

Cottoning onto the Murrumbidgee River – river and riparian field days, 18-19 February 2017



Abstract

In February 2017, CottonInfo, Murrumbidgee Landcare Incorporated (MLI), Murrumbidgee Irrigation (MI), Riverina Local Land Services (RLLS) and the Australia Government ran two field days in the Murrumbidgee valley. The aim of the field days was to extend the latest cotton industry riparian vegetation research outcomes, increase participants awareness of the value of riparian vegetation on farms and educate them on the latest best management practices for riparian areas on cotton farms. 71 people participated in the field days.

As part of the development and delivery of the field days a biodiversity booklet showcasing local River Red Gum Communities was produced and distributed to participants. A key outcome for the field day was the collaboration between CottonInfo, MLI, MI and RLLS, as part of the newly formed Landcare Irrigation Area Collective (LIAC), to deliver the field day. This collaboration established new local networks between cotton growers and local natural resource management advisors.

Stacey Vogel

National Cotton Natural Resources Technical Specialist, CottonInfo
March 2017

Acknowledgements

The “Cotting onto the Murrumbidgee River” river and riparian field days was undertaken by CottonInfo with support from Murrumbidgee Landcare Incorporated, Murrumbidgee Irrigation, Riverina Local Land Services and the Australian Government.

Thanks goes to:

- The organising committee of Kerri Keely (Murrumbidgee Landcare Incorporated), Annabel Lugsdin (Murrumbidgee Landcare Incorporated), Bindi Vanzella (Riverina Landcare), and Cathy Semmler (Murrumbidgee Irrigation)
- Local helpers Stacey Lugsdin and Sally Ware (RLLS)
- Technical presenter, ecologist Dr Rhiannon Smith (University New England) and Michelle Durkan (Taronga Zoomobile)
- Ecologist Phil Spark (North West Ecological) for provision of photos for use in biodiversity booklet, and
- Out and About Adventure kayak instructors, Peter Vaughan and Andy Fraser.

Photo overleaf: Hay cotton farmers Jenny Cleton and Paul Cleton with Doug Cleton, Hugh Cleton, Lucy Cleton, Maya Cashmere and Michelle Durkan from Taronga Zoomobile.



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This activity is part of the Local Landcare Coordinators Initiative



Local Land
Services

The Local Landcare Coordinators Initiative is funded by the NSW Government, and is supported through the partnership of Local Land Services and Landcare NSW.



Australian Government



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Field Day Information

Background

The 2016-17 National Cotton NRM campaign identified a need to continually improve the extension of the cotton industries riparian ecosystem services research outcomes and increase growers knowledge of riparian BMP's.

To help achieve this, CottonInfo formed a partnership with Murrumbidgee Landcare Incorporated, Murrumbidgee Irrigation, Riverina Local Land Services (RLLS) and the Australia Government to:

- Extend the latest cotton industry riparian vegetation research outcomes within the Murrumbidgee valley
- Increase awareness of the value of riparian vegetation on farms within the Murrumbidgee valley and
- Extend best management practices for riparian areas on cotton farms.

Following on from the success of the “Gwydir Cottoning onto the great outdoors” field day series, a similar field day structure and program, which targeted farming families, was developed for the “Cottoning onto the Murrumbidgee River” field days. The program was developed based on the delivery of fun family based activities that engaged both decision makers (husband and wife) in the family farming business.

In May 2016 CottonInfo was invited by Murrumbidgee Irrigation to join the new Landcare Irrigation Area Collective, a group of various private and government organisations within the Murrumbidgee and Murray Irrigation areas actively improving and managing natural resources of the Riverina irrigation areas. From these initial meetings the “Cottoning onto the Murrumbidgee River” program was developed to deliver a series of riparian awareness and management field days.

The three day program which included a session kayaking on the river was developed originally for early November 2016 at Gogeldrie Weir Park (2 events- friday and saturday) and Maude Weir at Hay on the Sunday. Unfortunately due to widespread flooding the events had to be postponed with a new date set for the 17th, 18th & 19th February 2017. Owing to poor RSVP's the Friday event was cancelled. Initially the program included a fisheries technical expert from NSW DPI but unfortunately they withdrew from the event at late notice. A copy of the final agendas for all 3 field days can be found in Appendix 1.

At the 2 field days held the following topics were covered:

- Landscape principles for healthy rivers, why value riparian areas – Cathy Semmler (Murrumbidgee irrigation)
- Ecosystem services of native vegetation on cotton farms – Dr Rhiannon Smith (UNE – CRDC funded research)
- BMP's for rivers and riparian areas –Stacey Vogel (CottonInfo)
- What are the indicators of river health? - Kerri Keely/Annabel Lugsdin (Murrumbidge Irrigation Incorporated)

- What fauna is found here, food & habitat requirements – Michell Durkan (Taronga zoomobile)

The field days were promoted heavily through the CottonInfo extension network and local media. A booklet showcasing River Red gum communities, some of the local fauna that lived within them and BMP's for their management was also created and handed out to all participants of the field day.

Participants Reponses

A comprehensive evaluation was conducted to provide evidence of changes in KASA (Knowledge, aspirations, skills and attitudes) as a result of attending the field days. Participants completed an anonymous feedback sheet at the end of each workshop. The evaluation template is provided in Appendix 3. A total of 29 evaluations were received over the two field days, where 71 people attended – a 41% percent response rate. Predominantly attendees were families. Approximately 57 of the attendees were adults with the remainder predominantly primary age children.

