

Restoring Riparian Resilience for threatened species in the Mary River catchment – lessons in landholder engagement from a catchment-wide project

Sarah Grimish¹, Tanzi Smith², Brad Wedlock³

1, Mary River Catchment Coordinating Committee, 25 Stewart Terrace Gympie, QLD 4570, sarah.grimish@mrccc.org.au

2 Mary River Catchment Coordinating Committee, 25 Stewart Terrace Gympie, QLD 4570, tanzi@mrccc.org.au

3 Mary River Catchment Coordinating Committee, 25 Stewart Terrace Gympie, QLD 4570, brad.wedlock@mrccc.org.au

Key Points

- Involvement in past projects was a key factor in engaging landholders in the Restoring Riparian Resilience project.
- Word of mouth is an important tool for recruiting new participants. Events, collaborations and referrals from other organizations and direct contacts play a less significant role.
- Landholders across a range of tenures, land uses and parts of the catchment are interested in undertaking projects to protect threatened species in the Mary River catchment. Project officers need to be responsive to the large range of factors that motivate different individuals to be involved.
- A large multi-million dollar project like the Restoring Riparian Resilience project can make a fundamental difference to the levels of engagement and action for threatened species habitat restoration.

Abstract

The Mary River catchment is home to a number of endemic, yet threatened aquatic species such as the Mary River Cod and Mary River turtle. Engaging riparian landholders in restoration of their habitat is a critical aspect of stream management due to the fact that the majority of riparian zones are privately owned. This paper outlines the engagement strategies and lessons learned by the Mary River Catchment Coordinating Committee during implementation of a \$2.4 million Australian Government-funded Restoring Riparian Resilience project which engaged with 192 freehold riparian properties and 113 non-freehold properties over 5 years. Through these activities the project delivered 45.7km of riparian fencing which protected 301 ha of riparian area, revegetated 70.8 ha, released approximately 60,000 bio-controls for invasive riparian vine weeds and managed 1063ha of invasive weed infestation. In a 946,580 ha catchment these are significant achievements for stream management which would not have been possible without involvement of the large number of private landholders. Strategies to successfully engage landholders were fundamental to the project. These strategies built on experience over the last 20 years of integrated catchment management in the Mary River catchment and also evolved during the course of the project. This paper outlines who was involved in the project, how they were engaged and identifies lessons learned for landholder engagement that are applicable to riparian restoration in the Mary River catchment and beyond.

Keywords

Riparian health; landholder engagement; threatened species; Mary River catchment

Introduction

The Mary River Catchment is located in southeast Queensland, encompassing an area of approximately 946,580 ha (QLD Government 2018). The Mary River itself originates in the Conondale ranges in the Sunshine

Coast hinterland, flowing north to River Heads between Maryborough and Hervey Bay (see Figure 1). The Mary River flows into the Great Sandy Strait, which is recognised under the 1971 Ramsar Convention on Wetlands as a wetland of international importance. The Mary River catchment is also the southernmost catchment which impacts the Great Barrier Reef. Land use in the catchment is diverse; historic industry includes native timber harvesting and gold mining whilst more recent major land uses are beef cattle farming, state forest, timber reserves, plantation timber and residential (Department of Natural Resources 1997).



Figure 1. Map of the Mary River Catchment

This paper presents a case study of landholder engagement in a project titled “Restoring Riparian Resilience: Implementing the Mary River Threatened Aquatic Species Recovery Plan”. The project was funded by the Australian Government’s Clean Energy Futures Package and spent \$2.4 million on threatened aquatic species

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habitat restoration from 2012-2017 (Mary River Catchment Coordinating Committee 2017). Administration and on-ground works for the project were managed by the Mary River Catchment Coordinating Committee (MRCCC). Types of on-ground works undertaken through the project included riparian fencing and off-stream watering systems, control of significant weeds and revegetation for bank stabilisation. Riparian restoration is a high priority recovery action of the draft Mary River Threatened Aquatic Species Recovery Plan. This plan outlines recovery actions for five key threatened aquatic species of the Mary River catchment: the endangered Mary River cod (*Maccullochella mariensis*), endangered Mary River turtle (*Elusor macrurus*), vulnerable Australian lungfish (*Neoceratodus forsteri*), endangered Giant Barred frog (*Mixophyes iteratus*) and the declining freshwater mullet (*Trachystoma petardi*) (Australian Government 2016). Whilst the Mary River system supports hundreds of interesting and important species, these five species are representative of the important habitat types and complex interactions governing the vital processes that sustain these and hundreds of other species throughout the catchment (Mary River Catchment Coordinating Committee 2017).

