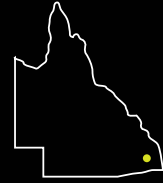


Case studies

Wambo Shire Council, St. Ruth's Reserve, Dalby Qld.



Aerial view of St. Ruth Reserve

(Map by Craig Hunter)

PROPERTY DETAILS

Location: 10 kilometres south of Dalby, southern Queensland

Catchment: Condamine River

Property area: 150 hectares

Main enterprises: Nature reserve, research site

Where lippia is a problem:
Environmental reserve, river riparian zone

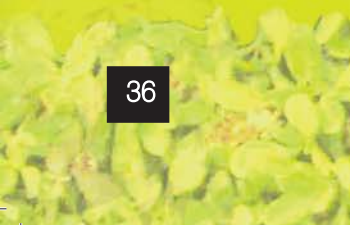
General information and lippia infestation

St. Ruth's Reserve is a State owned reserve on the Condamine River approximately 10 km south of Dalby. It is well timbered with river red gums (*Eucalyptus camaldulensis*), Queensland blue gums/forest red gum (*Eucalyptus tereticornis*), poplar box (*Eucalyptus populnea*), *Acacia salicina* and *Acacia stenophylla* being the dominant species.

The area was formerly held under a grazing lease and was used to graze cattle. By the late 1990s the reserve was becoming heavily degraded with gully and riverbank erosion and eucalypt dieback. The groundcover was dominated by lippia, and pasture productivity and environmental values were poor.

In 1999, the Queensland Department of Natural Resources and Water (DNRW) responded to the condition of the area by revoking the grazing lease and reclassifying the area as a state recreational reserve with Wambo Shire Council appointed as trustee. Since then, the site has not been grazed and observations have been made regarding the natural rate of regeneration.

Five years after the cessation of grazing, the condition of the property has improved. Many native grass species have regenerated and provide good groundcover. Natural regeneration of the Queensland blue gums, poplar box and acacias has also occurred.



Future control options



The top photo (1999) shows the mass of lippia groundcover prior to destocking. The bottom photo was taken in 2004, 5 years after destocking. The main species is Queensland Bluegrass

(Photos by Craig Hunter)

In 2001 DNRW carried out a range of small scale trials to determine useful management strategies for the area. These trials involved the use of fire, weed control and revegetation. Craig Hunter, Land Protection Officer based in Dalby, regularly monitors the site and believes the native grasses and trees will continue to re-establish and increase in density, but that lippia will always be present to some degree.

DNRW plans to keep the area as a state owned reserve available for use as a study site for universities and other research bodies. Kate Reardon-Smith, a PhD student at the University of Southern Queensland, has also been monitoring the reserve for several years. Kate agrees that despite the ongoing persistence of lippia across the reserve, native grass and herb species are recovering and, in some cases appear to be out-competing lippia, especially under the drier conditions of recent years.

Kate's research trials investigate lippia's response to a range of management activities (including simulated grazing). Results from these trials confirm lippia's ability to respond rapidly to a reduction in competition under favourable moisture conditions and therefore the importance of retaining good groundcover through conservative grazing management practices.

Early results indicate that if grazing was introduced back into the site today lippia could quickly regain dominance unless stocking regimes and pasture response were carefully monitored.

In a second study Kate has found that the abundance of lippia is much higher below the tree canopy. Lippia under trees appears to be in much better condition with greener, thicker leaves and greater root density, and has greater reproductive success, with a higher density of flowers. These areas appear to offer a form of refuge, enabling lippia to survive drought and frost conditions and from which it may then spread when conditions beyond the canopy improve.

Controlling the lippia at this site has not yet attracted a specific action plan beyond allowing for regeneration of native grasses in the absence of grazing pressure. Craig Hunter believes that if the site was left to manage itself it could take a very long time (at least 10-15 years) for the lippia to reduce, based on its current rate of displacement. Craig also believes that while lippia continues as an understorey, the removal of grazing alone may not be the answer. He maintains that integrated management by using other methods, such as herbicides and fire, may be required.

Kate largely agrees with Craig Hunter's assessment. There is a growing recognition that lack of fire in woodlands may be an important factor in the eucalypt dieback story. However, this requires further investigation both in terms of its impact on tree condition and on groundcover composition.

The response of lippia to burning is currently unknown, and a reduction of groundcover could enhance lippia regeneration at least in the short term.

Kate also suggests that the targeted use of herbicides in refuge areas (e.g. under trees and low-lying areas) would be an appropriate (strategic and cost-effective) management option in riparian areas. However, Kate warns that the risk to trees needs to be considered. A study of eucalypt dieback on the Liverpool Plains has shown a detrimental effect due to low concentrations of herbicide drift.

St. Ruth's reserve provides a valuable site at which to trial management options for both the management of lippia-infested grassy ecosystems and improvement of woodland health, and its on-going retention for these purposes, is to be applauded.

