



## FINAL REPORT 2014

### *Part 1 - Summary Details*

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Please use your TAB key to complete Parts 1 & 2.

**CRDC Project Number:** CRDC1403

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**Project Title:** Cotton NRM Technical Specialist

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**Project Commencement Date:** 29/10/2013 **Project Completion Date:** 30/06/2014

**CRDC Research Program:** Industry

### *Part 2 – Contact Details*

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**Researcher 2** (Name & position of additional researcher or supervisor).

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**Signature of Research Provider Representative:** \_\_\_\_\_

**Date Submitted:** \_\_\_\_\_

## ***Part 3 – Final Report***

(The points below are to be used as a guideline when completing your final report.)

### **Project Background**

In Early July 2013, CRDC released their 2013-2018 Strategic R&D Plan. A key strategy outlined in the plan is “*Responsible Landscape Management*” with the industry aiming to be recognised for its leadership in environmental performance. Supporting the development and delivery of research outcomes from CRDC past and present strategic plans, is the CottonInfo team, a joint venture between Cotton Australia, Cotton Research and Development Corporation and Cotton Seed Distributors. The CottonInfo Team identified a NRM knowledge gap within the team, this project addressed that knowledge gap by providing a NRM technical specialist 3 days a week who provided the technical NRM skills and knowledge required to co-ordinate the National Cotton NRM campaign and lead the industries continuous improvements of its best practice recommendations for NRM.

### **Project Objectives**

Listed below are the 4 project objectives under the National Cotton NRM technical Specialist project. A brief list of the achievements for each objective are listed below.

- **Objective 1: *Lead and co-ordinate a cotton industry-wide Natural Resource Management campaign***
  - 3 NRM campaign messages developed (Supporting NRM Best Practice, Getting Back to Nature, Riparian Condition Monitoring) and described to CottonInfo team (RDO team meeting Adelaide March 2014) and other industry stakeholders, NRM groups and key industry NRM researchers (National NRM knowledge Conference launceston, Carbon Technical reference panel meeting, Riparian Monitoring program technical meeting) Appendix 1
  - RDO NRM knowledge & capacity increased through 4 small focus group overviews and reviews of the natural assets module of myBMP and the industries recommended best practices for natural areas on cotton farms
  - Industry guides and manuals reflect latest NRM research -Cotton production manual natural resources chapter updated with water quality monitoring and deep drainage information, weedpak seedling ID updated with environmental weed info & plant native or exotic status.
  - NRM campaign messages communicated in 2014 Summer & Winter editions of Spotlight Magazine, 5 Cotton e-newsletters (CFOC case studies & NV carbon storage & calculator), 2014 NRM knowledge conference Launceston, 2015 CottonInfo Calendar and invitation to present at the National Cotton Conference in August on the Carbon footprint calculator.
  - Partnership formed with North West Local Land Services to develop a Smart Phone App for the Birds on Cotton Farm Book. The App will include bird calls as well as a simple monitoring tool. Bird App due June 2015.
  
- **Objective 2: *Lead myBMP Natural Asset Module***
  - Technical review of module undertaken by industries key NRM researchers and technical NRM staff (Dr Rhiannon Smith (UNE), Dr Sam Capon (Griffith Uni), Andrew Biggs (QLD DNRM) & Mark Silburn (QLD DNRM)
  - 5 small focus group reviews of module undertaken with RDO staff, regional NRM advisors, myBMP staff & CA staff
  - Revised module road tested with 4 growers

- Revised module attached in [Appendix 2 \(revised module attached as excel document\)](#)
- Collaboration with Carbon technical Specialist, Jon Welsh, to develop a communication strategy for the extension of the revised module to advisors and growers with a focus on native vegetation best practice for carbon sequestration and storage.
- **Objective 3: Increase the NRM capacity of WINCOTT**
  - Partnership formed with WINCOTT & North West Local Land Services to deliver a series of “Getting back to nature” family educational NRM activities in the lower Namoi in November 2013.
  - Partnership formed with WINCOTT to develop a 2015 CottonInfo Calendar which will be release at 2014 Australian Cotton Conference
- **Objective 4: Assist the industry benchmark riparian condition in cotton growing areas**
  - National Cotton Landuse baseline layer for cotton growing areas compiled using existing state and federal landuse data, see attached file COTTON\_combined\_data\_from\_LU.shp
  - Riparian Land use and management questionnaire developed in collaboration with Dr Rhiannon Smith and Dr Sam Capon for inclusion in the 2014 cotton grower survey. [Appendix 3](#)
  - Riparian Monitoring program technical workshop to develop a riparian monitoring program for the cotton industry that informs best management practice for riparian land management held in June 2014 (Attendees: Bronwyn Cameron (NWLLS), Julian Wall (Ecological), Dr Rhiannon Smith (UNE), Dr Sam Capon (Griffith Uni), Michael Reid (UNE), Jane Trindall (CRDC) & Stacey Vogel (CottonInfo).

## Project Outcomes

**Describe how the project’s outputs will contribute to the planned outcomes identified in the project application. Describe the planned outcomes achieved to date.**

**Outcome 1: NRM campaign messages, activities and targets developed and described to the CottonInfo team.**

Three programs have been developed for extension under the National Cotton NRM campaign.

Supporting NRM Best Practice – This program aims to support through R&D the industry’s best practice recommendations for NRM using the natural assets module of myBMP as the key delivery framework. As part of the program the natural assets module under went a comprehensive technical reviewed and updated with industry NRM researchers, extension staff and growers (as well as some NRM external advisors), the module, along with other revised modules, will be uploaded to the myBMP website in October 2014. Lead by the NRM Technical Specialist the module will undergo future annual reviews as part of an annual review process in place for all modules of myBMP. Through collaboration with Jon Welsh’s CFI extension and outreach project, a communications strategy for the extension of the natural assets module and its recommended best practices was developed in May 2014. The communication strategy outlines targets and timelines for the training of NRM advisory staff (October 2014) in the natural assets module as well as delivery of extension activities around native vegetation BMP’s to growers and industry advisors. A training framework for

delivery to NRM advisory staff is currently being developed in collaborations with the myBMP team, Peter Verwey, Sandra Williams and Jim Wark.

As part of this program the project officer collaborated with researchers through the following activities to ensure the continuous improvement of the industries best practice recommendations for NRM.

