

Lower Blackwood Catchment
Land Conservation District Committee

Drivers and Barriers to Riparian Restoration on Private Property within the Lower Blackwood LCDC District

A VALUE STUDY - MARCH 2019 TO JUNE 2020

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Department of **Water and Environmental Regulation**
Department of **Primary Industries and Regional Development**



Contents

Executive Summary.	(P.2)
1.0 Preamble.	(P.4)
2.0 Objectives.	(P.4)
3.0 Study Area.	(P.5)
4.0 Methodology.	(P.5)
4.1 Research Tools.	(P.6)
4.2 Survey Population Size (N).	(P.6)
4.3 Sample Interview Respondents Size & Selection (n).	(P.6)
5.0 Results & Analysis.	(P.7)
5.1 Presentation of Findings.	(P.7)
5.2 Landholder Information Survey.	(P.8)
5.2.1 About You.	(P.8)
5.2.2 Landcare Involvement.	(P.11)
5.2.3 About Your Property.	(P.14)
5.3 Landholder Value Study - Interviews (Sample Group).	(P.16)
5.3.1 Demographic Spread of Sample Interview Respondents.	(P.16)
5.3.2 Perceptions & Awareness: Information Gathering - Results.	(P.17)
5.3.3 Perceptions & Awareness: Opinion & Understanding - Results.	(P.18)
5.3.4 Perceptions & Awareness - Analysis Summary.	(P.19)
5.3.5 Drivers - Results.	(P.20)
5.3.6 Drivers - Analysis Summary.	(P.30)
5.3.7 Barriers - Results.	(P.31)
5.3.8 Barriers - Analysis Summary.	(P.33)
5.3.9 Future Participation - Results.	(P.33)
5.3.10 Future Participation - Analysis Summary.	(P.37)
5.4 Focus Group Discussion & Feedback.	(P.38)
5.4.1 General Comments.	(P.38)
5.4.2 Input into Report Recommendations.	(P.38)
6.0 Summary & Recommendations.	(P.39)
6.1 Funding Program Recommendations:	(P.41)
6.2 Communication / Education Program Recommendations.	(P.41)
Appendix 1: Catchment Landholder Survey Form.	
Appendix 2: Landholder Value Study – Interview Form.	

Scope & Objective

Currently the LCDC has limited knowledge about what drives landowners' land management decisions and how their values, attitudes, perceptions and beliefs affect willingness to engage in riparian zone management. Some of the difficulties encountered by the LCDC in the engagement of landowners in restoration projects so far hinge on this knowledge gap.

The study objectives were to:

1. Capture demographic data from the landowner target group within the study area.
2. Identify a set of key/common drivers and barriers to ecological restoration of the riparian zone in the Lower Blackwood District focusing on targeted catchments within the District.
3. Identify effective ways to engage landowners on issues such as:
 - riparian ecology and the impacts of soil erosion and organic loading to streams,
 - riparian restoration works / costs / benefits (to them and the riparian environment), and
 - what riparian works success looks like.

It is intended that the information gained from the Study will aid in the development & implementation of:

- More informed and targeted funding programmes.
- More informed and targeted communication / educational programmes.

Findings

- The majority of landholders see landcare as important, and are happy to engage in landcare activities when provided with good quality information, advice, & if available, funded support.

- Landholders can describe a healthy waterway in broad terms, particularly using biodiversity & water flow as strong indicators of health or otherwise.
- Landholders recognised the link between poor water quality and livestock health, and that restricting livestock access to waterways was an effective action that could be taken.
- Most landholders have undertaken some form of riparian restoration on their land, with the majority receiving support from the LCDC. Concern for their land or the environment more broadly was the chief driver for undertaking the actions.
- The concern for unintended consequences (e.g. weed infestation, loss of land) occurring were the chief barriers to landholders not undertaking riparian restoration, closely followed by an inability to see an economic return for the action. Most landholders used 'experience' as the reason they had come to these conclusions.
- Barriers to undertaking actions would be removed;
 - if landholders could see that their waterways were deteriorating, &/or
 - if funding was more flexible, &/or
 - if the benefits could be clearly demonstrated.
- Landholders generally believed that the 50:50 funding model was sufficient however improvements could be made, including more education & information to demonstrate the benefits of undertaking works, support in planning activities, and funding to support weed control & plant replacement after the initial project is completed.
- LCDC is well placed to continue to play a key role in informing & educating landholders on the benefits of good landcare practices in general and in riparian restoration in particular, and the consequences of not undertaking them, and in doing so turning up the 'importance' dial for landholders to take action.

01

KEY COMMUNICATION & EDUCATION MESSAGES MUST BE ABLE TO DEMONSTRATE RELEVANT & REAL BENEFITS, BOTH ENVIRONMENTAL & ECONOMIC TO LANDHOLDERS.

For more effective engagement, key content & communications need to:

- be differential & targeted depending on scale, ownership (e.g. corporate vs private) & nature of operation (e.g. dairy, tree plantations, viticulture).
- Explain what is healthy & what is not, what should be there, what should not
- Explain cause & effect
- Explain at a local level, ecosystems, biodiversity, water quality & flow, and erosion
- Show 'success' at a local level & inspire action
- Be framed in a manner that supports the values of accomplishment, self- respect, & belonging, without impinging on people's sense of freedom & independence.

02

A NUMBER OF IMPROVEMENTS TO THE DESIGN OF FUNDING FOR WATERWAYS RESTORATION & ONGOING PROTECTION WERE IDENTIFIED THAT WOULD WORK TO:

1. Increase the level of engagement amongst catchment landholders,
2. Improve the level of long-term success of funding activities.

FUTURE FUNDING SHOULD, WHERE POSSIBLE, INCLUDE:

- Provision for an ongoing communications & education program, including local case study research, recording & presentation.
- Provision for funding to enable the LCDC to increase its engagement footprint through a concerted campaign to improve the quality and quantity of landholder contact information in the LCDC's database.
- Provision of expertise for pre works planning & advice to enable landholders to determine what is the best treatment for their waterway. It is recommended the landholders be guided to plan holistically for a whole of landscape approach at the farm level. This includes planning for:
 - waterways mapping (origin & exit)
 - off stream watering points and stock crossings
 - water rights and obligations
 - erosion control & run-off
 - salinity and waterlogging
 - linking patches of remnant bush
- It is recommended that the funding model should encourage an outcome-based management of the streams and allow for a minimum 12 months post works support for weed control and plant death replacement.
- Flexible requirements around fencing to allow site specific managed grazing of fenced area for weed control.
- A whole of catchment stream management plan project that will aim to engage the community to formulate a common goal(s) for the catchment waterways and increase the broader knowledge of our waterways

1.0 PREAMBLE

The Lower Blackwood Land Holder Value Study - **Drivers & Barriers to Riparian Restoration on Private Property with the Lower Blackwood LCDC District** (the Study), was instigated by the Lower Blackwood Land Conservation District Committee (LCDC), with the support of the Department of Water through the Regional Estuaries Initiative Project (REI). The study was born out of a desire to gain a better understanding of how landholders and managers within LCDC catchment boundaries perceive the relationship between natural assets on their farm (water courses, riparian habitats, and water quality), and the economic and social cultural opportunities they offer.

The Study also provided an ideal opportunity to build positive relationships with landholders, to gain their confidence and support in the LCDC's ability to deliver outcomes, and to improve the way the LCDC delivers that support.



2.0 Objectives

The Study aimed to:

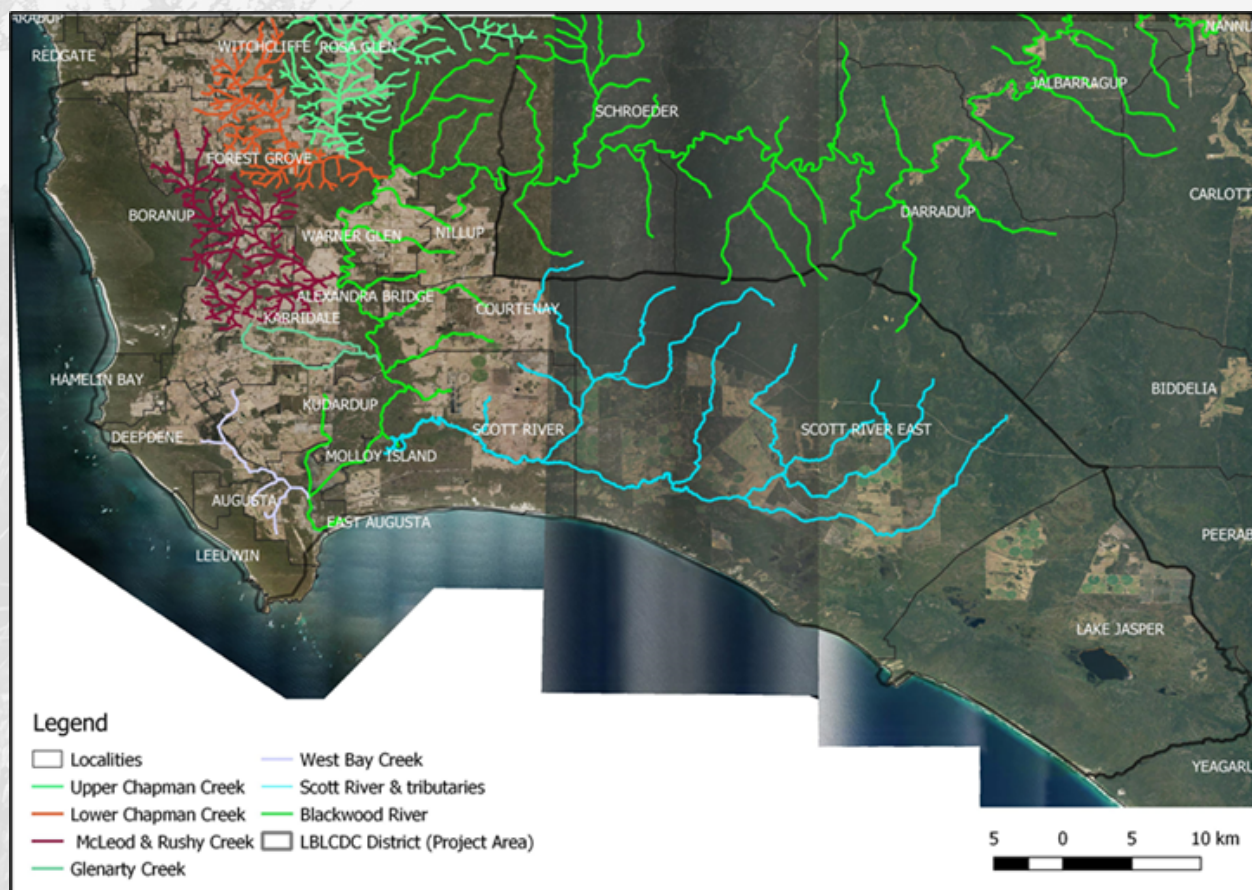
- To capture demographic data from the landowner target group within the study area (see next page).
- To identify a set of key/common drivers and barriers to ecological restoration of the riparian zone in the Lower Blackwood District focusing on targeted catchments within the District.
- To identify effective ways to engage landowners on issues such as:
 - riparian ecology and the impacts of soil erosion and organic loading to streams,
 - riparian restoration works / costs / benefits (to them and the riparian environment), and
 - what riparian works success looks like.

It is intended that the information gained from the Study will aid in the development & implementation of:

- More informed and targeted funding programmes.
- More informed and targeted communication / educational programmes.

3.0 Study Area

The Study selected landholders/managers with a property that abuts at least one of the following watercourses:



4.0 Methodology

Both quantitative & qualitative research methods were proposed due to the exploratory nature of the research.

4.1 Research Tools

- The first tool was an information survey (via Survey Monkey) which focused on collecting basic demographic data plus information on property size, land use, farming method, land management training, land management experience, ownership duration & land management interests, values, & landcare involvement.
- The second tool involved targeting a smaller sample group from the survey respondents for one on one structured interviews.
- A third tool (small focus group) made up of LCDC committee members & facilitated by LCDC staff, was undertaken to discuss the findings of the study, & provide input into the study recommendations.

4.0 Methodology (cont)

4.2 Survey Population Size (N)

- Three hundred and eighteen (318) landholders/managers were identified as meeting the Study Area criteria. Surveys were sent via post or email. 88 surveys were returned due to incorrect address or email information, reducing the potential survey respondents to 230.
- Of the 230 potential respondents, 80 completed the survey (34.8%). Although we had hoped for a higher response rate, this % response is in keeping with most survey averages.

4.3 Sample Interview Respondents Size & Selection (n)

The original intended respondent sample size was calculated using the following:

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

N = population size • e = Margin of error (percentage in decimal form) • z = z-score

Based on N=230 (where N = population), it was calculated that 68 “n” respondents (based on a 95% confidence level (z) with a +/- 10% margin of error) would be required to be interviewed for a representative sample size.

In addition, it was intended that, as far as possible, the makeup of the sample interview respondents be based on the following criteria (to be informed by the survey):

- 100% landholders & managers identified as having grazing livestock on their properties
- 12% landowners identified as having previously (within the last 10 years) been involved in riparian restoration works (fencing and/or revegetation).
- 88% landowners identified as not having previously been involved in riparian restoration works (various landuse).

Due to the reduced survey response rate (80), the decision was made to interview as many of the 80 survey respondents as possible to get the broadest possible feedback, regardless of the relationship to the original intended selection criteria outlined above.

Sixty-four of the survey respondents agreed to an interview. Of the 64, 80% had grazing livestock on their property / 87% had undertaken riparian restoration works in the past 10 years / 13% had not undertaken riparian restoration works in the past 10 years.

The high percentage of survey respondents indicating that they **had undertaken riparian restoration** was surprising and seemingly the reverse of the intended sample selection criteria. It was however assumed that by interviewing all 64 (rather than restricting the interviews to just the intended selection criteria percentages), the sample would still be valid as all respondents were able to communicate challenges or obstacles to undertaking riparian works & all could still contribute to building the overall picture of perceptions, drivers & barriers.

5.0 Results & Analysis

5.1 Presentation of Findings.

Results of the data analysis are presented here for each question of the survey & interview. Names & contact details have been excluded due to the anonymity requirement of the study findings reporting. **Section 5.2** presents the results of the **Landholder Information Survey** (80 Respondents); **Section 5.3** presents the results of the **Sample Interviews** (64 Respondents).

In both sections quantitative data is presented in chart form. Qualitative data is summarised through 'tags' as a means of quantifying the responses, however detailed comments are also included in the report to ensure that the full meaning of responses is not lost. It should be stressed that these are reported comments and no attempts have been made to verify their accuracy. Furthermore, there is no one 'right' answer for each question.

Interviewees could provide more than one response for all open-ended questions. Percentages, therefore, will not add to 100 but will indicate the number of respondents giving a particular response. For these questions, tags (categories) were allocated to responses for the purpose of quantifying and for ease of presentation.



5.2 Landholder Information Survey

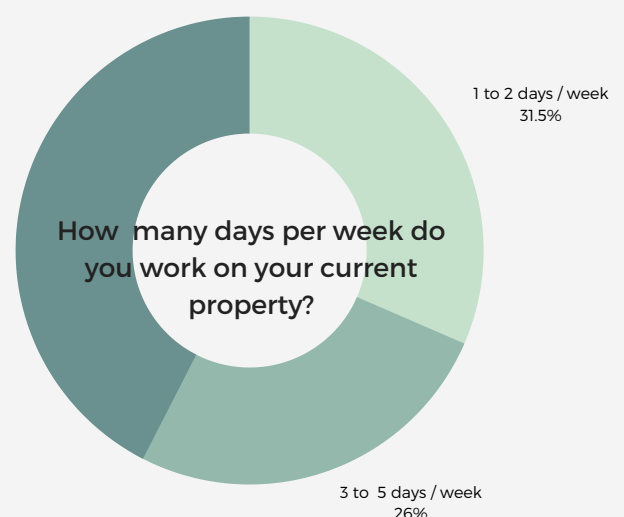
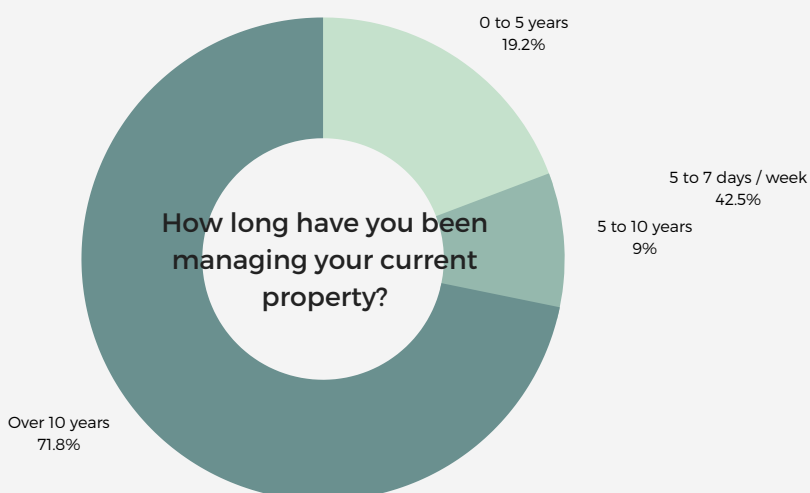
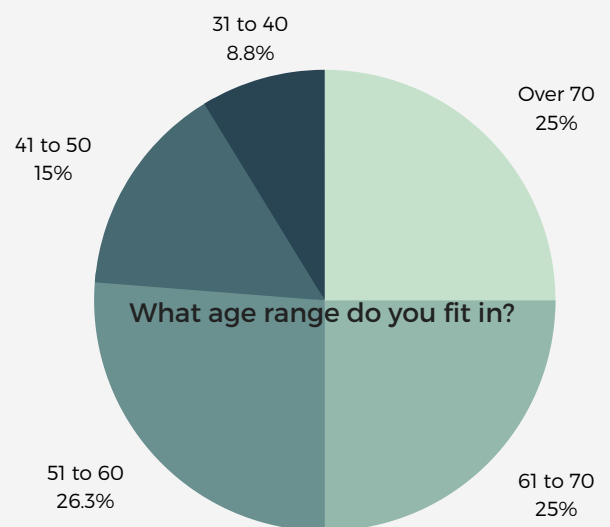
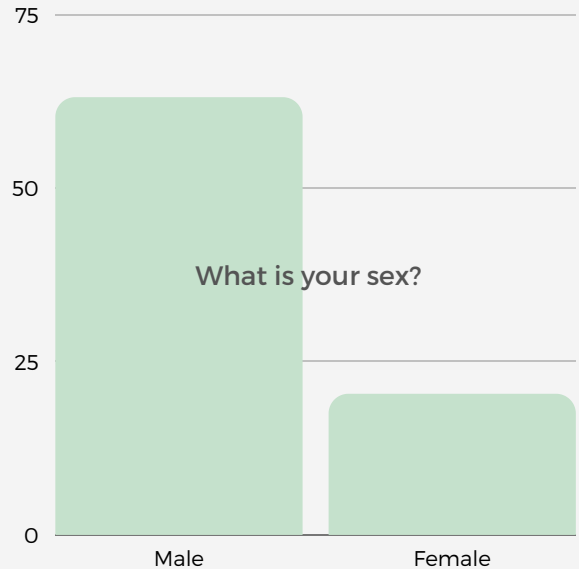
5.2.1 About You

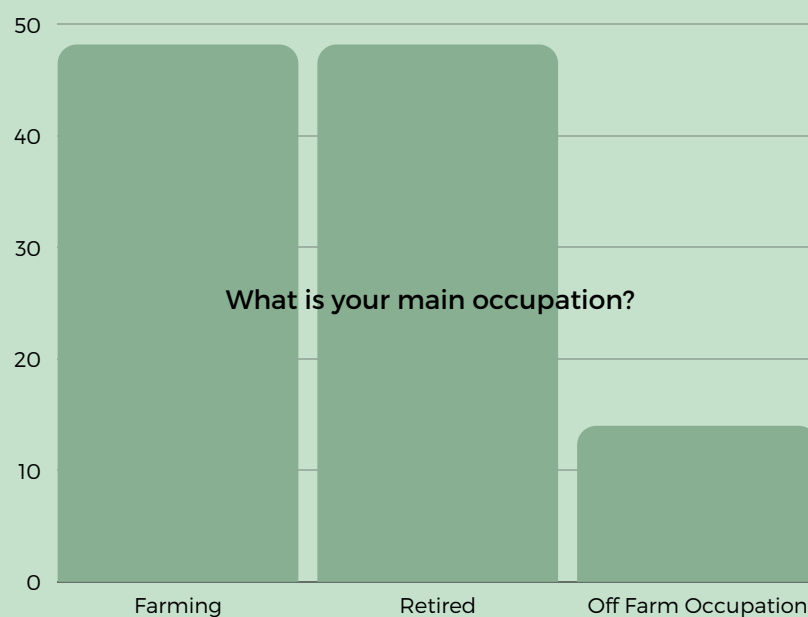
It is evident that the LCDC database, the bulk of which was originally sourced from the Augusta Margaret River Shire, appears to be gender biased. Property ownership is generally recorded by the Shire in the male owner's name (in the case of a couple) unless specifically requested otherwise.

