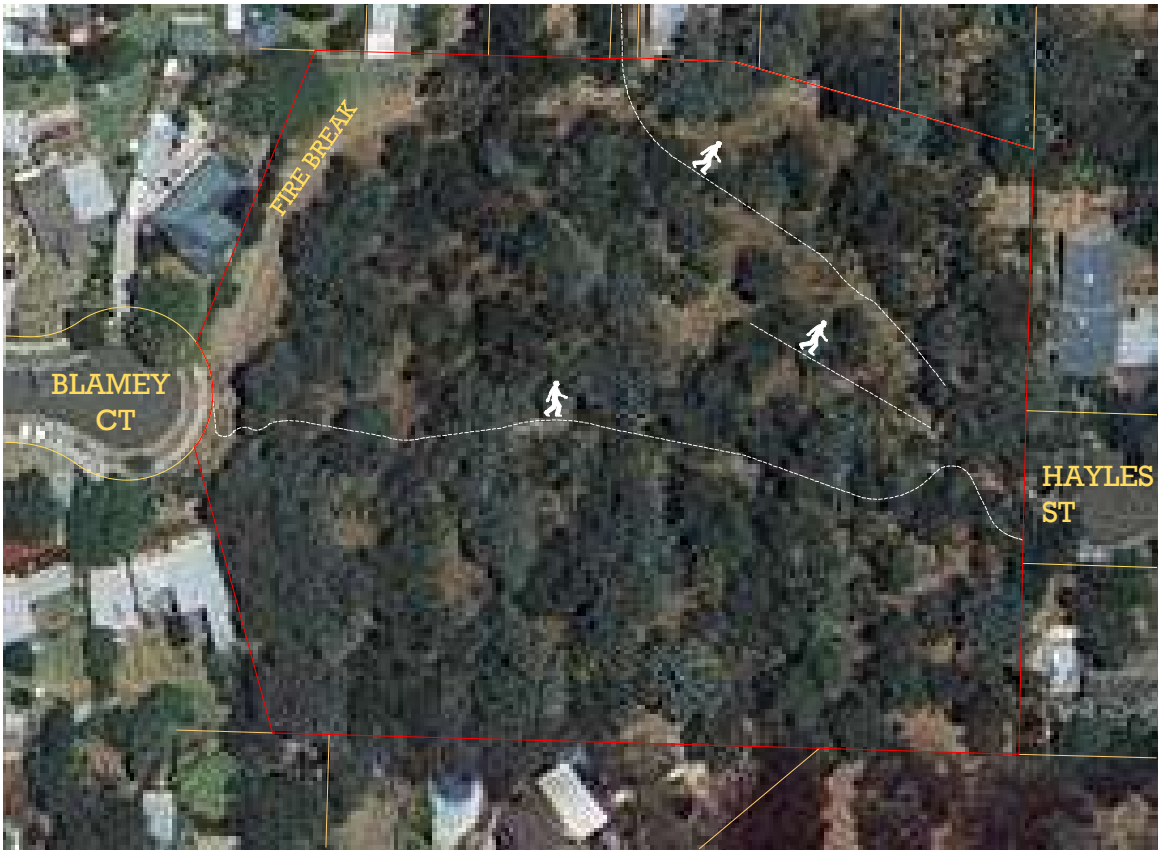
Site 28. Blamey Court Reserve, Boronia

A small Council bushland reserve on the steep, western slope of ridge between Dorset Rd and Army Rd. Melway ref. 65A4.

Site Significance Level: *State*

- The forest is dominated by Red Box trees, which are very rare in Knox;
- The Ecological Vegetation Class that best matches the forest is Valley Heathy Forest, which is regionally threatened;
- Part of the reserve supports vegetation in near-pristine condition with excellent botanical diversity;
- There are viable populations of several plant species that are threatened in Knox.