- Attended and presented at the National NRM knowledge exchange Conference in Launceston, March 2014
- Attended and presented at the National cotton CFI extension and outreach carbon Technical reference panel meeting April 2014
- Organised and participated in the Cotton Riparian Monitoring program technical workshop June 2014 (Attendees: Bronwyn Cameron (NWLLS), Julian Wall (Ecological), Dr Rhiannon Smith (UNE), Dr Sam Capon (Griffith Uni), Michael Reid (UNE), Jane Trindall (CRDC) & Stacey Vogel (CottonInfo)
- Lead a committee to organise a cotton river forum (RiverCOMM - "Old problems new solutions") for the 21<sup>st</sup> & 22<sup>nd</sup> of October 2014
- Ongoing corresponded with industry environmental researchers such as Professor Nancy Schellhorn (CSIRO), Andrew Briggs (QLD DNRM), Mark Silburn (QLD DNRM), Dr Rhiannon Smith (UNE), Dr Sam Capon (Griffith Uni)
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Getting Back to Nature - This is a capacity building program to increase grower engagement in NRM best practice, especially in the more non-productive areas of NRM such as native vegetation and biodiversity management. This program extends nationally the "social networks" approach to engagement which was trialled very successfully in the Namoi under the Cotton CFCO Sustainable Landscapes Project. The Namoi pilot project targeted existing social networks of landholders, particularly women and their families, delivering a series of fun, family based educational workshops. The pilot project was very successful with 122 people participated in evening wildlife spotlight nights, garden planning workshops, and a kayak wildlife discovery tours. From these workshops 27 landholders went on to implement biodiversity benchmarking, feral animal control and reveg projects across nearly 60,000ha. The objective of the 'Getting Back to Nature' program is to build on the learnings from the Namoi pilot project to foster and cultivate the "sense of place" that most growers and their families have with their local rivers and landscapes to increase their capacity and willingness to participate in our National NRM campaigns. This program will be delivered through the cottonInfo team, industry networks such as WINCOTT as well as through partnering with other NRM groups such as the landcare network. A document outlining the program was forwarded to the CRDC NRM program leader in February 2014, the on-ground implementation of the program was reliant on the successful bid of the CRDC1501 to provide funding to run 'social engagement' extension events.

Activities implemented under the program over the past 7 months include

- NWLLS and WINCOTT 'Summertime fun' kayak and spotlight evenings Wee Waa November 2014



Photo 1 Burke family on Pian Weir



Photo 2: Attendees learning about microbats

- Extension of program in 2014 Summer & Winter editions of Spotlight Magazine (WINCOTT partnership), May Cotton e-newsletters (CFOC case studies “getting Back to nature”), 2014 National NRM knowledge conference Launceston,
  - Development of a tool to assist with capacity building. Development underway of a Smart Phone App for the Birds on Cotton Farm Book. The App will include bird calls as well as a simple monitoring tool, project partners to date include the NWLLS (\$5000). Bird App due June 2015.

Riparian Condition monitoring – This program aims to provide the industry with a better understanding of what the current the current health of ripariajn areas on cotton farms and how much of it is considered to be in good condition. The program will also identify what the indicators for riparian health are that the industry does and can have an impact on, and inform our knowledge of what are the recommended best practices for good condition riparian areas. A draft program logic (Appendix 1) was developed for the program in March 2014 and revised in June 2014 following the Riparian monitoring technical workshop. One of the key activities identified in the draft riparian condition monitoring program logic was to hold a riparian technical panel meeting to help set the methodology/approach of the program. This was held on the 24<sup>th</sup> June 2014 at Narrabri. Attendees: Bronwyn Cameron (NWLLS), Julian Wall (Ecological), Dr Rhiannon Smith (UNE), Dr Sam Capon (Griffith Uni), Michael Reid (UNE), Jane Trindall (CRDC) & Stacey Vogel (CottonInfo).

Activities implemented under the program over the past 7 months include

- National Cotton Landuse baseline layer for cotton growing areas compiled using existing state and federal landuse data
- Riparian Monitoring program technical workshop to develop a riparian monitoring program for the cotton industry that informs best management practice for riparian land management held in June 2014 (Attendees: Bronwyn Cameron (NWLLS), Julian Wall (Ecological), Dr Rhiannon Smith (UNE), Dr Sam Capon (Griffith Uni), Michael Reid (UNE), Jane Trindall (CRDC) & Stacey Vogel (CottonInfo).
- Draft of riparian practice management questions prepared by Dr Sam Capon, Dr Rhiannon Smith and the project officer for inclusion in the 2014 Cotton grower Survey.
- Development of case study farm ‘Redbank’ using the Carbon Footprint calculator which demonstrates the role native Vegetation, in particular riparian vegetation dominated by River Red gums plays in assisting cotton farms to be carbon neutral or in the case of ‘Redbank’ carbon positive. Case study to be communicated via paper and presentation at the 2014 Australian Cotton Conference in August.

The NRM campaign program messages were extended to the CottonInfo team through the attendance of fortnightly CottonInfo team teleconference where monthly updates on NRM campaign messages, activities and targets were given. Since commencing the project no whole of team CottonInfo meetings have been held, however a summary of the NRM campaign messages were circulated to the team for workplan discussions at the RDO team meeting in Adelaide in March 2014. In developing the programs there was an assumption made that the RDO's would assist in the extension of these programs.