The surveys were delivered as personalised mail (or email), the results directly reflect the male bias currently on record & the lack of information in the LCDC database on the female half of property ownership (where applicable).

75% of respondents were 51 years or older. This result is unsurprising given the high cost of property purchase. These results, combined with the numbers of years on the property (below) could indicate a generational nature of property ownership in the catchment.

A significant number (42%) of the respondents are full time land managers.





7 respondents indicated they were farmers but also had an off-farm job



If Yes what was the last training you undertook?

Formal Qualifications:

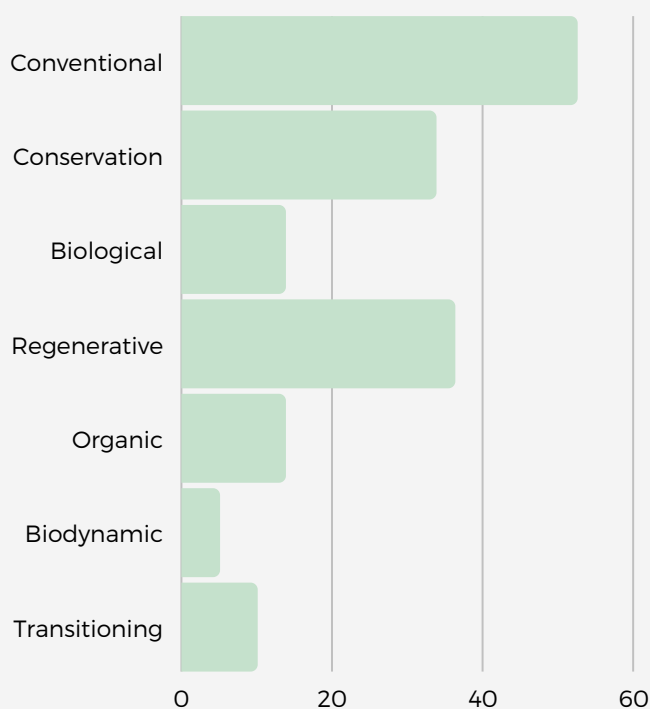
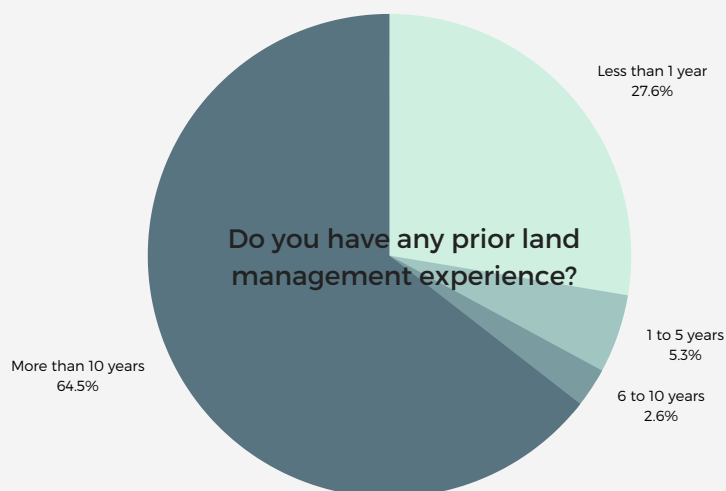
- Certificate of Agriculture
- Harvey Ag School
- Muresk Ag College
- Cert IV in Land Management
- B Sc (Forestry)
- Bachelor Agribusiness Marketing
- B App Sci (Nat Resources)
- Bachelor of Science: Land Management
- Veterinary degree
- Degree in Viticulture & Oenology

Professional Development / Short Courses:

- Lifetime ewe management course
- Soil microbiology
- Cattle grading course
- Bushfire suppression refresher training
- Holistic management
- Permaculture design
- Small Landholders workshop
- Grazing matcher
- Multiple small farm education days, soil health courses, property planning field days, FCO training, MLA biosecurity

Although not asked specifically, the results relating to training, experience and land use, may indicate a higher percentage of generational farms. This is supported by anecdotal information on property ownership in the survey area.

Experience on the ground is more prevalent than formal training amongst our respondents. The ratio of 10+ years of experience to training being 13:1.



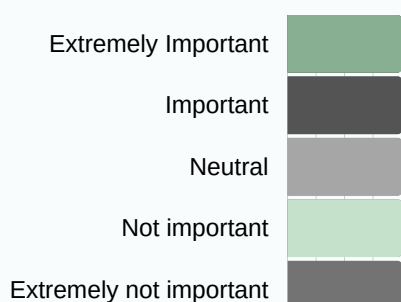
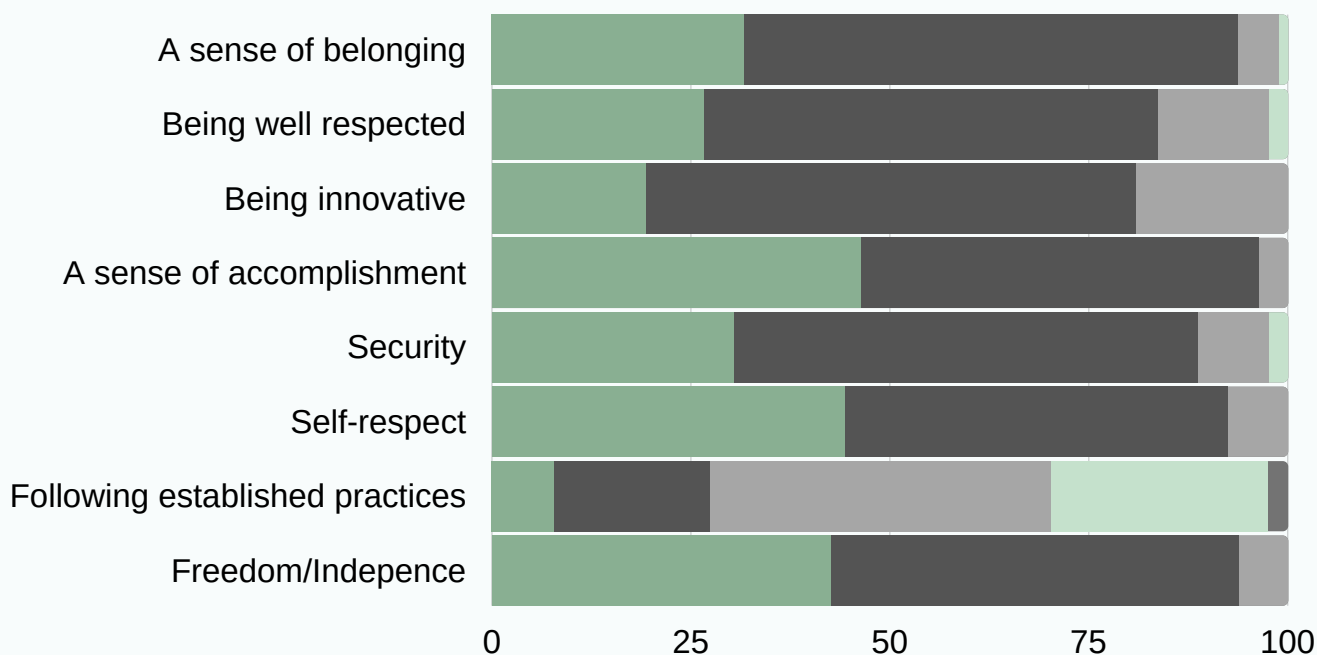
How would you describe your current approach to farming?

The high % of farmers using a conventional approach to land management (52%) is not unexpected however it is interesting to note that over half of those also selected a second non-conventional method or that they were transitioning.

When added together the 112.5% of respondents selecting transitioning or non-conventional farming methods represent a sizeable proportion of landholders who are more likely to be mindful of landcare matters and open to riparian restoration activities.



What's important to you? Rate each item in terms of importance in your daily life.



Most noteworthy values indicated

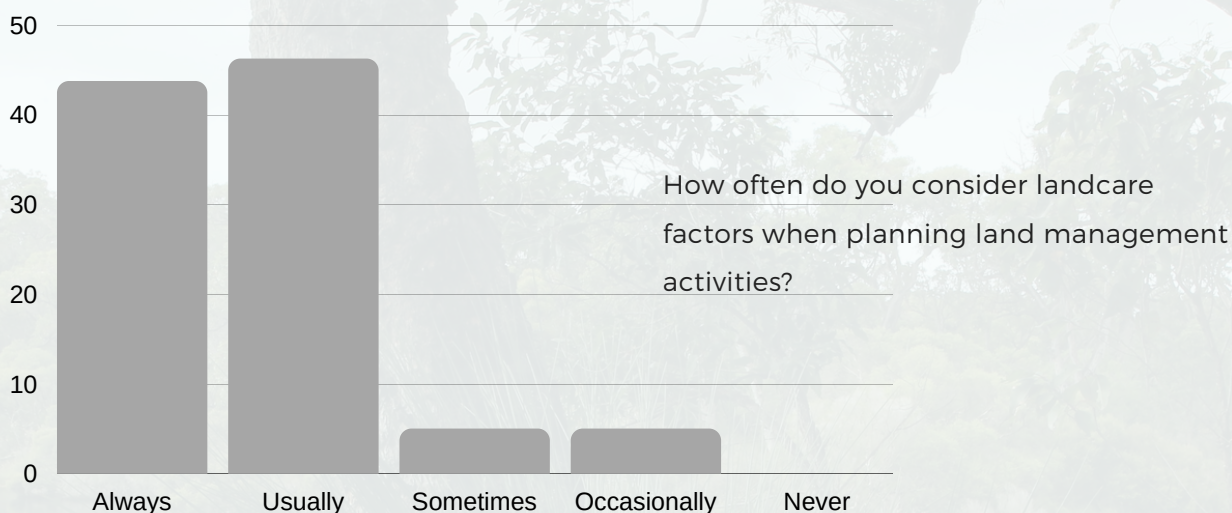
Extremely Important:

- A sense of accomplishment: 46.25% (37)
- Self-respect: 44.30% (35)
- Freedom & Independence: 42.50% (34)

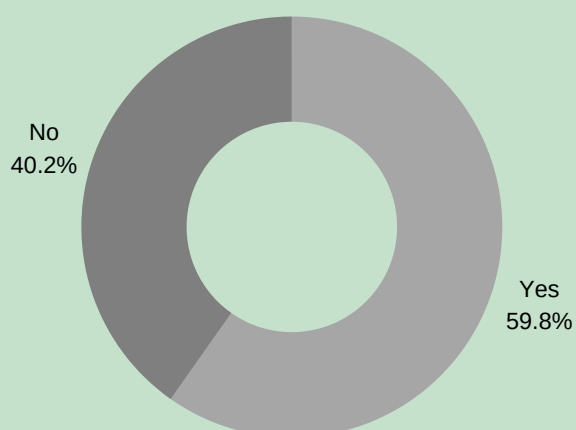
Important:

- A sense of belonging: 62.03% (49)
- Being innovative: 61.84% (48)
- Security: 58.23% (46)

5.2.2 Landcare Involvement

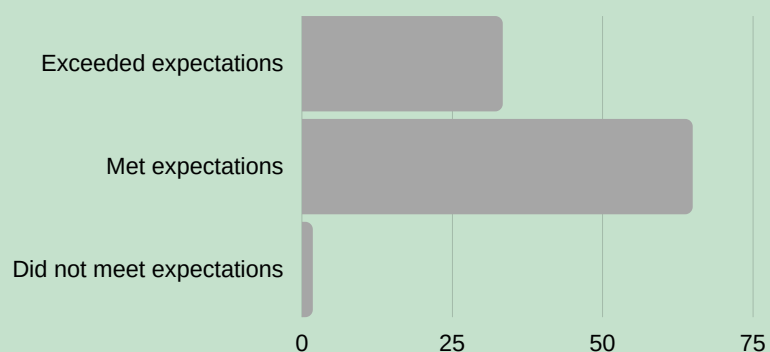


Have you ever engaged with the Lower Blackwood LCDC?

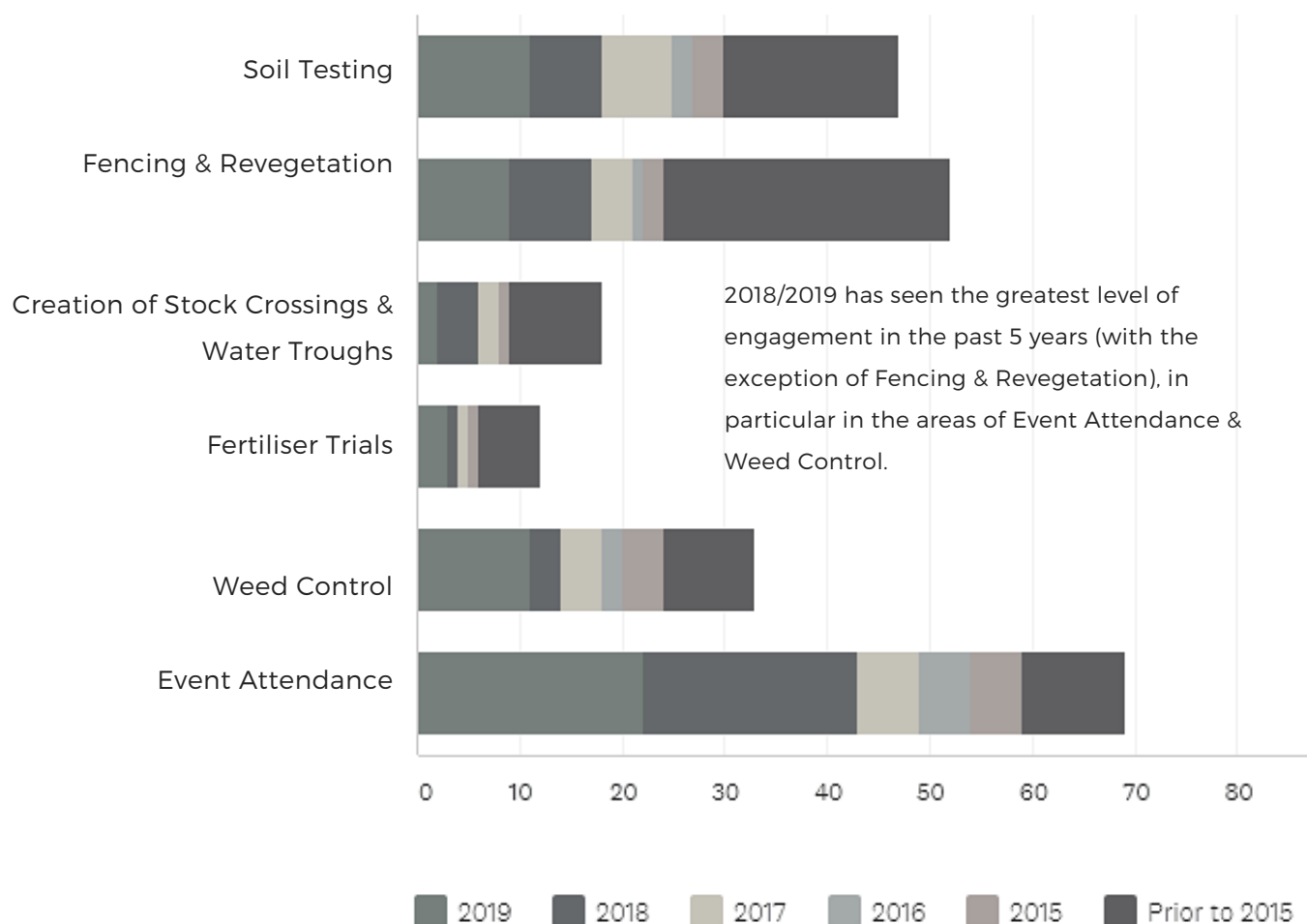


There are 6 additional respondents to the question 'How have you engaged' compared to those who answered 'Yes' to engaging with the LCDC. Those respondents misunderstood the question and indicated landcare engagement they had undertaken outside of the LCDC's support.

How would you rate your overall engagement experience?