The results of the evaluations are summarised in this section.

Demographics

There were a total of 71 participants at the field day. Of respondents 21% were growers or farm mangers, 45% identified themselves as a mixture of agronomists, teachers, consultants, contractors, students and environmental enthusiasts. The remaining respondents did not specify an occupation.

Field day delivery

Most participants agreed that the field days had met their aims and expectations and information was presented at a level they could understand. All participants felt that the instruction received was at a high standard and the topics covered were useful. One participant made the comment that some of the younger kids found some of the information a little technical.

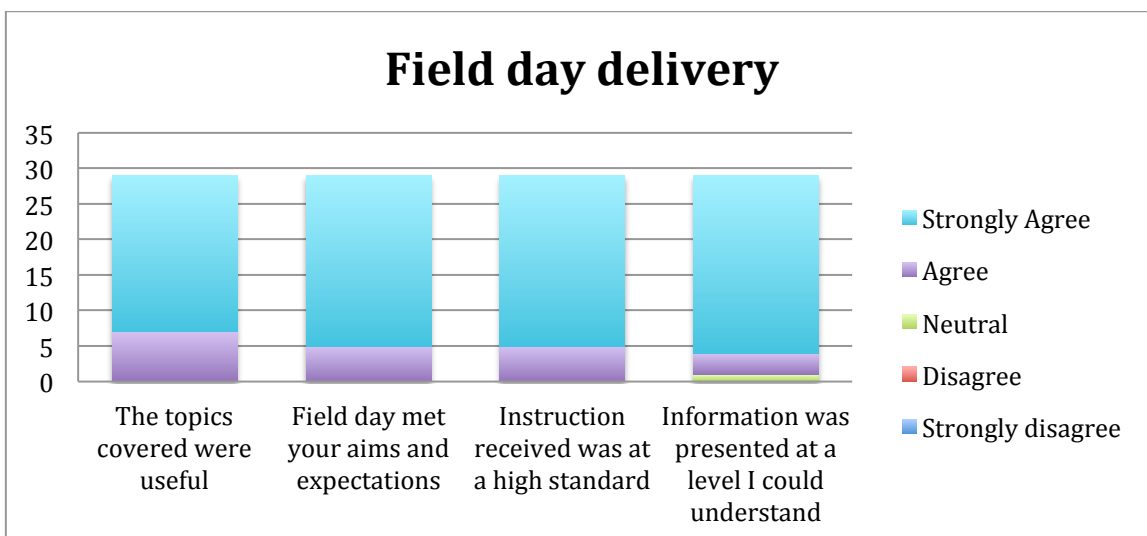


Figure 1 Participants evaluations of field day delivery (Griffith and Hay combined)

Changes in KASA (Knowledge, awareness, skills and aspirations)

Gains in Understanding

A summary of KASA changes from both field days (Figure 2 & 3) indicated an overall increase in the level of understanding of the three key areas, indicators of river health, habitat requirements of local biodiversity and ecosystem services of native vegetation (carbon sequestration).

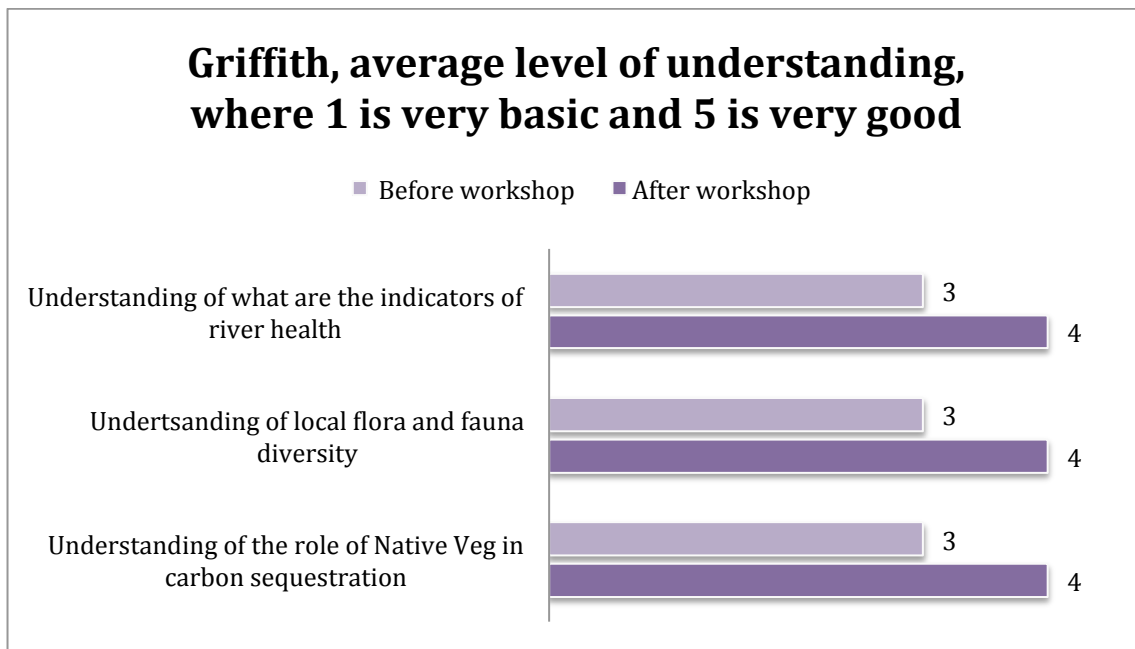


Figure 2 Average level of understanding of the 3 key areas before and after the field day, where 1 is very basic and 5 is very good.