**Outcome 2: *Natural assets module is relevant and current***

The practices and supporting documentation within the Natural Assets module has been reviewed and updated. A copy of the practices for the updated version of the module are attached in the attached excel file. A few of the supporting documentation still needs editing with researchers and other NRM technical staff and will be undertaken as part of the continuation of the NRM Technical Specialist role (CRDC1501). The review of the practices in the module and its supporting documentation was undertaken via:

- Technical review of module undertaken by industry key NRM researchers and technical NRM staff (Dr Rhiannon Smith (UNE), Dr Sam Capon (Griffith Uni), Andrew Biggs (QLD DNRM) & Mark Silburn (QLD DNRM))
- 5 small focus group reviews of module undertaken with RDO staff, regional NRM advisors, myBMP staff & CA staff
- 4 Grower trials of the module
- Collaboration with Rachel Holloway (CRDC project) to ensure consistency across modules

Some new supporting resources were developed in association with NRM researchers and technical staff for the module which include the following BMP facts sheets

- Identification and management of salinity and sodicity
- Native vegetation monitoring sheet
- Healthy native vegetation action sheet
- NSW estimates for groundcover %
- WUE application to reduce salinity risk from deep drainage
- Native flora and fauna legislation factsheets
- Native vegetation and the impact on integrated pest management
- Practices that protect native vegetation from negative impacts such as spray drift
- Declared noxious weeds and pests for NSW & QLD
- Weed control classifications NSW & QLD

**Outcome 3: *Increased capacity of RDO's to identify regional NRM needs***

- Overview of industries recommended best management practices for natural areas given to each RDO through natural assets module review process.
- Update given at fortnightly teleconferences of NRM research and resources NRM campaign
- Extension of information cotton info newsletter
- Consultation undertaken with CottonInfo team manager, Warrick Waters, regarding implementation of NRM Campaign

**Outcome 4: *Deliver relevant training to growers and consultants as identified by RDO's***

Riparian management principles were extended to lower Namoi growers at "Summertime Fun workshop series", developed in consultation with Geoff Hunter. The delivery of NRM extension activities as identified by RDO's has been difficult for a couple of reasons. Firstly no operation dollars to cover cost of field days was factored into the project budget with the intention of building collaboration with other NRM organisations to help resource extension activities. Unfortunately when trying to develop some NRM extension activities in the

Goondiwindi area with Sally Dickinson the absence of a incorporated body willing to administered available funding meant the activities could not go ahead. The absence for several months during the project of a CottonInfo team leader also meant that their was little strategic integration at a management level of the NRM “in it together” campaign into the RDO’s workplans.

**Outcome 5: *Communication products developed and extend NRM best practice***

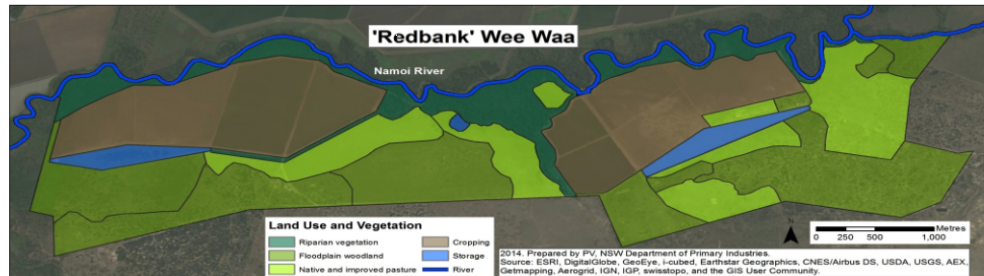
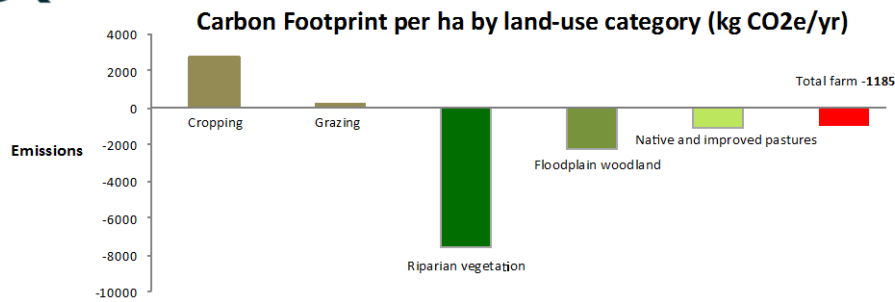
- 2014 Summer edition of Spotlight Magazine (new role & WINCOTT partnership),
- 2014 Winter edition of Spotlight Magazine (WINCOTT NRM survey & partnership to deliver “getting back to nature” program)
- CFOC case studies extended via cotton e-newsletter during May & June 2014
  - Environmental Weed Control -A catchment approach - Comet Sustainable Farmers Association and the Dawson Valley Cotton Grower Group
  - Building capacity for on-ground change - Ashley & Rowena Areawide Management Group feral pig eradications project
  - Building capacity for on-ground change Bugilbone feral pig management group
  - Benchmarking biodiversity, Mungundi Area wide management group
  - Getting Back to Nature- Social Networks Namoi case study
- 2015 CottonInfo Calendar (NRM months and themes listed below)
  - February - ‘Could your farm be carbon neutral’
  - July - ‘Natural vegetation is valuable’
  - August - ‘Let the rivers run’
  - Nov - ‘Making every drop count’ (WUE, deep drainage and salinity)
  - Dec - ‘Fighting nature with nature’ (IPM)
- ‘Redbank’ Carbon Footprint calculator case study and paper (to be extended at Cotton Conference)
- myBMP natural assets module supporting factsheets (outlined above)
- 2014 Cotton production manual (Natural Resource chapter updated)
- Weedpak seedling ID tablet to be launched at 2014 Cotton Conference (identification of weeds on the Weeds of National significance list as well as state listed noxious weeds. Classification of weeds by native or exotic)

A draft paper on ‘Carbon neutral cotton farms’ was prepared for presentation at the 2014 Cotton Conference. The paper demonstrates a case study example of the Carbon footprint calculator which is currently being developed under the Cotton CFI education and outreach project. The calculator looks at carbon sequestration and emission from agricultural production as well native vegetation on cotton farms. The native vegetation tool within the calculator is based on a literature review and research findings from Dr Rhiannon Smiths (UNE) ecosystem services research into carbon sequestration of native vegetation on cotton farms.



# Carbon neutral cotton farms

Dr Rhiannon Smith, Dr Francois Visser, Jon Welsh, Stacey Vogel & Jane Trindall



This project is supported by funding from the Australian Government



## Outcome 6: NRM information extended to WINCOTT members

- Attended 2013 AGM in Goondiwindi
- Partnership developed between NWLLS & WINCOTT to run NRM extension event in the Namoi
- NRM article on "Summertime fun" extension activities extended through WinCott Newsletter
- Spotlight Article on WINCOTT "getting back to nature" partnership and activities in 2014 Summer and Winter editions
- Partnership developed with WINCOTT & CottonInfo to develop a 2015 Calendar which includes NRM information. Calendar to be launched at 2014 Cotton Conference.

