved and revegetated.

The site had been substantially reduced in area between the 2004 and 2010 editions due to clearing for EastLink.

Land use & tenure: Verges of a primary road.

Site description

This site is situated on the western flank of the low ridge created by the geological 'Melbourne formation' of Upper Silurian sedimentary rock (formerly known as the Dargile formation). The site's southwestern extremity, near Burwood Hwy, is at the foot of the ridge with an elevation of approximately 73 m, and Mountain Hwy rises gradually to an elevation of 122 m at the site's northeastern end, near the top of the ridge. The natural slope is typically 4% to 5% and the road adjacent to the site is mostly at or slightly below the natural ground level.

The soil is poorly draining, pale clay loam over clay subsoil. The topsoil is mostly shallow but the presence of an area dominated by Yellow Box (*Eucalyptus melliodora*) suggests that the topsoil there may be deeper.

On the southeastern side of Mountain Hwy, the vegetation southeast of the footpath almost entirely comprises lawn and planted trees, the older trees being 'Australian natives' and the younger ones, locally indigenous. For a distance of 210 m northeast of Barmah Drive, there is no remnant vegetation; just planted trees over lawn. That section is included in the site in recognition that it probably helps keep native birds and flying insects in the adjacent residential area and perhaps Wantirna Primary School.

Nearly all the rest of the site has remnant vegetation with remnant understorey that varies from vestigial (northeast of Harold St) to dense cover. The vegetation's ecological condition is mostly fair (rating C). A fifty-metre-long strip southwest from Harold St is dominated by Yellow Box (*Eucalyptus melliodora*). The remainder is dominated by either Mealy Stringybark (*Eucalyptus cephalocarpa*) or a mixture of Red Stringybark (*Eucalyptus macrorhyncha*), Bundy (*Eucalyptus gonicalyx*) and Narrow-leafed Peppermint (*Eucalyptus radiata*). Large, planted pines are intermingled with the remnant vegetation on the southeastern side of the highway.

The native vegetation all belongs to the regionally-endangered Ecological Vegetation Class (EVC), Valley Heathy Forest. (There was also a patch of another endangered EVC – Swampy Woodland – abutting Wantirna Recreation Reserve tennis courts but it is omitted from the site in this edition due to clearing.) Knox City Council has planted many locally-indigenous plants in the section of the site to the southwest of Petalnina Drive, increasing the diversity and extent of native vegetation. That section and the section west of EastLink contain populations of the spear-grass, *Austrostipa rudis* subspecies *australis*, which is listed as Endangered under Victorian law. (The spear-grass may also be on the other side of the road, escaping detection during this study's site survey on 24th August 2024 due to low numbers and the very adverse time of year for detecting it.)

Until the 1990s, the stretch of Mountain Hwy from Wantirna Recreation Reserve to the northeast end of Site 91 had some of the highest quality roadside vegetation in Knox, with a spectacle of wildflowers in spring. Widening of Mountain Hwy damaged much of the vegetation badly, partly due to necessary removal and mostly due to lack of care. Much of the native groundcover left today has regenerated after being flattened or destroyed during or soon after the road widening.

Destruction of the native vegetation did not cease with the road widening in the 1990s. In 2003, a section of the highest quality native vegetation remaining at that time was destroyed in association with subdivision of the residential estate at 105 Mountain Hwy, on the northwestern roadside immediately east of what is now EastLink. That section was therefore omitted from the site in the 2010 edition of this report, as were substantial areas on both sides of the highway due to clearing in 2005–6 for the EastLink overpass. The small amount of remaining native vegetation west of EastLink has been reduced by a further one-third since 2010.

Relationship to other land

The native vegetation in this site near Petalnina Drive and Harold St supplements the native habitat in Stringybark Reserve (Site 54). Birds and flying insects would also be able to cross to the larger and more intact habitat at W.G. Morris Reserve (Site 55), 260 m away. It seems unlikely that the site functions as a habitat corridor other than for urban-adapted native birds (e.g. rosellas) and flying insects (including pollinators).

Bioregion: Gippsland Plain

Habitat types

Valley Heathy Forest (EVC 127, **Endangered):** The segment on the northwestern side near EastLink contains 0.11 ha of native vegetation, almost all in fair ecological condition (rating C). The remainder of the site is estimated to contain 0.4 ha of native vegetation with native understorey (ecological condition rating C) and roughly 1ha of remnant eucalypt crowns with predominantly introduced grass beneath.