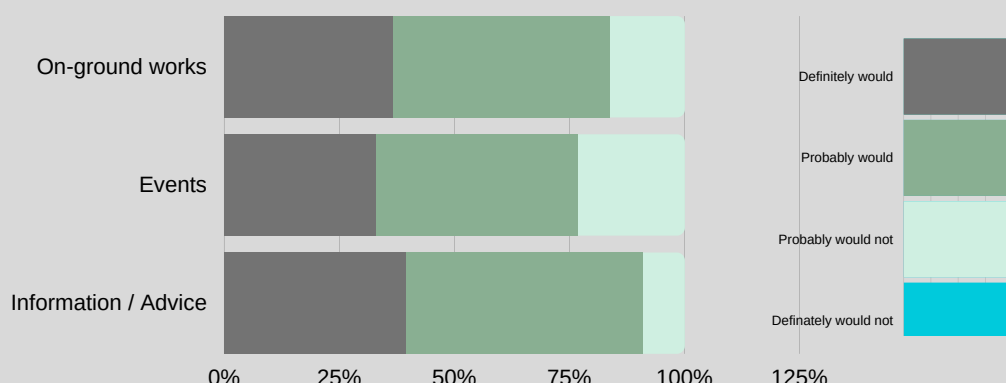


How have you engaged?





How likely are you to engage with the Lower Blackwood LCDC in the future for?



Why?

Response Categories:

- On Ground support / funding (4)
- Learning opportunity (10)
- Support community / make a difference (4)
- Provide expertise (5)

Sample of Actual Responses:

- Great source of local knowledge and access to funding grants and support
- Many good field days and talks are run by them
- The LCDC has access to resources and knowledge that is helpful to me
- Aspirations & goals seem similar
- Can help me to get where I am going.
- Bank of knowledge which is available to producers
- Because quite often I have learnt of things that can affect my operations.
- We have issues with introduced species of weeds that we wish to eradicate
- I'd like to learn more and to develop the land and property sustainably.
- Community involvement. Good for my land now and in the future
- A balance view and helping improve our production systems
- Always had an interest in innovation and best practice
- Because it makes a difference

Why Not?

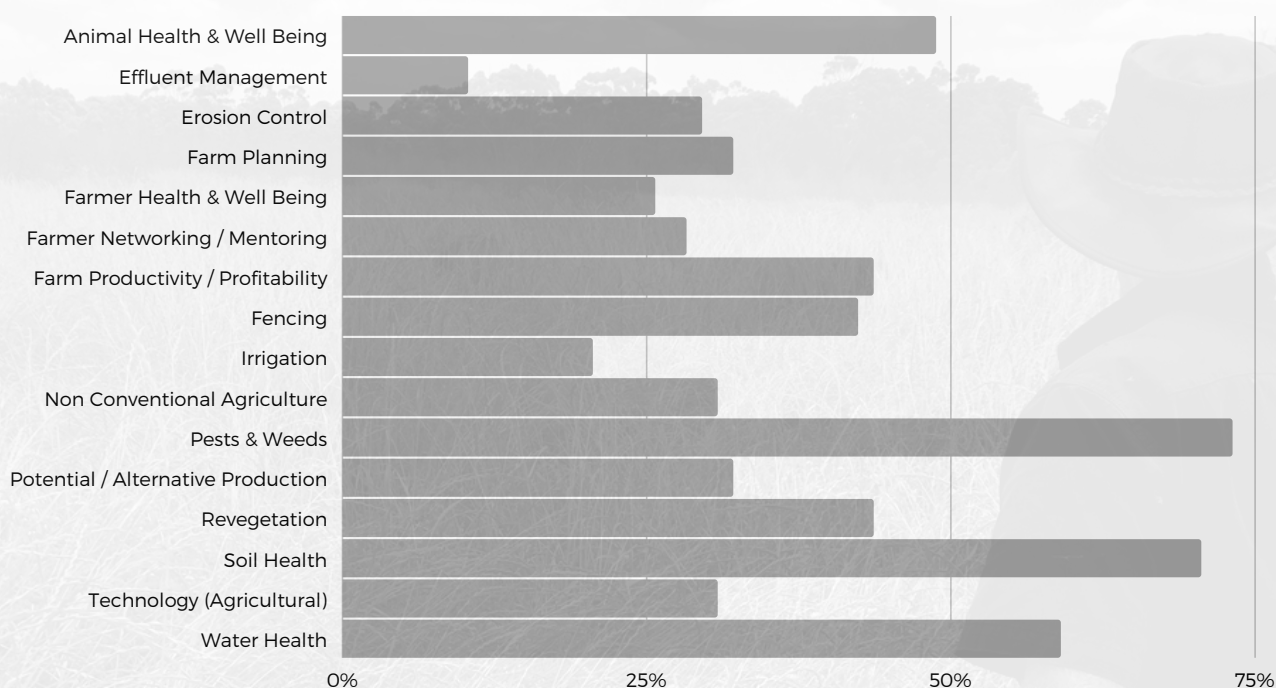
Response Categories:

- Time (3)
- Didn't know (1)
- Small property (2)
- Too old (1)
- Don't need help / already have knowledge (3)
- Financial (1)
- Not relevant (1)

Sample of Actual Responses:

- My only problem is that I am still employed in Perth.
- Time is a factor (or lack thereof!)
- Unaware of Lower Blackwood LCDC until survey invitation.
- I would make sure that the person giving me the advice was actually fully familiar with the conditions at that time.
- Small holding 8 acres
- I feel I do the best I can to protect the drainage system into the Blackwood River
- Financial commitment
- Existing committees & priorities
- Too Old
- I have over 30 years farming experience, 24 years on the current property. Need for external advice is limited.
- Property planted into blue gums

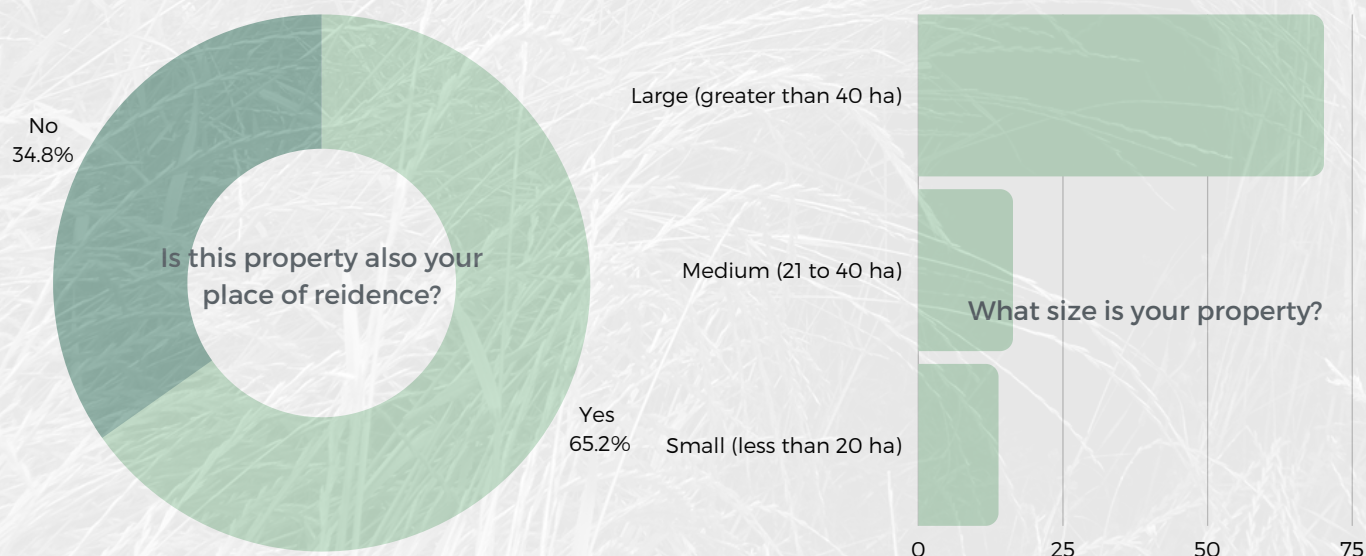
What areas of landcare & land management are you interested in &/or would like to hear more about? (please select all appropriate options)

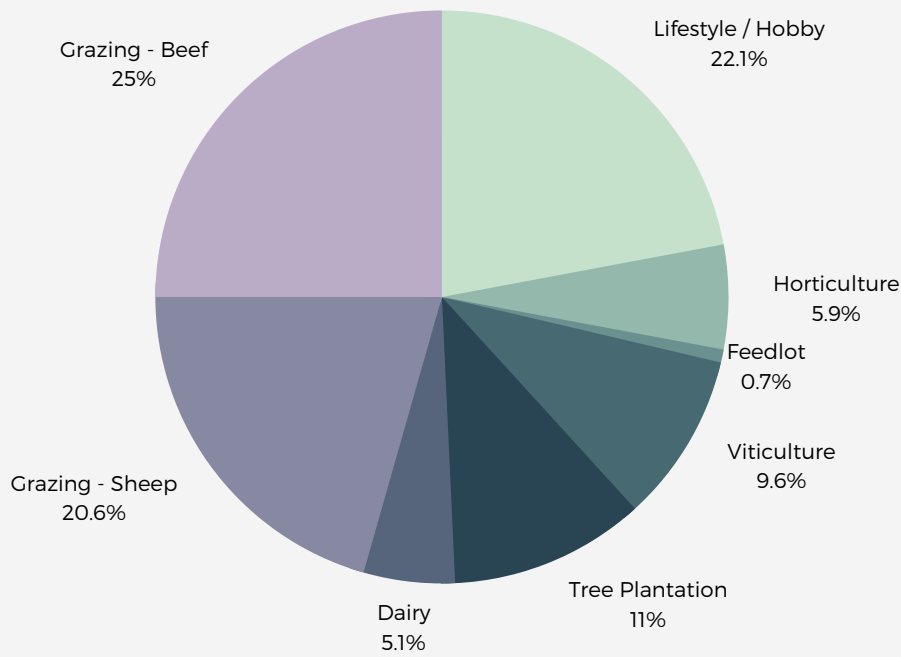


Top 3 areas of interest are: Pests & Weeds (73.08%), Soil Health (70.51%), Water Health (58.97%), with a second tier of interest being: **Animal Health & Wellbeing (48.72%), Farm Profitability (43.59%), Fencing (42.31%), & Revegetation (43.59%).**

It is also worth noting the level of interest in **Effluent Management** - given that this is most relevant to Dairy Farmers, of which only 8.75% were survey respondents (see next page), there appears to be a wider community interest in this area. Overall these responses provide a very clear indication of what the LCDC needs to focus on in terms of information, advice, training and on ground support.

5.2.3 About Your Property

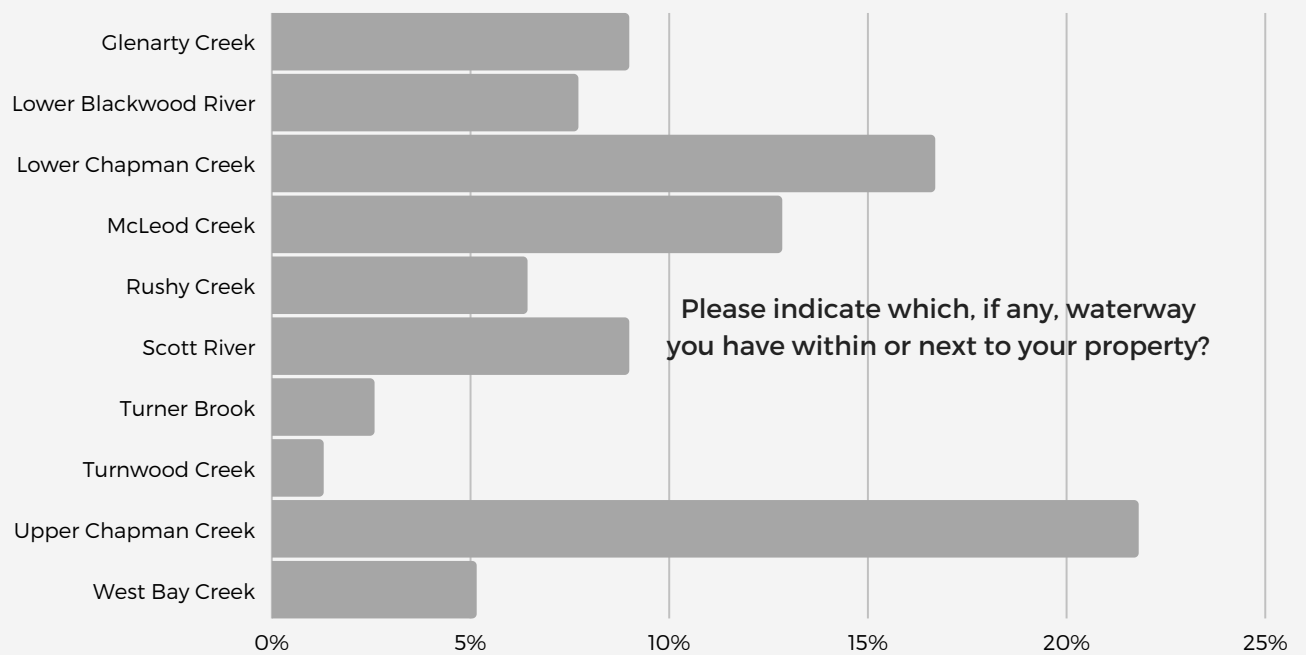




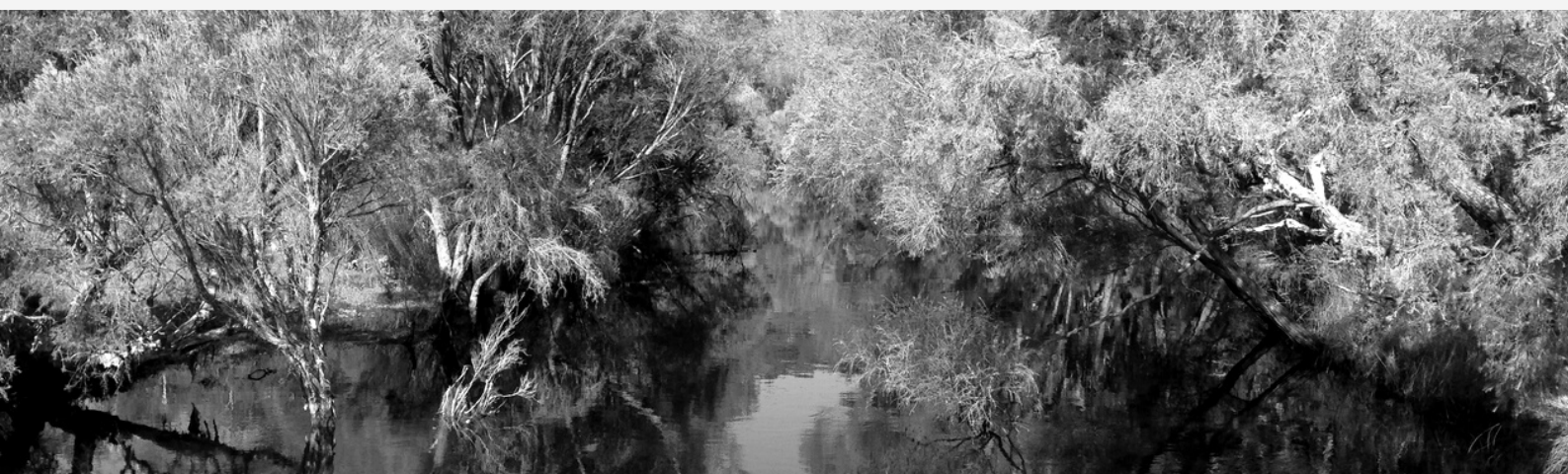
How do you use your property?

Of the respondents 86.25% (69) indicated that they have grazing livestock on their properties.

Beef farmers being the most representative in the survey.



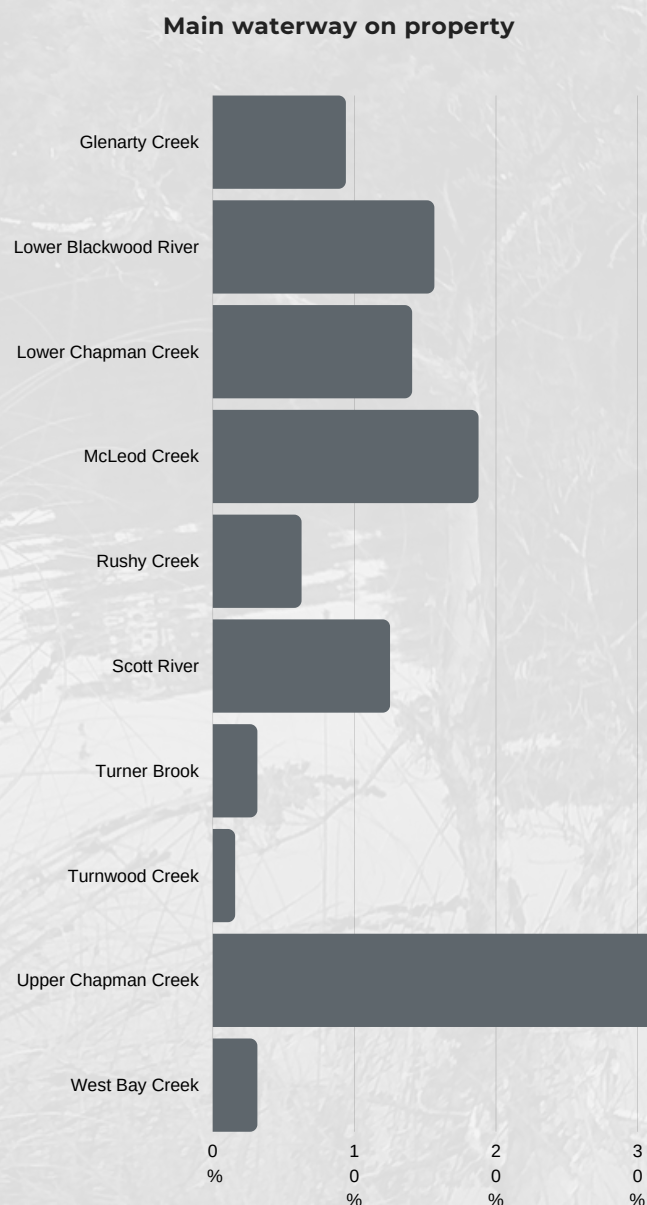
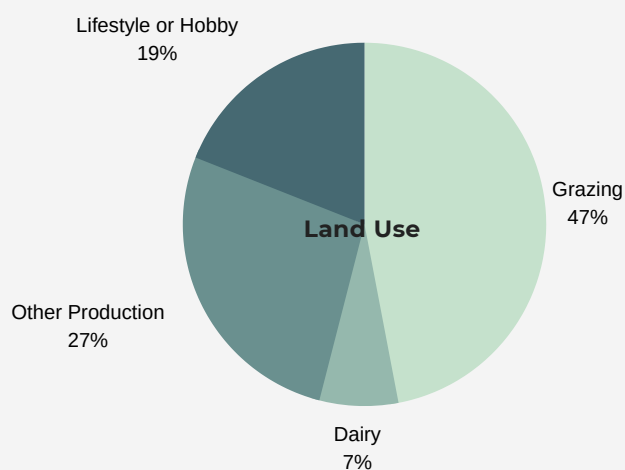
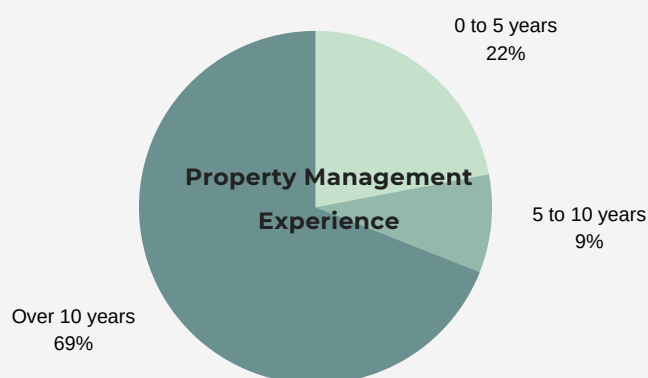
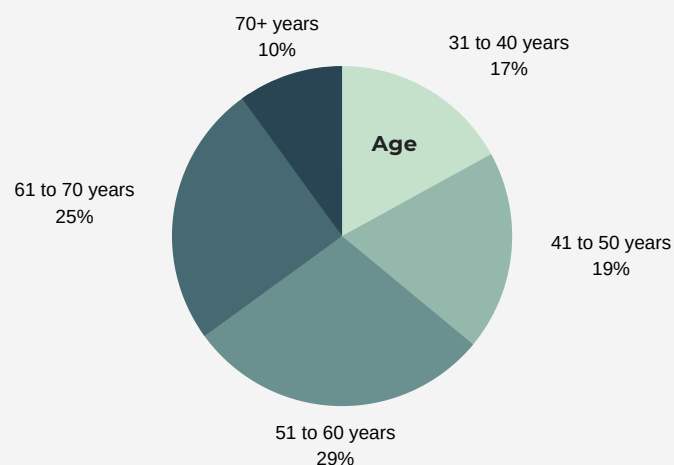
Please indicate which, if any, waterway you have within or next to your property?