## Conclusion

### 1. Provide an assessment of the likely impact of the results and conclusions of the research project for the cotton industry. What are the take home messages?

The synthesis of the latest industry lead NRM research into publications and products such as the Natural Assets Module of myBMP, 2014 Cotton Production Manual & the 2015 Cotton Calendar means that growers, consultants and the CottonInfo team have access to the latest best practice recommendations for natural resource on cotton farms. Which will lead to better decision making and biophysical health on cotton farms.

Presentation at key conferences on Sustainable Agriculture within the cotton industry, such as the National NRM knowledge Conference in Launceston, helped other industries, NRM organisations and the general public better understand the work the Australian cotton industry is doing to reduce its environmental footprint.

Working with the CottonInfo team, a partnership was formed with Wincott which lead to better engagement and knowledge transfer to cotton growers such as the “Summertime Fun workshop series” and the 2015 Cotton Calendar. While Wincott’s focus is on mental health and upskilling women on the farm they continue to be an effective network for developing regional partnerships to deliver NRM outcomes.

Through technical review workshops, CottonInfo team meetings, CRDC R&D meetings and key stakeholder collaborations undertaken throughout the project, the industry has a clear direction for its NRM campaign moving forward. The NRM campaign has a focus on Riverine condition and providing the capacity, resources and tools for growers to manage riverine areas according to best practice. A key outcome of the project is the development of riparian monitoring program which will be implemented nationally over the next 3 years.

#### ***Part 4 - Final Report Executive Summary***

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Provide a one page Summary of your research that is not commercial in confidence, and that can be published on the World Wide Web. Explain the main outcomes of the research and provide contact details for more information. It is important that the Executive Summary highlights concisely the key outputs from the project and, when they are adopted, what this will mean to the cotton industry.

Through this project the latest industry lead NRM research has been synthesised into publications and products that provide growers, consultants and the CottonInfo team with the latest best practice recommendations for natural resource on cotton farms. These include but are not limited to, the revised Natural Assets Module of myBMP, 2014 Cotton Production Manual & the 2015 Cotton Calendar.

Working with the CottonInfo team, partnerships where formed with other industry organisations such as Wincott which has lead to better engagement and knowledge transfer to cotton growers, examples include the “Summertime Fun workshop series” and the 2015 Cotton Calendar.

A key outcome of the project has been the development of the Australian cotton Industries NRM campaign which has a focus on Riverine condition and providing the capacity, resources and tools for growers to manage these areas according to best practice. As part of this campaign the industry will be implementing nationally over the next 3 years a riparian monitoring program which was developed through this project.

# Appendix 1

## Getting Back to Nature Program

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Prepared by Stacey Vogel 12/1/2014

Cotton NRM Technical Specialist

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### Background

There have been a number of projects, surveys and reports undertaken over the past decade into what motivates people to engage in Natural Resource Management (NRM). A study undertaken by Gooch in 2003 found that a sense of place and development of an ecological identity can be a strong motivator for NRM volunteerism. This was supported by a study commissioned in 2005 by the QLD Department of Natural Resources and Mines (DNRM) which looked at rural and regional womens contribution in the Eastern Darling Downs Region to NRM and their motivation for participating in NRM. The study interviewed 38 women who reflected the regions diversity of rural women (landholders, business women, traditional owners, scientists, students ect). The 10 most common motivations for participating in NRM are summarised in figure 1.

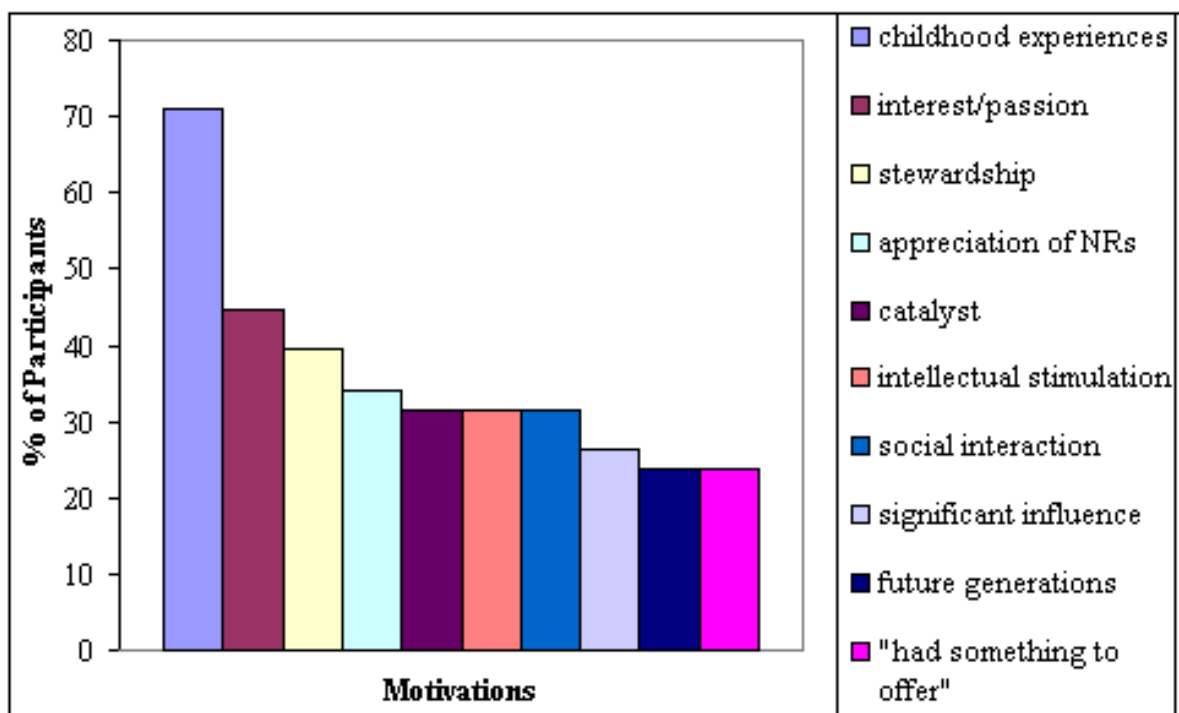


Figure 1. The ten most common motivations for engagement in NRM (McCartney *et al* 2005)

The survey showed childhood experiences and a passion for their local environment where the two main motivators for their participation in NRM. These results support the cotton industries investment in engaging with schools and students in NRM issues through programs such as the “Writter Reader Program” and PIXIE . They also show, as did Gooch 2003, that it is often the “heart” which motivates people to engage in NRM and we need to be more innovative about how we approach NRM engagement.