Aerial photograph taken February 2001

Scale
1:1,000
5 0 10 20 30 40 50m

Boundaries

The site is the area outlined in red above, measuring 1.04 ha. It comprises the Council reserve lot except for the narrow walkway through to Robertson Crescent in the north.

Land use & tenure: Council nature reserve.

Site description

The site's elevation ranges from 115 to 140 m (Australian Height Datum) with a steep slope of typically 1:4 and an aspect of west-northwest. The soil is shallow and stony, derived from hornfels.

The vegetation's ecological condition is highly patchy due to past excavations, firebreaks and mistreatment by some neighbours. The most intact parts are botanically very rich indeed.

Knox City Council is managing the bushland very actively, including the use of fire to control weeds, regenerate plant species and provide a broader variety of habitat for fauna.

Relationship to other land

There is a canopy of scattered remnant eucalypts from the eastern (uphill) edge of the reserve, along the ridge to Mountain Hwy in the north and to the south as far as a few hundred metres beyond the Old Joes Creek bushland area (Site 29). This canopy, combined with mature non-indigenous trees, facilitates movement of some bird life to and from the reserve. However, the size of the reserve is too small for most birds to spend much time there, and many species of native birds and insects do not visit because native understorey is practically non-existent within 600 m of the reserve. These impressions are evidenced by the poor bird list that was accumulated during the several days in spring when the flora survey was conducted.

Nevertheless, the movements of birds and insects that do occur are likely to be very important for introducing seeds and pollen of indigenous plant species, which in many cases are at risk of inbreeding.

Bioregion: Gippsland Plain.

Habitat type

Valley Heathy Forest (EVC 127, **regionally Endangered**) is the EVC that best matches this rare or unique vegetation community characterised by the dominance of Red Box (*Eucalyptus polyanthemos*) and an abundance of Black She-oak (*Allocasuarina littoralis*). There is approximately 0·95 ha of native vegetation, comprising 0·075 ha in excellent ecological condition (rating A), 0·34 ha in good ecological condition (rating B), 0·28 ha in fair ecological condition (rating C) and 0·25 ha in poor ecological condition (rating D).

Dominant canopy trees: *Eucalyptus polyanthemos* is most abundant, *E. goniocalyx* is almost as abundant, and there are smaller numbers of *E. radiata* and fewer still of *E. obliqua*. There is a single *E. cephalocarpa* at the bottom of the hill. The tree crowns overlap slightly except where clearing has opened the canopy.

Dominant lower trees: *Allocasuarina littoralis* and fewer *Exocarpos cupressiformis*.

Shrubs: Mostly up to 2-3 m tall and of variable density, depending on the recent history of clearing, digging and other disturbance. The common shrub species include *Kunzea ericoides, Cassinia aculeata, Leptospermum continentale*, *Bursaria spinosa, Acacia* species*, Correa reflexa, Pultenaea gunnii* and *Epacris impressa*. Thickets of *Kunzea* have appeared in response to vegetation clearance in some areas. Visibility is typically 30 m except for thickets that have developed in response to soil disturbance.

Vines: Sparse and delicate, comprising *Comesperma volubile* and *Billardiera mutabilis*.

Ferns: *Pteridium esculentum* is dense in patches, but with low percentage foliage cover overall.

Ground flora: Densely grassy and rich in wildflowers. Less than knee deep and with a total foliage cover of typically 80%. Different areas are dominated by different grass species. The most abundant ground flora species is *Rytidosperma pallidum* but some patches are dominated by any of *Themeda triandra, Poa morrisii* or *Gahnia radula*. *Lomandra filiformis* subsp. *coriacea* and *Austrostipa rudis* are both fairly abundant but not dominant. Other frequent species include *Platylobium formosum* (creeping form), *Acrotriche serrulata, Gonocarpus tetragynus, Goodenia lanata, Helichrysum scorpioides, Arthropodium strictum, Lepidosperma gunnii*, *L. laterale* and *Pimelea humilis*. Orchids and lilies are abundant.

