



How landholders are managing rivers and streams in Tasmanian agricultural catchments

What we found

Farmers made up a minority (39%) of the 146 respondents to a survey of riparian land managers in six Tasmania catchments (Coal, Jordan, Macquarie, Quamby Brook, Pet, and Inglis–Flowerdale) found that

The occupations of the non-farming majority were reported as trades (23%), retirees (17%) professionals (14%) and investors (2%). The proportion of farmers varied significantly between catchments with only 15% in Quamby Brook and 76% in the Macquarie

catchment. With the exception of the Macquarie catchment (where properties were larger and the majority of landholders were farmers), non-farmers owned between 40% and 68% of the length of all frontages.

Only 37% of respondents made a net profit from farming in the 2006–07 financial year with a median of \$15,000 ranging from \$5,000 in the Coal, Macquarie and Quamby Brook catchments, \$15,000 in Inglis–Flowerdale to \$35,000 in the Pet and Jordan catchments. Meanwhile, the median off-property income before tax for

a respondent and partner was three times that of on-property profit (median \$45,000).

In a follow-up face-to-face study, many interviewees reported that dry conditions and a difficult business environment left them with little financial capacity to invest in conservation works, with several indicating they had deferred their NRM activity until business and climatic conditions improved.

The survey showed that NRM programs have failed to reach the non-farmers, with only 11% accessing government support for conservation activity in the past five years compared to 42% of farmers.

A majority of respondents (67%) agreed with the statement: *The water in the river/creek running through my property is in*



Pet River fenced for stock exclusion showing native vegetation recovery (Photo: R. Sample)

good condition. However, this varied greatly with location. More landholders in the higher rainfall north west (Pet and Inglis–Flowerdale) reported water quality in good condition (91%) than those in the Coal and Jordan catchments in the drier south east (42%) with those in the Macquarie and Quamby Brook catchments being intermediate (66%).

A significant number of respondents were concerned about the potential negative consequences of fencing riparian areas such as an increase in pest plants (44%), the difficulty or cost of installing off-stream watering points (40%), increased management time (38%), creating habitat for pest animals (38%) and the effects of floods on fencing (33%). These concerns



Location of study areas (catchments outlined in green).

Table 1: Comparison of farmers and non-farmer survey respondents, N=146.

Topic	N Farmer	Median farmer	N non-farmer	Median non-farmer	
How old are you?	54	52 years	83	56 years	
What is the area of your property?	52	400ha	84	42ha	*
Number of hours worked per week on-farm	53	56 hr	81	8 hr	*
Number of days of off-property work in the past 12 months	50	0 days	78	195 days	*
Approximate profit (before tax) from your property in (2006–2007)	35	\$15,000	21	\$5,000	*
Approximate total off-property income (before tax) for you and your partner in (2006–2007)	30	\$25,000	57	\$55,000	*
Have you prepared a property management plan?	39	Halfway	52	Not started	*
Has your family agreed to a succession plan?	37	Early stages	29	Not started	*
Are you a member of a local Landcare group?	54	41%	84	11%	*
Are you a member of a local commodity group?	54	33%	83	2%	*
In the past 5 years has a government or regional NRM body supported work on your river frontage or wetlands?	50	42%	80	11%	*

* Indicates a statistically significant difference using the Proportions Test.

suggest there will be a challenge engaging the 39% of respondents who said they had not fenced riparian areas to manage stock access.

Implications for natural resource managers and policy-makers

The survey illustrates the dynamic and diverse nature of landholders who manage riparian lands, and emphasises the value of up-to-date social data on which to base environmental communication, education and incentive programs.

Non-farmers were found to hold high conservation values, suggesting that there is an opportunity to reach a new

and influential audience that to date has not been reached by NRM programs. The challenge is to build the necessary knowledge, skills and capacity amongst this cohort, given that the best predictors of conservation activity were found to be attending a property management planning course, being a member of a Landcare group, and having sound knowledge of NRM processes.

The differences in knowledge, networks and conservation activity between farmers and non-farmers suggests that NRM programs directed at this audience need to develop skills and build social and human capital as a precursor to

the adoption of recommended practices.

A further challenge is reaching an ever-changing audience. The data suggests that high turnover in property ownership is likely over the next decade given that the average age of landholders was 54 and less than 20% expect to pass ownership to family members. Over two-thirds said they were likely to subdivide and sell part of the property in the next five years.