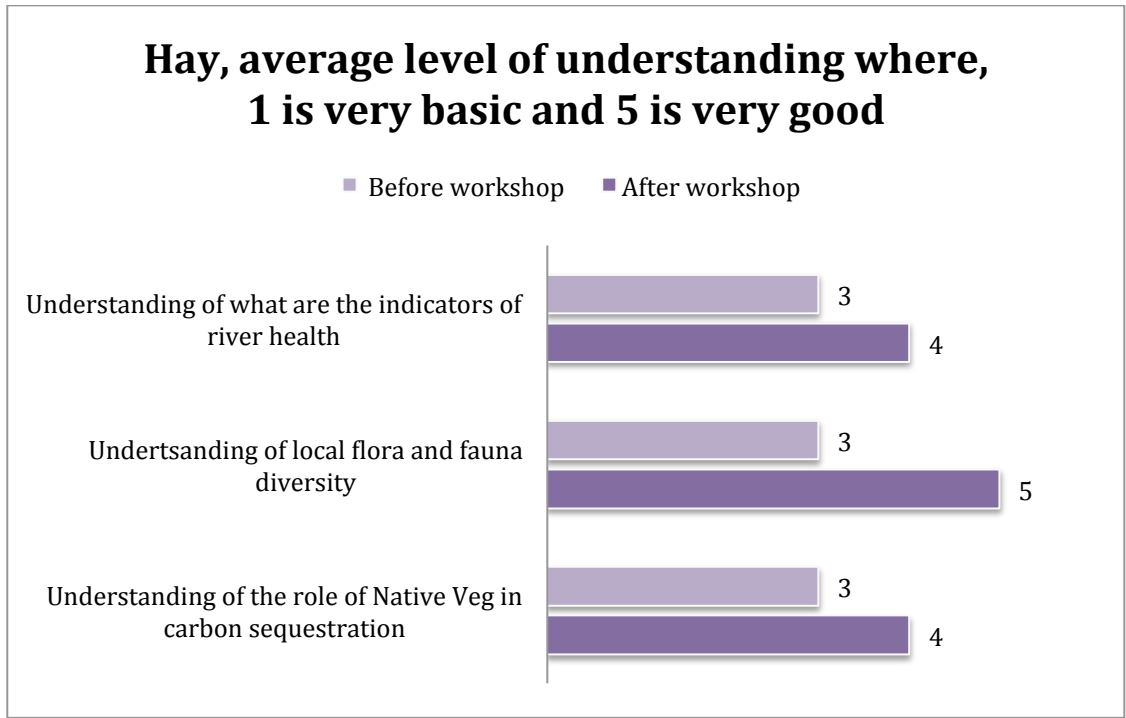


Figure 3 Average level of understanding of the 3 key areas before and after the field day, where 1 is very basic and 5 is very good.

Participants also recorded an overall increase in their level of confidence to implement what they had learned at the workshop.

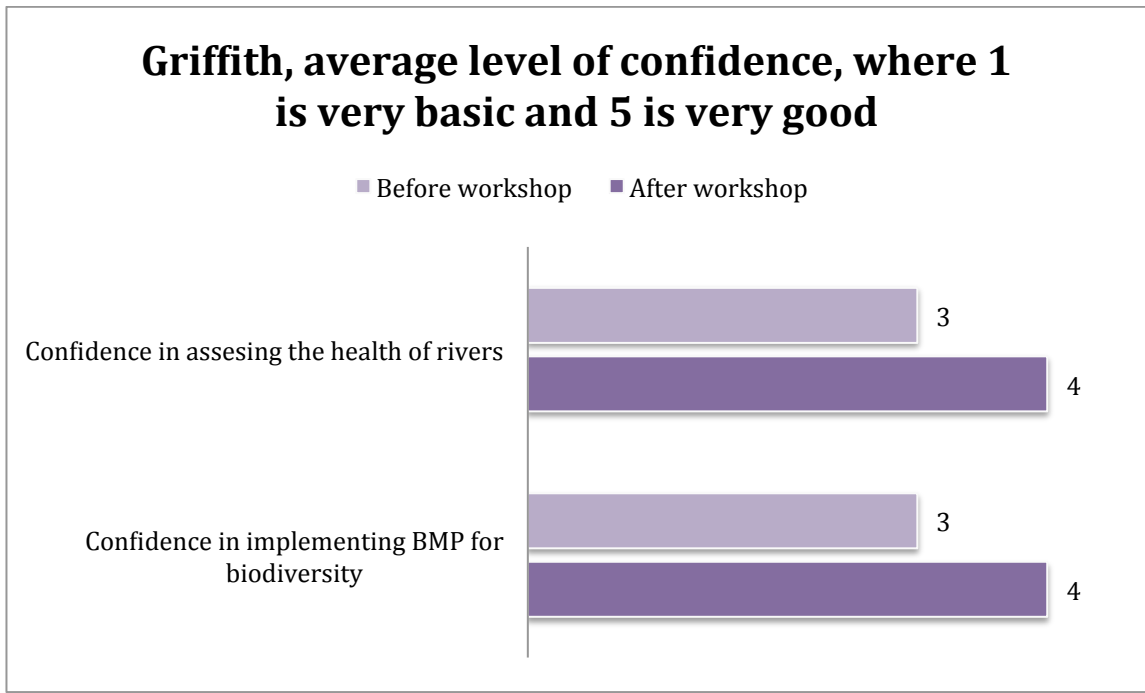


Figure 4 Average level of confidence to implement practices in the 3 key areas before and after the field days, where 1 is very basic and 5 is very good.

