Landholder perspectives on streambank and projects to improve water quality gully restoration

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Abstract: Large scale gully and streambank restoration projects aim to reduce sediment flow into the Great Barrier Reef, but their long-term success depends on landholders maintaining sites over time. This assumption of ongoing stewardship has remained untested. This pilot study examined social outcomes experienced by 11 landholders participating in restoration projects across four Queensland catchments to assess factors affecting maintenance likelihood. Findings revealed that when projects align with landholders' economic interests, providing tangible benefits like erosion control and property protection, participants develop strong satisfaction and positive maintenance intentions. However, a critical gap emerged: around half of participants had not changed land management practices despite high satisfaction. The study concludes that positive social outcomes are necessary but not sufficient for sustained stewardship. Future restoration programs must move beyond assuming compliance to actively securing commitment for changed practices, extending maintenance support, and planning for extreme weather events.

Keywords: stewardship, social benefits, water quality, Great Barrier Reef, restoration

Introduction

The problem

Sediment runoff is a significant water quality pollutant in the Great Barrier Reef (the Reef) ecosystem (Waterhouse et al. 2024; Waters 2014). Excess sediment, heightened and transported during flooding events, can lead to mortality of corals and other organisms, and biodiversity loss (Pearson et al. 2021). Land use changes, particularly grazing, have led to the degradation of land and in some places, severe erosion of streambanks and gullies (Waterhouse et al. 2024). As a result, agricultural land is a significant and ongoing source of sediment and nutrient inputs into the Reef lagoon (Waterhouse et al. 2024).

In response, Australian and Queensland governments have increasingly turned their focus to restoring eroded streambanks and gullies on privately owned agricultural land in order to reduce sediment and improve water quality on the Reef (DCCEEW n.d.-a; GBRF n.d.-a; Waterhouse et al. 2024). These large-scale restoration projects stabilise eroded areas through structural intervention and engineering (such as reshaping eroded banks), followed by revegetation.

While these interventions provide some economic returns to landholders (by improving the condition of the property and its value), the public benefit of improved water quality for the Reef significantly outweighs the private economic return. Large scale remediation projects are extremely expensive for individual landholders, with costs typically in the order of hundreds of thousands of dollars, sometimes millions (DCCEEW n.d.-a). This makes them unlikely to be funded privately by the landholders and therefore are publicly funded. Both state and federal governments, including through the Reef Trust Partnership, have, for nearly a decade now, funded restoration projects in a bid to help improve the water quality of the Reef in recent years (DCEEW 2016; Great Barrier Reef Foundation n.d.-b; Great Barrier Reef Foundation n.d.-c; Great Barrier Reef Foundation n.d.-d; Great Barrier Reef Foundation n.d.-e).

The critical challenge: long-term stewardship

While the efficacy of these interventions has been established in principle (Waterhouse et al. 2024), their long-term success critically depends on the landholders ongoing stewardship of the site for many years to come. Stewardship refers to maintaining the site and improving farm management practices in adjacent areas to prevent re-erosion. Examples actions include: erecting and maintaining fences that exclude livestock from accessing the restored sites, maintaining and expanding the vegetation established as part of the restoration, managing stock to avoid overgrazing and allow sufficient groundcover in the surrounding areas (Charlton 2024).

Despite the critical importance of stewardship, there is a fundamental knowledge gap regarding whether landholders will undertake these maintenance activities over the long term. Funding for these projects in the past has typically only financed the construction phase and a one or two years of maintenance (DCCEEW 2016). Furthermore, none of the programs to date have had

systematic long-term monitoring and follow-up to evaluate of their enduring effectiveness in retaining sediment. Thus, it is impossible to demonstrate the longevity of their outcomes.

Research suggests that positive social outcomes from participation in land management programs (such as increased motivation, stewardship, and other benefits) can enhance landholders' long-term commitment to maintaining sites (Curtis & De Lacy 1998; Vanclay 2011; Pickering et al. 2020; Coggan et al. 2021; Dean & Schultz 2023). Conversely, adverse social outcomes could undermine stewardship efforts. Prior to this evaluation, anecdotal evidence suggested landholders have mixed perceptions and support for restoration projects, with some opposing the use of public funds to improve neighbouring properties or expressing scepticism about whether the works would result in a good outcome for the farm. Differing perspectives may create negative social dynamics, such as stigma or peer pressure, which could discourage landholders from engaging with or supporting these projects.