The results of work such as these as well as a survey undertaken by WINCOTT in 2010, which suggested that it was often women who were making the initial decisions around NRM on cotton farms, lead in 2012 to the development and implementation of a “social engagement” pilot project in the Namoi Valley. The trial was undertaken as part of the “Sustainable Cotton Landscapes” project, a partnership between Cotton Research and Development Corporation and the Australian Governments Caring for Country program. In collaboration with the Namoi Catchment Management Authority the pilot project adopted with great success these principles of innovation to create passion and engagement through working with social networks of women and their families, *Getting Back to Nature Case Study 2013*.

Creating passion around a sense of place, providing opportunities for social interaction, fostering and cultivating positive childhood experiences with the environment and creating an ecological identity around stewardship of riparian areas can be a very effective strategy for engaging landholders in NRM, especially women.

The nature of cotton farming means many cotton farms occur along major in-land river and creek systems within eastern Australia. This physical connection of many farms to a river provides an opportunity for the industry to capitalise on the sense of place, rivers and riparian areas already provide to cotton families. The development of a “getting Back to Nature” extension campaign aims to foster and build that connection between cotton families and their local rivers as a mechanism for building their desire and capacity to implement BMP in riparian areas. This program intends to start developing their ecological identity around their “good” stewardship of their riparian landscapes and engage them in our programs such as myBMP and the “Riparian Benchmarking Program” to demonstrate that stewardship.

## **Objectives**

- Educate cotton growers and their families about the value of the flora and fauna that is found on their property both on a property scale and on a catchment scale
- Deliver latest NRM research outcomes
- Promote best management practices
- Increase the capacity of cotton growers to implement BMP and benchmark riparian condition on farm
- Develop partnerships with regional NRM technical bodies and staff

## Program Milestones as outlined in CRDC FRP (F13 & F14)

Milestone Description	N O.	Performance Indicator	Start Date (dd/mm/yy)	Finish Date (dd/mm/yy)
Getting Back to Nature program developed and extended to RDO's	1	Program developed and reflected in D&D "in it together" Campaign	22/10/2013	30/6/2014
	2	Case study on "Getting Back to Nature" developed	22/10/2013	30/6/2014
	3	RDO's aware of program	22/10/2014	30/6/2014
Getting Back to Nature Program Implemented	1	4 regions with improved NRM capacity	1/7/2014	30/6/2016
	2	3 regions with improved NRM capacity	1/7/2016	30/6/2017
	3	NRM ID guide which can support program and implementation of BMP developed	1/7/2014	30/6/2017
	4	Mobile NRM application which can support program developed	1/7/2015	30/6/2017
	5	Collaboration with other industry NRM projects and programs	1/7/2015	30/6/2017

### PROGRAM LOGIC MODEL APPENDIX 1

## **Key Message**

- “Getting Back to nature”
- Entertain, engage and inform
- Extension of best practice recommendations within Natural assets Module of myBMP

## **Scope Description**

### In Scope

- Regional Cotton Communities within NSW & QLD
- NRM research including and not limited to work by Dr Nancy Schellhorn (CSIRO), Rhiannon Smith (UNE) & Sam Capon (Griffith Uni)
- Wildlife spotlight nights, kayak trips, gardening workshops, bird watching ect
- Riparian condition Benchmarking
- Best management practices

### Out of Scope

- Areas outside cotton growing areas
- Information that is purely production focused
- Anything that would not be considered best management practice

## **Constraints**

- Support of RDO's
- Identification of social networks
- Approval of F15 Funding (CRDC)
- Co-funding to run extension events
- Getting appropriate NRM technical staff for NRM activities
- Continuing dry conditions and subsequent ability of growers to engage with us and the condition of the natural environment

## **Assumptions**

- People will participate in this sort of program in the short and long term
- That this sort of program will effect growers capacity to implement NRM BMP, on-ground activities and participate in riparian condition benchmarking

## **Related Projects/Programs**

- Riparian condition benchmarking

- myBMP natural assets module review & RDO training
- Regional NRM bodies CAP and programs
- Cotton Carbon extension and outreach project
- FRP CRDC 14-15
- Envirostories

## **Broad Strategy**

The program will engage social networks of growers and their families in a series of fun outdoor events/activities around riparian vegetation management. The goal of the “getting back to nature” program is to create passion in a sense of place which will lead to increased capacity and trust of growers to engage in our other NRM programs such as the riparian benchmarking program and myBMP. Therefore it is important for the success of the program that sites selected for events are local to attendees and that there is follow-up with participants after the initial event either via a second event, farm visit (advice or riparian benchmarking), provision of information ect.

Identify potential funding partners to run regional events, this would be best done as part of a broader collaborative program between the cotton industry and NRM regional bodies which aims to meet the outcomes of this program as well as the “riparian benchmarking” program. Working with RDO’s identify local grower social networks and groups, what workshop format they may be interested in and local NRM technical experts who can help deliver the workshop formats outlined below and in more detail in Appendix 2.

- Evening Wildlife Spotlight Nights
- Day kayak trip
- Evening kayak and wildlife spotlight night
- Garden and landscape vegetation planning workshop
- Bird watching

Develop Factsheets/interactive sites on indicator bird species for riparian health (including what you can do actions)

- Grey-crowned Babbler (Birds on Cotton farm Book – indicator species)
- Variegated Fairy-wren (Birds on Cotton farm Book – indicator species)
- Spiny-cheeked Honeyeater (Birds on Cotton farm Book – indicator species)
- Barking Owl

Link “Getting back to Nature” program with other CRDC NRM program outcomes such as the Riparian Benchmarking Program, myBMP natural assets module and the development of an NRM ID guide (develop an app for the birds on cotton farms book which includes bird calls and/or update riparian guidelines) and Mobile phone App

