

Site 27. Colchester Reserve Wetland, Boronia

A wetland of 800 m² beside the driveway to a sports ground, close to Dandenong Creek. Melway ref. 65 D3.

Site Significance Level: *Regional*

- The vegetation type (wetland) is regionally endangered;
- The vegetation's ecological condition varies between good and fair;
- There are small to modest numbers of four uncommon plant species, two of which are rare or threatened throughout the Melbourne area;
- Grass weeds are the main ecological threat, and may be controlled with grass-specific herbicide.



Aerial photograph taken April 2003

Boundaries

The significant vegetation is the seasonally inundated depression outlined in white on the aerial photograph above. The site, outlined in red above, is larger than the wetland because what happens in the wetland's immediate surroundings can significantly affect the wetland. The total site area is 1,500 m².

The site's western edge is a straight line parallel to, and 40-5 m from, Colchester Rd. The southern boundary coincides with part of the title boundary of Colchester Reserve. The eastern edge coincides with an edge of the reserve's driveway and car park, extending to the western tip of the car park. The boundary is closed at its northern tip by a short segment that continues the alignment of the northwestern end of the car park.

Land use & tenure: Council recreation reserve, zoned PPRZ. The wetland is kept for biodiversity conservation and the surrounding grass is regularly mown.

Site description

The site is a depression on the floodplain of Dandenong Creek, with alluvial soil. The elevation of 121 m is extremely close to the natural level of the soil at this location, but shallow excavations have influenced or defined the current depth and shape of the depression. Even if the contours of the wetland have been artificially created, this is not much of a departure from the natural processes of such a floodplain, where depressions are periodically created and destroyed by floods.

The wetland's biological significance is treated here as being materially the same as if there had been no excavations in or around the wetland. The indigenous plant species present in the wetland have not been planted and the vegetation composition is very similar to that found in natural depressions along Dandenong Creek – dominated by Tall Sedge (*Carex appressa*) and rushes, particularly *Juncus amabilis* and *Juncus sarophorus*.

Immediately east of the wetland, the aerial photograph shows the darker green of young shrubs and trees in a revegetation area on the slope leading up to the driveway.

The wetland includes two wetland plant species (*Baumea ?rubiginosa* and *Juncus vaginatus*) that are rare throughout the Melbourne area, but it is threatened by drought, changing climate and grass weeds that have invaded from the reserve's lawns.

When the author most recently inspected the site, drought had substantially damaged the wetland's ecology. However, wetlands are intrinsically dynamic environments and the Colchester Reserve wetland can be expected to recover with future floods (as it has following historical disturbance).

Relationship to other land

There is another, slightly smaller wetland 145 m to the north, in the reserve's northern corner. It is treated in this report as part of the Dandenong Creek corridor (Site 26) because it is less than 20 m from a corridor of trees and shrubs along the modified creek's straightened channel. The vegetated corridor is narrow, fragmented and has few mature trees in this vicinity, but waterbirds such as egrets and ibis nevertheless move along the broad Dandenong Creek valley. Straw-necked Ibis were observed in the wetlands within Colchester Reserve.

Common Froglets are present in both of the reserve's wetlands and along the creek. They are no doubt capable of moving between these three areas and to the roadside vegetation along Colchester Rd (Site 116a), including across the playing fields at times.

Bioregion: Gippsland Plain

Habitat type

Wetland (EVC 74, regionally Endangered): 650 m² in area, of which it was estimated in 2002 that 20% (130 m²) was in good ecological condition (rating B) and 80% (520 m²) is in fair ecological condition (rating C).

Trees, vines and ferns: Absent.

Shrubs: sparse, immature, *Melaleuca ericifolia* and *Leptospermum scoparium* within the wetland and continuing into the revegetation area on the eastern edge.

Aquatic and semi-aquatic flora: Dominated by *Carex appressa* and rushes, particularly *Juncus amabilis* and *J. sarophorus*, along with *Epilobium hirtigerum* in season. There are six native species of *Juncus* and none of the usual wetland weed, *Juncus articulatus*.

Plant species

The following plant species were observed by Dr Lorimer on 15th May 2002. 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, *Juncus vaginatus* is rare throughout the Melbourne region.

Risk	Indigenous Species	Risk	Indigenous Species
	<i>Carex appressa</i>		<i>Juncus sarophorus</i>
E	<i>Crassula helmsii</i>	C	<i>Juncus vaginatus</i>
	<i>Epilobium hirtigerum</i>		<i>Lachnagrostis filiformis</i>
	<i>Juncus amabilis</i>	E	<i>Leptospermum scoparium</i>
	<i>Juncus gregiflorus</i>		<i>Lomandra longifolia</i> (perhaps planted)
C	<i>Juncus holoschoenus</i>	E	<i>Melaleuca ericifolia</i>
E	<i>Juncus planifolius</i>		<i>Persicaria decipiens</i>
E	<i>Juncus procerus</i>		
Introduced Species			
	<i>Cynodon dactylon</i>		<i>Pennisetum clandestinum</i>
	<i>Cyperus eragrostis</i>		<i>Plantago lanceolata</i>
	<i>Holcus lanatus</i>		<i>Ranunculus repens</i>

Notes concerning some of the locally threatened plant species

Baumea ?rubiginosa (Soft Twig-rush) – three young plants close to Beresford Drive, not yet reproductively mature.