The project was able to exceed all targets for on-ground outputs and community events set by MRCCC in the initial grant application. The targets were exceeded due to the successful engagement with additional landholders as the project progressed. As Table 1 shows, 305 properties including 192 freehold properties were engaged in undertaking some kind of on-ground work in the project. Because of the critical role private landholders play in restoring natural landscapes (Smith, 2016) in this paper we focus on analysis of the freehold properties. To understand and learn how and why these levels of engagement were achieved, feedback was sought both from MRCCC staff involved in the delivery of the project, and private landholders who undertook on-ground works. The results of this process have been outlined in a project report prepared by MRCCC (Mary River Catchment Coordinating Committee, 2017).

Table 1. Proposed and actual targets (Mary River Catchment Coordinating Committee 2017)

Original targets	Actual Achievements
Engage with 125 properties controlling a total of 2500ha of land	Engaged with 305 properties (192 freehold + 113 non-freehold) Biocontrol release was the only activity undertaken on 169 out of 305 properties (and 86 of the 192 freehold properties) Project participants control a total of >3000ha
Carry out invasive species management over 480ha	1063ha managed for invasive species, including physical/chemical control and release of biocontrols for Cats Claw vine and Madeira vine
Revegetate 48ha	70.8ha revegetated with native riparian species
Plant 120,000 trees	126,575 trees planted
Restore 41ha	301ha restored Off-stream watering installed servicing 799ha to mitigate the need for cattle to access waterways for drinking water
Construct 6km of restoration fencing	45.7km of fencing constructed to manage stock access to river and creek banks
Hold 20 community events/presentations	93 awareness-raising events held, including field days at project properties (This includes all events and presentations to the community about threatened species awareness and protection from 2012-2017)

This paper builds on MRCCC's 2017 report and presents further analysis of the private landholders who participated in the project, how they became engaged in the project and the collective reflections on how to better engage private landholders in riparian restoration projects. The aim of this further analysis is to distill

lessons learned for future landholder engagement in the Mary River catchment that may also be relevant to other catchments throughout Australasia.

Who participated in the Restoring Riparian Resilience on-ground projects?

The project was delivered across 23 demonstration reaches, which correspond to major tributaries of the Mary River or sections of the Mary River itself (see Figure 2). These 23 demonstration reaches are located in parts of the catchment that are significant for one or more of the threatened species that are the focus of the draft Recovery Plan and each had clusters of multiple landholders involved in the project. They vary in size with some reaches including major tributaries (e.g. Demonstration Reach 10 – Munna Creek) and others being quite localised to a section of the main trunk of the river with a cluster of landholders (e.g. Demonstration Reach 6 – Cambroon). The project began with ten demonstration reaches and evolved to include all 23 shown in Figure 2 as landholder interest grew over the five year life of the project.