Canopy trees: Dominated variously by *Eucalyptus cephalocarpa*, *E. goniocalyx*, *E. macrorhyncha* and *E. radiata*. *Eucalyptus obliqua* is scarce.

Sub-canopy trees: Dominated by *Exocarpos cupressiformis*, with *Acacia melanoxylon* co-dominant in places.

Shrubs: Greatly depleted by past clearing except near Stringybark Reserve, where *Bursaria spinosa* and *Acacia paradoxa* are quite dense. *Goodenia ovata* and *Kunzea leptospermoides* have apparently secure numbers but other shrub species are scarce. Among them is the ecologically-informative species, *Platylobium obtusangulum* and formerly *Hibbertia australis*.

Vines: The light twiners, *Billardiera mutabilis* and *Comesperma volubile* are scarce.

Ferns: *Pteridium esculentum* is present west of EastLink.

Groundcover: Dominated variously by *Gahnia radula*, *Themeda triandra*, *Microlaena stipoides*, *Austrostipa rudis* or *Rytidosperma racemosum*. There are also substantial patches dominated by *Dianella revoluta* or (in 2002) the Critically Endangered *Platylobium infecundum*. *Rytidosperma pallidum* and *Poa morrisii* are present in less degraded areas. Other species that are abundant in numbers but not dominant in foliage cover include *Rytidosperma fulvum*, *Gonocarpus tetragynus*, *Lomandra filiformis*, *Lomandra longifolia* and *Schoenus apogon*. The characteristic species, *Tricoryne elatior*, is present but not abundant.

Plant species

The author has seen the following plant species growing wild within the site's native vegetation during surveys in September 2002, March 2008 or August 2024. Additional species would probably be detectable in other seasons. Asterisks indicate species only seen in areas that have been excised from Site 91 in this edition due to clearing. Indigenous species that were not seen in the author's survey on 24th August 2024 are indicated by superscripts showing the year of his most recent record. The column headed 'Risk' indicates the indigenous species' risk of dying out in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; and 'V'=Vulnerable. In addition, *Eucalyptus yarraensis* and *Platylobium infecundum* are critically endangered globally and *Austrostipa rudis* subsp. *australis* is listed as endangered in Victoria.

Indigenous mosses and liverworts	Risk	Wild indigenous vascular species
<i>Chiloscyphus semiteres</i> , Green Worms	V	<i>Allocasuarina littoralis</i> , Black Sheoak (wild and planted)
<i>Breutelia affinis</i> , Common Breutelia	C	<i>Amyema pendula</i> , Drooping Mistletoe ²⁰⁰²
<i>Campylopus introflexus</i> , Heath Star Moss		<i>Arthropodium strictum</i> , Chocolate Lily ²⁰⁰⁸
<i>Hypnum cupressiforme</i> , Common Hypnum		<i>Austrostipa pubinodis</i> , Tall Spear-grass ²⁰⁰²
<i>Rosulabryum billardieri</i> , Common Thread-moss	V	<i>Austrostipa rudis</i> subsp. <i>australis</i> , Veined Spear-grass
		<i>Austrostipa rudis</i> subsp. <i>rudis</i> , Veined Spear-grass
		<i>Billardiera mutabilis</i> , Common Apple-berry
		<i>Bursaria spinosa</i> , Sweet Bursaria
		<i>Carex ?breviculmis</i> , Short-stem Sedge ²⁰⁰²
		<i>Cassinia longifolia</i> , Shiny Cassinia ²⁰⁰⁸
		<i>Clematis decipiens</i> , a small-leaved clematis
	E	<i>Comesperma volubile</i> , Love Creeper
Risk	Wild indigenous vascular species	
		<i>Acacia dealbata</i> , Silver Wattle
V		<i>Acacia mearnsii</i> , Black Wattle
V		<i>Acacia melanoxylon</i> , Blackwood (wild and planted)
		<i>Acacia paradoxa</i> , Hedge Wattle
		<i>Acaena novae-zelandiae</i> , Bidgee-widgee ²⁰⁰²
E		<i>Acrotriche serrulata</i> , Honey-pots