5.3 Landholder Value Study - Interviews (Sample Group)

The data for the following pages **relates only to the survey respondents who agreed to be interviewed** (64/80), and as such will differ (where applicable) to the response percentages outlined in Section 5.2, which analysed the responses of all 80 survey participants.

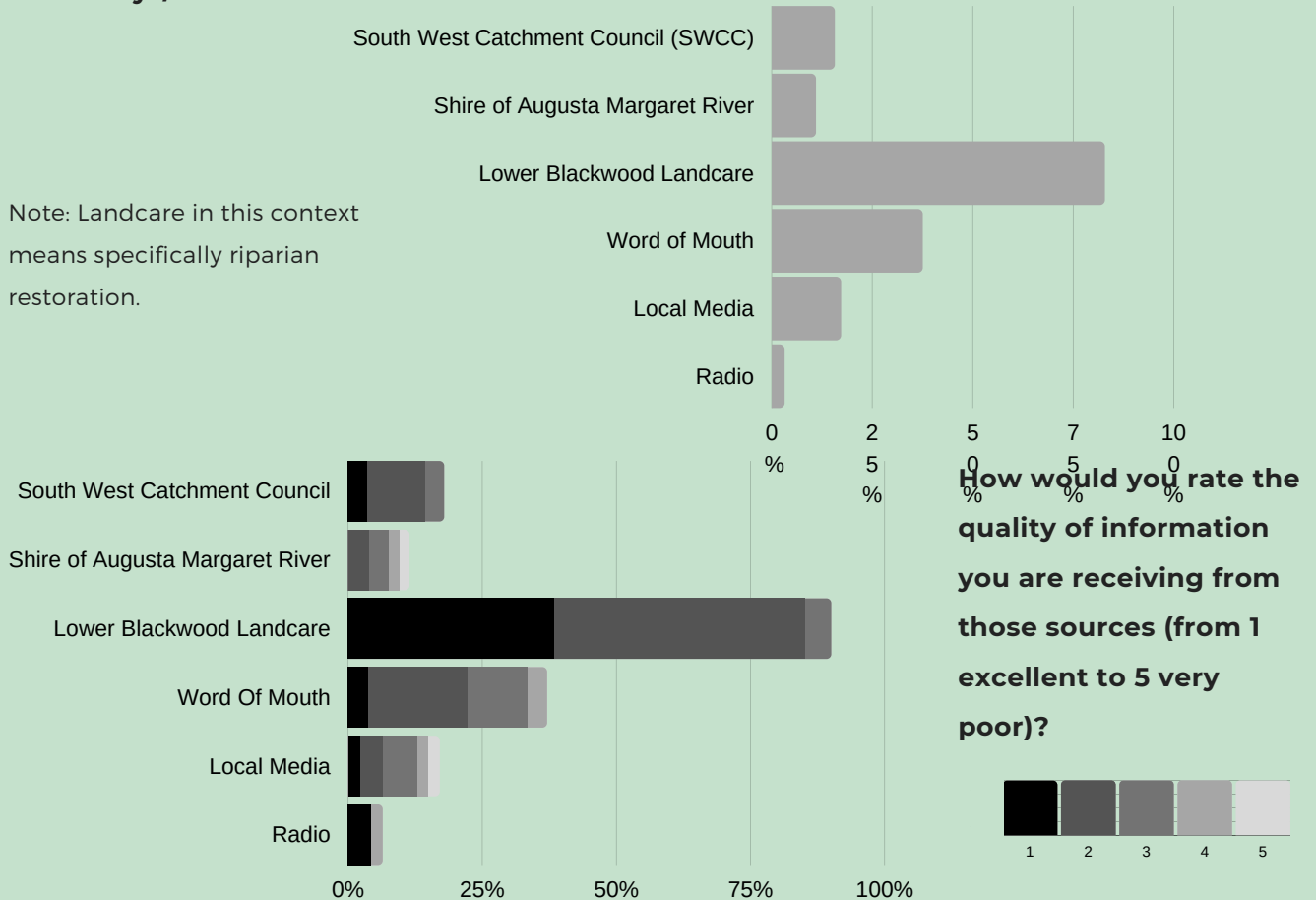
5.3.1 Demographic Spread of Sample Interview Respondent



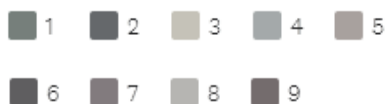
5.3.2 Perceptions & Awareness: Information Gathering - Results

Who is the most common source of information for you on local landcare matters for waterways/wetlands?

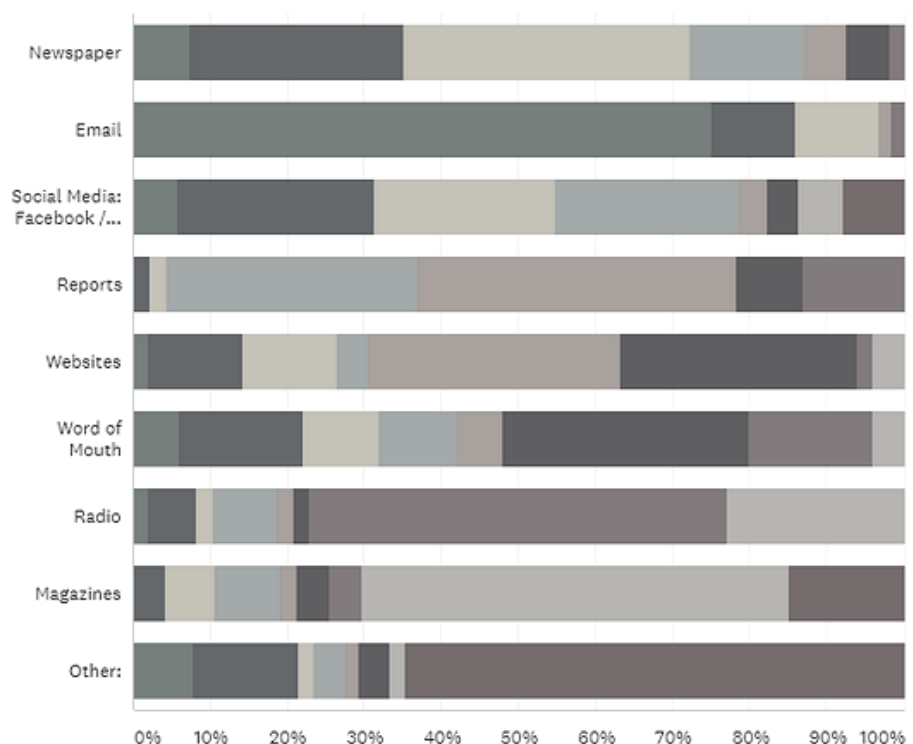
Note: Landcare in this context means specifically riparian restoration.



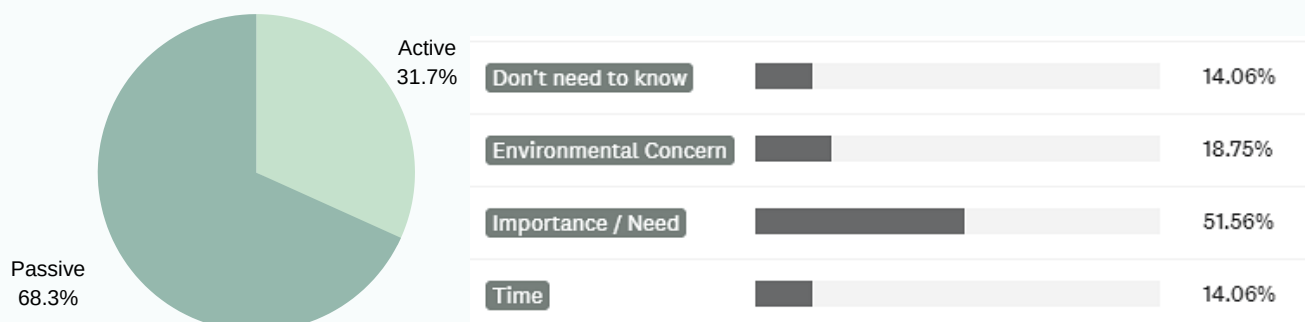
Rank the channels of communication listed above from most (1) to least (9) preferred:



Email is by far the most preferred channel with 75% of interviewees indicating this is how they want to receive information.



Would you describe yourself as an active or passive gatherer of information on local landcare matters for waterways/wetlands?

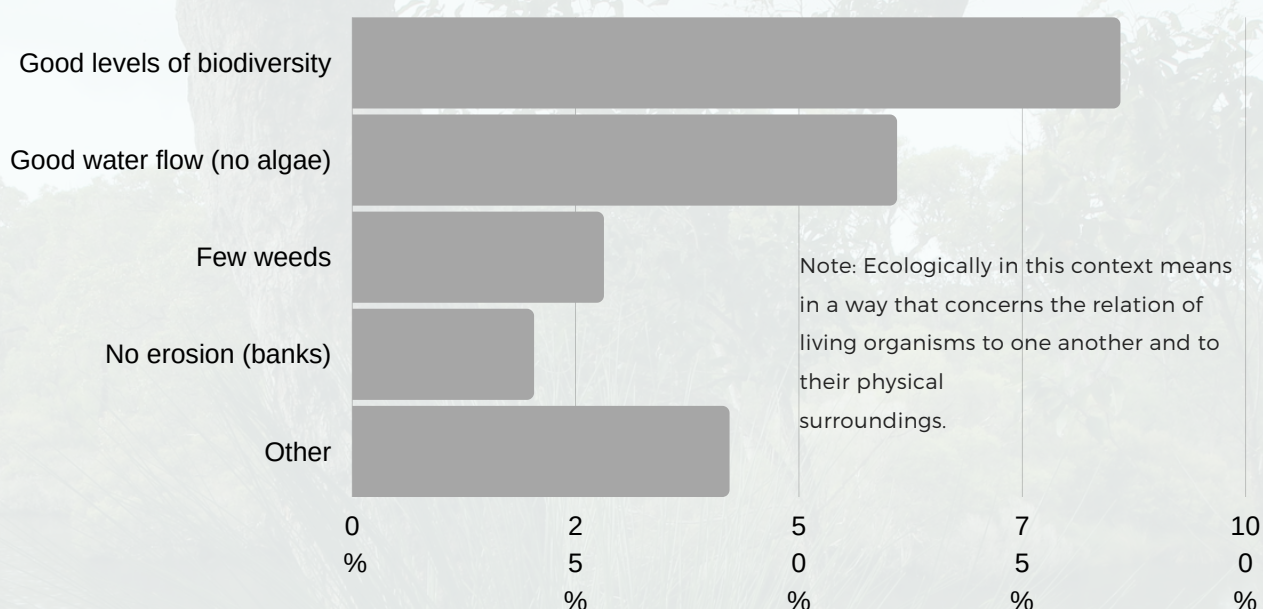


Sample of Responses / Comments:

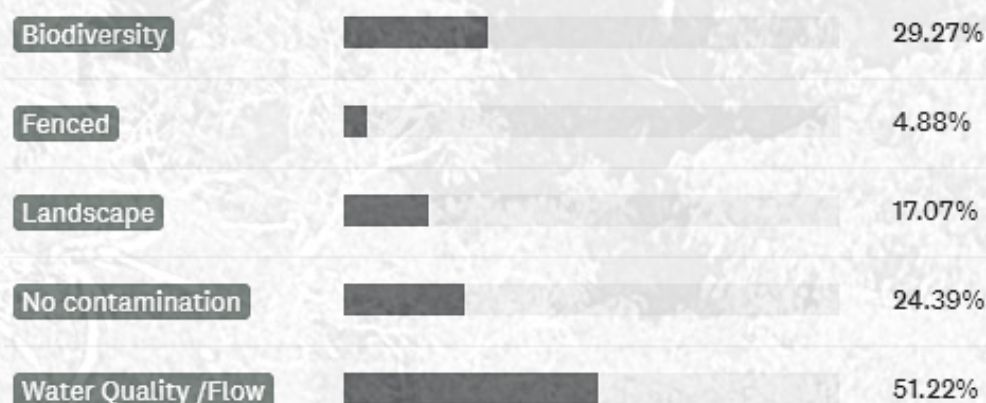
- Keen on conservation, have issues on our boundary.
- Because it's one of our priorities
- If it's really important to me I'll find out.
- Not a priority - interested but don't want to get involved or criticize neighbours
- Because I think it's important to me & the community.
- Don't have time, waterways in reasonable condition so haven't looked for information or help
- Already feel knowledge & our management is good already
- Very busy & don't stir things up
- Cause not actively farming anymore
- In the middle because of timing - when I have time think about it I do.
- Too busy with our business - not much time to think about that sort of thing - time poor so need to have information pushed at me.

5.3.3 Perceptions & Awareness: Opinion & Understanding - Results

How would you describe a healthy (ecologically) waterways/wetland system?



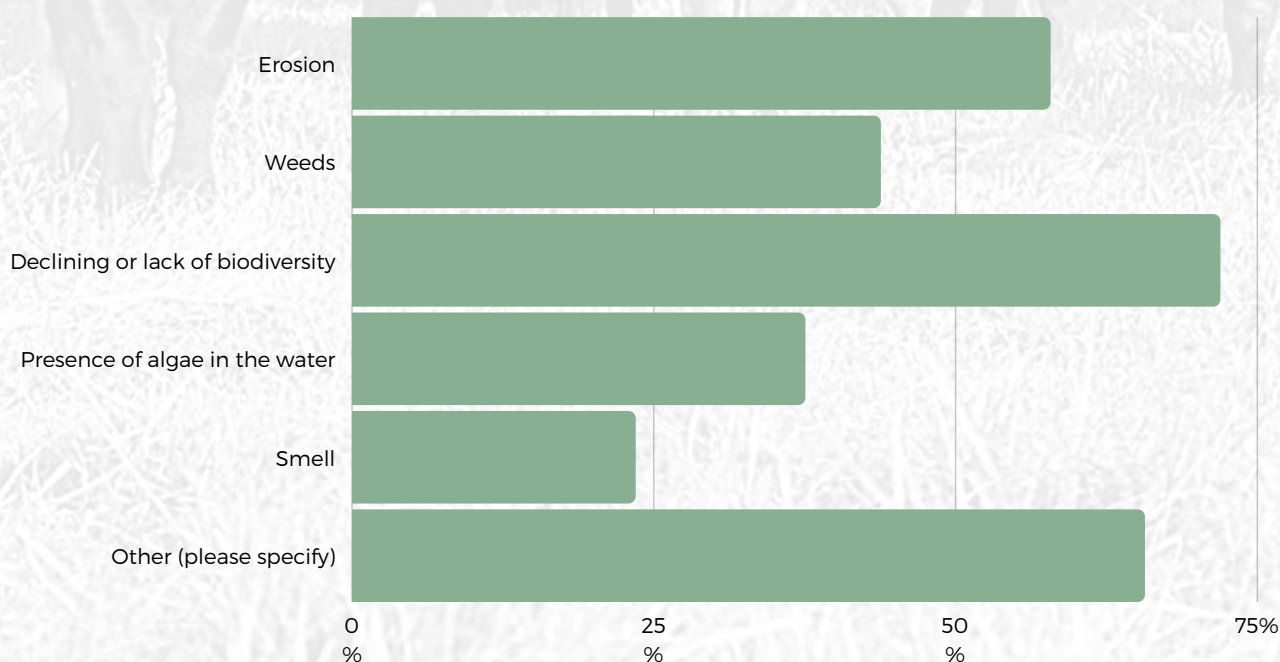
'Other' Response Categories:

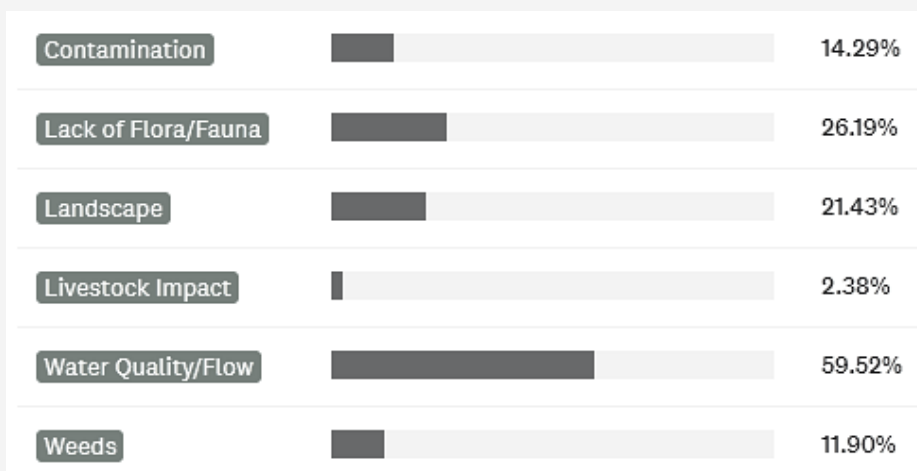


Sample of Responses / Comments:

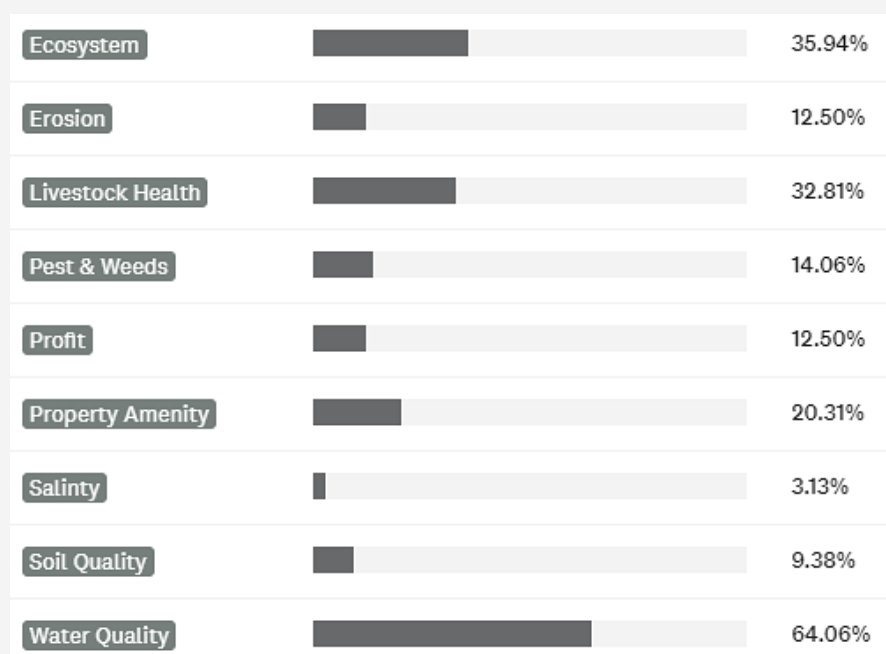
- Tree ferns & reeds, water quality will depend on where it comes from
- Testing for nutrients, phosphates & nitrates, salt levels, turbidity
- Smell & sight. our dam went putrid. Landcare helped, took a couple of years to figure out what to do.
- Deepened damn, fenced it off & revegetated it
- Fenced - to keep livestock out, absence of fertiliser residue, not excessive sediment
- Smell, look, catching good fish or crab life, levels of erosion
- The way it looked originally - a series of interconnected swamps and wetland bush. I should have kept an area in the middle of my farm as fenced swamp.
- A wide corridor with room for floods to move out. Flood plain. Any hindrance is natural
- Teaming with life, wildlife corridors & connectivity with surroundings remnant vegetation
- Microclimate should be stable. In my property the plants around the dam have grown to protect the dam and the water quality & volume has improved markedly

What do you believe would indicate that a system is deteriorating or unhealthy?



'Other' Response Categories:**Sample of Responses / Comments:**

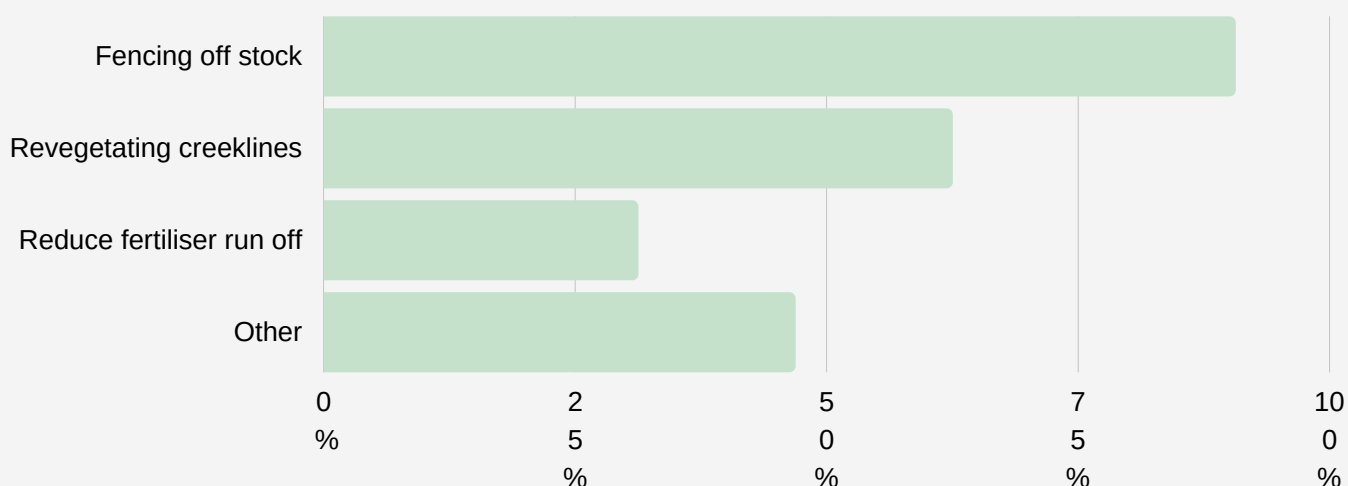
- Too much vegetation around the water way, too much leaf matter if no flow.
- Denuded banks & dirty water.
- Quality of water (measured), wondering thorough a bare landscape
- Water colour, scientific analysis of the water for nutrient loading ph levels, lack of sedges
- Narrow & restricted flood plain, artificial restriction of flow
- What people say e.g. if the river is not 'alive'
- Scouring & incised creeks

In your opinion, what impact would a deteriorating or unhealthy waterway have on a property?

Sample of Responses:

- It would impact on the ecosystem as a whole with a deleterious effect
- Lack of hydration of soil, less biomass & feed. if stock are left too long then can pollute water.
- Less biodiversity, possibly more weeds & pests. Possible erosion & compaction
- Fairly critical - animal health is directly related to the quality of the water. Plus landscape may not be able to use the water for stock. once gets to that point difficult to restore. whole ecology is impacted.
- Wouldn't have much of an impact except for water quality.
- Bringing in weeds, loss of production, if not health then water cycle etc doesn't function.
- Water cycle unhealthy leads to other things. The little bit of land lost to creekline made up by the benefits
- Aesthetic & amenity, overall health of a landscape
- Loss of biodiversity, water leaving the property, not retained, loss of topsoil through erosion, impact on neighbours through sediment flow.
- The land surrounding won't thrive..pasture poor, possibly sick stock from poor water quality . Potential environmental & economic impact.
- It would devalue it economically, have a negative effect on animals, pasture etc. Would decrease the natural diversity in the area (birdlife & frogs)
- Impact on the environment, can't drink it use the water, no good for amenity, it would cost to bring water in to irrigate so no for economics either.
- Terrible, water quality and animal health absolutely linked. Fencing off has made all the difference.
- Not good for stock if that is their water source, lack of good insects - more pests, aesthetic poor.
- Little impact on sheep, cattle can wreck creek lines. Dirty water.
- Less profitable due to a reduction water quality and soil quality
- You'll get a dirty letter in the mail from DEWR. Impact on water flow if there is a weed issue.
- Potentially lose money through nutrient waste.
- It would mean restrictions on fertiliser use & drainage & runoff
- Pest & diseases would be dominant due to the degrading, algae in the water means water can't be used as clogs up filters, aesthetic is affected as well as recreation.

If a waterway/wetland system has been identified as deteriorating or unhealthy, what actions do you believe could be taken to improve the health of the system? (Q11)





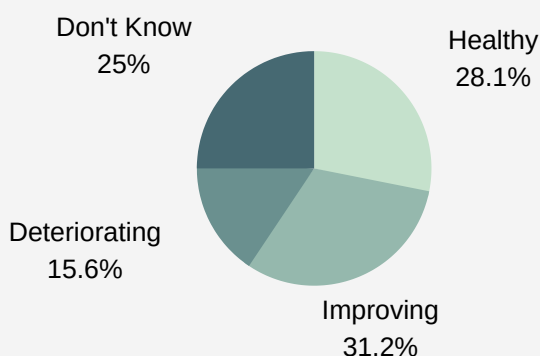
'Other' Response Categories:

Reduce nutrient run off	<div><div></div></div>	6.82%
Restrict Access	<div><div></div></div>	22.73%
Seek Expertise	<div><div></div></div>	31.82%
Slow Water Flow	<div><div></div></div>	18.18%
Stabilise Banks	<div><div></div></div>	15.91%
Weed Management	<div><div></div></div>	22.73%

Sample of Responses/Comments

- Find out the reason, if its effluent then stop it going into the stream.
- Soil samples to see nutrient loads, correct fertilisers. Put in troughs.
- Not permanently fenced - cattle should have access, managed grazing only. the healthier the vegetation is the better the it is for cattle. Depth of fencing determined by situation
- Introduce rotational/adaptive grazing - restrict access but not permanent, swales, silvopasture.
- if you have a gateway into an area, with a firebreak you can drive around then fencing is ok.
- Fencing will depend on the location of the waterway. Understanding the root of the problem and addressing the management of the property.
- Livestock exclusion at certain times of the year but do need to be able to send the livestock in to control weeds - 100% exclusion would cause issues.
- Whole catchment approach, use agencies to look at water quality issues, monitor.
- Contact local environmental groups, research alternative practices, get information.
- Seek advice - depends on the source of the problem - have the water tested at the end of every season to see if there is any run off from the ferts/sprays. Currently we get a favourable report so have had not had to make any amendments to our regime.
- Rocks to slow the erosion. In some cases may have to change the direction of the creek to make fencing feasible
- Weed reduction to allow native revegetation, putting in rocks etc to slow down water flow. On going maintenance.
- Find the source of the issue (ie might be off the property upstream), clear weeds if that's the problem.

What do you believe is the ecological condition of the waterways in your catchment?



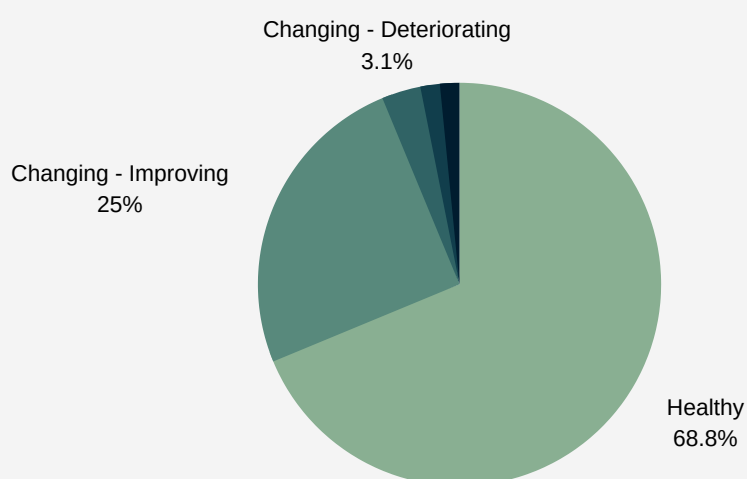
Categories of reasons given:

Community Awareness	<div><div></div></div>	14.58%
Mixed health	<div><div></div></div>	33.33%
Observation/Evidence	<div><div></div></div>	39.58%
Problems	<div><div></div></div>	29.17%

Sample of reasons given:

- The amount of fish has increased substantially - crabs coming back
- Had Ag dept to do a waterway study, said was healthy
- Because of the pressure that's on them. Lack of winter rains, don't get the flush out, get nutrient build up. Last very heavy rainfall - 1989, 1200mm.
- There was a lot of clearing in ignorance early on - this has changed, plus a systematic approach has been taken to landcare
- More riparian restoration seems to be happening in the catchment with positive consequences
- From what's happening in our waterway and what we observe on neighbours properties we believe the catchment waterways (specifically the upper chapman) are healthy.
- Suspect still deteriorating. Needs to be more done.
- More intensification of farming and bad farming practices coming with it eg poor fert decisions, poor effluent management.
- Hard to know, overall ok but some spots not so good. A lot of the streams next to older dairy farms are putting effluent into creeks. Put it this way - it looks healthy but I know its not.

How would you describe the ecological condition of the main waterway on your property?



Categories of reasons given:

Good Biodiversity	41.38%
Have Rehabilitated	13.79%
Is Stable	17.24%
Limiting Chems Run Off	6.90%
Needs work	6.90%
Problem Upstream	6.90%
Water Flow	5.17%
Water Testing	12.07%

Sample of reasons given:

- Started to get rid of Arums & Wattles. Quality of water is good with plenty of aquatic animals.
- Good levels of biodiversity, evidence of indigenous wildlife thriving in the waterway. It looks healthy.
- Because DPAW & my ecological consultant says so. Good bioersity, no erosion, good water flow.
- Lots of plants, lots of water year round, no erosion , sheep have access but limited so good for waterway & sheep, annual shire testing proves water is high quality.
- Had a geologist to check the run off into the dam from the vineyard plus based on water testing, levels of biodiversity, no weed problem
- 30 years on the property and haven't seen a change but not as much water these days

5.3.4 Perceptions & Awareness - Analysis Summary

Although 68% of respondents indicated they were passive gatherers of information on local landcare matters, over 50% indicated that if a matter was important to them then they would seek information on it. The main source of information on local landcare matters for over 80% of respondents is the Lower Blackwood LCDC enewsletter, which they also indicated was their most preferred way of receiving information, with 38% rating the quality of information received as 'excellent', & 47% as 'good'.

It is clear from these responses that the LCDC is well placed to continue to play a key role in informing & educating landholders on the benefits of good landcare practices, and the consequences of not undertaking them, and in doing so turning up the 'importance' dial for landholders to take action.

The majority of respondents appear to have a good understanding of what a healthy waterway is, with levels of biodiversity (85%) & water flow (61%) being the most obvious indicators for them. A number of respondents made comments around landscape form, in particular with respect to reverting current farm waterways (that are incised creeks) back to their original form, and the importance of slowing water down.

Unsurprisingly, respondents identified the reverse of positive indicators for a healthy waterway, with loss of biodiversity (72%) being the most obvious factor. Erosion was also seen as a significant indicator (58%) of deterioration. The bulk of respondents appear to have no difficulty in 'judging', at a purely observational level at least, that a waterway is deteriorating. Water testing appeared to have more importance for respondents in establishing poor health than good health.

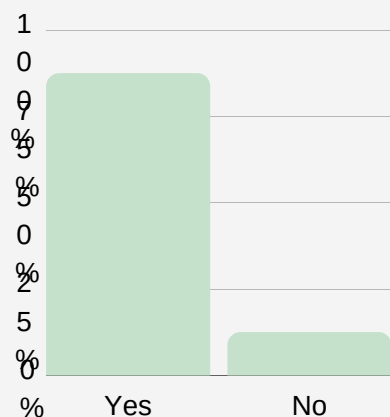
The responses to the question on what impact (if any) a deteriorating waterway might have on a property were quite diverse, as can be seen by the number of categories the responses were sorted into. The greatest impact was seen by respondents to be around water quality (64%), 30% of the respondents went on to say that there was a knock-on effect of poor water quality on livestock health. A negative impact on overall landscape function and property amenity also featured. Only a small number of landholders made any overt connection between deteriorating waterways and actual farm profits.

The majority (91%) of respondents held the opinion that fencing to limit or prevent livestock access was the most beneficial action that could be taken to improve a waterway. Fencing was also seen in some cases as problematic – this is discussed further in the results analysis for 'Barriers'. Revegetation of waterways was also considered to be important.

When asked about the health of waterways in their catchment, the respondents held a range of views. None of the respondents described their catchment waterways as unhealthy, and the responses in the main reflected that things were generally getting better from some previous (& undescribed) lower point, although 25% did indicate that they didn't know or weren't sure. Some respondents (16%) felt that the catchment waterways were declining, with reasons given mainly around farming practices and nutrient runoff.

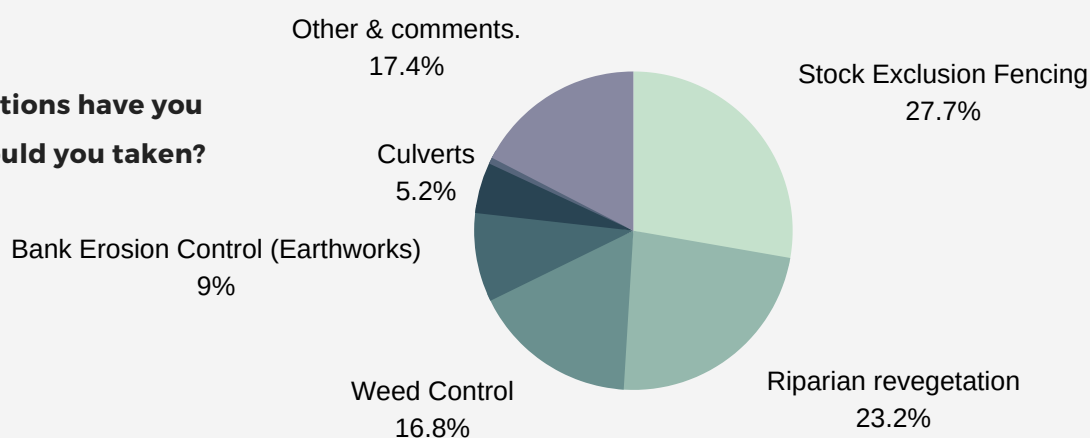
In contrast, the majority of respondents were confident about their own waterways health with 69% stating that their waterways were healthy. Once again biodiversity was the most significant indicator given by landholders in assessing their own waterways health.

5.3.5 Drivers - Results



Have you / would you undertake any of these actions identified in Q11. yourself? (Q14)

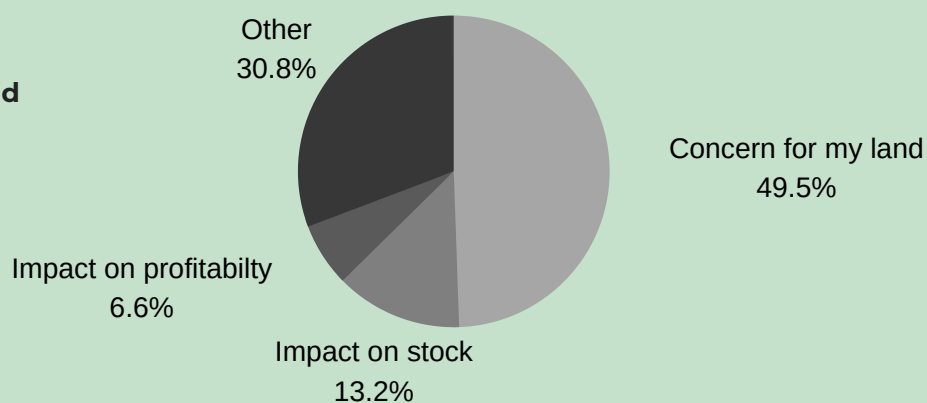
Which actions have you taken/would you taken?