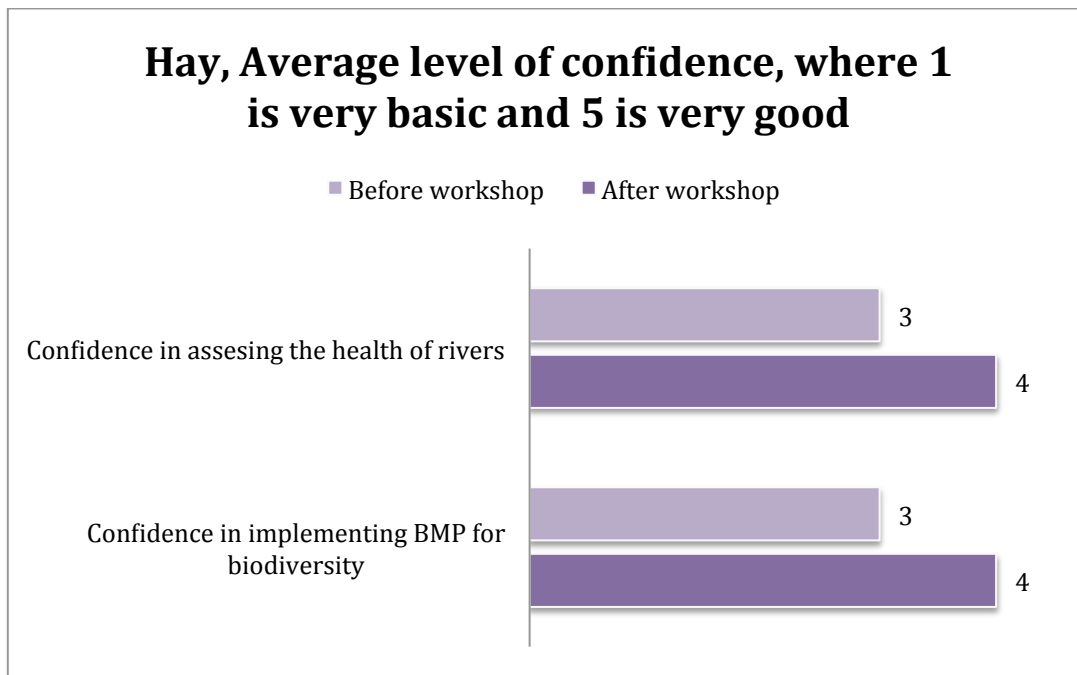


Figure 5 Average level of confidence to implement practices in the 3 key areas before and after the field days, where 1 is very basic and 5 is very good.

Forty eight percent of respondents were more likely to adopt riparian BMP's on their farm as a result of attending the field days, 17% they were already adopting best practice, 10% said they would not and the remainder did not answer the question.

Feedback responses from participants:

- Show more animals
- It was excellent couldn't be better
- BBQ lunch, simpler sandwiches for kids (Griffith)
- Go for longer with more information
- More animals
- More animals, maybe an echidna some fish and a baby kookaburra
- Good to see the child friendly level of info and their enthusiasm to participate
- Fantastic event would love to have involved the scouts but they operate during school term. Advertising over holidays reduced RSVP's



Photo: Presenters left to right, Annabel Iugsdin (M. Landacre), Dr Rhiannon (UNE) Smith and Michelle Durkan (Taronga), Hay 2017



Photo: Participants Gogelderie weir, Feb 2017

Communications

Field day fauna Booklet

A field day booklet was developed as a follow-up educational tool, Appendix 4. The booklet contained information about River Red Gum Woodlands, local biodiversity occurring within the Riverina area and what management actions readers could do to preserve their habitat. Extra copies of the booklet were printed for use by Murrumbidgee Landcare Incorporated and other members of the LIAC in future relevant extension events.

Event promotion

- Distribution of field day flyer through committee networks and local newsletters, newspapers and social media such as:
 - CottonInfo and MI website
 - Email to schools-Griffith High, Leeton High, St Francis in Leeton, Binya Public, Darlington Point Public, Whitton Public, Wamoon Public, Darlington Point Public, Coleambally Central School, Leeton Primary, Parkview Primary
 - Advertising in Murrumbidgee Field Naturalists newsletter
 - Email-Irrigation Area Collective
 - Distribute posters
 - Meeting with Kate O'Callagan from Southern Cotton re promoting the event
 - Posters at Southern Cotton, Whitton Shop, Pool and Post Office, Darlington Point Shop, Pool and Post Office, Griffith Supermarket,
 - Radio interviews-Triple M in Riverina, 2MIA FM (twice) , , Anne Delaney ABC radio
 - Bindi-ABC radio advertising (twice)
 - Riverina Local Land Services e newsletter
 - Mli website, facebook and twitter accounts

Social Media

During the events we used Twitter to publicise and promote the events. These tweets were re-tweeted or liked by CottonInfo, Murrumbidgee Landcare Incorporated, Murrumbidgee Irrigation, CEO Cotton Research Development Corporation, CEO for Murray Darling Wetlands Working group Ltd and field day participants

<https://twitter.com/vogelstacey>

Post media

An article on the field day was published in the local Hay newspaper.