Plant species

In the following plant list, the column headed 'Risk' indicates the indigenous species' risk of extinction in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; and 'V'=Vulnerable. In addition, *Acacia leprosa* (Dandenong Range variant) is rare nationally.

Risk	Indigenous Species
	Acacia dealbata
V	*Acacia leprosa* (Dandenong Range variant)
V	*Acacia mearnsii*
V	*Acacia melanoxylon*
E	*Acacia myrtifolia*
	Acrotriche serrulata
V	*Allocasuarina littoralis*
	Arthropodium strictum
	Austrostipa pubinodis
	Austrostipa rudis subsp. *rudis*
	Billardiera mutabilis
V	*Brunonia australis*
	Burchardia umbellata
	Bursaria spinosa
V	*Caesia parviflora*
	Carex breviculmis
	Cassinia aculeata
V	*Cassinia longifolia*
V	*Comesperma volubile*
E	*Correa reflexa*
E	*Cynoglossum suaveolens*
E	*Daviesia leptophylla*
	Deyeuxia quadriseta
	Dianella admixta
	Dichondra repens
V	*Dillwynia cinerascens*
C	*Diuris orientis*
V	*Drosera peltata* subsp. *auriculata*
V	*Drosera whittakeri*
V	*Epacris impressa*

Risk	Indigenous Species
V	*Eucalyptus cephalocarpa*
	Eucalyptus goniocalyx
V	*Eucalyptus obliqua*
E	*Eucalyptus polyanthemos*
E	*Eucalyptus radiata*
V	*Exocarpos cupressiformis*
	Gahnia radula
	Gonocarpus tetragynus
	Goodenia lanata
V	*Hardenbergia violacea*
V	*Helichrysum scorpioides*
E	*Hibbertia riparia*
V	*Hovea heterophylla*
E	*Hypericum gramineum*
E	*Indigofera australis*
	Juncus pallidus
C	*Kennedia prostrata*
	Kunzea ericoides spp. agg.
V	*Lagenophora gracilis*
	Lepidosperma gunnii
V	*Lepidosperma laterale*
	Leptospermum continentale
C	*Leucopogon virgatus*
	Lomandra filiformis subsp. *coriacea*
	Lomandra longifolia
	Microlaena stipoides
	Microtis parviflora
V	*Opercularia varia*
	Oxalis exilis/perennans
V	*Pimelea humilis*

Risk	Indigenous Species
V	*Plantago varia*
V	*Platylobium formosum*
V	*Platylobium obtusangulum*
	Poa morrisii
E	*Polyscias sambucifolia*
	Poranthera microphylla
	Pteridium esculentum
	Pterostylis nutans
V	*Pultenaea gunnii*
	Rytidosperma linkii var. *fulvum*
	Rytidosperma pallidum
	Rytidosperma penicillatum
V	*Rytidosperma pilosum*
	Rytidosperma tenuius
	Senecio glomeratus
	Senecio hispidulus
E	*Senecio prenanthoides*
	Senecio quadridentatus
E	*Spyridium parvifolium*
E	*Stackhousia monogyna*
E	*Stylidium armeria/graminifolium*
	Tetrarrhena juncea
C	*Thelymitra ixioides* group
	Themeda triandra
V	*Thysanotus patersonii*
	Tricoryne elatior
E	*Viola hederacea*
E	*Wurmbea dioica*
V	*Xanthorrhoea minor*

