

# Let nature take its course

**Management technique:** quarantine area and allow natural regeneration

**Property name:** Warwick State High School  
**Location:** Warwick - Condamine River  
**Manager/owner:** Warwick State High School

**Key points:**

- Steep creek bank area on Condamine River in Warwick
- Grazed by goats
- Area infested with Lippia and subject to increasing levels of erosion
- Removal of stock has led to reduction of Lippia and regeneration of grasses

## background

Warwick State High School manages 23 ha (57 acres) of land which fronts the Condamine River in the city of Warwick. This area is used for sporting fields and to support small crops and a variety of livestock as part of the school's agricultural science program. Until 1999 the steep river bank areas were fenced off but goats had access to the area to graze and use the river as a watering point.

## the need for action

The school community observed that the river bank was becoming seriously degraded by considerable slumping and erosion. Few trees were left to stabilise the banks apart from some patches of Chinese elm and willow trees which were believed to be contributing to the erosion. Lippia (*Phyla canescans*) infested the area; displacing grasses and other desirable grasses and herbs almost to the point of a lippia monoculture.



Above: An area of the river bank in 1999

The area had minimal production value and reducing environmental value. The erosion was impacting on the health of the river by lowering water quality through increased sediment runoff.

With growing environmental awareness and a realisation of the potential damage a flood could do to the river bank in its current condition, the school community decided a change in practice was needed to restore the area under their management.

## control strategies

In 1999 the school's agricultural department reduced their cropping area and moved their fence 3-8m from the edge of the river bank. Some rows of eucalypt and melalueca trees were planted and the goats were totally excluded from the area. The idea then was to "let nature take its course" and the school hoped the area would return to a more 'natural' condition.

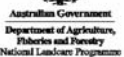
A section of the river bank is slashed twice a year to allow easy access for students and teachers using the area as a study site. Otherwise the site has been left untouched.

## the outcome

Vegetation at the site has changed significantly, from a virtual monoculture of lippia to a variety of grasses and other plants. Lippia is still present throughout most of the area, generally as an understorey, but grasses such as pitted bluegrass (*Bothriochloa decipiens*) and rhodes grass (*Chloris gayana*), now dominate the area.



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Also present are kikuyu grass (*Pennisetum clandestinum*) and nardoo (*Marsilea drummondii*). The school community believes that the key to establishing these and other grasses and reducing the erosion has been the exclusion of goats grazing the area.



Before

**Above:** River bank area at Warwick High School in 2000. The ground cover is predominantly Lippia with a few tussocks of grasses remaining.



After

**Above:** October 2004 – grasses dominate the area. Lippia still exists as an understory, but it is expected that grasses will eventually shade it out.

## the future

The school currently uses the area for field visits. Year 8 students visit a section of the river bank area twice a year and are taught about the ecology of the Condamine River. The students take water samples; checking the pH and nutrient levels, temperature, presence of aquatic macro invertebrates and discussing the interactions between surrounding plants and animals and the river.

The School intends to continue with their current regime of excluding stock and showcasing the area as a study site. Recent drought conditions have restricted the production of excessive biomass, but with higher rains, grasses and other plants are likely to grow rank and represent a fire hazard. It has been suggested that grazing stock at high intensity for a short period of time will redress this development, but to date, this has not been done.

They are also aware that some of the species growing back are weeds (e.g. African lovegrass). This re-growth will need to be monitored to establish a management plan in the future. The next challenge for the school in managing their river bank is the removal of willow and Chinese elm trees. This will require careful planning in consultation with the council to ensure minimal chance of re-infestation and increased erosion due to their removal.

Warwick State High School acknowledges that this area will require ongoing management, however is confident that it has achieved the goal of reducing the lippia infestation and that of reducing further erosion through change in practices. The experience has been a valuable learning tool for the teachers and students alike.

Photos courtesy of Greg Dight, Warwick Shire Council

Some of the main species that have grown back include:

- pitted bluegrass (*Bothriochloa decipiens*)
- rhodes grass (*Chloris gayana*)
- African lovegrass (*Eragrostis cruvula*)
- common verbena (*Verbena officinalis*)
- kikuyu grass (*Pennisetum clandestinum*)
- nardoo (*Marsilea drummondii*)
- onion weed, also called native leek (*Bulbine bulbosa*)
- vetch (*Vicia* species)
- white clover (*Trifolium repens*)