## Required Resources

- NRM technical specialists, regional NRM staff & NRM researchers
- Riparian Benchmarking tool
- Birds on Cotton farms book
- Reptiles, mammals and frogs of the NW floodplain of NSW
- Pest and beneficial insect guide
- CFOC Cotton Sustainable Landscapes case studies
- Natural assets Module of myBMP
- Riparian Guidelines
- Riparian condition indicator bird factsheets

## Budget

2 event workshop series = \$5000 (technical staff, catering, ect) x 7 valleys = \$35,000  
(\$15,000 in F15 FRP budget, need to look for partnership \$\$ to run events, @nd event could also be riparian benchmarking on-farm with RDO or projects collaborative partner)

Design and printing indicator bird species factsheets - \$1000 (\$2000 in FRP promotions communications budget)

Cotton NRM technical Specialist travel - \$7000

## Responsibility Assignment

Delivery Responsibility – Stacey Vogel (Stacey Vogel Consulting)

Working with – RDO's, CA rep, NRM bodies, researchers, NRM program leader

## Program Monitoring & Evaluation

- Workshop evaluation sheets
- Follow-up survey of all workshop participants at end of program to determine if their attitudes or practices have changed.
- Monitor participants engagement in Riparian Benchmarking Program and myBMP.

## References

Gooch, M. (2003). A sense of place: ecological identity as a driver for catchment volunteering, Australian Journal on Volunteering 8(2):22-33

Rural Women's Engagement in Natural Resource Management: Eastern Darling Downs Case Study (2005). Fiona McCartney<sup>1</sup>, Claire Carter<sup>2</sup>, Margaret Cruikshank<sup>3</sup>, Paula Halford<sup>4</sup>, Christine King<sup>1</sup>, Deirdre Lawrence<sup>2</sup>, Donna Moodie<sup>5</sup>, Maria O'Leary<sup>2</sup>, Helen Ross<sup>1</sup>, Roslyn Scotney<sup>6</sup> and Jim Wilkinson<sup>7</sup>. 2005 APEN Conference proceedings.

Wincott

-~~NRM, Survey of the Australian cotton industry~~

Compiled by Helen Dugdale *Helen Wheels Consultancy*

"Getting Back to Nature" (2013) Sustainable Cotton Landscapes project Case Study



# Suggested Agenda's for field days

## Day Kayak Trip

9:45am – 2:15pm

<b>Workshop Design</b>	<p><b>Maximum Number:</b> 20 participants <b>Best time of the year:</b> Spring and cooler summer months, during irrigation when a flow is guaranteed. During school hours. <b>Location:</b> Choose a stretch of river which is well vegetated with lots of big old trees with hollows and fallen timber (higher biodiversity value). Site needs to have easy access/exit to water from the bank. Weir pools are a good choice as a flow is not so reliant on rainfall allowing you to set dates further out.</p>
<b>9:45am</b>	<p>Workshop start Participants arrive at starting point Welcome &amp; Introduction WHS outlined to group and JSA sheet handed around for signature</p>
<b>10:05</b>	<p>Kayaking Induction by kayak guides</p>
<b>10:25</b>	<p>Participants on river paddling NRM technical experts point out things of interest (can have experts located at spots along the river to give short talks on particular features of the river) Have at least 2 people who can talk about the riverine environment, one paddling towards front of group and one at the back (if you have people located on the banks then one is sufficient).</p>
<b>11:30</b>	<p>Morning tea stop (simple morning tea can be packed into kayaks or provided at a designated site). Selection of morning tea site should allow safe and easy entry and exit and have cover that can be used as a toilet spot if participants require one.</p>
<b>1:00</b>	<p>Arrive at finish Lunch- can be provided as a picnic at the exit point or in a landholders garden along the river.</p>
<b>1:30</b>	<p>NRM activity/show and tell An activity which is visual and engaging is a good idea as participants are often tired - ideas include a wildlife show and tell, cultural heritage artefact show and tell,</p>
<b>2:15pm</b>	<p>Workshop Close,</p>

### **Facilitator Equipment**

- Field day signs
- Aeroguard
  
- Sunscreen
- JSA sheets
- Evaluation sheets
- Bottled water
- First Aid kit
- Fold up tables
- Relevant brochures, flyers ect

- Catering
- Port-a-loo
- Kayak guides provide – kayaks & Life jackets
- Technical expert ideas –fisheries, native vegetation & biodiversity or cultural heritage staff
- Childcare
- Transport to and from site (using a bus eliminates the need to ferry people back to their cars at start point and cuts down traffic at start point)

### **Participants to Bring**

- Water
- Sunscreen
- Hat (preferably with chin strap as often windy)
- Covered shoes which can get wet
- Aeroguard
- Spare set of dry clothes
-

# Evening Kayak & Spotlight Trip (Daylight Savings)

## 5:30pm – 9:00pm

<b>Workshop Design</b>	<p><b>Maximum Number:</b> 20 participants</p> <p><b>Best time of the year:</b> Spring and cooler summer months, during irrigation when a flow is guaranteed.</p> <p><b>Location:</b> Choose a stretch of river which is well vegetated with lots of big old trees with hollows and fallen timber (higher biodiversity value). Site needs to have easy access/exit to water from the bank. Weir pools are a good choice as a flow is not so reliant on rainfall allowing you to set dates further out.</p>
<b>5:30pm</b>	Participants arrive, Participants grab something to eat as they arrive (FOOD ready by 5:30pm)
<b>5:50 - 6:00pm</b>	Welcome/Introduction WHS & signing of Job safety authorisation sheet NRM talk/activity
<b>6:40pm</b>	Induction to kayaking by kayak guides
<b>7:00pm</b>	Participants on river ready to start kayaking & wildlife spotlighting Approximately 4-5km stretch of river (including return) with lots of time to stop and spotlight along the way
<b>9:00pm</b>	Kayak trip finishes. Participants fill out evaluation sheets as they leave

### Facilitator Equipment

- Field day signs
- Aeroguard
- Spotlights
- JSA sheets
  
- Evaluation sheets
- Gas Lamp/LED Lamp (light when it gets dark)
- First Aid kit
- Fold up tables
- Relevant brochures, flyers ect
  
- Catering
- Port-a-loo
- Kayak guides provide – kayaks & Life jackets

### Participants to Bring

- Fold-up chairs
- Head torches
- Covered shoes which can get wet
- Aeroguard (insects attracted to head torch light)
- Spare set of dry clothes
-