Introduced Species

Agapanthus praecox	*Ehrharta longiflora*	*Pittosporum undulatum*
Allium triquetrum	*Euphorbia peplus*	*Plantago lanceolata*
Anthoxanthum odoratum	*Fraxinus angustifolia*	*Prunus cerasifera*
Briza maxima	*Galium aparine*	*Romulea rosea*
Centaurium erythraea	*Hedera helix*	*Rubus anglocandicans*
Chrysanthemoides monilifera ssp. *monilifera*	*Holcus lanatus*	*Sonchus oleraceus*
Conyza sumatrensis	*Hypochoeris radicata*	*Sparaxis* sp.
Cotoneaster simonsii	*Muscari armeniacum*	*Trifolium* sp.
Cynosurus echinatus	*Oxalis incarnata*	*Ulex europaeus*
Dactylis glomerata	*Oxalis pes-caprae*	*Vicia disperma*
Ehrharta erecta	*Pinus radiata*	*Vicia sativa*

Notes concerning some of the locally threatened plant species

Acacia leprosa (Cinnamon Wattle), Dandenong Range variant. Very scarce.
Correa reflexa (Common Correa), red-flowering form. A single plant, the only one found in the whole study.
Cynoglossum suaveolens (Sweet Hound's-tongue). Recorded by Andrew Paget in April 1985.
Daviesia leptophylla (Narrow-leaf Bitter-pea. Apparently secure.
Diuris corymbosa (Wallflower Orchid). One colony of seven plants found.
Eucalyptus polyanthemos (Red Box). Dominant in the reserve and the immediate neighbourhood, but absent everywhere else in Knox.
Kennedia prostrata (Running Postman). Two observed on 18/7/04 in a quick inspection, 20 months after a fire.
Spyridium parvifolium (Australian Dusty Miller). A solitary individual.
Thelymitra ixioides var. *ixioides* (Dotted Sun-orchid). One colony of five plants found.
Thysanotus patersonii (Twining Fringe-lily). Recorded by Andrew Paget in April 1985.
Wurmbea dioica (Common Early Nancy). Only four plants seen, but others may have been overlooked.

Fauna habitat features

The site appears from incidental observations to have mediocre bird life, but no formal survey has been done. Nesting activity seemed scarce during the flora survey in spring 2001.

Thickets of dense shrubs are good habitat for small birds, but the isolation of the reserve from other understorey minimises the benefit of this.

There are mature trees with hollows that may be used by birds, possums and bats. Nest boxes have also been installed.

The ground flora, logs and forest litter provide extensive habitat for skinks.

The ant fauna seems superficially to be rich, but no survey has been conducted to determine if this is significant.

Significance ratings

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

Richness of Flora

The 89 indigenous plant species recorded for the reserve is a high number for one hectare in Knox. The standard criteria do not provide recognition of sites that stand out in this regard at a municipal scale, but vegetation ecologists would usually regard this as Locally significant.

Regionally Threatened Ecological Vegetation Class

The site's vegetation best matches Valley Heathy Forest, which is listed by the Department of Sustainability & Environment as Endangered in the Gippsland Plain bioregion. Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a) states that vegetation of an Endangered EVC is of Very High conservation significance if the habitat score (as outlined by Parkes *et al*. 2003) is at least 0·4, which would undoubtedly be the case in the more natural parts of Blamey Reserve.

According to criterion 3.2.3, a site is of **State** significance if it contains any vegetation that is of High or Very High conservation significance due to the presence of a threatened EVC, as in this case.

The significance of the vegetation at Blamey Reserve is higher than would be attributed to a similar area of typical Valley Heathy Forest because Red Box dominates the tree canopy and (to a lesser degree) because Black Sheoak dominates the lower tree stratum.

Rare or Threatened Flora

The Dandenong Range variant of *Acacia leprosa* is listed as 'rare' in Victoria. The population in Blamey Reserve is viable but does not make a substantial contribution to the total population of the taxon. This represents **Regional** significance under criterion 3.1.2 of the standard criteria.

Blamey Reserve's populations of the locally threatened plant species *Eucalyptus polyanthemos, Diuris corymbosa* and *Thelymitra ixioides* are large enough to add considerably to these species' long-term prospects of survival in Knox. These species are sufficiently rare and threatened locally that the presence of any one of them confers **Local** significance upon the site as a whole under criterion 3.1.5. Many of the other locally threatened plant species listed above also have viable populations, again meeting criterion 3.1.5 for a site of **Local** significance.