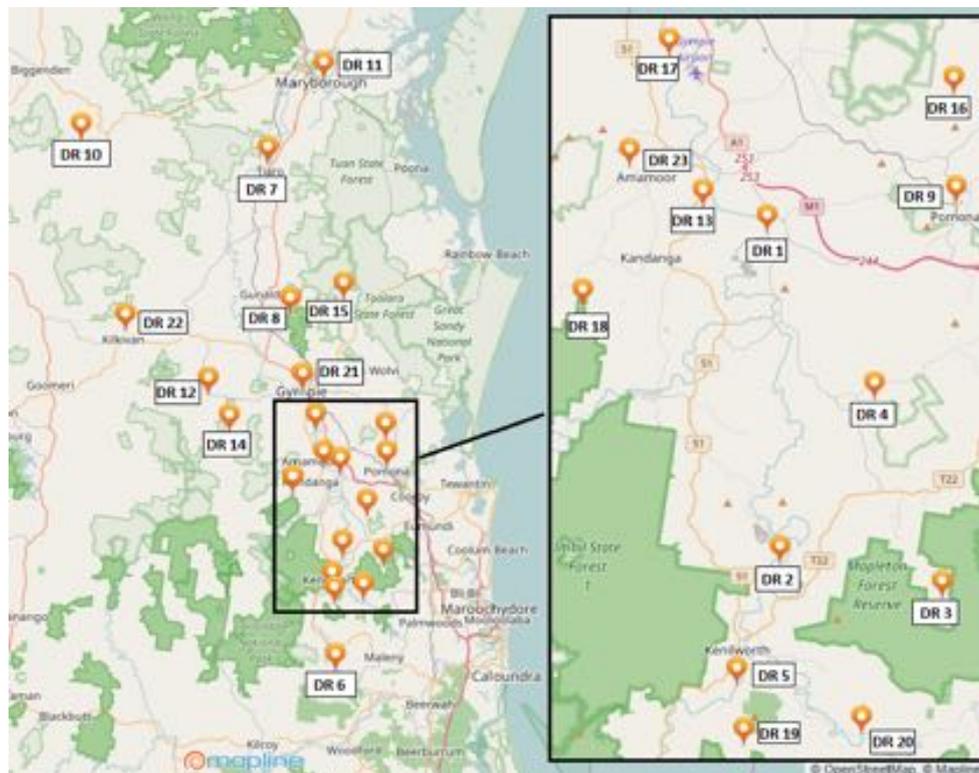


Figure 2. Map showing Demonstration Reaches of Mary River Catchment (Mary River Catchment Coordinating Committee 2017)

On-ground projects took place on land with a range of tenures. The properties where the only activity was a biocontrol release have been excluded from the analysis presented here because this activity requires limited or no commitment from the landholder. The freehold properties involved in undertaking some kind of on-ground work such as revegetation, riparian fencing, offstream watering and physical or chemical weed control were freehold, small to medium-sized acreage enterprises or lifestyle blocks (106 properties in total). The remaining project sites were on local or state government land or leased forestry estate (30 properties in total). Of the freehold properties, just over half (55%) were farming entities which were defined as properties with grazing animals and any other form of agricultural production (i.e. horticulture, dairy and timber plantation enterprises). Non-farming entities mainly encompassed freehold properties which the landholder chooses to manage as habitat for wildlife, or lifestyle properties.

Analysis of when each landholder was first engaged with MRCCC is presented in Figure 3. It shows that 58% of project participants were first engaged with between 2012 and 2017. It should be noted that this initial engagement could have been through the Restoring Riparian Resilience project, or a different project which was happening during the same period. The remaining 42% of participants had been previously engaged with MRCCC through a project prior to 2012. Some had been engaged with MRCCC for between 20-25 years.