# Garden & Landscape Planning & Design Workshop

9:30am – 2:00pm

<b>Workshop Design</b>	<p><b>Maximum Number:</b> 20 participants  <b>Best time of the year:</b> Any, however spring and summer give more opportunity to be outside and use the venue's garden as a talking point.  <b>Location:</b> Landholders garden, botanical garden – helps if the garden is located near corridors of native vegetation and the garden contains a mixture of native and exotic plants.</p>
<b>9:30am</b>	Start: Introduction
<b>9:40</b>	<p>Landscape Design &amp; Planning  Using a large satellite photo of area discuss  What potential benefits NV linked to your garden can provide (wildlife, pollination, IPM ect)  Actions that can be undertaken to improve health of surrounding NV (refer to sustainable landscapes Action sheet)</p>
<b>10:30</b>	Morning Tea
<b>10:50</b>	Garden Design - Celebrity gardener, Royal Botanical garden ect
<b>11:30</b>	Propagation - Celebrity gardener, Royal Botanical garden ect
<b>12:15</b>	Disease & insect management- Celebrity gardener, Royal Botanical garden ect
<b>1:00</b>	Lunch - Gourmet catering with a bush tucker theme
<b>2:00pm</b>	Close: Wrap up

## Facilitator Equipment

- Field day signs
- Aeroguard
- Biodiversity Action Plan
- JSA sheets
- Evaluation sheets
- First Aid kit
- Gourmet Catering (bush tucker theme if possible)
- Relevant brochures, flyers ect
- Fold up tables

## Participants to Bring

- Fold-up chairs
- Plants they want identified, diseased plants, insects ect (depends on technical experts present)
- Any exiting plans of their garden and/or ideas for a garden design
- Aeroguard (insects attracted to head torch light)
-

# Family Spotlight Night & BBQ (Daylight Savings)

<b>Workshop Design</b>	<b>Maximum Number:</b> 30 participants <b>Best time of the year:</b> Spring and cooler summer months <b>Location:</b> Choose a site near a river or creek with lots of big old trees with hollows and fallen timber (higher biodiversity value)
<b>6:00</b>	Start (participants arrive)
<b>6:15</b>	Welcome/Introduction WHS & signing of Job safety authorisation sheet
<b>6:30</b>	NRM talk/activity with NRM technical experts- Show and tell of previously trapped wildlife and a habitat management discussion using large aerial photograph of local area to show connectivity through the landscape
<b>7:15</b>	Dinner (BBQ provided by local clubs, schools ect)
<b>7:45</b>	Spotlight Walk
<b>9:00</b>	Workshop close, evaluation sheets filled out

## Facilitator Equipment

- Field day signs
- Aeroguard
- Spotlights
- JSA sheets
- Evaluation sheets
- Gas Lamp/LED Lamp (light when it gets dark)
- First Aid kit
- Fold up tables
- Relevant brochures, flyers ect
- Aerial Photograph of area
- Catering
- Port-a-loo
- 

## Participants to Bring

- Fold-up chairs
- Head torches, torches
- Covered sturdy shoes & long pants
- Aeroguard (insects attracted to head torch light)
- 
-



**Program: Riparian Monitoring Program Logic Model Prepared by Stacey Vogel 27/6/2014**

**Situation:** Most cotton farms occur adjacent to a river and/or creek with many hectares of Riparian Vegetation under cotton farmers management. As custodians of riparian lands the cotton industry would like to:

- Better understand what the current condition of riparian areas are on cotton farms
- Inform our knowledge on what are best practices for healthy riparian areas, and;
- Identify the indicators of riparian health that the industry has and can impact on.

The program will be implemented under the CRDC1501 project.

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Inputs	Outputs		Outcomes -- Impact		
	Activities	Participation	Short	Medium	Long
<ul style="list-style-type: none"> <li>• CottonInfo team – Technical Specialist, and RDO's</li> <li>• Getting back to nature program</li> <li>• carbon footprint calculator &amp; case study - Carbon extension and outreach project</li> <li>• Riparian Research – Rhiannon Smith (UNE), Sam Capon (Griffith UNI), Regional NRM organization research</li> <li>• Spatial landuse data – current cotton growing areas of NWM &amp; QLD</li> <li>• Riparian vegetation condition data from smith &amp; capon projects</li> <li>• Landuse/management data – smith &amp; capon projects, grower survey</li> <li>•</li> </ul>	<p>“Riparian benchmarking program” reflected in D&amp;D “in it together” Campaign</p> <p>Spatial layer of current cotton growing areas developed</p> <p>Technical workshop to identify methodology for delivering a cotton industry riparian monitoring program</p> <p>Collation and evaluation of cotton riparian research data on condition</p> <p>Collation and evaluation of cotton riparian research data on current land management practices</p> <p>Conceptual model for known management practices developed</p> <p>Spatial analysis of condition at a landscape scale</p> <p>Establishment of long term monitoring sites to establish which indicators are responding to land management</p> <p>RiverComm – technical forum</p> <p>Monitoring &amp; Evaluation of program</p>	<p>CNTS</p> <p>CNTS &amp; Peter Verwey/GIS expert</p> <p>CNTS, Rhi Smith (UNE), Sam Capeon (Griffith Uni), Darren Ryder (UNE), Jane Trindall (CRDC)</p> <p>CNTS, Rhi Smith (UNE), Sam Capon</p> <p>CNTS, Rhi Smith (UNE), Sam Capon</p> <p>CNTS</p> <p>GIS Consultant</p> <p>CNTS &amp; CottonInfo team communications manager</p> <p>CNTS, Smith, Guy Roth &amp; Jane Trindall</p> <p>CNTS</p>	<p>BMP recommendations for riparian vegetation updated and extended to collaborating partners</p> <p>Cotton Industry has improved knowledge of the current health of riparian vegetation in cotton growing areas and how many kilometers are currently under BMP</p> <p>Industry has identified indicators of riparian health which it has &amp; can impact on</p>	<p>Cotton Industry has a report card to demonstrate to the public good stewardship of riparian landscapes</p> <p>CRDC Strategic Plan strategy 2.2.5 is met (1000km of riparian land managed under best practice)</p> <p>Growers implementing best practice recommendations for riparian landscapes</p>	<p>Growers and their families adopt a lifelong commitment to riparian stewardship on their farm and in their landscape</p> <p>Industry has long term monitoring data on the industries impact on riparian vegetation condition</p>

**Assumptions**

CRDC Funding for F14-15 is approved  
Funding is available to contract consultant to undertake GIS landscape analysis of condition

**External Factors**

Funding available to run program (external & CRDC)

Rev. 7/09

DRAFT

**Program: Supporting BMP Program Logic Model Prepared by Stacey Vogel 27/5/2014**

**Situation:** A comprehensive review and update of the natural assets module of myBMP is currently being undertaken.

This program includes the review and update process for the natural assets module as well as the extension of the revised version to the industry and other potential supporting partners such as regional NRM bodies.