Conclusion

The 2017 “Cottoning onto the Murrumbidgee River” riparian and river awareness and management field days were a successful capacity building activity. Ecologists, researchers and natural resource management technical staff provided 71 people from the Riverina area with the latest riparian management information.

Importantly, the evaluation material collected during the events found that field day participants increased their awareness and understanding of riparian management. The evaluations also indicated that 48% of respondents were more likely to adopt riparian BMP’s on their farm as a result of attending the field days, 17% they were already adopting best practice, 10% said they would not and the remainder did not answer.

The field days were an example of how riparian management research outcomes can be successfully delivered to cotton communities in a fun and interactive way. The success of the field days was also a positive start to CottonInfo’s inclusion in the Landcare Irrigation Area Collective.

Appendices

Appendix 1 Field day program

AGENDA Friday 17th Feb 2017 – Gogeldrie Weir	
9:30am start	Participants arrive at starting point Welcome & Introduction/Event facilitation–Stacey Vogel (CottonInfo) (5mins) - Jimmy Ingram (5mins) - welcome to country Erin Lenon (Commonwealth officer of water) – environmental flows (10mins) Sky Wassen (CSU) –Wetland and riverine function, why value it what services providing farming community (10mins) Facilitator Hand over to Guides for induction
9:55am	Kayaking Induction by kayak guides (Out & About Adventures) - Workplace Health & Safety outlined to group and Job Safety Assessment sheet handed around for signature
10:15 – 11:30 Paddle	Participants on river paddling by 10:15am (2hrs (6-8km) paddling +1/2 morning tea) Technical experts to point out things of interest as paddle and answer questions. Short talk on bank about what we can see as move kayaks around structure Sky Wassens (CSU) Kerri Anne (MI/Landcare) – facilitate discussion as paddle
11:30-12:00 Moming tea	Morning tea stop (simple morning tea can be packed by Guides).
12:00 – 1:15 Paddle	Technical experts point things of interest and answering questions
1:15 – 2:00pm	Lunch



Information when you need it



Information when you need it

2:00 – 2:40	Cathy Semmler (MI) Why are healthy riparian areas important? (10mins) Dr Rhiannon Smith (UNE/CRDC) Ecosystem services of NV –Cotton research outcomes (15mins)
2:40 – 2:50	Management – what can I do? /, funding incentives etc TBC speaker Riverina LLS – 10mins
2:50 – 3:00	Wrap-up, Collection of workshop evaluation sheets Workshop Close – (5mins)



Weekend Saturday 18th Feb 2017 Gogeldrie Weir -9:30– 2:30pm Concurrent sessions	
9:30am Start	Participants arrive at starting point Welcome & Introduction –Facilitator / Stacey Vogel (CottonInfo) (5mins) Landscape principles for healthy rivers (use satellite image) – Cathy Semmler environment officer Murrumbidgee Irrigation (10mins) The value of River Red Gums- Dr Rhiannon Smith UNE/CRDC (5mins)
10:00am	Sessions begin. Group split into 2 concurrent sessions.
Session 1 1hr & 45mins 10:00am – 11:45am	Activity 1 – Kayaking Kayaking Induction by kayak guides/grab some fruit/muslei bar (10mins) 1 ½ hr Paddling with NRM Technical experts , Dr Rhiannon Smith UNE, Cathy Semmler Murrumbidgee Irrigation) Activity 2 – Riverbank activities (can start morning tea early so ready to take off Morning tea – 15minutes Waterwatch Activity –Kerri Keely Murrumbidgee Landcare /Annabel Lugsdin (45mins) <u>Fauna show & Tell- Taronga Zoo (45min) – 11:00am</u>
Session 2 1hr & 45mins 11:45am – 1:30pm	Activity 1 – Kayaking 1 1/2 Kayaking Induction by kayak guides (10mins) 1 ½ hr Paddling with NRM Technical experts Dr Rhiannon Smith UNE, Annabel Lugsdin) Activity 2– Riverbank activities (can start morning tea early so ready to take off Morning Tea – 15minutes



CottonInfo Information when you need it

	Fauna show & Tell- Tooronga Zoo (45mins) Waterwatch Activity – Kerri/Cathy(45mins)
1:30pm – 2:00pm	Lunch (wrap-up and close while people are grabbing something to eat. Evaluation sheets
2:00pm Lunch/close	Wrap-up and Collection of workshop evaluation sheets – Stacey Vogel CottonInfo (5mins)