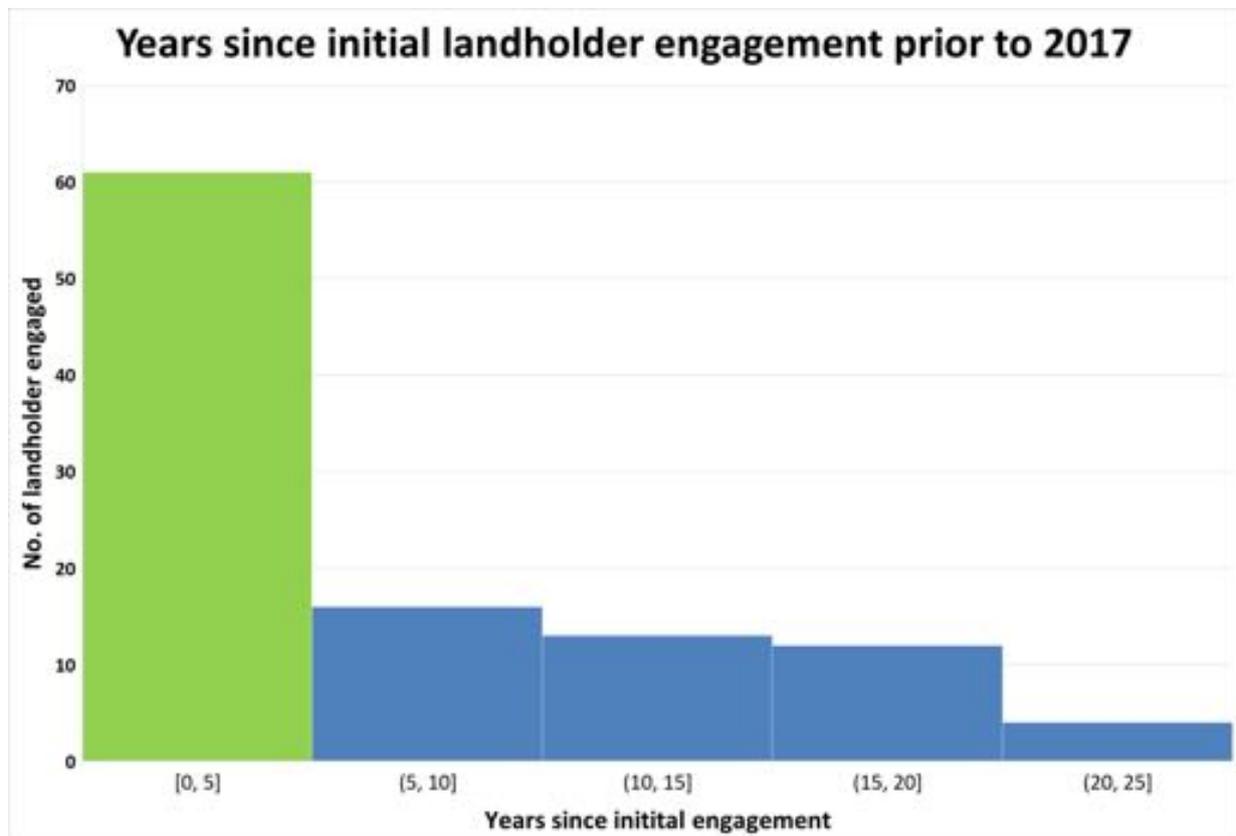


Figure 3 Years since initial landholder engagement with MRCCC prior to 2017 (excludes non-freehold properties, and properties where biocontrol release was the only activity undertaken)

It is evident from Figure 3 that the Restoring Riparian Resilience project itself engaged landholders with a long term involvement in MRCCC and created the opportunity to work with a whole new suite of people. Interestingly, when looking at the geographical location of participants who had previously engaged with MRCCC (see Figure 4), clusters form around the upper catchment areas corresponding to demonstration reaches (DR) 5 (Kenilworth), DR6 (Cambroon), DR19 (Obi Obi Creek), and DR20 (Walli Creek). These areas have been the focus of previous projects; for example a weed control project in several tributaries of the upper Mary accounts for the small spike in landholder engagement in the period 10-15 years prior to 2017 (see Figure 3). Figure 4 shows that the new project participants (since the beginning of the project in 2012) were more evenly spread across all demonstration reaches, and therefore the catchment. The change in geographic spread is largely to do with the funding constraints and a historical tendency for threatened species projects to occur in the upper catchment. The Restoring Riparian Resilience project enabled MRCCC to work with landholders in parts of the catchment where grants for threatened species habitat restoration are not usually available. The project saw a large, catchment-wide spike in landholder engagement, showing that when project funding is made available to a wide range of areas, landholders from all areas are willing to participate.