Risk Wild indigenous vascular species

- V *Coprosma quadrifida*, Prickly Currant-bush
 C *Daviesia latifolia*, Hop Bitter-pea²⁰⁰⁸
Dianella longifolia, Pale Flax-lily (descended from plantings)
Dianella revoluta, Black-anther Flax-lily
 V *Dillwynia cinerascens*, Grey Parrot-pea²⁰⁰²
 C *Epacris impressa*, Common Heath²⁰⁰²
Epilobium ?hirtigerum, Hairy Willow-herb²⁰⁰²
Eucalyptus × *brevirostris*, a hybrid eucalypt
 E *Eucalyptus cephalocarpa*, Mealy Stringybark
 E *Eucalyptus cephalocarpa* × *ovata*, hybrid euc.
 V *Eucalyptus goniocalyx*, Bundy
 C *Eucalyptus macrorhyncha*, Red Stringybark
 E *Eucalyptus melliodora*, Yellow Box
 E *Eucalyptus obliqua*, Messmate Stringybark
 V *Eucalyptus ovata*, Swamp Gum
 E *Eucalyptus radiata*, Narrow-leaved Peppermint
 C *Eucalyptus yarraensis*, Yarra Gum^{2007*}
 V *Exocarpos cupressiformis*, Cherry Ballart
 C *Gahnia radula*, Thatch Saw-sedge
Gonocarpus tetragynus, Common Raspwort
Goodenia ovata, Hop Goodenia
 E *Hardenbergia violacea*, Purple Coral-pea
 V *Hemarthria uncinata*, Mat Grass²⁰⁰²
 C *Hibbertia australis*, Upright Guinea-flower*²⁰⁰²
Juncus amabilis, Hollow Rush
Juncus pallidus, Pale Rush
 E *Juncus subsecundus*, Finger Rush^{2008*}
Kunzea leptospermoides, Yarra Burgan
Lachnagrostis filiformis, Common Blown-grass^{2008*}
Lepidosperma gunnii, Slender Sword-sedge^{2008*}
 C *Leptorhynchus tenuifolius*, Wiry Buttons²⁰⁰²
 C *Leptospermum continentale*, Prickly Tea-tree
Leptospermum scoparium, Manuka
 E *Linum marginale*, Native Flax²⁰⁰⁸
Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush
Lomandra filiformis subsp. *filiformis*, Wattle Mat-rush
Lomandra longifolia subsp. *longifolia*, Spiny-headed Mat-rush (wild and planted)
 E *Melaleuca ericifolia*, Swamp Paperbark^{2008*}
Microlaena stipoides, Weeping Grass
 V *Microtis ?parviflora*, Slender Onion-orchid²⁰⁰²
 C *Muellerina eucalyptoides*, Creeping Mistletoe^{2002*}
 V *Opercularia ovata*, Broad-leaf Stinkweed²⁰⁰⁸
 V *Opercularia varia*, Variable Stinkweed²⁰⁰²
Oxalis exilis/perennans, Wood-sorrel
 V *Ozothamnus ferrugineus*, Tree Everlasting²⁰⁰²
 E *Pimelea humilis*, Common Rice-flower²⁰⁰⁸
 E *Platylobium infecundum*, a flat-pea*²⁰⁰²
 E *Platylobium obtusangulum*, Common Flat-pea

Risk Wild indigenous vascular species

- Poa morrisii*, Soft Tussock-grass
Poranthera microphylla, Small Poranthera
Pteridium esculentum, Austral Bracken
Rytidosperma fulvum, Leafy Wallaby-grass
 E *Rytidosperma pallidum*, Red-anther (or Silvertop) Wallaby-grass²⁰⁰²
Rytidosperma penicillatum, Slender Wallaby-grass²⁰⁰²
Rytidosperma pilosum, Velvet Wallaby-grass²⁰⁰²
Rytidosperma racemosum, Clustered Wallaby-grass
Rytidosperma setaceum, Bristly Wallaby-grass²⁰⁰⁸
Rytidosperma tenuius, Purplish Wallaby-grass
Schoenus apogon, Common Bog-rush²⁰⁰²
 V *Senecio glomeratus*, Annual Fireweed²⁰⁰²
Senecio hispidulus, Rough Fireweed
Senecio quadridentatus, Cotton Fireweed
 E *Thelymitra ?peniculata*, Trim Sun-orchid²⁰⁰²
Themeda triandra, Kangaroo Grass
Tricoryne elatior, Yellow Rush-lily
 V *Veronica gracilis*, Slender Speedwell

