

LODDON SITES

Site 11 Lexton North Water Reserve: Summary

The site is at possible risk of groundwater discharge and is located within the Bet Bet Targeted Salinity Project sub-catchment.

Vegetation Description and Composition

This open woodland is dominated by Yellow Gum and Long-leaf Box with a minimal shrub layer. The herbaceous layer consists of Wallaby Grass, Yellow Rush-Lily and Mat Rush. The total number of species present remains similar to recent surveys. The most significant introduced species are Quaking Grass and Lesser Quaking Grass. Many introduced grasses have reduced in cover abundance due to dry seasonal conditions and grazing pressure from hares, rabbits and wallabies. Two salt indicator species are present and their further spread remains of concern, due to salt discharge occurring nearby, but may still be just a response to the seasonal variations.

Tree Health

Most trees have not changed in health since 1997, however scores are quite low for some trees due to reduced canopy densities and high levels of epicormic growth. Prolonged dry conditions and isolation from other stands of remnant vegetation are placing large amounts of stress upon these trees. Some trees had sustained slight leaf damage from insects. Slight to moderate regeneration of the understorey layer was recorded in both vegetation quadrats.

Birds

Eleven species were recorded in 2002. All species are commonly found in wooded farmland habitat.

Groundwater and Salinity

Groundwater levels have fallen in response to dry conditions but remain high (approximately four metres). 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

- Kangaroo grazing
- Possible discharge site
- Continued weed invasion from adjacent farmland

Surrounding Landuse

Land use is sheep grazing and most paddocks did not contain enough pasture to feed stock. The impact of drought on this area was highly visible in the behaviour of the Sheep accustomed to hand feeding.

Site 12 Merin Merin Swamp Summary

The site appears to be in a stable environmental condition.

Vegetation Description and Composition

The three vegetation quadrats surveyed at Merin Merin Swamp are a combination of Red Gum woodland and open sedgeland dominated by rush, sedge and spike rush species. There is a very high proportion of introduced species in the herbaceous layer being mainly pasture weeds, in particular *Phalaris*. Weediness does vary across the site with quadrat A containing no introduced species and quadrats B and C containing very high percentages in 2002. Dry seasonal conditions have assisted in temporarily reducing the cover abundance of some weed species. These are expected to return when adequate rainfall is received in the area. Two salt indicator species were present in quadrat C. The abundance of aquatic species such as Nardoo and Australian Sweet-grass were greatly reduced in 2002 due to dry conditions.

Tree Health

Most of the twelve Red Gum trees monitored at this site have remained healthy since 1997. A number have experienced some decline but others a large improvement in health. Three trees on the eastern side of the swamp where it does not flood very often were experiencing large amounts of insect attack and displaying some epicormic growth in 2002. They are young trees naturally vulnerable to insect attack, but could also be indicating drought stress. No regeneration was recorded within any of the quadrats.

Birds

Sixteen bird species were recorded at the swamp. The large number even though the swamp was dry is a result of the large size of the swamp, mixed age classes of trees present and good connectivity with Clunes State Forest.

Groundwater and Salinity

There are two bores and the deeper one on the western edge of the swamp has continued to drop in response to dry seasonal conditions. The shallower bore on the eastern edge is more responsive to seasonal weather conditions and has risen slightly during 2003 in response to autumn rainfall.

Water Quality

Merin Merin Swamp has remained dry since early 2001 therefore no new data was recorded in 2002-03. Macroinvertebrate surveys are not conducted at this site as it rarely contains enough water (>30cm in late spring) for regular surveys to occur. The reason for this is the geology of the swamp bed is comprised of basalt that drains rapidly.

Site Threats

- Possible stock grazing
- Grazing by rabbits and hares
- Possible incorrect water regime
- Continued weed invasion in particular *Phalaris* sp. (now present in Quadrats B & C.)

Surrounding Landuse

Land use around the swamp was a mixture of cropping, sheep and cattle grazing.

Site 13 Jennings Bushland Reserve Summary

The site appears environmentally stable at present and is within the Timor West Targeted Salinity Project sub-catchment.

Vegetation Description and Composition

This Box-Ironbark remnant contains Yellow Gum and Grey Box with a shrub layer of Grey Parrot-pea, Twiggy Bush-pea and Gold-dust Wattle.

The most significant introduced species in this almost intact vegetation community continue to be *Briza maxima* (Quaking Grass) and the recent appearance of Rye Grass. Grazing pressures have continued to increase and may have resulted in a particularly noticeable decline in Twiggy Bush-pea across the site. Many Wattle and Drooping Cassinia seedlings that germinated after the wetter spring of 2000 have been removed by grazing. There has also been an increase in leaf litter levels and a reduction in the level of abundance of most plant species.

There had been an increase each year in the percentage of introduced species up to 50 percent, however over the last three years there has been minimal change in species composition at the site.

Tree Health

Most trees have experienced declining health since 1997 with reduced canopy size and densities. These trees will hopefully improve in condition once adequate rainfall is received in the area. However canopy health is also lower at this site than others which is possibly due to the high density of trees per hectare, induced by previous clearing activities and subsequent coppice regrowth. Only slight regeneration of *Cassinia arcuata* (Drooping Cassinia) was recorded at the site.

Birds

Twelve bird species were recorded in 2002 and are commonly found in wooded habitats.

Groundwater and Salinity

The one bore recorded a large drop in the water table in 2002 in response to dry seasonal conditions and has very slightly risen in 2003 in response to a wetter autumn. Average depth was 14.2 metres below natural surface in 2002-2003.