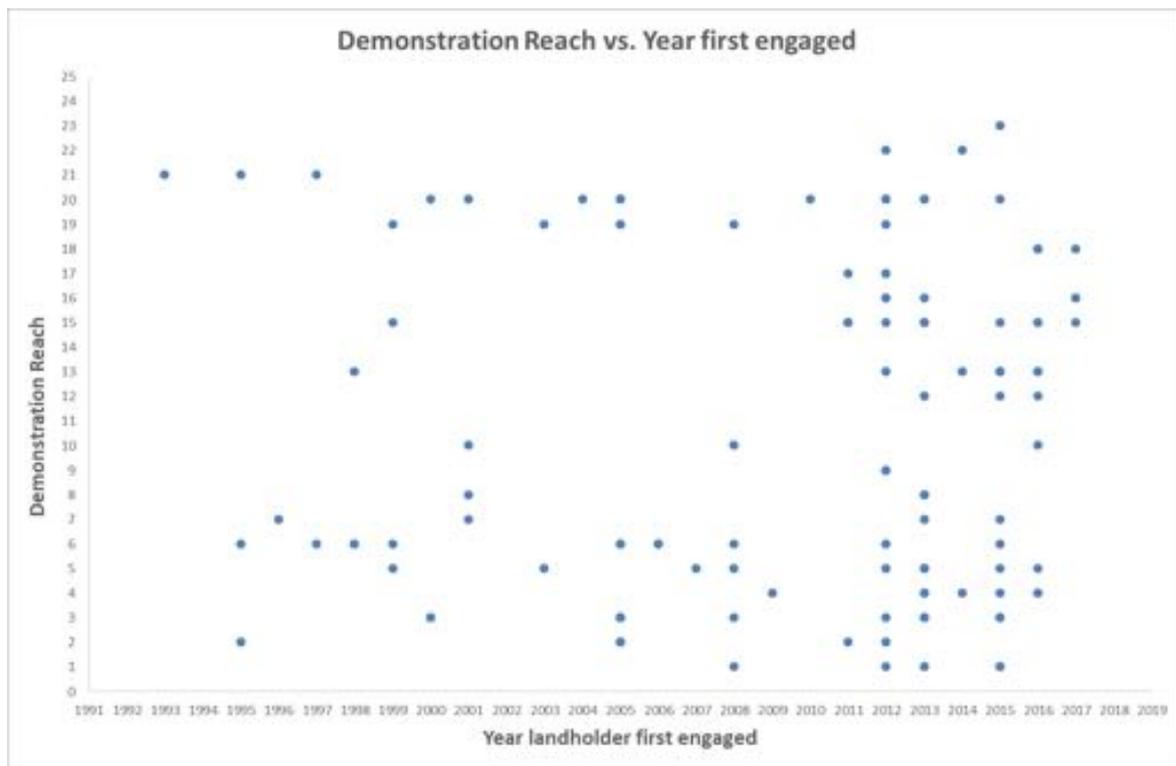


Figure 4 Geographical distribution (by demonstration reach) of all landholders engaged in the Restoring Riparian Resilience project and the year they were first engaged in an MRCCC project

How were landholders engaged?

Engagement of landholders has multiple dimensions. This paper focuses on how the first contact with the Restoring Riparian Resilience project arose, and the engagement strategies that contributed to continued involvement of landholders.

In terms of initial engagement, Figure 5 shows the breakdown of how all of the private landholders involved in on-ground projects (excluding biocontrol release only) first became involved in the Restoring Riparian Resilience project. It shows that having participated in another MRCCC project was the major avenue for people to become involved, with 58% of freehold project participants being first engaged in this way. The Walli Weed control project (in Demonstration Reach 20) which caused the spike in engagement 10 to 15 years ago was the first engagement of 20% of these project participants. The Landholder Environment Grants and Community Partnerships Program, which MRCCC assists Sunshine Coast Council to deliver, engaged 22% of these people. The mid-1990s Voluntary Riverbank Restoration Grants scheme brought 21% of these landholders to MRCCC initially. Being involved in the Restoring Riparian Resilience project enabled these landholders to expand on work they had already been undertaking or to undertake complementary work. Another major avenue of contact with the Restoring Riparian Resilience Project was the Reef Program (operating since 2010) that brought 14% of the participants engaged through another MRCCC project. In most cases the project undertaken complemented the Reef Program work. For example, the Reef Program may support installation of a riparian fence and the Restoring Riparian Resilience project supported revegetation and/or weed control inside this fence.