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Inputs	Outputs		Outcomes -- Impact		
	Activities	Participation	Short	Medium	Long
<ul style="list-style-type: none"> <li>Existing module and supporting resources</li> <li>Latest NRM Research – Rhiannon Smith (UNE), Sam Capon (Griffith UNI), Andrew briggs</li> <li>Industry Technical Specialist and RDO's</li> <li>Getting back to nature program</li> <li>CFI outreach and extension program</li> <li>Riparian monitoring program</li> </ul>	Review and update current practices within module	CNTS, Industry NRM researchers	Natural assets module provides latest NRM best practice recommendations to industry	Increased growers participating in myBMP program	Improved biophysical health of natural areas on cotton farms
	Review and update of supporting resources within module	CNTS, Industry NRM researchers			
	Technical review focus groups of draft revised module	CNTS, Cotton Info tech specialists, RDO's, Cotton Australia advisors, Regional NRM advisors, CRDC R&D managers	Improved regional NRM organisations knowledge of cotton industries BMP program	CRDC Strategic Plan strategy 2.2.5 is met	Demonstrated sustainability of cotton industry
	Grower review of draft revised module	CNTS & Growers			
	Extension of revised module to industry and regional NRM organisations	CNTS, Carbon tech specialist (CFI extension and outreach project), Bluedog Agriculture, Nancy schellhorn,, Peter V, Cotton Australia			
	- NRM advisor workshops - Grower workshops		Improved NRM BMP knowledge of growers	Growers implementing best practice recommendations for natural assets	
	Extension of BMP for NRM in industry media	CNTS		Improved regional NRM support to growers implementing BMP program	
	Social engagement workshops-extending BMPs within module	CNTS, RDO's, Landcare network, WinCott			
	Participation in and organization of technical reviews, forums ect on NRM best practice	CNTS, NRM researchers			
	Annual reviews of updated module	CNTS & Cotton Australia			
Monitoring & Evaluation of program	CNTS				

**Assumptions**

CRDC Funding for F14-15 is approved

**External Factors**

Funding available to run program (external & CRDC)

Rev. 7/09

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## Appendix 2: Revised natural Assets Module

See Attachments

## Appendix 3: Riparian Management Questions

**Q. What activities have you undertaken in these riparian areas in the last year? (please tick all that apply)**

- Driving
- Camping
- Swimming
- Walking
- Fishing
- Picnicking
- Bird watching
- Other recreational activities: (please describe) \_\_\_\_\_
- Rubbish disposal
- Vegetation clearing
- Plant collection (e.g. for gardening)
- Grazing
- Fencing
- Construction of new water resources infrastructure: (please describe) \_\_\_\_\_
- Maintenance of existing water resources infrastructure
- Other: (please describe) \_\_\_\_\_

**Q. What management practices have you undertaken in your riparian areas over the last year? (please tick all that apply)**

- Weed control
- Pest animal control
- Feral animal control

- Erosion control (e.g. stabilised river banks)
- Groundcover monitoring
- Retained fallen wood
- Vegetation clearing
- Identified these areas in your CHAMP (Chemical Handling Application Plan)
- Revegetated or allowed natural regeneration of native vegetation
- Fencing
- Restricted grazing access
- Other: (please describe) \_\_\_\_\_

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**Q. Have you noticed any significant changes in the landforms, vegetation or animals in riparian areas on your property in the last 10 years?  
(please tick all that apply)**

- Increased erosion
- Decreased erosion
- Changes in the shape of the land: (please describe) \_\_\_\_\_
- Declining health of mature trees
- Death of mature trees
- Increased regeneration of shrubs and trees
- Increase in the density of trees and shrubs (i.e. thickening)
- Decrease in the density of trees and shrubs (i.e. thinning)
- Appearance of new tree and shrub species
- Appearance of new groundcover species
- Increase in the abundance of weeds
- Decrease in the abundance of weeds
- Other changes in the vegetation: (please describe) \_\_\_\_\_
- Increase in the diversity of native animals

- Decrease in the diversity of native animals
- Increase in the abundance of pest and feral animals
- Decrease in the abundance of pest and feral animals
- Other: (please describe) \_\_\_\_\_

**Q. To what do you attribute these changes in riparian areas on your property? (please tick all that apply)**

- Changes in local land use
- Changes in regional land use
- Changes in water management at a catchment scale
- Drought
- Recent floods
- Other climatic events (e.g. extreme rainfall, fire etc.): (please describe) \_\_\_\_\_
- Climate change
- Weeds
- Pest animals
- Feral animals
- Local land management practices (e.g. fencing): (please describe) \_\_\_\_\_
- Other: (please describe) \_\_\_\_\_

**Q. Whose responsibility should protecting and /or restoring the health of riparian ecosystems be? (please rank using 1 for greatest responsibility, 2 for less responsibility and so on)**

- Local landholder(s)
- State Government departments
- Local council
- Federal Government
- Regional NRM body (e.g. Local Land Services or CMA)
- Community groups
- Other: (please describe) \_\_\_\_\_

**Additional Questions if space is available**

**Q. What benefits do you receive from having riparian areas on your property? (please tick all that apply)**

- Recreational areas
- Access to water for irrigation
- Access to water for stock
- Biodiversity and conservation
- Shaded areas
- Pasture areas
- Other: (please describe) \_\_\_\_\_

**Q. What problems do you incur from having riparian areas on your property? (please tick all that apply)**

- Erosion
- Weeds
- Pest animals
- Feral animals
- Unwanted visitors / tourists etc.
- Other: (please describe) \_\_\_\_\_