Water Quality and Macroinvertebrates

These tests do not apply to this remnant vegetation site.

Site Threats

- Possible roadside grazing
- Disturbance through gully erosion and surface scouring
- Rabbit, hare and kangaroo grazing pressures which have continued to increase

Surrounding Landuse

Land use around the reserve was sheep grazing.

Site 14 Woodstock Bushland Reserve Summary

The site appears to be in a stable environmental condition

Vegetation Description and Composition

This riparian site is open woodland, contains a minimal shrub layer and is dominated on the higher ground by White Box and Grey Box. On the lower area near the watercourse Red Gum is the most dominant tree species. Debris from the flood event in spring 2000 remains over some of the site. The site contains a high proportion of introduced species in the herbaceous layer (now greater than 40 percent of species present) including many pasture weeds. The salt indicator species Rye Grass is more likely to be present due to seasonal conditions rather than an indication of saline conditions. There has been minimal change in vegetation survey results when compared with previous data, taking the recent 2000 flood event into account.

Tree Health

Tree health is generally quite high at this site and most trees have improved in health since 1997. Some of the Red Gum trees had suffered extensive leaf insect damage which maybe induced by drought stress. No regeneration of the tree or understorey layer was recorded.

Birds

Fifteen bird species were recorded in 2002. This is a good result given that the site is surrounded by agricultural land. However the site does contain two vegetation types and connects with a vegetated roadside corridor, providing favourable conditions for many bird species.

Groundwater and Salinity

Two bores near the site have remained dry since 1997 and must be at least 17 metres below natural surface (depth of the bore drilling).

Water Quality and Macroinvertebrates

These tests do not apply to this remnant vegetation site.

Site Threats

- Possible grazing
- Weed invasion but in particular, recently recorded to the site, Cape Broom and Soursob
- Road drainage is now directed across the site

Surrounding Landuse

Land use adjacent to the reserve was a mixture of grazing, cropping and further bushland.

Site 15 Tang Tang Swamp Summary

The site appears to be in environmental decline

Vegetation Description and Composition

The site is a combination of Red Gum open woodland, open sedgeland and native grassland. Tang Tang Swamp in its entirety has remained dry since January 2001. A small puddle was recorded near the depth gauge in winter 2002. Inundation of the vegetation quadrats during spring 1997 and 1998 caused a huge reduction in annual weed species and an increase in native aquatic species. However the dry conditions have seen the vegetation composition reverting back to introduced species from the Poaceae (grass) and Asteraceae families.

Tree Health

Tree health is declining with many trees containing extensive amounts of epicormic growth, leaf insect attack and reduced canopy densities. Drought is responsible for causing some stress to these trees, however it is also very likely that saline groundwater is also affecting tree health. Tree dieback is clearly evident along the Bendigo Creek from Tandarra Pondage two kilometres away and appears to be slowly creeping northward toward Tang Tang Swamp.

Birds

Seventeen bird species were recorded in 2002. This is a result of the large size of the swamp, mixed age class of Red Gum trees and good sedge and lignum cover providing shelter and habitat.

Groundwater and Salinity

The seven bores in the nearby vicinity have displayed a falling trend in response to dry conditions and respond quickly to seasonal rainfall events. The water table is fairly close to the surface, highly saline and could be a threat to the swamp if it were to rise further.

Water Quality and Macroinvertebrates

Tang Tang Swamp has remained dry since early 2001 therefore no new data was recorded in 2002-03.

Site Threats

- Weed invasion with floodwaters eg. Spiny Rush
- Possible return of stock grazing for “fire risk management”
- Possible incorrect water regime

Surrounding Landuse

Landuse in the paddocks surrounding the swamp were a mixture of grazing, cropping and lucerne pastures.

Site 16 Elmore-Mitiamo Roadside Reserve Summary

The site is in environmental decline

Vegetation Description and Composition

The site contains Northern Plains grassland and is dominated by a mixture of native tussock grasses including Wallaby Grass, Curly Windmill Grass, and Spear Grass with Lemon Beauty Heads, Drumsticks and Long Eryngium listed as vulnerable under the FFG (1988) Act. The number of introduced species has reduced by more than 20 percent due to continued dry conditions. There are now five salt indicator species, an increase from three species found in 1999. Some of these species are adapted to arid environments and may be a response to dry conditions rather than an increase in salinity.

The dry seasons have maintained native grass growth, in particular Curly Windmill Grass. The wetter season of 2000 promoted the growth of Nardoo, it is still present in 2002, but is less abundant.

Tree Health

The area is treeless Northern Plains Grassland and the test is not applicable at this site.

Birds

Five birds were recorded in 2002. Only a few species are ever recorded at this site because it is very open with very little cover.

Groundwater and Salinity

The one bore near the site has shown a slight falling trend in watertable depth in response to the dry seasonal conditions. It shows little or no response to seasonal rainfall events and the average depth during 2002-2003 was 4.5 metres below natural surface.

Water Quality and Macroinvertebrates

These tests do not apply to this remnant vegetation site.

Site Threats

- Deliberate roadside grazing
- Pugging from stock
- Continued roadside weed invasion

Surrounding Land use

Surrounding land use is dryland cropping and sheep grazing. There was evidence that the site had been grazed recently as the native grasses were much shorter and the vegetation quadrat pegs were easy to find. The drought is causing a shortage of feed and is probably why the roadside has been used to feed stock.