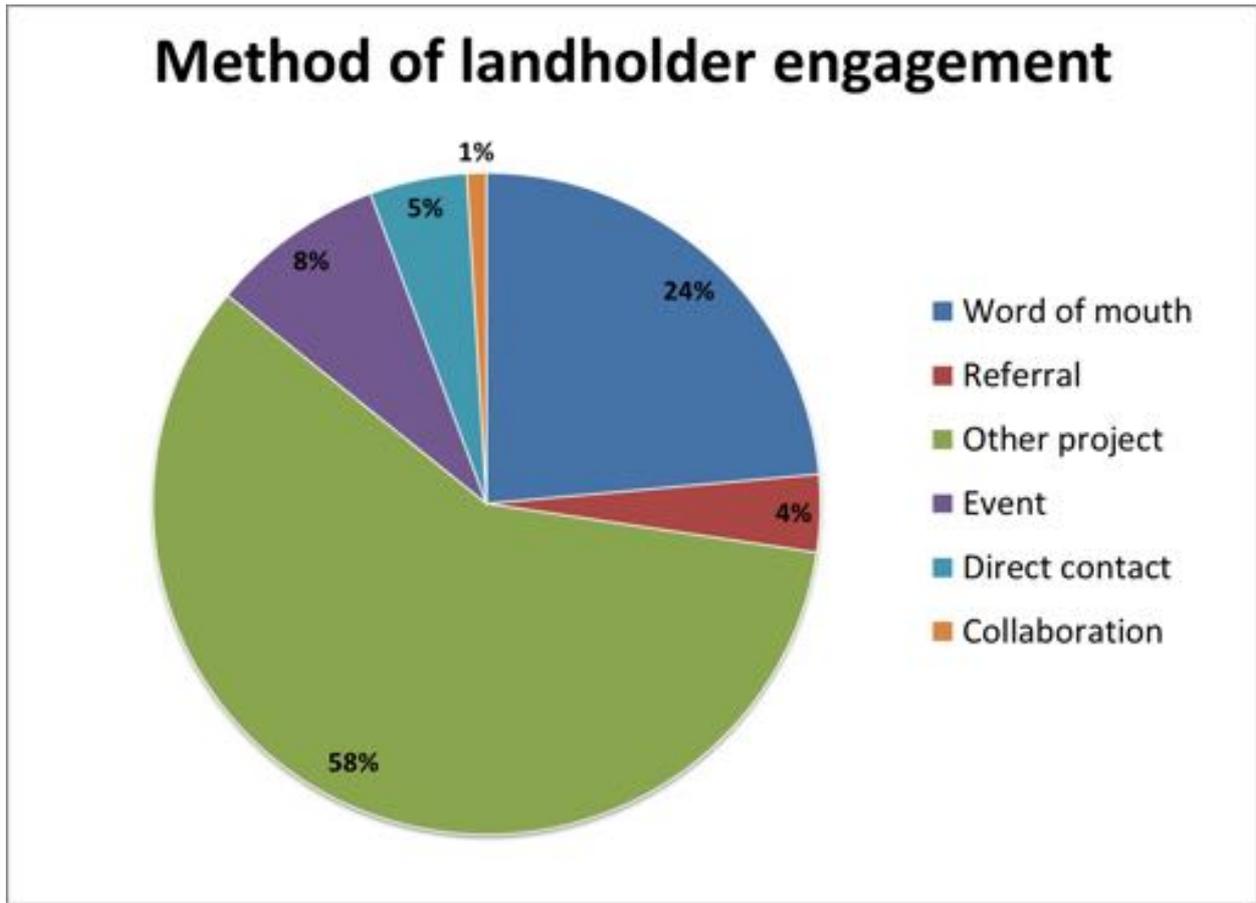


Figure 5 Methods of initial landholder engagement for participants in the Restoring Riparian Resilience project (excludes non-freehold properties, and properties where biocontrol release was the only activity undertaken)

Word of mouth was another significant means by which people became involved in the Restoring Riparian Resilience project. Figure 5 shows that 24% of the participants became aware of the project in this way. Often this was through a neighbour or friend already involved in the project, through professional networks or through local champions of the project (e.g. the rural supplies store in Kandanga helped recruit several of the participants in Demonstration Reach 13 – Kandanga Creek). Other methods of engagement include collaborative projects with other stakeholders (1%), contacts made at events such as field days (8%), and referrals from another natural resource management or Landcare group (4%). Direct contact (i.e. unsolicited calls) by landholders to MRCCC to seek advice or funding assistance to improve their riparian health and operations was the means by which 5% of the landholders became involved.