Weekend Sun 19th Feb 2017

Hay -9:30– 2:30pm

Concurrent sessions

<p>9:30am Start</p>	<p>Participants arrive at starting point</p> <p>Welcome & Introduction –Facilitator / Stacey Vogel (CottonInfo) (5mins)</p> <p>The value of River Red Gums and landscape principles for healthy riparian areas- Dr Rhiannon Smith UNE/CRDC (15mins)</p>
<p>10:00am</p>	<p>Sessions begin. Group split into 2 concurrent sessions.</p>
<p>Session 1 1hr & 45mins 10:00am – 11:45am</p>	<p>Activity 1 – Kayaking</p> <p>Kayaking Induction by kayak guides/grab some fruit/museli bar (10mins)</p> <p>1 ½ hr Paddling with NRM Technical experts , Dr Rhiannon Smith UNE, Stacey Vogel ?</p> <p>Activity 2 – Riverbank activities (can start morning tea early so ready to take off</p> <p>Morning tea – 15minutes</p> <p>Waterwatch Activity –Annabel /Stacey Vogel (45mins)</p> <p><u>Fauna show & Tell- Taronga Zoo (45min) – 11:00am</u></p>
<p>Session 2 1hr & 45mins 11:45am – 1:30pm</p>	<p>Activity 1 – Kayaking 1 1/2</p> <p>Kayaking Induction by kayak guides (10mins)</p> <p>1 ½ hr Paddling with NRM Technical experts Dr Rhiannon Smith UNE,</p> <p>Activity 2– Riverbank activities (can start morning tea early so ready to take off</p> <p>Morning Tea – 15minutes</p> <p>Fauna show & Tell- Tooronga Zoo (45mins)</p> <p>Waterwatch Activity – Annabel/Stacey(45mins)</p>





CottonInfo Information when you need it

1:30pm – 2:00pm	Lunch (wrap-up and close while people are grabbing something to eat.
2:00pm Lunch/close	Wrap-up and Collection of workshop evaluation sheets – Stacey Vogel CottonInfo (10mins)





CottonInfo Information when you need it

Appendix 2 - Field day Flyer



cottoning on to the Murrumbidgee River

You are invited to three great events: free kayak trips and wildlife discovery adventures on the Murrumbidgee River!

Join flora and fauna experts for these fun events at any of our great locations over three days!

Gogeldrie Weir: Friday 17 Feb 2017

9:30am-3:00pm

Join us for a relaxing morning cruising down the river on a free kayak trip while learning about your local river. **Over 18s only.** Kayaks and PFDs provided, along with a free morning tea and BBQ lunch.

Gogeldrie Weir: Saturday 18 Feb 2017

9:30am-2:30pm

Join us for a fun family day kayaking and exploring the local river and its wildlife. Come and see what special guests Taronga Zoo have brought for us to have a look at! Kayaks and PFDs provided, along with a free morning tea and BBQ lunch.

Hay Weir: Sunday 19 Feb 2017

9:30am-2:30pm

Join us for a fun family day kayaking and exploring the local river and its wildlife. Come and see what special guests Taronga Zoo have brought for us to have a look at! Kayaks and PFDs provided, along with a free morning tea and BBQ lunch.

Please RSVP for all events by Friday 3 Feb.

Contact Kerri Keely: 0428 396 826, kkeely@mli.org.au. Spaces are limited so get in quickly!



This project is supported by funding from the Australian Government.



This activity is part of the Local Landcare Coordinators Initiative. The Local Landcare Coordinators Initiative is funded by the NSW Government, and is supported through the partnership of Local Land Services and Landcare NSW.



Appendix 3 – Evaluation Form



Evaluation form: Cottoning onto the Murrumbidgee Feb 2017

Thank you for attending today's event. We value your time and would appreciate your feedback.

- | | <i>Disagree</i> | | | | <i>Agree</i> |
|--|-------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|----------------------------|
| 1. The event met your aims & expectations: | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 2. The instruction received was of a high standard: | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 3. The event was presented at a level you could understand: | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 4. The topics covered were useful: | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 5. The pace of delivery of information was: | <input type="checkbox"/> Too slow | <input type="checkbox"/> About right | <input type="checkbox"/> Too fast | | |
| 6. The amount of information was: | <input type="checkbox"/> Not enough | | <input type="checkbox"/> About right | <input type="checkbox"/> Too much | |
| 7. How could we have improved the event to be more useful for you? _____ | | | | | |

8. With regard to the river health please rate your:
- a. level of understanding of what the indicators are for river and riparian health (where 1 is very basic & 5 very good)
- Before today's event: 1 2 3 4 5
- After today's event: 1 2 3 4 5
- b. level of confidence in being able to assess how healthy your local river is (where 1 is very basic & 5 very good)
- Before today's event: 1 2 3 4 5
- After today's event: 1 2 3 4 5
9. With regard to biodiversity please rate your:
- a. level of understanding of the diversity of native flora and fauna that live in your local landscape and what their habitat and food requirements are (where 1 is very basic & 5 very good)
- Before today's event: 1 2 3 4 5
- After today's event: 1 2 3 4 5
- b. level of confidence in managing native flora and fauna on your farm or in your local landscape (where 1 is very basic & 5 very good)
- Before today's event: 1 2 3 4 5
- After today's event: 1 2 3 4 5



10. As a result of this event, are you (more) likely to adopt Best Management Practices for river and riparian areas or biodiversity on your farm or in your catchment; or if you are already adopting it, to do it more effectively?

