Connecting with communities by understanding landholder management of riparian zones in the Goulburn–Broken catchment

Riparian zones perform essential ecological functions and are important regional sites supporting high levels of biodiversity. At the same time, human settlement has always been focused on rivers, and human activity is often a major determinant of riparian structure and function. A large proportion of riparian land in Australia is owned or managed by private landholders, and grazing by domestic livestock has been a major land use in these areas. The grazing and trampling activity of domestic livestock can have a significant influence on riparian habitats. The aim of this study was to improve our understanding of the impediments to landholders' adoption of recommended management practices to improve riparian condition, such as excluding stock, providing offriver watering points and using crash grazing techniques.

Our study was undertaken in the Goulburn Broken Catchment of north east Victoria, an area that encompasses the Goulburn River and Broken River catchments. Thirty-three property managers were visited in October 2002. Each farm visit included an interview that investigated the attitudes of landholders and their riparian zone management practices, including farm size, predominant land-use, stocking rates, revegetation practices and fencing or grazing exclusion.

The assessment of riparian zones at each site was undertaken using the Rapid Appraisal of Riparian Condition index developed by Jansen et al. (2004). Each sample site was a 200 metre section of the riparian zone that landholders had identified as representative of the river frontage on their property. The parameters scored at each site included river width and width of the riparian vegetation, number of vegetation layers, percentage cover of native species in each vegetation layer, leaf litter cover on the ground and grazing damage to any regenerating canopy species. Potential scores ranged from 0 (worst condition) to 50 (best condition). Total condition scores were grouped into five categories: very poor condition <25, poor condition 25-29, average condition 30-34, good condition 35-39, and excellent condition 40-50.

Key findings

25

20

15 -

10 -

5.

0 -

100

80

60

40

20 -

0

RESEARCH

Very poor

Poor

Tree plantina

Generally, the riparian zones of the investigated private properties were in poor to very poor ecological condition (Figure 1). This was mainly due to the widespread occurrence of exotic species such as blackberry, the lack of coarse woody debris, and low vegetation regeneration at many sites. Seven 'Public Land' sites (e.g. State Forests and Reserves) were also included in the riparian assessments as a comparison to private riparian zones. Although a number of these sites scored within the 'Excellent' category, no sites scored near the theoretical maximum (50) for the index.

The majority of participants in this survey had adopted fencing and tree planting on some portion of the riparian zones on their properties (Figure 2), but very few were implementing recommended grazing techniques, such as crash grazing. The time and cost associated with fencing and maintenance of riparian zones were often cited as impediments to adoption of recommended riparian land management practices (Table 1). However, other issues, such as the loss of fences during flooding, were also raised by landholders.



Curtis, A., Robertson, A. & Tennant, W. 2001, Understanding landholder willingness and capacity to improve the management of river frontages in the Goulburn Broken Catchment, The Johnstone Centre, Charles Sturt University, Albury. Jansen, A., Robertson, A., Thompson, L. & Wilson, A. 2004, 'Development and application of a method for the rapid appraisal of riparian condition', *River Management*

Technical Guideline No. 4, Land

& Water Australia, Canberra.

Figure 1. Frequency distribution of sites in riparian condition categories (n=45).



Crash arazina

THEME

Fencina/

stock exclusion

IT'S A WRAP

Off-river

waterina

Public land

Private river frontages



Figure 3. Frequency of reasons for adopting riparian management practices at fenced/ungrazed sites (n = 25). Bars represent the number of landholders that agreed with each of the nominated reasons.

A large proportion of landholders identified environmental rather than economic reasons for adopting improved land management practices. For example, fencing for increasing biodiversity was seen as more important than improving stock management (Figure 3). Other reasons cited for undertaking fencing included salinity management and vegetation connectivity.

Management implications

Maintenance activities, such as weed control, were often discussed by landholders as an important, but frequently ignored consideration when fencing off riparian zones on their properties. For several landholders with existing riparian fencing or revegetation, the continued maintenance associated with these initiatives was cited as an unforeseen and discouraging aspect. In a number of cases, landholders expressed reluctance to undertake further fencing or encourage others to do so because of the difficulties associated with maintaining rehabilitated areas. As a result of these findings, it is recommended that greater consideration be given in funding initiatives to the maintenance of established rehabilitation areas in riparian zones to preserve the goodwill and enthusiasm of participating landholders. Other impediments to adoption of recommended practices for riparian improvements included time, cost, and the loss of resources such as access to permanent water or quality grazing areas. These difficulties are easily addressed via funding solutions, and a number of landholders indicated that access to funding would facilitate adoption.



Management practice	Cost	Time	Floods destroy fence	Want access to reliable water	Want access to feed	Practice is not necessary	Other
Fencing	23%	8%	23%	23%	15%	8%	-
Revegetating	23%	15%	-	-	23%	31%	8%
Crash grazing	-	-	-	-	62%	38%	-
Off-river water	31%	8%	-	61%	-	-	-

 Table 1. Impediments to the adoption of recommended riparian management practices at grazed sites.

Results from our assessments demonstrated that a large proportion of riparian zones were in very poor ecological condition, but the response of land managers to our interview questions showed some respondents believed that improved riparian management was not necessary. This is consistent with data collected in the Goulburn Broken Catchment by Curtis et al. (2001) which demonstrated that a substantial minority of land managers were either misinformed, or reluctant to acknowledge the critical role of stock grazing and clearing in contributing to riparian degradation. Therefore, we suggest that community education programs may be useful in increasing adoption rates of recommended riparian management practices by promoting awareness of the need for improved riparian condition.

This study highlights the need for education, awareness and incentives packages to be 'tuned' in to the context within which landholders operate, otherwise they are likely to fall short of achieving on-ground change. For further information Andrea Wilson Charles Sturt University Email: awilson@ csu.edu.au Tel: 02 6933 2552





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