This analysis shows the power of having an existing network of projects in the catchment to build and draw on. It also suggests that the engagement strategies in place were successful in attracting follow up projects with landholders. To further understand this aspect of the project MRCCC conducted an online survey of landholders who had participated in the project. The survey was sent via email or post to 92 of the 106 freehold project participants who did on-ground work other than just biocontrol releases (contacts for the other 14 were no longer available). A response rate of 27% was achieved with 29 responses. Of these 29 respondents, 19 (66%) had first been engaged in 2012 or later. This shows that newly-engaged landholders are taking an interest in riparian health, and are keen to share their experiences. Three of the 29 respondents chose to remain anonymous so it could not be determined when they had first been engaged with. Properties where the only activity was a biocontrol release were not included in the survey as the main aim of the survey

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was to gauge whether land management practices had changed as a result of on-ground works undertaken through the project. Although the role of biocontrols in engaging landholders has not been analysed here, MRCCC has found that if a landholder is not yet ready to commit to a full riparian improvement project, visiting them to release biocontrols and give them some information on riparian health and threatened species can be an effective means of initiating a professional relationship that may pave the way for future projects. There are several examples of this occurring within the five years of the Restoring Resilience Project. For the survey itself, landholders were asked questions about if and how their land management practices had changed as a result of participating in the project. The majority of respondents (83%) reported that they had changed their land management practices as a result of their involvement with the Biodiversity Fund project (Mary River Catchment Coordinating Committee 2017). Several respondents stated that they had realised the importance of riparian health and this had been their reason for wanting to be involved in the Restoring Riparian Resilience project. The provision of financial support was the push that many participants needed to implement better land management practices (Mary River Catchment Coordinating Committee 2017).

When asked what changes (if any) they had noticed on their properties since participating in the project, respondents identified a range of positive changes relating to wildlife, vegetation health and structure, presence of invasive weeds and property operations management (Mary River Catchment Coordinating Committee 2017). When asked if they would be interested in participating in similar future projects, all respondents answered yes.

Questions were asked about how well the project was run and what could be done differently to improve the experience for project participants. Respondents to the survey were happy with project delivery and did not make suggestions about improvements other than their desire to see more projects like this happen. MRCCC held an internal workshop to review the survey responses, discuss practices and identify the successes and failures of the project. The main findings of this workshop are discussed further in the next section.

Lessons learned for Landholder Engagement

Several key lessons have been identified for landholder engagement in threatened species-focused riparian restoration projects in the Mary River catchment. These are drawn from the analysis of who participated in the project, how they were engaged, the results of the project participant survey and the internal MRCCC workshop. The main lessons learned were:

- Sharing information about local threatened species is a great way to get landholders interested and talking about the importance of riparian health. Increasing landholder knowledge of these threatened species was a key driver in generating discussion about the importance of riparian health, and the benefits that a healthy riparian zone can have for water quality and land production. Knowledge-sharing is important in raising awareness (Lovett 2014), and MRCCC have developed a strong commitment to this through the many events and presentations given throughout the Restoring Riparian Resilience project.
- Project Officers need to be aware of the variety of landholder interests, and look for ways to link these interests with projects e.g. Some are interested in improving their BioCondition score, some are proud of the wildlife they support on their property, some are interested in riparian buffer widths or preventing their neighbours cattle getting into their property and others are seeking a sense of community, connection and/or mutual support with likeminded people.
- Entry points to pique landholder interest are not always the most obvious; it is good not to make assumptions about people's likely interest
- Always explain the basic reasoning and importance behind the restoration of riparian areas, as people do not always fully understand the benefits and the connections between terrestrial and aquatic ecosystems.
- Time invested in building partnerships and co-funded projects is time well spent – it helps attract new landholders to the project and enables the project as a whole to achieve better environmental outcomes.