Representativeness

The reserve is possibly unique in representing a distinctive and extreme variant of an endangered vegetation community (Valley Heathy Forest) in which Red Box dominates the tree canopy and Black Sheoak dominates the lower tree stratum. Apart from its interest value, the reserve helps to define the limits of composition of Valley Heathy Forest, and hence helps the developing field of vegetation taxonomy (or classification). These features could be argued to represent National or State significance under the standard criteria, but only **Regional** significance is accepted here due to mitigating factors such as the size of the site. Regardless, the 'Native Vegetation Management Framework' document (NRE 2002a) deems such sites to have **Medium** conservation significance.

Threats

The following are the main pressures currently threatening to lessen the reserve's conservation significance, in no particular order:

- Loss or decline of plant species whose populations are so small that they are vulnerable to inbreeding, poor reproductive success or elimination by incidents such as cubby house construction or digging by dogs;
- Reduced visitation of the site by small insect-eating birds due to its isolation from other areas with indigenous understorey, possibly leading to a worsening of plant pests and diseases;

- Herbaceous weeds along the uphill fringe of the bushland, potentially drifting downhill;
- Grass weeds (particularly Large Quaking-grass and Sweet Vernal Grass) that are being targeted by Council;
- Sweet Pittosporum seedlings, which should be kept in check by annual removal;
- Trampling.

Management issues

- This reserve's biological significance deserves concerted management effort. Knox City Council is responding actively.
- Fire is an important issue for safety and ecological reasons. Boronia Fire Brigade assisted Council by burning part of the reserve on 16th November 2002. This is expected to be followed by burns in other parts of the reserve at intervals of a few years, for continued fire protection and so that the reserve will have vegetation in various stages of ecological succession at any one time. Burning is to be timed in such a way as to maximise the benefit for native flora relative to weeds. A brief inspection on 16th July 2004 detected that Running Postman (*Kennedia prostrata*) had germinated after not having been recorded previously in the reserve.
- The risk of plant inbreeding and loss of species from the reserve should be monitored by periodic checks for decline of species. Where decline of a species is apparent, planting can be used to compensate, using plants propagated from similar vegetation nearby.

Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of its State biological significance (discussed above);
- The reserve is zoned 'Public Park and Recreation Zone';
- The site is included within Vegetation Protection Overlay VPO3 of the Knox Planning Scheme, but its significance is as great as other sites in VPO1;
- The surrounding residential area is zoned Residential 1;
- The site is enveloped by Site 99 (the Dandenong Ranges Buffer), which is recommended to be covered by the proposed Environmental Significance Overlay, ESO3.

Information sources used in this assessment

- Detailed vegetation data in accord with this study's standard approach described in Section 2.4 of Vol.1, including a list of indigenous and introduced plant species compiled by Dr Lorimer over at least six hours in September-November 2001;
- A reinspection of the site by Dr Lorimer for 25 minutes on 16/7/04 to check on the effects of recent burning;
- Detailed mapping of rare plant populations and the vegetation's ecological condition in the report, *'Fire in Knox Bushland Reserves 2001'* by Dr Lorimer for Knox City Council;
- Incidental observations of birds and mammals while the above data was being gathered;
- A list of grasses seen incidentally by Dr Lorimer during a brief visit to the reserve on 2/3/00;
- Six quadrat records (N13165-70) and other plant records, all from Andrew Paget in April 1985 (Paget 1985) (but note that the record of *Eucalyptus dives* is apparently erroneous);
- Aerial photography from February 2001 and April 2003;
- Satellite imagery of the district;
- The Department of Sustainability & Environment's BioMaps of the area;
- Maps of geology and topography produced by agencies of the Victorian government.