

AVOCA SITES

Site 6 Archdale Water Reserve Summary

The site is of uncertain environmental stability but visibly salt affected along the Avoca River margins. It is located in the Natte Yallock Targeted Salinity Project area.

Vegetation Description and Composition

This riverside reserve is open woodland dominated by Red Gum with Yellow Gum on the higher ground. The understorey predominantly contains species from the Poaceae (grass), Cyperaceae (sedge) and Juncus (rush) families. Some areas now have 50 percent introduced species, mainly grassy weeds. Both quadrats still contain two salt indicator species. Quadrat A is covered in Spiny Rush which is preventing any regeneration of the tree and understorey layer. There appears to be minimal change in the vegetation survey results beyond the recent loss of Water ribbons and several members of the Asteraceae family, due to the continued dry conditions.

Tree Health

Most trees have declined in health since 1997 and contained sparse canopy densities, dead branches and large amounts of epicormic growth. Trees displayed moderate amounts of leaf insect attack, another sign that the trees at this site are suffering from drought stress.

Birds

Twelve bird species were recorded in 2002 and are commonly found in Red Gum and wooded farmland habitat. Only one water bird was recorded (Black Duck) due to the Avoca River being dry.

Groundwater and Salinity

The three bores near the site are highly responsive to seasonal rainfall events and have risen slightly in 2003 due to higher rainfall received than during the second half of 2002. They have also demonstrated a strong interaction with the level of water in the Avoca River, which was dry in spring 2002. Groundwater levels ranged from 3.2-3.8 metres below natural surface.

Water Quality and Macroinvertebrates

These tests do not apply to this remnant vegetation site.

Site Threats

- Weed invasion particularly Spiny Rush and *Phalaris* sp.
- Rabbits
- Pooling of water in the Avoca River and flood debris on quadrat
- Possible bank erosion
- Rising groundwater and salinity levels

Surrounding Landuse

Paddocks surrounding the site contained a mixture of crops and pastures.

Site 7 Dalyenong Flora Reserve Summary

The site is of uncertain environmental stability.

Vegetation Description and Composition

This large Reserve is floristically diverse and contains areas of woodland dominated by Yellow Gum, Grey Box and some Buloke on the higher ground, with Red Gum in the drainage lines. Common Fringe-myrtle, Gold-dust Wattle and Golden Wattle dominate the understorey layer. In both quadrats the total number of plant species present has decreased by 10 percent when compared with the 2001 survey. The site had less than 30 percent of introduced species in the herbaceous layer in 1997 but has increased to almost 40 percent of species present in 2002. The spread of pasture weeds is a reflection of the surrounding agricultural land use and previous grazing history at the site. One salt indicator species continues to be present.

Tree Health

Most trees have remained stable or improved in health since monitoring began because there is little epicormic growth or evidence of leaf insect attack. There were slight to moderate amounts of understorey regeneration occurring; however no tree regeneration was evident.

Birds

Eighteen birds were recorded in 2002 and the large number reflects the diversity of habitats available at the site. The understorey layer is well established providing cover and habitat for many bird species. They would assist in keeping trees healthy by keeping insect populations under control.

Groundwater and Salinity

Two bores located west of the reserve are near a saline discharge area. Groundwater levels have fallen in response to dry conditions but remain high (approx 3m). The threat of rising saline groundwater in years of average or above average rainfall is of concern to the ecological health of this site.

Water Quality and Macroinvertebrates

These tests do not apply to this remnant vegetation site.

Site Threats

- Weed invasion
- Rabbits
- High salinity levels of the shallow groundwater
- Sheep and vehicles being driven through the Reserve

Surrounding Land use

Adjacent land use was a mixture of cropping and pasture activities.

Site 8 Porcupine Road Bushland Reserve Summary

The site appears environmentally stable.

Vegetation Description and Composition

The reserve is open woodland dominated by Yellow Box, Red Stringybark and Hill Red Gum with a diverse herbaceous layer of over fifty species (an increase of about 50 percent since 1997). The site has a low proportion of introduced species in the herbaceous layer (less than 20 percent of species present) comprising mainly pasture weeds. Two salt indicator species are still present but are unlikely to be indicating saline conditions due to the site's elevated position in the landscape and deep watertable. Williamson's Rice-flower, classified as endangered under the FFG (1988) Act and listed as a rare species nationally, is still present. There appears to be minimal change in the vegetation survey results when compared with previous vegetation data. However, the level of abundance has decreased and the amount of leaf litter has increased. Both of these changes can be contributed to the continued dry conditions.

Tree Health

Trees at the site are reasonably healthy and have remained so since 1997. The only observation of note is the canopy density on some trees has diminished due to dry conditions. Extensive regeneration of the shrub and understorey layer was recorded in both vegetation quadrats.