Sample of 'Other' & 'Comments'

- Had a go at putting in swales but need to redo as not working.
- Rotational grazing, feral control
- Fenced off, planted wildlife corridors between bush blocks, have rehabilitated dams
- Would like to see if there is any funding for cross overs
- Cleared out dam over flow, ensured fencing is adequate
- Put a barrage across to slow the water down.
- Stop driving in winter to avoid compaction, reduced fertiliser requirements.
- Do extensive soil testing to manage nutrient status
- Dug out the dam deeper
- Grazing Management - don't graze as hard
- Crossings & timber to prevent erosion
- Sheep can still get in but only for weed control - very tightly managed
- Have put in access gates to allow the kangaroos in the native corridors. Have ensured that sheep can get access to the waterway itself.
- Reduce stocking rate
- Have fenced off a portion of the winter creek but other winter creek still unfenced
- Storm water drains run into dams. Have also reduced stock.
- Nature corridors & general shelter belts.
- Put in dam crossings

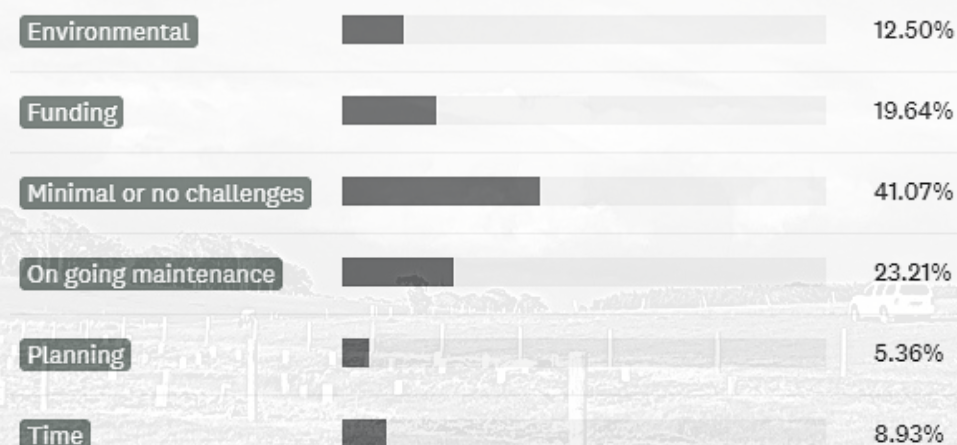
What motivated you / would motivate you to take the action(s)?



Sample of 'Other' & 'Comments'

- Get a bit of diversity back but think still should be able to graze (managed) in the fenced area
- The environment is important to me - have planted around 8000 trees
- Financial incentive
- Balance of useable land to land that could be restored was minimal, i.e. it was not going to take away any productive land really.
- Concern about quality of water from us flowing into state forest
- Want to leave things better than we found them
- LCDC incentive, amenity improved for sale of property.
- Biodiversity, want to ensure water quality is maintained. Also want the property to be visually appealing, & demonstrate that we care about the environment.
- Banks were breaking down wanted to stop it before it impacted on neighbours
- The sheep were degrading the creekline which would have led to bad/no water for them in the future
- Funding was available from the lower Blackwood LCDC, erosion was persistent on the banks, there was no vegetation
- Want to put right what I put wrong with farming

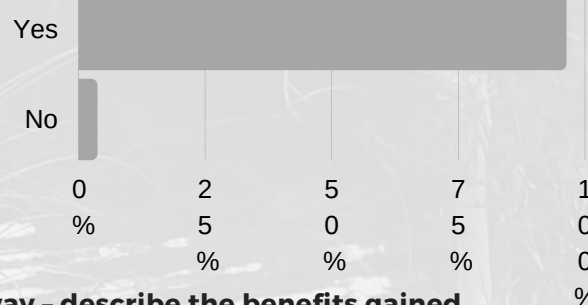
What challenges did you encounter when implementing the action(s)?



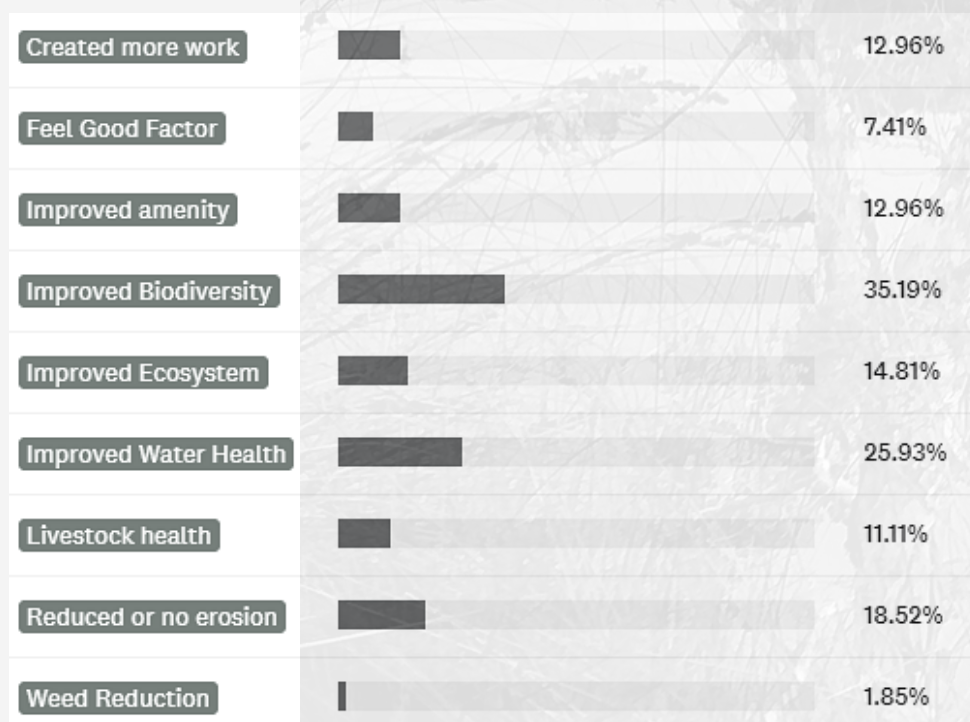
Challenges - Sample of Response Comments

- With the planting had black beetle issues. learnt to prepare better (sprayed out kiykuyu) and deep ripped and chose which plants to plant where
- Size of the waterway, nearly 1km each side. Kangaroos were a problem with the vegetation.
- Volunteers helped but some were useless at planting. a weed issue the second year. LCDC did a strip spray prior and killed off all the grass - this led to erosion in the first rain. Repairs of fences from tree limbs
- Funding for stock crossings - lack of it prevented me from fencing off parts of my creekline.
- Cost - its an expensive exercise but will be amortised over the long run.
- Money, time to do the fencing/ reveg
- Blackberry very hard to control. Need to hit hard and keep at it
- Maintenance, where stock cross - need redoing every 2 years.
- Large numbers of weeds - neighboring council land has large infestations so keeping on top of weeds is an issue.
- Stock getting back in, difficulty of getting rid of introduced species.
- None really. A really good experience system all around.

Were the actions successful or unsuccessful?



In what way – describe the benefits gained or disadvantages created as a result of taking the action(s)?



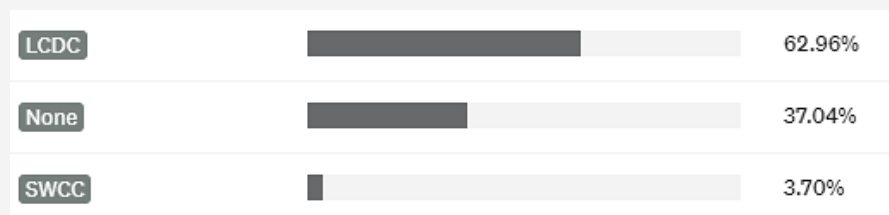
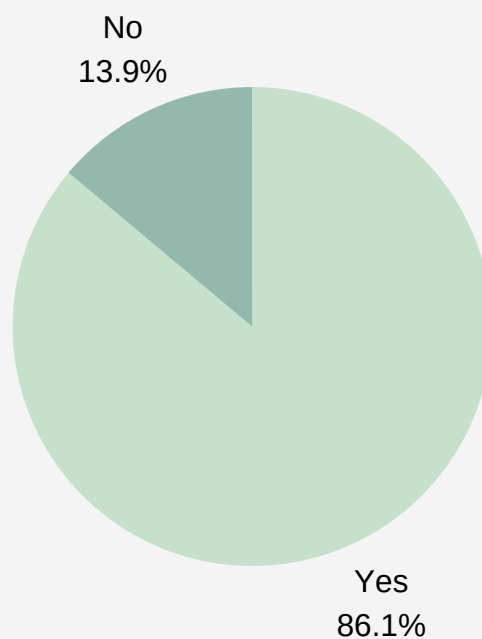
Summary of responses to benefits or disadvantages:

- With the increase in vegetation the birdlife has increased enormously - benefits the ecosystem as a whole
- Return of little bandicoots, quendas, holding water in the landscape & soaks up any rain we get. trees have improved the soil alot.
- Having greater biodiversity, more wildlife, better for ecosystem & stock
- Huge improvement in the amenity, plus livestock health.
- Just an extra fence to look after.
- Have noticed the increase in wildlife, water quality has improved through improved filtration.
- More weeds come through when you fence creeklines off which has to be managed, but you can use the fencing to manage grazing better
- Only disadvantage is the cost but the positives - gives a huge sense of well being that the land is much better now than when we started. Try to manage weed control naturally with sheep.
- Increased amenity, reduced erosion, feel good factor, improved the value of the property
- Weeds still require work
- Water quality, soil hydration, land amenity. Now can show off to others like school
- Disadvantage. On going maintenance
Advantage - healthier waterway, creek now runs all year and now have better water security. Less water logging an erosion issues..& the animals are happier as they shelter plus bird life.
- More & better quality water, no erosion, more shelter for wildlife & stock, more animal biodiversity
- No disadvantage other than expense but you'd consider that an investment in the land.
- Clean water, increased biodiversity, improved stock health. Now the bush has grown right up to the fence line..needs annual maintenance
- The water flows nicely now - and we have a healthier ecosystem. Better for the neighbours downstream.



Would you recommend the action(s) to others?

100% Yes

What external support did you receive?**Was the external support you received sufficient?****Sample of Responses / Comments:**

- Funding in future could be advising on contours and 50:50 contribution to contouring
- Not flexible enough
- Financially Ok but more support in planning prior to doing it + exposure to other farmers who have done it either through case studies or mentoring (e.g. should the firebreak be on the inside of the fence and drive a tractor through.
- Anything free is worth it, also coming in and learning about the correct way to do it.
- Still alot of hard work but LCDC's work is invaluable.
- Be great to get 100% - would certainly get more interested...especially as the ongoing maintance will be at their expense.
- Local knowledge on how it should be best done - type of vegetation.
- Planning for timing, funding not available at the best time of year. Post planting help with weed control...the first year at the very least.
- Follow up support missing completely

5.3.6 Drivers – Analysis Summary

The bulk (88%) of respondents stated that they had undertaken some form of riparian restoration on their property with the majority action being stock exclusion fencing (74%), followed by riparian revegetation (62%), and weed control (45%). A smaller number (24%) indicated that they had undertaken bank erosion control works.

Overwhelmingly respondents said their motivation for undertaking the actions were due to concern for their land or the environment more broadly (82%) with a much smaller number motivated by the factors including livestock health & farm profit.

When undertaking any the actions to aid in restoring waterways, no significant challenges were encountered by 41% of respondents, however ongoing maintenance, mainly around weed control, was an issue for 23% of respondents, and lack of funding or support another issue for 20% of them. Comments indicating challenges around planning & time were given by less than 10% of respondents.

Almost all (95%) respondents who had taken actions to aid in waterway restoration stated that their actions had been successful. A wide range of benefits were observed by respondents after the actions had been taken including: improved levels of biodiversity (35%); improved water health (26%); and reduced or eliminated erosion (19%).

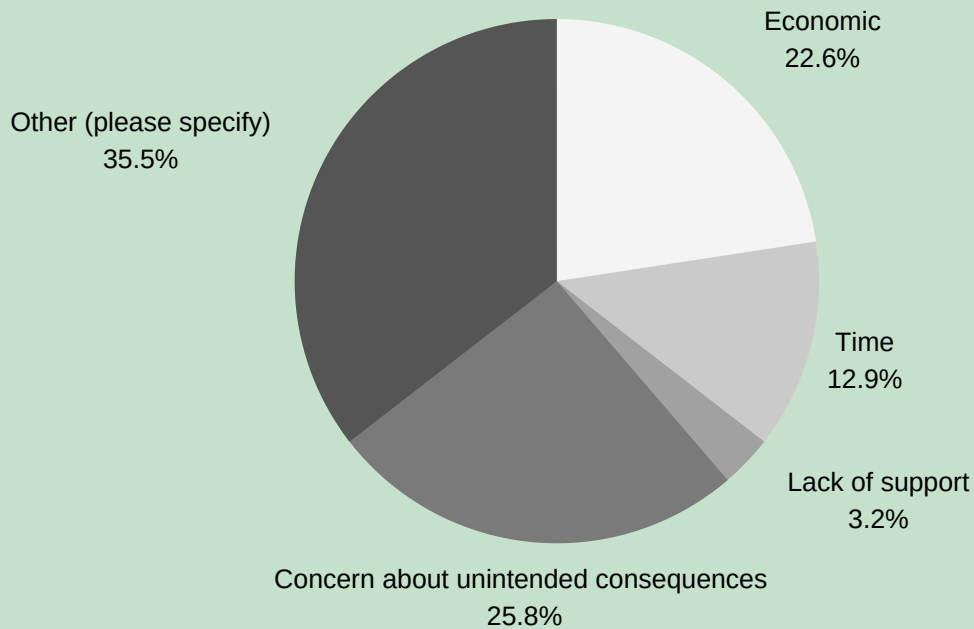
Other benefits commented on were improvements in ecosystems, property amenity, & livestock health, the 'feel good factor' was also mentioned in a number of different ways. The only real disadvantage commented on, by a small number of respondents (13%), was the ongoing work created by the actions – this related primarily to ongoing weed control in fenced off areas.

Funding was not raised as a real challenge for respondents however 65% indicated that they had received some form of support from the LCDC or SWCC in undertaking the actions. Although 60% of respondents felt that the funding they received was sufficient, there were a range of comments around the lack of flexibility in applying the funding (e.g. fencing requirements), lack of planning support & lack of ongoing maintenance support.

Regardless, it is evident that in the view of the respondents, the benefits of actions to restore waterway health far outweigh any disadvantages, with 100% of respondents saying they would recommend the actions they took to others.

5.3.7 Barriers - Results

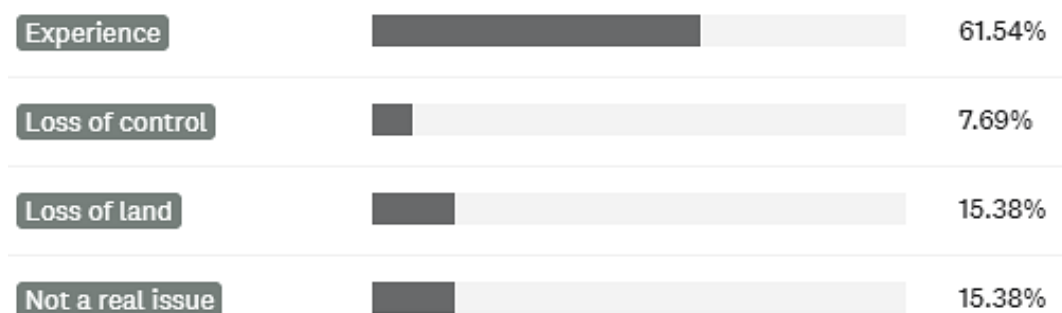
If your answer to Q 14. was no then what prevented / would prevent you to take the action(s)?



Sample of Responses / Comments:

- Sheep are not an issue so don't need to fence off creeklines
- Livestock in some case are able to control the weeds, allowing free flowing water - if shut out weeds can become a problem.
- Planning - not really sure on what to do.
- Started fencing around our dams, can't just fence of the creeks when there is no alternative water sources. Once we have water sources in place then can look at fencing creeks. Looking at regenerative options for weed control.
- My creek runs back into the neighbours who has fenced off the creekline. But has caused some stagnation in that area which can cause algae.
- Clearing of weeds and future management

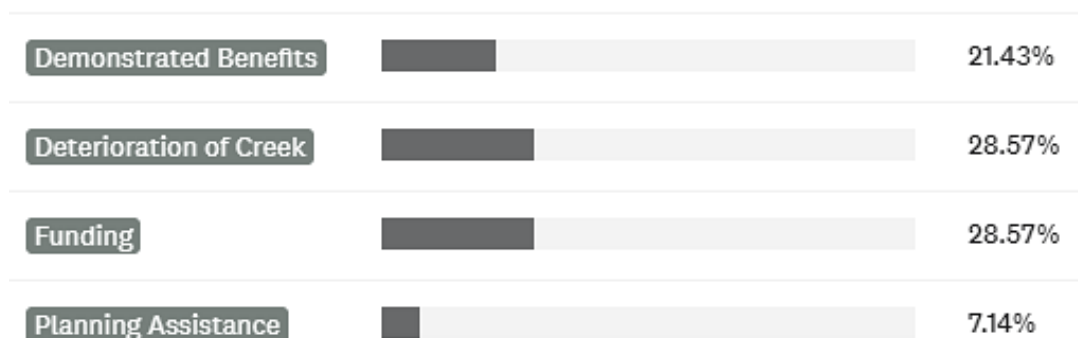
What information/factors led you to that/those conclusion(s)?



Sample of responses:

- As a dairy farmer - having fences across waterways is a nuisance for moving stock.
- We would be prepared to fence a lot more of the area than the creekline. Clearing permits were a problem so have decided to sit it on for the moment. Needs to be more flexibility. Don't want any outside influences.
- Risk of losing access to control vegetative growth once fences are in place.
- Don't feel our waterways are suitable - the flow is too low and not enough fall, too hard to get water to move, have drains.
- Livestock in or out - the benefits depend on the situation. Excessive weed & grass growth, loss of productive land.

What information / factors would lead you to reverse your decision?



Sample of responses:

- Subsidy on the cost & support to build stock crossings
- If my creek lines started to deteriorate as a result of the sheep having access then I would consider fencing.
- if we had assistance with the planning it might lead us to undertaking works
- Funding that doesn't restrict us to just fencing the creekline
- If funding for fencing & reveg would allow for a gate and firebreaks then would consider.
- None but if we are causing major damage downstream with nutrient load. Don't believe we are.
- If there was a project in water analysis would be interested in participating.
- Benefits would need to be clearly demonstrated, economics, amenity all play a part.
- Information on before /after benefits, pictures and snap shot..not too much info. Show what projects have been done and how it has improved the system.
- Make sure it would work, the \$ value of doing it , not just making it a corridor for weeds. Neighbouring property would need to be addressed.