Introduced species

- Acacia baileyana*, Cootamundra Wattle
Agrostis capillaris, Brown-top Bent
Allium triquetrum, Angled Onion
Anthoxanthum odoratum, Sweet Vernal-grass
Anredera cordifolia, Madeira Vine
Briza maxima, Large Quaking-grass
Bromus catharticus, Prairie Grass
Cassinia sifton, Sifton Bush
Cenchrus clandestinus, Kikuyu Grass
Centaureum erythraea, Common Centaury
Cirsium vulgare, Spear Thistle
Cotoneaster glaucophyllus, Cotoneaster
Cotoneaster pannosus, Cotoneaster
Crassula multicava, Shade Crassula
Cytisus scoparius, English Broom
Dactylis glomerata, Cocksfoot
Ehrharta erecta, Panic Veldt-grass
Ehrharta longiflora, Annual Veldt-grass
Erica lusitanica, Spanish Heath
Galium aparine, Cleavers
Gladiolus undulatus, Wild Gladiolus
Holcus lanatus, Yorkshire Fog
Hypochaeris radicata, Cat's Ear
Linum trigynum, French Flax
Oxalis incarnata, Pale Wood-sorrel
Oxalis pes-caprae, Soursob
Pandorea pandorana, Wonga Vine
Paspalum dilatatum, Paspalum
Pinus radiata, Monterey Pine (all planted?)
Pittosporum undulatum, Sweet Pittosporum
Plantago lanceolata, Ribwort

Introduced species

Prunus cerasifera, Cherry-plum
Quercus robur, English Oak
Romulea rosea, Common Onion-grass
Rubus anglocandicans, Blackberry
Sporobolus africanus, Rat-tail Grass
Trifolium dubium, Suckling Clover

Introduced species

Ulex europaeus, Gorse (Furze)
Vicia ?hirsuta, Tiny Vetch
Vicia sativa, Common Vetch
Vulpia bromoides, Squirrel-tail Fescue
Watsonia meriana var. *bulbillifera*, Bulbil Watsonia

Notes concerning some of the significant plant species

Listed as Critically Endangered under Victorian law

Eucalyptus yarraensis (Yarra Gum): One healthy, mature tree grew on the northern road verge near Burwood Hwy until it was felled in 2007. In 1938, Government Botanist, Dr Jim Willis, collected a specimen from the tree, held at the National Herbarium of Victoria (catalogue number MEL 0703663A).

Platylobium infecundum (a flat-pea): A population near the Wantirna Recreation Reserve tennis courts and EastLink in 2002 appears to have been destroyed.

Listed as Endangered under Victorian law

Austrostipa rudis subsp. *australis* (a spear-grass): In August 2024, plants with withered remains of this subspecies' distinctive long glumes were found in Site 91's sections west of the EastLink overpass and southwest of Petalnina Drive. Of the site's countless plants of *Austrostipa rudis*, only a tiny fraction had identifiable glumes remaining from the previous year's flowering, so it was not possible to determine what fraction belonged to subspecies *australis* rather than subspecies *rudis*. A summer survey would be required to determine population size but the author found quite a few despite the adverse time of year.

Locally threatened

Eucalyptus × *brevirostris* (a hybrid eucalypt between *E. macrorhyncha* and *E. obliqua*): ineligible for a threat classification under international guidelines (due to being a hybrid) but it is nevertheless worth noting that there is a single, healthy tree of this regionally-rare eucalypt 100 m southwest of the Harold St corner.

Linum marginale (Native Flax): Several were found near the Minkell Ct walkway in 2002 and several more near the Wantirna Recreation Reserve tennis courts in 2008 (since destroyed).

Microtis ?parviflora (Slender Onion-orchid): Found near Minkell Ct in 2002, numbers not recorded.

Muellerina eucalyptoides (Creeping Mistletoe): Knox's largest known colony used to grow on eucalypts on the southern side of Mountain Hwy where the EastLink overpass now stands, but were destroyed during EastLink's construction.

Fauna of special significance

Imperial White Butterfly. A large colony was found in 2002 on Creeping Mistletoes (*Muellerina eucalyptoides*) on the southeastern road verge, subsequently cleared for EastLink (see above). This butterfly species has become rare in Knox, attributable to the death of the vast majority of the necessary host mistletoes during the Millennium Drought, without any prospect of recovery within a human time-frame.

Fauna habitat features

- A small number of large trees have hollows that would suit habitation by native birds, bats, possums or invertebrates;
- Yellow Box trees are known to be good seasonal producers of nectar for birds (e.g. Musk Lorikeets) and insects, so the ones near Harold St may be valuable in that capacity;
- The prickly shrub layer in parts of the site – particularly near Stringybark Reserve – could provide protection for small native birds.