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- Putting the current work in a historical context facilitated a deeper understanding by all involved. Photos of how areas have changed over time are especially powerful and valuable.
- When funding resources are available to landholders, their capacity to be receptive to this kind of property management is greatly increased. It also gets them thinking about how they could manage their land differently instead of continuing with the status quo. Developing a property-level plan in consultation with the landholder helps to build awareness and understanding as well as setting out implementation goals.
- Creating opportunities to experience the river and make a tangible connection to it and the threatened species have great power. Events and workshops can assist in this task.

These findings are also consistent with past analysis of Rivercare activities in the Mary River catchment which found that sharing knowledge and experience, education and skills, funding and resources and collaboration and cooperation were the strongest drivers helping private landholders engaged in riparian restoration (Smith 2016).

As evident from the analysis of methods of landholder engagement, there are key projects that influence future landholder engagement. In the Mary the Walli Weed Control Project (2005), the Voluntary Riverbank Restoration Grants Scheme (1995-2000), the Community Partnership with Sunshine Coast Council and the variation iterations of the Reef Program have been instrumental in attracting new landholders into the catchment community network. MRCCC staff anticipate that the Restoring Riparian Resilience project will be one of these key projects that will have recruited a significant number of new long-term participants in catchment management and threatened species habitat improvement projects. In fact MRCCC staff believe that the Restoring Riparian Resilience project has contributed to a culture shift throughout the catchment regarding awareness of threatened species and how landholders can play a part in protecting them (Mary River Catchment Coordinating Committee 2017). It also created new partnerships with other community groups, government bodies and businesses which have enabled MRCCC to extend the outcomes of the project and create new opportunities for the future. Many of the landholders that MRCCC works with on these type of projects continue to apply for funding for further improvement works on their property – or even fund the works themselves – when they see the benefits of a previous project that they had undertaken.

The Rivers of Carbon (RoC) riparian restoration project in New South Wales (NSW) is a similar, large-scale project concerned with improving riparian health and connectivity in several rivers. The landholder engagement experiences of the managers of the RoC project are similar to that of MRCCC staff during the Restoring Riparian Resilience project. In terms of project success, staff administering the RoC project found that riparian zones are ideal areas to work with, as they are often a part of the property that landholders are prepared to manage differently (Lovett 2014). Building on this, MRCCC staff have found that landholders are more likely to want to enhance and protect their riparian zones when they realise its importance for aquatic threatened species and water quality. Rehabilitating riparian areas also has positive impacts on biodiversity, sediment and nutrient trapping, and water quality (Lovett 2014, Gould 2014). For riparian restoration projects, strong community commitment is required to promote a sense of ownership (Gould 2014). The fact that many landholders engaged through the Restoring Riparian Resilience project had previously engaged with MRCCC through a different project (or a number of projects) shows that many landholders are committed to continued sustainable land management, with some becoming “champions of the cause”. Having these champions in the community helps to promote the project to a wider audience and creates a strong sense of cohesion between landholders who share the same land management values. An evaluation carried out by the administrators of the Boorowa River Recovery project in NSW acknowledged that some of the success of the project was due to an existing platform of a strong Landcare network (Gould 2014). This observation also applies to the Restoring Riparian Resilience project, as it was delivered on the back of several previous, successful projects in the Mary River catchment which helped to build momentum.

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Conclusions

This paper has shown that a large multi-million dollar project like the Restoring Riparian Resilience project can make a fundamental difference to the levels of activity and engagement in threatened species habitat restoration. With this comes an increase in community knowledge of threatened species habitat requirements and riparian restoration techniques that are likely to benefit the management of the catchment for decades to come.

The Restoring Riparian Resilience project resulted in many positive outcomes in terms of riparian health, community awareness and landholder engagement in the Mary River catchment. Engaging a larger than expected number of landholders is a result of many factors. Approximately half of the participants in the project were new to the MRCCC and the other half had previously undertaken a project with MRCCC. Word of mouth was an important means for people to become aware of the project along with involvement in past projects. Using threatened species to engage people was particularly useful as was taking care to identify factors that motivate individual landholders.

Some of these factors such as the use of threatened aquatic species to engage landholders may be specific to a catchment like the Mary River with a high number of such species. Other factors, such as building on past projects and being part of a community catchment network where word of mouth provides an important vehicle for attracting participants to the project may be more widely applicable to other catchments.

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