Study context

The context of this pilot study was a program funded and run by the Great Barrier Reef Foundation (GBRF) Reef Trust Partnership. In 2018, the Reef Trust Partnership (RTP) was established between the Australian Government's Reef Trust and the Great Barrier Reef Foundation. A total of $443.3 million was invested over six years from 2019 to 2025 (DCEEW n.d.; Great Barrier Reef Foundation n.d.). Almost half the funding ($201 million) was allocated to improving water quality within the Great Barrier Reef catchment areas, with the primary objective set to improve water quality towards targets set in the Reef 2050 Water Quality Improvement Plan (State of Queensland 2018).

This was partly to be achieved through the restoration of severely degraded gullies and streambanks, often located on private land. Local organisations (delivery providers) contracted by GBRF identified landholders with degraded sites in their property to propose a remediation project funded by the RTP, investing from $350,000 to $5,000,000 per site. To date, 55 gullies and 17 streambanks have been restored in 26 properties by the RTP, saving 83.6kt of sediment from flowing into the Reef annually (can be further visualised in this dashboard, Great Barrier Reef Foundation n.d., accessed 10 March 2025).

The RTP program focussed on two types of restoration projects at a large scale: (i) gullies, and (ii) streambanks. In both types of projects, the overarching goal was a sustained reduction in long-term, end of catchment pollutant loads. Achieving this goal has two parts: first, success of the restoration itself, and second, maintaining the integrity of the sites so that they do not re-erode.

The RTP ensured success in the restoration by having a rigorous process undertaken by technical experts in the design and construction of the sites (these often-included mechanical interventions such as reshaping of gullies and riverbanks followed by revegetation). This work is further described within this special edition in James et al. (2025), and also by GBRF in Reyes et al. (2025). By contrast, the RTP had no additional time to monitor and evaluate ongoing maintenance (as it was only a six-year program), and like all previous Reef water quality funded projects, defaults to assuming landholders will undertake necessary fencing, cattle exclusion, and vegetation maintenance.

For the purposes of the evaluation, a clear distinction was made between the different types of large-scale restoration projects, acknowledging the unique approaches required for their design and implementation, as well as the varying levels of landholder engagement across gully or streambank restoration initiatives. Specifically:

- Large-scale **gully restoration** projects encompass large, catchment scale systems and tend to be standalone engineering works, with limited landholder engagement beyond permission to access land, and landholders undertaking limited commitments to maintain the restored gully post project. Most projects were undertaken on large inland, remote properties with commercial grazing, where landholders may not be very connected.
- Conversely, large-scale **streambank restoration** projects tended to have greater landholder engagement and active involvement in the implementation of streambank restoration activities. Most projects were on smaller properties, many of which were hobby farms in the Mary catchment, which is a tight-knit community.

Study aim and research questions

In the absence of long-term monitoring data on restoration projects, we conducted a pilot study to examine the social outcomes experienced by landholders and explore how these factors affect the likelihood of landholders maintaining sites. The study examined whether the perceived benefits and drawbacks that landholders involved in restoration projects experienced were

sufficiently compelling for them to undertake the maintenance necessary for ensuring the long-term success of these restoration sites. Their intentions for undertaking maintenance were also investigated, along with the practical challenges.

Importantly, although social research on factors influencing the adoption of water quality focussed agricultural management practices is expanding (Murray-Prior et al. 2024), the social factors in large scale gully and streambank restoration projects remain largely undocumented in the published research. The evaluation presented in this paper begins to bridge this knowledge gap.

Overarching key evaluation question:

- What are the social outcomes (both positive and negative) experienced by landholders who participate in large scale gully and streambank restoration projects?