Birds

Eighteen bird species were recorded at the site in 2002. The large number is a result of the understorey layer being well established, providing cover and habitat for many species. The Pyrenees Ranges are also not very far away from the site.

Groundwater and Salinity

One bore near the site responds to seasonal rainfall conditions but has generally continued to record a downward trend in water table levels due to dry conditions. The average depth in 2002-2003 was 13 metres.

Water Quality and Macroinvertebrates

These tests do not apply to this remnant vegetation site.

Site Threats

- Grazing by rabbits and kangaroos
- Weed invasion
- Dumping of garden rubbish

Surrounding Landuse

Adjacent activities were grazing and pasture. The drought has caused the need for stock in the area to be hand fed.

Site 9 Lake Lalbert Summary

The site is of uncertain environmental stability.

Vegetation Description and Composition

This site contains a vegetation quadrat on the edge of the lakebed, which is Red Gum woodland to the high water mark graduating into Black Box chenopod woodland on the higher ground. The other quadrat is located on Lalbert Creek, which is Black Box chenopod woodland and the understorey is mainly Tangled Lignum and Cane Grass. Continued dry conditions have favoured native species and caused a large decrease in the number and abundance of introduced species, particularly from the Poaceae (grasses) and Asteraceae families. There are still two salt indicator species present at the Lalbert Creek quadrat and four at the Lake Lalbert quadrat. Long Eryngium listed as vulnerable under the FFG (1998) Act is still present although level of cover had decreased in 2002. The introduced species Golden Dodder appears to have spread further across the site but not within either vegetation quadrat.

Tree Health

All trees monitored have experienced declining health since 1997 with one tree dying in 2002. Reduced canopy densities, extensive epicormic growth, and dead branches are a feature on many trees at the site. Dry seasonal conditions are the probable reason for the decline as the area has not been inundated in several years. No regeneration was recorded within either vegetation quadrat.

Birds

Thirteen bird species were recorded in 2002. It is expected that many more species will be recorded at the lake when it fills with water again.

Groundwater and Salinity

The one bore near the lake indicates that the regional watertable is quite deep and varies between 20 to 25 metres below natural surface. The watertable trends in the area appear to be flat to slightly dropping. This would be expected due to prevailing dry conditions over recent years. The groundwater is highly saline and has always been >25000EC.

Water Quality and Macroinvertebrates

Lake Lalbert has remained dry since 1998 therefore no new data was recorded in 2002-03.

Site Threats

- Possible increase to flooding frequency even though it is dry at present
- Possible rising salinity levels
- Vehicle tracks through Quadrat B
- Increase of introduced plant species, particularly Golden Dodder

Surrounding Landuse

Adjacent activities were mostly fallow paddocks and some cropping. The effects of drought are highly visible in this part of the catchment because many paddocks had not been sown this year.

Site 10 Repper Swamp Summary

The site is of uncertain environmental stability and is within the Avoca Plains Targeted Salinity Project sub-catchment.

Vegetation Description and Composition

This ephemeral wetland is open woodland dominated by large Black Box and Red Gum trees. The understorey is predominantly species from the Cyperaceae (sedge) and Juncaceae (rush) Families. In both quadrats the total number of plant species present has been reduced by 25 percent since the previous survey. Their level of cover abundance has decreased and the amount of leaf litter has increased. These changes can be attributed to the continued dry conditions. With the recent inclusion of Rye Grass, there are now four salt indicator species present. There were only two in 1997.

Tree Health

The six Black Box trees have remained stable or recorded an increase in health since 1997. The two Red Gum trees however have suffered declining health due to the prolonged period without inundation. These two trees contained extensive epicormic growth, dead branches and severe leaf insect attack from Gumleaf Skeletoniser Caterpillars and Psyllid Beetles (Lerps). Leaf chloride results highlighted the differences in how species respond to salts – Black Box accumulate salts and Red Gums have an exclusion mechanism. No regeneration was recorded due to the dry conditions and possible grazing by stock.

Birds

Fifteen bird species were recorded. This is a good result given that the swamp is surrounded by cleared agricultural land and the Avoca River nearby was dry in spring 2002.

Groundwater and Salinity

The one bore in the area 400 metres north of the Avoca River was dry in 2002. The water table is greater than 17 metres below natural surface because this is the depth of the bore casing.

Water Quality and Macroinvertebrates

Although this site is a swamp, it is treated as a remnant vegetation site because it is very rarely inundated.

Site Threats

- Grazing by sheep and rabbits
- Weed invasion
- Poor health of aging trees and no regeneration
- Possible rising groundwater, with unknown salinity levels

Surrounding Landuse

Cereal cropping was the predominant activity in the area with some sheep grazing. The effects of drought were highly visible in this part of catchment.