Yes No Already adopted/using effectively

11. What would prevent you from adopting these BMP's and/or what else do you need to assist you in adopting them? _____

12. As a result of this event, please rate your level of understanding of the role native vegetation such as River Red gums play in sequestering carbon (where 1 is very basic & 5 very good)

Before today's event: 1 2 3 4 5

After today's event: 1 2 3 4 5

14. How do you classify yourself?

Grower/farm manager Farm staff Consultant/advisor Retailer

Agency Other. Please specify: _____

15. Do you have a riparian area on your farm?

Yes No

16. Any further feedback? _____

Thank you.



**Murrumbidgee
Irrigation**



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cottoning on to the Murrumbidgee! Nature's workforce

CottonInfo and its partners Murrumbidgee Irrigation, Murrumbidgee Landcare Incorporated, NSW Landcare, the Riverina Local Land Services and the Australian Government are running a series of free, fun and informative kayak trips on the Murrumbidgee River in February 2017.

This booklet contains information about some of the amazing flora and fauna we hope to see while paddling on the river and how this natural workforce is providing benefits to our farms and rural communities.

One such 'natural worker' is Australia's iconic River Red Gum. River Red Gum communities, which are common along our rivers and creeks, provide habitat and food for a diversity of species such as microbats and sugar gliders, as well as a range of free environmental services such as habitat for crop pest predators, carbon sequestration and erosion control.

Join us to see and learn more about our natural workforce and what you can do to help protect them.

For more information visit www.cottoninfo.com.au.

This project is supported by funding from the Australian Government.



STACEY VOGEL



MICHAEL SINEDIC



The Local Landcare Coordination Initiative is funded by the NSW Government, and is supported through the partnership of Local Land Services and Landcare NSW.





River Red Gums

Eucalyptus camaldelensis

River Red Gums are a common tree along watercourses across Australia. They have adapted to survive periodic flooding (a necessity for their survival) and drought. They are fast growing, reaching heights of up to 45m and diameters of between 1-3m. They can reach ages of between 500-1000 years old.

They use water from three sources: rainfall, groundwater and flooding. They have an extensive root system consisting of many vertical and lateral roots. Their roots have a unique ability to move water at night from layers of wetter deeper soil to drier upper layers where it is stored for use during the day by roots near the surface.

Hollows form at around 120-180 years of age providing habitat for much of our natural workforce such as birds, microbats, snakes and mammals such as sugar gliders.

As part of our natural workforce they provide a range of services for us such as salinity mitigation, habitat for natural pest control, erosion control and carbon sequestration and storage.

They also contribute to healthy waterways by regulating water



MELANIE JENSON

temperature through shading, contribute nutrients through leaf and insect fall for aquatic animals, and provide snags as habitat and nurseries for species such as Murray Cod.

Fast fact: They store on average 200 tonnes of carbon per hectare, with totals found as high as 400 tonnes of carbon per hectare - the same amount of carbon as 290 Holden commodores emit in one year!



Common rush

Juncus usitatus

Common rush is a perennial semi aquatic plant species that grows upto 1.2m tall. It is native to eastern Australia and is commonly found along streams, riverbanks, irrigation supply channels and other periodically wet areas including wetlands. It is found along water edges or in shallow water often with other sedges, rushes and grasses.

Common rush is excellent habitat for frogs, fish, crustaceans and small birds. Yabbies' also eat the tender young stems. It can also be a good colonizing species in bank rehabilitation works and can out compete less desirable 'weedy' species. In addition it is also acts as a filter helping to up-take nutrients and filter suspended solids.

Fast fact: Common rush is a useful plant for controlling erosion along watercourses and around dams as its fibrous roots help bind the soil together and it is adapted to periodic wetting and drying.



STACEY VOGEL



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Striated pardalote

Pardalotus striatus

The Striated pardalote is a very small short-tailed woodland bird species, which forages noisily for small insects in the tops of trees.

There is considerable variation in the plumage markings across the species but generally they are a grey bird with a black cap and have wide eyebrows that shade from yellow to white with a yellow spot in front of the eye.

Their wing edges are patterned in black and white and they have a distinctive rich yellow throat.

They feed singly, in pairs or small parties and move constantly. Pairs nest in a burrow in riverbanks, earth-mounds, road cuttings or similar spots.

Its presence is often first noticed by its call, you can listen to its call on the free Birds on Cotton Farm app (available from: www.cottoninfo.com.au/birds-cotton-farms-app).

Fast fact: Striated pardalotes are small insect eating birds and can contribute to natural pest control.



MICHAEL SNEDIC

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Sugar glider

Petaurus breviceps

Sugar gliders are a common, small marsupial gliding possum found in woodlands such as riparian areas.

They have a skin membrane from their fifth finger to the ankle, which they use to glide from tree to tree using their tail for balance and steering.

They are nocturnal, sleeping by day in nests made of leaves in tree hollows. Groups of adults and their young may share a nest.

Sugar gliders eat crickets, Christmas beetles, mealworms, nectar, some fruit and sap.

They have grey body fur with a pale yellow/grey coloured belly. They have a dark stripe running from between their eyes and extending down the middle of their back towards the tail.

They look similar to squirrel gliders but are smaller, often with a white tip on their tail and a have more rounded face with a protruding nose. Their call is like a small dog “yip” “yip”.

Fast fact: A single sugar glider can eat upto 3.25kg of insects in a year. They play an important role in controlling Christmas beetles, which defoliate trees.