Two further challenges that stood out from the responses were managing the perceived conflicts between recommended conservation measures and 'best practice'

Table 2: Proportion of respondents who had implemented a selection of the 20 recommended conservation practices included in the survey.

Practice	n	% Overall Yes	% Overall No	% Overall NA	Land use
Practices undertaken during your management					
Removed willows	112	26%	16%	58%	all
Removed willows and replaced with native vegetation	110	13%	26%	61%	all
Established best-practice effluent management system for dairy sheds	7	71%	0%	29%	Dairy
Practices undertaken in the last 5 years					
Established permanent grassed waterways in drainage lines	25	31%	28%	41%	croppers
Regularly used mulched rip lines in cropped paddocks	25	17%	62%	21%	croppers
Tested soils for nutrients	130	52%	21%	28%	all
Tested quality of water for stock or irrigation	130	27%	45%	28%	all
Practices undertaken this year (2008)					
Do you have a fertiliser budget for all or some of the farm?	129	38%	38%	24%	all
Do you have a grazing plan that includes keeping stock out of wet paddocks in winter?	99	58%	26%	16%	stockers
Did stock graze any part of your river frontage or wetlands for more than a week at a time?	100	38%	52%	10%	stockers
Did stock access water from your river frontage or wetlands for more than a week at a time?	99	47%	44%	8%	stockers
Did you crop using minimum tillage practices or sow cover crops over winter?	27	81%	10%	10%	croppers

Note: Green shading indicates that data from the Pet catchment was removed due to extensive riparian works funded by the Burnie Council to protect the town's water supply. Yellow shading indicates that data from the Pet and Quamby Brook catchments were removed due to insufficient numbers of respondents involved in cropping.

farming, and providing the knowledge and skills to manage the off-site consequences of increased irrigation.

Conservation practices seen to be in potential conflict with farming are excluding stock for extended periods (as grazing is commonly viewed as the most cost-effective means of controlling weeds and pests), and fencing riparian areas (given the high cost of repairs after floods in higher rainfall areas).

As a third of respondents plan to increase the use of irrigation in the next five years, there may be increased pressure on rivers and streams in the form of sediment and nutrient loads. This emphasises the need for best practice irrigation to be incorporated into property management planning, including establishment of grassed waterways, adoption of minimum tillage, soil testing and nutrient budgeting.

For more information contact:
Prof Ted Lefroy,
Director, Landscape Logic
P (03) 6226 2626
M 0408 180 567
E ted.lefroy@utas.edu.au
www.landscapelogic.org.au

The overall low level of farm profitability suggests that most landholders have a limited ability to implement work without substantial cost-sharing by governments.

How we did it

Questionnaires were mailed to a random sample of 310 property owners with more than five hectares of land and greater than 50m river frontage in the six catchments.

The six catchments were selected as they were considered by NRM professionals to have seen the highest levels of riparian intervention in the state.

A 65% survey response rate was achieved, and the survey was followed up by semi-structured, in-depth interviews with 43 landholders and other stakeholders. This group included at least six landholders from each study area, farmers and non-farmers, selected to represent the main social characteristics and farming practices amongst river frontage owners. Another 14 people were identified as highly informed stakeholders including regional NRM professionals, industry representatives and members of state-wide organisations and interest groups.

The questions were designed to improve understanding of:

1. The extent to which riparian landholders are currently implementing 20 recommended practices that are assumed to lead to improved water quality.
2. Landholder knowledge and understanding of the assumed links between these practices and resource condition outcomes.
3. The factors that influence landholders to implement practices expected to lead to improved water quality.

For further information see the full technical report at www.landscapelogic.org.au/publications/technical_reports.

The authors

Allan Curtis,
acurtis@csu.edu.au



Digby Race
drace@csu.edu.au
and

Royce Sample
rsample@csu.edu.au



Landscape Logic - www.landscapelogic.org.au

Landscape Logic is a research hub under the Commonwealth Environmental Research Facilities scheme, managed by the Department of Environment, Water Heritage and the Arts. It is a partnership between:

six regional organisations – the North Central, North East and Goulburn–Broken Catchment Management Authorities in Victoria and the North, South and Cradle Coast Natural Resource Management organisations in Tasmania;

five research institutions – University of Tasmania, Australian National University, RMIT University, Charles Sturt University and CSIRO; and

state land management agencies in Tasmania and Victoria – the Tasmanian Department of Primary Industries, Parks, Water & Environment, Forestry Tasmania and the Victorian Department of Sustainability & Environment.



Australian Government
Department of the Environment,
Water, Heritage and the Arts