5.3.8 Barriers – Analysis Summary

A much smaller segment (22%) of respondents responded to the question regarding what prevented them or would prevent them from undertaking actions that would aid in restoring their properties waterway health. 57% of those respondents indicated that they had not or would not do so due to potential unintended consequence, this mainly related to weed management, locking out stock meant weeds would become a problem, and will be on going work for the farmer. Lack of funding &/or lack of economic return was another significant barrier for 50% of respondents, with time being the least of the barriers at 29%.

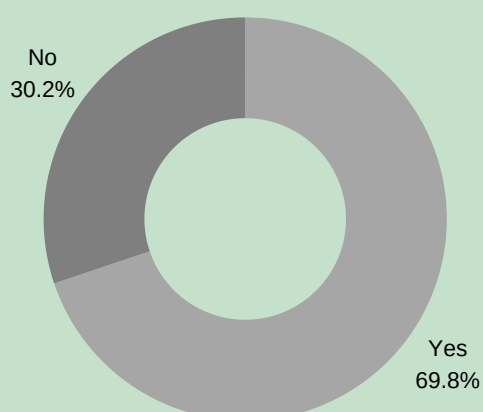
When asked about what information or factors led them draw those conclusions, most respondents (62%) comments indicated that ‘experience’ was a primary determinant. Only one respondent was concerned about outside interference in asking for or getting external assistance, whilst 2 others were worried about loss of land (for grazing).

There were 3 main factors were given by respondents that would lead them reverse their decision or opinion about undertaking actions to protect or repair waterways. Those were:

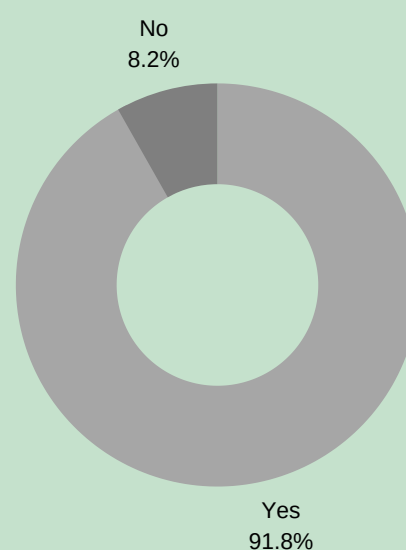
- If they could see their property creek line or waterway was deteriorating (29%),
- If appropriate funding (& flexible to suit their situation) was available (29%).
- If the benefits (to them) of undertaking the works were clearly demonstrated (21%).

5.3.9 Future Participation - Results

Are you aware of the current funding available for fencing & revegetation of waterways? (50:50 contribution)



In your view does this funding model provide sufficient support/incentive to undertake waterway restoration works?

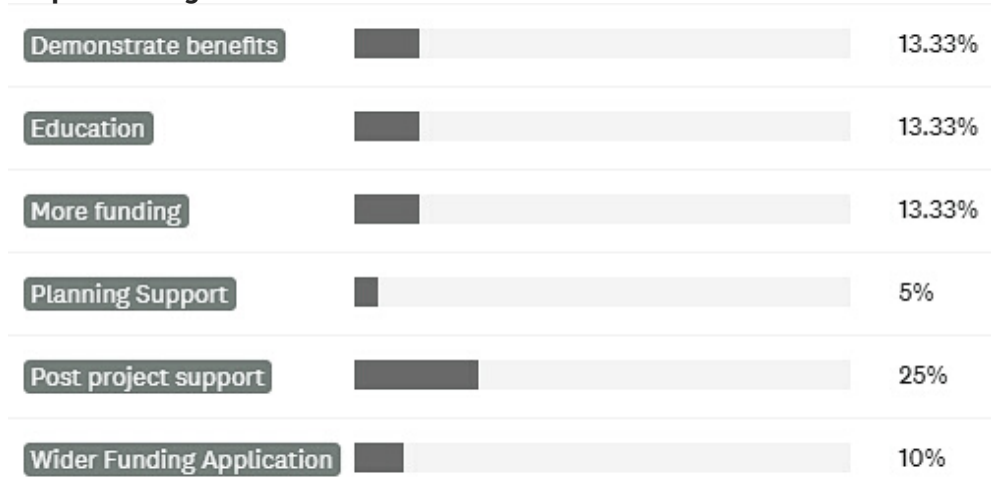


Sample of Responses:

- Scheme sounds well balanced - shouldn't make it 100% otherwise the famers would not value it.
- Good incentive but could end up being less than 50:50
- All depends on the landholder. Everyone should be responsible for their own land
- It is an important first step. For most farmers it needs to be related to productivity & show benefits.
- I think that gets it going. Fencing is a key part of waterway protection as is run off avoidance via revegetation
- It depends on economics times - it we can't afford it then no.
- I think so - we didn't know how much it was going to cost, more than we expected. Having expertise saved time.
- Provided that livestock can be used as weed & fire management tools.
- Not so sure about incentive. You are losing land so that needs to be addressed.
- You see the return afterwards, see improved hydration and better pasture, no erosion. Stock no longer getting stuck in the creek (eg lambs drowning in the creek in winter).
- More financial support for the effluent programs.
- If the end goal is going to be achievable - i.e. in 3 years time is it going to be a weed pit?. Should be an expert that does the reveg work and also there would definitely need to be follow up help to manage the weeds etc post project.
- Probably not - most would do it for nothing.. but then wouldn't maintain it. Depends on how interested the farmer is.

Do you have any suggestions on what would improve the level of support/incentive?

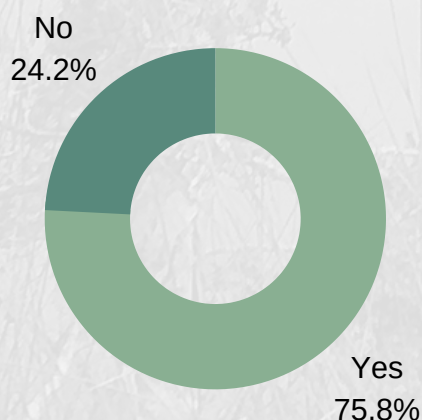
Response Categories:



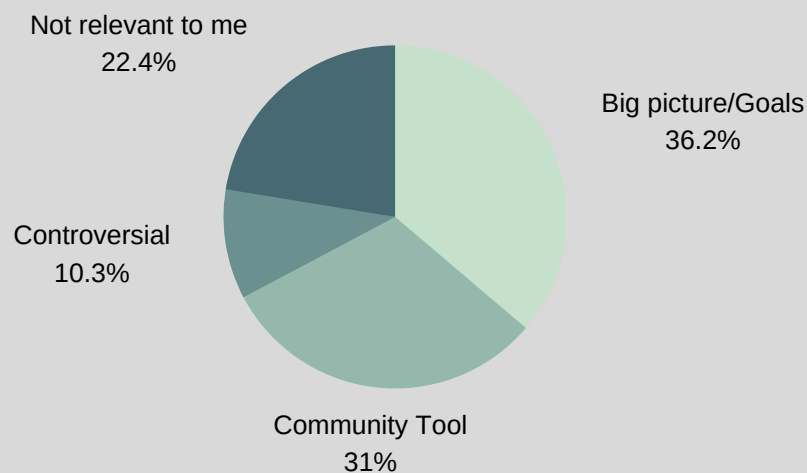
Suggestions to Improve Support - Sample of Responses

- Possibly some additional support for post planting weed management or allow managed grazing inside fences. Plus as I mentioned, including funding for stock crossings.
- Should be looked at more carefully - areas should be able to grazed at certain times of year, i.e. in a non boggy time of year. Another project would be farm revegetation with the grazing proviso.
- Planning help, come onto property to advise and tell us the benefits.
- Exclusion zone distance could be more flexible
- Post project support for weeds ..wouldn't be necessary if managed grazing were allowed
- Hear a lot of fears about taking land away etc. Post project support would be useful. post planting supporting for weed management & plant replacement.
- Post planting support would be useful.
- Any program needs follow up support to ensure continued success.
- Focus on the dairies, test our water make sure we are not loading nutrients.
- Help with the support with of labour as well as materials - a 75/25
- Weed management, plant replacement., planning at the beginning
- Some farming management practices are entrenched...if can demonstrate a financial benefit to protecting waterways then may get more traction.
- Communications - keep it up.
- Splitting paddocks makes paddocks access difficult so a help with whole farm planning exercise would be good.
- Reduce the fert run off. Ensure neighbours are also doing their bit. Post project support at least 3 or 4 years after, help with weed management, an extension officer to mentor the project through & give advice. Could still be a 50:50 contribution.
- Education is more important in the long run - consultation service to advise what could be done & what outcomes can be achieved. Target the females
- Make more aware that the 50% could cover other infrastructure eg troughs & pumps.

Would a whole of catchment, stream management plan be useful for you in managing your own waterway?



Comment Categories:



Sample of Comments:

- Be great to see the big picture and know where we fit in.
- Would be good as a community tool so everyone could see they are part of a larger whole.
- Just having goals for the waterway would be useful
- I'd find it interesting some landholders might find it confronting.
- Really useful to understand water in the region, how it is allocated etc. Include an understanding of how the aquifers work.
- I think it would be good for the 'greater good'. In terms of managing my own patch I don't think it would be
- that useful. The overall objectives would have to relate to each individual landowner plus calling them to action.
- Definitely - would help me be mindful of where my water goes (& what I put in it!)
- I can see relevance for those down stream but I'm at the top of the creek.
- Will keep everyone informed about the goal even if some don't agree with it.
- I think a holistic approach would be good to enable 'neighbourhood consultation.
- Good to have a big picture view & opportunity for farmers to work together.
- Would help people understand what is and isn't happening in the catchment & perhaps make people more accountable.
- My place is on a head water and be good to see how it fits - good for working in with neighbours but also good or my own self respect.
- The sharing of ideas is useful, how you impact others and how they impact you would all help to increase the broader knowledge on waterway health... plus people would know where you are in the catchment system. Include some myth busting info on the web info eg. putting perch in to dams, good or bad. eg What's in your waterway (fish, plants etc).
- Don't want someone telling me what to do on my property



5.3.9 Future Participation - Analysis Summary

As indicated in previous responses, many respondents (70%) were already aware of the current funding available for fencing & revegetation of waterways, and the majority (88%) believe that the funding level is sufficient. It seems clear however that the 'one size fits all' funding requirements, particularly around fencing & weed management, is presenting a barrier for some landholders.

Suggestions to improve the funding model were loosely grouped into the following:

- 27% commented that more education & information that demonstrate the benefits of undertaking works would encourage more landholders to engage.
- 25% commented that funding to support weed control & plant replacement after the initial project is completed would be attractive.
- 13% commented that the level of funding altogether should be increased, 75:25 rather than 50:50 was commented on by a few.
- 10% commented that the funding needed to be more flexible. Examples of this include allowing managed grazing to control weeds once fencing and revegetation has occurred, allowing a wider zone for fencing so fire breaks can be incorporated and managed, funding for effluent & nutrient run off management.

- 5% commented that a greater level of support in planning waterways restoration & protection would improve the current model. (Note: Although this category only represents 5% in this particular section, more support for planning, mentoring and access to expertise has been commented on throughout the survey and interviews and should be given greater weight in considering funding design).

Although there was limited detail as to what it would entail, when asked if a whole of catchment, stream management plan would be useful for them in managing their own waterway, 73% of respondents thought it would be a good thing to have in place. Forty (40)% of respondents' comments for 'why' related to the advantage of having a big picture approach to management, with clear goals that everyone could understand, and 34% felt that the plan would be useful as a tool to bring community together. However, despite the majority of respondents being positive about a plan, 25% stated that it would not be relevant to them (most saying because they were at the head of a creek), and a smaller number (11%) indicated that they would not be comfortable with the plan (due mainly to concerns about interference).



5.4 Focus Group Discussion & Feedback

5.4.1 General Comments

- The percentage of email addresses in the LCDC's database compared to actual number of landholders was a barrier to engagement & should be addressed.
- It was noted that there had been an unsurprising lack of corporate landholder response and that perhaps the LCDC needed a different approach to this type of landholder.
- It was suggested that there was a gap in the original project objectives. It would have been useful to get an insight into how many landholders understood their riparian rights as per the 'Rights in Water and Irrigation Amendment Bill'. A further suggestion was made that the LCDC provide support in some form to assist landholders in interpreting their water access rights.
- An overarching issue that has come out of the study was that landholders see that what LCDC is doing is good but it is limited by ongoing maintenance (incl. weed management), and lack of flexibility to assist with off stream watering points, stock crossings, fire management. They also want some continuity - they want a person to work with on an on-going basis.
- The study demonstrated that the nature of the funding precludes a holistic view of landscape management, it doesn't take into account any other parts of the farm or considerations (eg. remnant vegetation, weeds and water rights).
- The other broad issue is the lack of pre planning for ground works to determine what is the best treatment for each stream. The funding model should encourage an outcome-based management of the streams.
- It was noted that the need for whole catchment and sub-catchment planning was captured and interesting.
- Also noted was that mapping and the information hub is absolutely vital and this is shown in the report.

5.4.2 Input into Report Recommendations

- Funding to enable a bottom up planning approach to farm planning is recommended, in which landholders are assisted to plan holistically for a whole of landscape approach at the farm level. This includes species selection planning for fire & weed management, wildlife habitat, pollinators etc).
- Whole of farm plans could feed into a whole of catchment management plan to help with navigating legislative requirements, and include strategic mapping linked to the healthy rivers program to identify and evaluate existing work and map future priorities, on-going applications and sourcing of funding for riparian restoration and maintenance works (for example to part-time fund a person to continue to provide continuity of support to farmers).
- Engagement of landholders needs to be differential & targeted depending on scale, ownership (e.g. corporate vs private) & nature of operation (e.g., dairy, tree plantations, viticulture). This should be reflected in the LCDC's Communication Strategy.
- There was a clear need to enhance the LCDC database contact information and a recommendation to seek funding to enable this should be included.
- The Value Study report recommendations need to be reflected in our communication strategy and also be used to look at ways in which it can be used to seek future funding and develop relationships.

6.0 SUMMARY & RECOMMENDATIONS

A person's decision-making process is influenced by values, perceptions, attitudes and beliefs developed throughout the course of a lifetime. Understanding how these concepts apply to landowners' decision-making with regard to land management practices can help developing more effective strategies for behavioural change. Both literature and practical evidence show that successful behavioural change programmes are those that recognised and support people's values.

Currently the LCDC has limited knowledge about what drives landowners' land management decisions and how their values, attitudes, perceptions and beliefs affect willingness to engage in riparian zone management. Some of the difficulties encountered by the LCDC in the engagement of landowners in restoration projects so far hinge on this knowledge gap.

Broadly this Study aimed to:

- Assess the attitudes, beliefs, behaviours and the level of information /knowledge landholders had related to riparian zone management, landcare & catchment knowledge.
- Improve our understanding of how landowners perceive the relationship between natural assets on their farm (watercourses, riparian habitats and water quality) and the economic and sociocultural opportunities they offer.

In brief, some of the main conclusions provided by this study were as follows:





- The majority of landholders see landcare as important, and are happy to engage in landcare activities when provided with good quality information, advice, & if available funded support.
- Landholders can describe health waterway in broad terms particularly using biodiversity & water flow as strong indicators of health or otherwise.
- Landholders recognised the link between poor water quality and livestock health, and that restricting livestock access to waterways was an effective action that could be taken.
- Landholders generally perceive catchment waterways to be healthy for the most part.
- Many individual landholders were confident that their own waterways were healthy due to high levels of biodiversity present.
- Most landholders have undertaken some form of riparian restoration on their land, with the majority receiving support from the LCDC. Concern for their land or the environment more broadly was the chief driver for undertaking the actions.
- Few landholders met any challenges when undertaking riparian restoration actions and the majority felt that their actions had been successful. All were happy to recommend their actions to others.
- The concern for unintended consequences (e.g. weed infestation, loss of land) occurring was the chief barriers to landholders not undertaking riparian restoration, closely followed by an inability to see an economic return for the action. Most landholders used 'experience' as the reason they had come to these conclusions.
- Barriers to undertaking actions would be removed if landholders could see that their waterways were deteriorating, &/or if funding was more flexible, &/or if the benefits could be clearly demonstrated.
- Landholders generally believed that the 50:50 funding model was sufficient however improvements could be made including more education & information to demonstrate the benefits of undertaking works, support in planning activities, and funding to support weed control & plant replacement after the initial project is completed.

6.1 Funding Program Recommendations

The findings from the survey, sample group interviews, & the focus group feedback, indicate that a number of improvements to the design of funding for waterways restoration & ongoing protection could be made to firstly, increase the level of engagement amongst catchment landholders, and secondly improve the level of long-term success of funding activities. The Lower Blackwood recommends that the following components (in order of priority) be considered for inclusion in future riparian projects in the Lower Blackwood:

- Provision for a communications & education program, including local case study research, recording & presentation.
- Provision of expertise for pre works planning & advice to enable landholders to determine what is the best treatment for their waterway. It is recommended the landholders be guided to plan holistically for a whole of landscape approach at the farm level. This includes planning for:
 - o waterways mapping (origin & exit),
 - o off stream watering points, stock crossings,
 - o water rights and obligations.
 - o erosion control & run-off;
 - o salinity and waterlogging;
 - o linking patches of remnant bush
- It is recommended that the funding model should encourage an outcome-based management of the streams and allow for a minimum 12 months post works support for weed control and plant death replacement.
- Flexible requirements around fencing to allow site specific managed grazing of fenced area for weed control.
- A whole of catchment stream management plan project that will aim to engage the community to formulate a common goal(s) for the catchment waterways, increase the broader knowledge on waterway health, enable landholders to know where they are in the catchment system and how they can contribute to the common goal.

6.2 Communication / Education Program Recommendations

The findings show that the LCDC is well placed to continue to play a key role in informing & educating landholders on the benefits of good landcare practices in general and in riparian restoration in particular, and the consequences of not undertaking them, and in doing so turning up the 'importance' dial for landholders to take action.

However, the survey & interviews have revealed that there are improvements that we can make to engage more widely and more effectively with landholders in the catchment.

Key communication messages must be able to demonstrate relevant & real benefits, both environmental & economic to landholders. Engagement of landholders needs to be differential & targeted depending on scale, ownership (e.g. corporate vs private) & nature of operation (e.g., dairy, tree plantations, viticulture). This should be reflected in the LCDC's Communication Strategy.