Crassula helmsii (Swamp Crassula) – one patch only was detected.

Juncus holoschoenus (Joint-leaf Rush) – seven individuals were detected.

Juncus vaginatus (Clustered Rush) – at least two plants present, and probably more.

Fauna habitat features

- The wetland provides good habitat for frogs, but only one species (Common Froglet) was noticed incidentally;
- There are no doubt other aquatic fauna in the wetland;
- The pond life attracts waterbirds, as evidenced by Straw-necked Ibis observed foraging.

Significance ratings

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

Regionally Threatened Ecological Vegetation Class

According to 'Victoria's Native Vegetation Management – A Framework for Action' (NRE 2002a), remnant patches of native vegetation belonging to an endangered EVC (including wetlands) have a conservation significance rating of either High or Very High, depending on their ecological condition. In either case, any site containing a remnant patch of such vegetation is of State significance under criterion 3.2.3 of Amos (2004).

The Colchester Reserve wetland meets the Department of Sustainability & Environment's current definition of a remnant patch, but at the time Amos (2004) prepared the significance criteria, the unpublished convention was that native vegetation only qualified as a remnant patch if it occupied at least 2,500 m². Because this threshold is so much larger than the Colchester Reserve wetland, the author has reduced the significance level of the site to **Regional**.

Rare or Threatened Flora

None of the wetland's plants listed as 'Plants of special significance' above have been listed by the Department of Sustainability & Environment as rare or threatened, but *Juncus vaginatus* might qualify as regionally threatened when and if its conservation status is formally assessed. In any case, the significance of the *Juncus vaginatus* plants in the wetland under consideration is diminished by the small population size.

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

Threats

- Drought and climate change;
- Loss or decline of plant species whose populations are so small that they are vulnerable to decline or loss through inbreeding, poor reproductive success, drought or disease;
- Invasion by environmental weeds:
 - Very serious: Couch (*Cynodon dactylon*); and
 - Serious: Yorkshire Fog (*Holcus lanatus*), Water Couch (*Paspalum distichum*), Kikuyu Grass (*Pennisetum clandestinum*), Ribwort (*Plantago lanceolata*) and Creeping Buttercup (*Ranunculus repens*);
- Expansion of the indigenous paperbarks and Manuka into the presently open part of the wetland (see below).

Management issues

- The grass weeds mentioned in the previous section should be controlled with a grass-specific herbicide that has been shown to have low aquatic toxicity. The WA Water and Rivers Commission has found Fusilade[®] to be suitable in such conditions (see their 'Water Notes' no. 22 of 2001, available via internet).
- Spraying of the grass weeds and the Creeping Buttercup along the southern edge should occur during active growth but not when there is surface water around the target plants. December would typically be a suitable time of year to spray. Follow-up would be required, mindful of the risk that other weeds such as Ribwort (*Plantago lanceolata*) may move in to occupy the space freed up from grass weeds.
- As the planted trees and shrubs next to the wetland mature, they may encroach into the open part of the wetland and their roots will extract more and more water to support the larger plants. A balance would eventually be reached where the trees' and shrubs' growth will be limited by the diminishing availability of water. It is not clear whether equilibrium would be reached before or after conditions become too dry for the rare wetland plants, or whether grass weeds might flourish with increasing dryness and hence overwhelm the rare species. Culling of the revegetation may be needed.
- To safeguard against the loss of the locally rare wetland plant species, it would be desirable to collect propagating material and raise young plants for planting in nearby wetlands, including in the northern corner of Colchester Reserve.

Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because wetlands are regionally endangered and because rare plants are present;
- The reserve is zoned 'Public Park and Recreation Zone';
- The site is not protected under the existing Vegetation Protection Overlays of the Knox Planning Scheme, but it gains limited protection under clause 52.17 of the scheme.

Information sources used in this assessment

- A site survey of thirty minutes duration undertaken by Dr Lorimer on 19/6/02 using this study's standard procedures discussed in Section 2.4 of Volume 1. This included a description of the vegetation composition, compilation of lists of

indigenous and introduced plant species, incidental fauna observations, and checks for fauna habitat, ecological threats and management issues;

- A prior inspection and list of flora and fauna species by Dr Lorimer on 12/4/97 for the report '*Vegetation Survey of Linear Reserves – A Management Strategy for Flood Plain and Riparian Vegetation*' by Reid, Moss and Lorimer (for Knox City Council in 1997);
- A re-inspection of the site by Dr Lorimer for approximately thirty minutes on 13/12/03, which successfully found the *Juncus vaginatus* that had been discovered in the 1997 inspection but not seen in the 2002 inspection;
- A re-inspection of the site by Dr Lorimer for approximately ten minutes on 16/7/04, mainly to check for frogs and fertile *Baumea* material for identification;
- A brief overview of the site in March 2008 to check the state of the wetland;
- Aerial photography from February 2001 and April 2003 and 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.