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).

Endangered Ecological Vegetation Class

Valley Heathy Forest is regionally endangered but the standard criteria only regard such a status as significant if the vegetation meets the definition of a ‘remnant patch’ adopted for the criteria, i.e. a continuous area of at least 0.25 hectares in which the cover of native understorey is at least 10% throughout. None of Site 91 meets that definition. (The northwestern verge southwest of Petalnina Drive would qualify if not for the footpath that dissects it.) If there were a ‘remnant patch’, it would qualify for State significance under criterion 3.2.3.

Threatened Plants

The spear-grass, *Austrostipa rudis* subsp. *australis*, is listed under the *Flora and Fauna Guarantee Act* as Endangered in Victoria. It also occurs interstate. Any known habitat for such a species (as in this site) meets criterion 3.1.2 for **State** significance.

Some of the locally-threatened plant species listed above (mainly wattles and eucalypts) have viable populations, thereby meeting criterion 3.1.5 for **Local** significance.

Threats

- Further roadworks, either in the form of road upgrade projects or maintenance works by people not taking the vegetation’s significance into account;
- Human-induced climate change, which is predicted to cause more severe droughts, heatwaves and storms, as well as substantially lower rainfall (particularly in winter);
- Decline in the health of eucalypts, which are suffering from competition from the large, planted pines on the southeastern side of the highway and they are sensitive to the abovementioned droughts and storms;
- Prevention of recruitment or indigenous plant species due to mowing or competition from pines;
- Loss or decline of plant species that are present in such small numbers that they are vulnerable to inbreeding, poor reproductive success or chance events such as being scratched out by a dog. The 2024 site inspection found many species to be represented by only one or two individuals.

Strategic planning

- The previous (2010) edition of this report led to its slightly different version of this site becoming covered by Schedule 2 of the Environmental Significance Overlay (ESO2). The reasons given for applying ESO2 were the endangered EVC (Valley Heathy Forest) and the significant plant species. The only significant changes to the site affecting the basis for ESO2 are: (a) the discovery in the site of the spear-grass, *Austrostipa rudis* subspecies *australis*, which is listed as Endangered under Victorian law; (b) the reduction in size of the site’s segment west of the EastLink overpass due to clearing; (c) the excision of 187 Harold St from the site due to residential development; and (d) the addition to the site of land abutting 13-19 Minkell Ct because it has been reserved and revegetated. The only recommendation for change to ESO2 in response to these changes is to amend the boundaries to match the ones delineated here.
- The segment of the site west of EastLink is zoned Transport Zone 2 – Principal Road Network (TRZ2). Each of the other three polygons that make up the site comprise the road reservation (zoned TRZ2) and an abutting strip of tree reserve. The tree reserves on the southeastern verge are zoned Public Park and Recreation Zone (PPRZ) and the tree reserve on the opposite side is zoned Neighbourhood Residential Zone – Schedule 4.

Information sources used in this assessment

- The 1998 ‘*Scoresby Transport Corridor Environment Effects Statement*’;
- Site surveys by Dr Lorimer for three hours on 13/9/02 for the first edition of this report and one hour on 7/3/08 for the second edition. The fieldwork included:
 - Compilation of lists of indigenous and introduced plants for each of five parts of the site (which, at the time, extended further toward Burwood Highway);
 - A description of the vegetation’s structural and floristic composition within each of the parts;
 - Documentation of the vegetation’s ecological condition;
 - Documentation of rare species populations;
 - Incidental observations of fauna; and
 - Checks for fauna habitat, ecological threats and management issues.
- A report, ‘*Assessment of Native Vegetation on the Mitcham to Frankston Freeway Alignment in Knox*’, by Dr Lorimer in July 2003 for Knox City Council. (That freeway ultimately became EastLink.);

- An inspection of the site by Dr Lorimer on 24th August 2024, compiling lists of wild, indigenous plant species for each of the site's four polygons and checking for changes in features relevant to this report since his 2008 survey;
- Dr Lorimer's casual observations while driving along the highway regularly since 1983;
- Records of flora and fauna observations stored in Knox City Council's biodiversity database;
- Records of flora and fauna observations stored in the Atlas of Living Australia;
- Aerial and satellite imagery from between 1976 and 2025;
- The Victorian Government's 'NatureKit' website;
- Maps of geology, topography and strategic planning information produced by agencies of the Victorian Government.