Key content & communications need to:

- Explain what is healthy & what is not, what should be there, what should not
- Explain cause & effect with its consequential impacts on the farm environment & economics.
- Explain, at a local level, ecosystems, biodiversity, water quality & flow, and erosion
- Show 'success' at a local level & inspire action
- Be framed in a manner that supports the values of accomplishment, self-respect, & belonging, without impinging on people's sense of freedom & independence.

Engagement tools need to focus on demonstrating the how & why, and the outcome.

Effective tools for this purpose include:

- Local case studies
- Farm visits, 'field walks' & demonstration days.
- Using locals as key influencers & guest speakers
- FAQ's, Cheat Sheets, How to guides, Industry information pieces,
- Project Results/Reports, Presentations

The most effective vehicle to drive regular information into the community is the LCDC enews, with 93% of respondents stating it was their most preferred means of getting information. Currently the LCDC only has around 25% of catchment landholder email addresses, a concerted campaign to increase enews subscription will be immensely beneficial to increasing our engagement footprint.

Unfortunately, with the male gender bias among survey respondents, it is difficult to know if female landholders also prefer email for information, anecdotally however many landholders indicated that their partner (female) used social media (Facebook in particular) regularly. Also anecdotally, younger land managers more frequently use social media to communicate & get information. Regular social media campaigns also therefore need to be included as part of the overall communications mix.

Overall there is a clear need to enhance the LCDC database contact information and it is recommended that funding allocated to enable the LCDC to increase its engagement footprint through a concerted campaign to improve the quality and quantity of landholder contact information in the LCDC's database.



Appendix 1: Catchment Landholder Survey Form



Catchment Landholder Information Survey

Introduction

Who are we? We are a not-for-profit, community managed, constituted and independent Landcare organisation with a membership representative of landholders with an interest in sustainable agriculture, catchment management, the broader environment and river health in the catchment.

Our district is bounded by the south west coast from Redgate beach to Augusta, and eastwards into the Shire of Nannup including all of the Scott River and bounded in the east by the Donnelly River. The majority of our district is made of the "Lower Blackwood Catchment", a group of tributaries which drain into the lower reaches of the Blackwood River.

What do we do? In addition to our high levels of biodiversity & our beautiful and unique natural landscape, our catchment includes many high value assets in the form of productive agriculture. We work with farmers, land managers, local government, business and traditional owners to protect our special environment & to promote sustainable & productive agriculture, in a healthy & vibrant community.

For more information about the Lower Blackwood LCDC please go to our website at www.lowerblackwood.com.au.

What is this survey for? Because we take a holistic view to what we do, it is important for us to have a good understanding of who you, our catchment landholders, are. By better understanding your particular patch of land and your land management priorities & interests, we can better target our projects, events & activities to benefit you, the wider community, and environment as a whole.

The survey forms part of a Landholder Value Study of the Lower Blackwood Catchment and is funded by the Department Water and Environmental Regulation through the Regional Estuaries Initiative, a \$20 million state government program to restore the function and improve the health of six estuaries in the South West.

We thank you for participating in our survey. We understand how precious your time is and appreciate & value your input. Please note that any reports generated from the information gathered in this survey will be anonymous and presented in a summary format only. All personal information will be treated as confidential, and will only be used for Lower Blackwood land care activity planning purposes.

Survey Response: Please return the survey to us by using the enclosed pre paid envelope OR you can go to our website and complete the survey online at www.lowerblackwood.com.au/value-study

Survey Close Date: June 30th 2018.

If you have any questions about this survey, please contact:

Kate Tarrant

Communications Officer

E: kate.tarrant@lowerblackwood.com.au | T: 9758 4021 | M: 0409269356



Government of Western Australia
Department of Water and Environmental Regulation



Catchment Landholder Information Survey

About You

1. Contact Details

Full Name	<input type="text"/>
Legal Entity & Trading Name	<input type="text"/>
Postal Address	<input type="text"/>
Address 2	<input type="text"/>
City/Town/Locality	<input type="text"/>
State	<input type="text"/>
Post Code	<input type="text"/>
Country	<input type="text"/>
Email Address	<input type="text"/>
Phone Number	<input type="text"/>

2. What age range do you fit in?

- ☐ younger than 20 years of age
- ☐ 20 to 30 years of age
- ☐ 31 to 40 years of age
- ☐ 41 to 50 years of age
- ☐ 51 to 60 years of age
- ☐ 61 to 70 years of age
- ☐ older than 70 years of age

3. What is your sex?

- ☐ Male
- ☐ Female

4. What is your main occupation?

5. How many days per week do you work on your property? (If applicable)

- ☐ 1 to 2 days per week
- ☐ 3 to 4 days per week
- ☐ 5 to 7 days per week

6. How long have you been managing your current property?

- ☐ 0 to 5 years
- ☐ 6 to 10 years
- ☐ Over 10 years

7. Do you have any prior land management experience?

- ☐ More than 10 years
- ☐ 6 to 10 years
- ☐ 1 to 5 years
- ☐ Less than 1 year

8. Have you ever undertaken any training in agriculture or land management?

- ☐ No
- ☐ Yes
- ☐ If Yes, what was the last training you undertook & when?

Note: By "training" we mean not just formal qualifications but any kind of short or long course professional development.

Appendix 1: Catchment Landholder Survey Form (cont)

9. How would you describe your current approach to farming? (please select all appropriate options)

- ☐ Conventional
 ☐ Regenerative
 ☐ Transitioning
☐ Conservation
 ☐ Organic
☐ Biological
 ☐ Biodynamic
☐ Other (please specify)

Definitions:

Conventional Agriculture - can include the use of synthetic chemical fertilisers, pesticides, herbicides and other chemical inputs, Freeways, irrigation, intensive tillage, or concentrated monoculture production.

Conservation Agriculture - is a set of soil management practices that minimise the disruption of the soil's structure, composition and natural biodiversity.

Biological Agriculture - places an emphasis on attaining naturally productive soils that display high levels of biological activity. The main purpose is to maximise the activity of soil microbes through the provision of good soil nutrition and structure, together with adequate supplies of energy, air and water.

Regenerative Agriculture - is an approach to food and farming systems which aims to regenerate topsoil, increase biodiversity, improve water cycles, enhance ecosystem services, support climate resiliency, increase resilience to climate fluctuation, and strengthen the health and vitality of farm soil, by recycling as much farm waste as possible, as well as adding compost material from outside the farm.

Organic Agriculture - require that food production is achieved without the use of pesticides, synthetic fertilisers, genetically modified organisms, animals that produce meat, poultry, eggs, and dairy products do not take antibiotics or growth hormones.

Biodynamic Agriculture - Biodynamics is a form of regenerative agriculture, holistic in approach and practice, through which the farmer brings the substances and forces of nature into sustainable production.

10. What's important to you? Please study the below list then rate each item in terms of how important it is to you in your daily life on the scale indicated.

	Extremely Important	Important	Neutral	Not Important	Extremely Unimportant
Sense of belonging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being well respected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being innovative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A sense of accomplishment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Freedom / Independence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Following established norms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you have another important value that's not listed let us know:

14. How would you rate your overall engagement experience?

- ☐ Exceeded expectations
☐ Met expectations
☐ Below expectations

Comments:

15. How likely are you to engage with the Lower Blackwood LCDC in the future for?

	Definitely would	Probably would	Probably would not	Definitely would not
Organised events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information / Advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Why or why not?

17. What areas of landscape & land management are you interested in &/or would like to hear more about? (please select all appropriate options)

- ☐ Animal Health & Well-being
 ☐ Irrigation
☐ Efficient Management
 ☐ Non Conventional Agriculture
☐ Erosion Control
 ☐ Pests & Weeds
☐ Farm Planning
 ☐ Potential / Alternative Production
☐ Farmer Health & Well-being
 ☐ Regeneration
☐ Farmer Networking / Mentoring
 ☐ Soil Health
☐ Farm Productivity / Profitability
 ☐ Technology (Agriculture)
☐ Fencing
 ☐ Water Health
☐ Other (please specify)



Lower Blackwood Catchment
Land Conservation District Council

Catchment Landholder Information Survey

Landscape Involvement

11. How often do you consider landscape factors when planning land management activities?

- ☐ Always
 ☐ Occasionally
☐ Usually
 ☐ Never
☐ Sometimes

How Landscape is this concerns sustainable management of the environment and natural resources.

12. Have you ever engaged with the Lower Blackwood LCDC?

- ☐ Yes
☐ No

13. How have you engaged?

	2019	2020	2021	2022	2023	Future 2024
Soil Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fencing & Revegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creation of Stock Coverages & Water Troughs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fertiliser Trials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weed Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Event Attendance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Lower Blackwood Catchment
Land Conservation District Council

Catchment Landholder Information Survey

About Your Property

18. What is your Lower Blackwood Catchment Property Address?

Lot or Location:
 Street n and Street Name:
 Locality:
 Post Code:

19. Is this property also your place of residence?

- ☐ Yes
☐ No

20. What size is your property?

- ☐ Small (less than 20 ha)
☐ Medium (20 ha to 40 ha)
☐ Large (greater than 40 ha)

21. Does your property feature any of the below?

- ☐ Wetlands
 ☐ Springs
☐ Dams
 ☐ Bushland (Native vegetation)
☐ Dunes

Appendix 1: Catchment Landholder Survey Form (cont)

22. Please indicate which, if any, waterway you have within or next to your property?

- | | |
|--|---|
| <input type="checkbox"/> Glenary Creek | <input type="checkbox"/> Turnerbrook |
| <input type="checkbox"/> Lower Blackwood River | <input type="checkbox"/> Turnwood Creek |
| <input type="checkbox"/> Lower Chapman Creek | <input type="checkbox"/> Upper Chapman Creek |
| <input type="checkbox"/> Millard Creek | <input type="checkbox"/> West Bay Creek |
| <input type="checkbox"/> Peathy Creek | <input type="checkbox"/> I don't have any waterways on my property |
| <input type="checkbox"/> Sust River | <input type="checkbox"/> I have a waterway on my property but am unsure which |

23. How do you use your property? (Please select all appropriate options)

- | | |
|---|--|
| <input type="checkbox"/> Lifestyle / Hobby | <input type="checkbox"/> Tree Plantation |
| <input type="checkbox"/> Horticulture | <input type="checkbox"/> Dairy |
| <input type="checkbox"/> Poultry | <input type="checkbox"/> Grazing - Sheep |
| <input type="checkbox"/> Viticulture | <input type="checkbox"/> Grazing - Beef |
| <input type="checkbox"/> Other (please specify) | |

24. Briefly describe any relevant historical usage of your property if different from current usage

25. Do you have another Lower Blackwood Catchment Property

- ☐ Yes (please go to additional pages attached at the end of the survey)
- ☐ No

Thank you for taking the time to complete this survey.

Best wishes from the Lower Blackwood LCDC.

Appendix 2: Landholder Value Study – Interview Form

Landholder Value Study - Interviews (Sample Group)																																																																
Interviewee Details																																																																
1. Contact Details Name: <input style="width: 100%;" type="text"/> Company: <input style="width: 100%;" type="text"/> Postal Address: <input style="width: 100%;" type="text"/> Property Address: <input style="width: 100%;" type="text"/> Email Address: <input style="width: 100%;" type="text"/> Phone Number: <input style="width: 100%;" type="text"/>																																																																
2. Main waterway on property? <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Glenarty Creek</div> <div style="width: 33%;"><input type="checkbox"/> Rushy Creek</div> <div style="width: 33%;"><input type="checkbox"/> Upper Chapman Creek</div> <div style="width: 33%;"><input type="checkbox"/> Lower Blackwood River</div> <div style="width: 33%;"><input type="checkbox"/> Scott River</div> <div style="width: 33%;"><input type="checkbox"/> West Bay Creek</div> <div style="width: 33%;"><input type="checkbox"/> Lower Chapman Creek</div> <div style="width: 33%;"><input type="checkbox"/> Turner Brook</div> <div style="width: 33%;"><input type="checkbox"/> I don't know</div> <div style="width: 33%;"><input type="checkbox"/> McLeod Creek</div> <div style="width: 33%;"><input type="checkbox"/> Turnwood Creek</div> </div>																																																																
5. How do you currently receive information about local landcare matters for waterways/wetlands?? <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Newspaper</div> <div style="width: 33%;"><input type="checkbox"/> Reports</div> <div style="width: 33%;"><input type="checkbox"/> Radio</div> <div style="width: 33%;"><input type="checkbox"/> Email</div> <div style="width: 33%;"><input type="checkbox"/> Websites</div> <div style="width: 33%;"><input type="checkbox"/> Magazines</div> <div style="width: 33%;"><input type="checkbox"/> Social Media: Facebook, Twitter, YouTube</div> <div style="width: 33%;"><input type="checkbox"/> Word of Mouth</div> <div style="width: 33%;"><input type="checkbox"/> Other (please specify)</div> </div> <div style="border: 1px solid black; height: 30px; margin-top: 5px;"></div>	3. Who is the most common source of information for you on local landcare matters for waterways/wetlands? Note: Landcare in this context means specifically riparian restoration. <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> South West Catchment Council (SWCC)</div> <div style="width: 33%;"><input type="checkbox"/> Lower Blackwood Landcare</div> <div style="width: 33%;"><input type="checkbox"/> Local Media</div> <div style="width: 33%;"><input type="checkbox"/> Shire of Augusta Margaret River</div> <div style="width: 33%;"><input type="checkbox"/> Word of Mouth</div> <div style="width: 33%;"><input type="checkbox"/> Radio</div> <div style="width: 33%;"><input type="checkbox"/> Other (please specify)</div> </div> <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div>																																																															
6. Rank the channels of communication listed above from most to least preferred <div style="display: flex; flex-direction: column; gap: 10px;"> <div><input type="checkbox"/> Newspaper</div> <div><input type="checkbox"/> Email</div> <div><input type="checkbox"/> Social Media: Facebook / Twitter / You Tube</div> <div><input type="checkbox"/> Reports</div> <div><input type="checkbox"/> Websites</div> <div><input type="checkbox"/> Word of Mouth</div> <div><input type="checkbox"/> Radio</div> <div><input type="checkbox"/> Magazines</div> <div><input type="checkbox"/> Other:</div> </div>																																																																
1																																																																
Perceptions / Awareness																																																																
Information Gathering: 4. How would you rate the quality of information you are receiving from those sources (rating scale 1 excellent...5 very poor)																																																																
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7. Would you describe yourself as an active or passive gatherer of information on local landcare matters for waterways/wetlands?? <input style="width: 100%;" type="text"/> Why/Why not? <div style="border: 1px solid black; height: 30px; margin-top: 5px;"></div>																																																																
Opinion & Understanding 8. How would you describe a healthy (ecologically) waterways/wetland system? Note: Ecologically in this context means in a way that concerns the relation of living organisms to one another and to their physical surroundings. <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Good levels of biodiversity</div> <div style="width: 33%;"><input type="checkbox"/> Good water flow (no algae)</div> <div style="width: 33%;"><input type="checkbox"/> Few weeds</div> <div style="width: 33%;"><input type="checkbox"/> No erosion (banks)</div> <div style="width: 33%;"><input type="checkbox"/> Other</div> </div> <div style="border: 1px solid black; height: 30px; margin-top: 5px; width: 100%;"> Other (please specify) </div>																																																																
9. What do you believe would indicate that a system is deteriorating or unhealthy? <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Erosion</div> <div style="width: 33%;"><input type="checkbox"/> Weeds</div> <div style="width: 33%;"><input type="checkbox"/> Declining or lack of biodiversity</div> <div style="width: 33%;"><input type="checkbox"/> Presence of algae in the water</div> <div style="width: 33%;"><input type="checkbox"/> Smell</div> <div style="width: 33%;"><input type="checkbox"/> Other (please specify)</div> </div> <div style="border: 1px solid black; height: 30px; margin-top: 5px; width: 100%;"></div>																																																																
10. In your opinion, what impact would a deteriorating or unhealthy waterway have on a property? <div style="border: 1px solid black; height: 30px; margin-top: 5px; width: 100%;"></div>																																																																
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Appendix 2: Landholder Value Study – Interview Form (cont)

11. If a waterway/wetland system has been identified as deteriorating or unhealthy, what actions do you believe could be taken to improve the health of the system?

☐ Fencing off stock
☐ Revegetating creeklines
☐ Reduce fertiliser run off
☐ Other

Other (please specify)

12. What do you believe is the ecological condition of the waterways in your catchment?

☐ Healthy
☐ Changing - Improving
☐ Changing - Deteriorating
☐ Unhealthy
☐ Don't Know

Comments

13. How would you describe the ecological condition of the main waterway on your property?

☐ Healthy
☐ Changing - Improving
☐ Changing - Deteriorating
☐ Unhealthy
☐ Don't know

Please say why you have described your waterway as above.

5

18. Were the actions successful or unsuccessful?

☐

Comments

19. In what way - describe and the benefits gained or disadvantages created as a result of taking the action(s)?

20. Would you recommend the action(s) to others?

☐

Comments

21. What external support did you receive?

22. Was the external support you received sufficient?

☐

Please suggest any improvements that could be made to the support you received.

6

Landholder Value Study - Interviews (Sample Group)

Drivers

14. Have you / would you undertake any of these actions identified in Q11, yourself?

☐

Comments

15. Which actions have you taken/would you take?

☐ Stock Exclusion/Fencing
☐ Riparian revegetation
☐ Weed Control
☐ Bank Erosion Control (Bathurst)
☐ Culverts
☐ None of them
☐ Other & comments.

If your answer to Q14 was yes then:

16. What motivated you / would motivate you to take the action(s)?

☐ Concern for my land
☐ Impact on stock
☐ Impact on profitability
☐ Other

Other (please specify)

17. What challenges did you encounter when implementing the action(s)?

6

Landholder Value Study - Interviews (Sample Group)

Barriers

If your answer to Q14 was no then:

23. What prevented / would prevent you to take the action(s)?

☐ Resources
☐ Time
☐ Knowledge / Awareness
☐ Lack of support
☐ Concern about unintended consequences (eg more weeds, loss of control of water way)
☐ Other (please specify)

24. What information/factors led you to that/those conclusion(s)?

25. What information / factors would lead you to reverse your decision?

8

Appendix 2: Landholder Value Study – Interview Form (cont)

Landholder Value Study - Interviews (Sample Group)
Future Participation
26. Are you aware of the current funding available for fencing & revegetation of waterways? (50:50 contribution)
<input type="checkbox"/>
Comments
<div></div>
27. In your view does this funding model provide sufficient support/incentive to undertake waterway restoration works?
<input type="checkbox"/>
Comments
<div></div>
28. Do you have any suggestions on what would improve the level of support/incentive?
<div></div>
29. Would a whole of catchment, stream management plan, would be useful for you in managing your own waterway?
<input type="checkbox"/>
Comments
<div></div>



Lower Blackwood Catchment
Land Conservation District Committee

Lower Blackwood Land Conservation District Committee

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