PHIL SPARK



Yellow-bellied Sheathtail-bat

Saccolaimus flaviventris

The Yellow-bellied Sheathtail-bat is an insectivorous microbat that can be found across most of Australia however its numbers are declining and has a vulnerable status in NSW.

It is one of the largest microbats growing upto 87mm long. It has a very distinctive appearance with long narrow wings a glossy jet-black back and a white to yellow belly.

It gets its name from its naked tail, which is enclosed in a sheath flying membrane stretching between its legs.

They roost in tree hollows and are believed to migrate in winter to warmer northern areas.

Fast fact: It flies high above the tree canopy and can often be seen foraging for insects above rivers and water storages catching large insects. It eats up to half its body weight each night, including many agricultural pests.



PHIL SPARK

7



Ladybird beetles

Coccinellinae family

The Coccinellidae family is made of small beetles ranging from 0.8 to 18mm in length. They are commonly yellow, orange or red with black spots or stripes on their wing covers, they have black legs, heads and antennae.

Adults and larvae of ladybird beetles are important predatory insects in most crops with at least 9 species found in cotton landscapes that contribute to natural pest control.

According to legend crops in Europe during the Middle Ages were plagued by pests, farmers began praying to the Blessed Lady, the Virgin Mary. Soon

they started seeing ladybirds in their fields and the crops were saved so they called the beetles 'Lady beetles' after the Virgin Mary.

More information on ladybird beetles can be found in the guide: Pests and Beneficials in Australia Cotton Landscapes (available at www.cottoninfo.com.au/publications).

Fast fact: They are voracious predators of aphids and under most conditions (along with lacewings and hover flies), stop aphid populations from increasing explosively.



D. MCCLENNAGHAN

8



Christmas spider

Austracantha minax

The Christmas spider, also called the jewel spider, is a harmless and relatively small spider growing upto 8mm in length.

They are predominately black with a bright yellow and white pattern on their abdomen. The abdomen has six distinctive spines, which combined with their bright coloring make them easily identifiable.

Christmas spiders are usually found in groups building overlapping communal webs with other Christmas spiders.

They feed on the small flying insects that get entangled in their webs.

More information on beneficial spiders can be found in the guide: Pests and Beneficials in Australia Cotton Landscapes (available at www.cottoninfo.com.au/publications).

Fast fact: Christmas spiders are common in cotton landscapes and contribute to natural pest control by building their webs between the cotton rows and amongst the plant leaves.



STACEY VOGEL

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Murray-Darling carpet python

Morelia spilota metcalfei

The carpet python is a large non-venomous snake that can grow up to 4m long. While common in NSW it is endangered in Victoria and vulnerable in South Australia.

They vary in colour from dark brown to grey with a series of light and dark bands along their back. They have a large elongated head and slender neck.

They live in diverse habitats but are often found in areas with large hollow eucalypts along permanent and ephemeral watercourses.

They are night active and can be seen

during daylight hours basking in the sun.

They kill their prey by constricting it with coils of their body so that the prey animal can no longer breathe. They do not crush their food because the resulting broken bones could cause injury when ingested.

Fast fact: They feed mostly on small mammals, bats, dunnarts, birds and eggs. They contribute to rodent control by also eating mice and rats and can often be seen in farm sheds helping keep rodent numbers down.



STACEY VOGEL

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Freshwater mussels

Hyriidae family

There are thought to be around 21 species of freshwater mussels in Australia, five of which have been found along the Murrumbidgee River.

Mussels generally live between 10-40 years, one species, *Velesunio*, are thought to live up to 60 years.

Mussels live along stream beds using their muscular foot to drag their shell and burrow into the fine streambed sediments such as sand and mud. Adult shells vary in size from around 50-200mm. The shell colour ranges from brown to black and sometimes green in young shells.

Their unique reproductive cycle extends throughout most of the year. When mussel larva “glochidium” is released by the female they must attach themselves to the gills or fins of fish hosts such as gudgeons and smelt to complete its development.

Females produce large numbers but only a few find a host and even fewer survive to maturity.

Fast fact: Freshwater mussels are natural water filters, cleaning the water by removing pollutants, algae and zoo-plankton. They also promote nutrient cycling.



PHIL SPARK



What can you do?

Riparian woodlands of River Red Gums help keep our rivers healthy and provide habitat and food for many native animals. They also provide services such as habitat for beneficials (natural pest control), carbon storage and sequestration, erosion control and salinity mitigation.

What can you do to protect these great species?

- Improve riparian corridor connectivity and extend widths to at least 30m.
- Protect dead and living trees with hollows.
- Control invasive weeds and pests.
- Leave fallen logs, if you need to 'tidy' up consider putting them into piles and don't burn them.
- Manage grazing to maintain good groundcover (50-70 per cent) and allow natural regeneration of shrubs and trees.
- Avoid agricultural chemical spray drift onto these areas.
- Leave logs and 'snags' along riverbanks and riverbeds to provide bank stability, aquatic habitat and roughage to flow.



MILLY HOBSON



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For further information, please visit:

- The myBMP natural assets module: www.mybmp.com.au
- The CottonInfo NRM page: www.cottoninfo.com.au/natural-resource-management
- Murrumbidgee Irrigation: www.mirrigation.com.au
- Murrumbidgee Landcare: www.mli.org.au
- Riverina Local Land Services: www.riverina.lls.nsw.gov.au
- The Australian River Restoration Centre: www.arcc.com.au

Best Practice