Key evaluation sub-questions:

- What are landholders' motivations for participating in large scale gully and streambank restoration projects?
- What are the perceived benefits and drawbacks of participating in large scale gully and streambank restoration projects?
- What do landholders perceive as the broader community attitudes towards participation in restoration projects?
- What are the perceived impacts on property values and productivity?
- How do the perceived benefits and drawbacks relate to landholders' long-term stewardship, including long-term maintenance of the site?
- What recommendations do landholders have for improving future projects?

These Key Evaluation Questions (KEQs) enabled a qualitative assessment of how social outcomes foster stewardship and create conditions for landholders to maintain restored landscapes and implement complementary on-farm best practices. They also helped identify potential variations in social outcomes between large scale gully and streambank restoration projects, acknowledging that different project designs and implementation approaches may produce distinct social impacts.

Evaluation method

This pilot evaluation study was exploratory, aiming to both identify and assess a broad range of social outcomes associated with these projects, and as such a qualitative methodological approach was most appropriate for collecting and analysing the data. Qualitative methods were also deemed appropriate given the small sample size of landholders; there are approximately 26 landholders currently participating in large-scale gully and streambank restoration projects, of which 11 agreed to participating in this evaluation. The interview questions were semi-structured to support the exploration of participants' experiences and perspectives while allowing flexibility for probing deeper into specific topics that emerged during the conversation (Patton 2014; refer Appendix A for the list of questions). All participants gave their full and informed consent before participating. No ethics approval was deemed necessary.

Sample

The primary targets for the pilot study were the landholders who participated in the large-scale restoration projects. In total, 11 landholders across four regions participated (Mary n=8, Fitzroy n=1, Bowen Broken Bogie (BBB) n=1, Upper Herbert n=1; see Analytical approach

Interviews were audio recorded with participant consent and professionally transcribed. Using the approach described by Braun and Clarke (2019), we conducted thematic analysis of interview transcripts and interview notes. A coding framework was developed deductively from the key evaluation questions, capturing motivations, perceived benefits and drawbacks, community perceptions, property value impacts, and stewardship intentions. Additional codes were developed inductively to capture unanticipated social outcomes.

Table 1). Eight had streambanks and three had gullies restored in their properties. Participants included both male and female landholders, though males were more represented in the sample.

Participants were recruited between March and April 2024 via the delivery partner organisations coordinating the projects in every region (Mary River Catchment Coordinating Committee in the Mary region, Catchment Solutions in Fitzroy, NQ Dry Tropics in Burdekin, and Terrain NRM in Upper Herbert). Given the remote and dispersed location of the properties and landholders, all interviews were conducted via telephone calls.

Analytical approach

Interviews were audio recorded with participant consent and professionally transcribed. Using the approach described by Braun and Clarke (2019), we conducted thematic analysis of interview transcripts and interview notes. A coding framework was developed deductively from the key evaluation questions, capturing motivations, perceived benefits and drawbacks, community perceptions, property value impacts, and stewardship intentions. Additional codes were developed inductively to capture unanticipated social outcomes.

Table 1. Landholders participating in the evaluation

Location catchment	Restoration type	Type of farm
Fitzroy, Mackenzie	Streambank	Small farm, lifestyle block with a variety of stock.
Mary	Streambank	Small lifestyle farm.
Mary	Streambank	Large dairy commercial farm.
Mary	Streambank	Small lifestyle farm with cattle.
Mary	Streambank	Small lifestyle farm. No stock.
Mary	Streambank	Small farm. Grazing production.
Mary	Streambank	Large farm. Grazing production.
Mary	Streambank	Large grazing production property.
Mary	Gully	Small farm. Grazing production.
Burdekin, BBB	Gully	Very large grazing production property
Upper Herbert	Gully	Large farm. Grazing production.

Results

In total, 11 landholders across four regions participated (Mary n=8, Fitzroy n=1, Bowen Broken Bogie n=1, Upper Herbert n=1). Eight had streambanks and three had gullies restored. Properties ranged from small lifestyle farms to large commercial grazing operations, with most participants (n=6) having been on their properties for 21 to 30 years.

Motivations for participation (KEQ1)

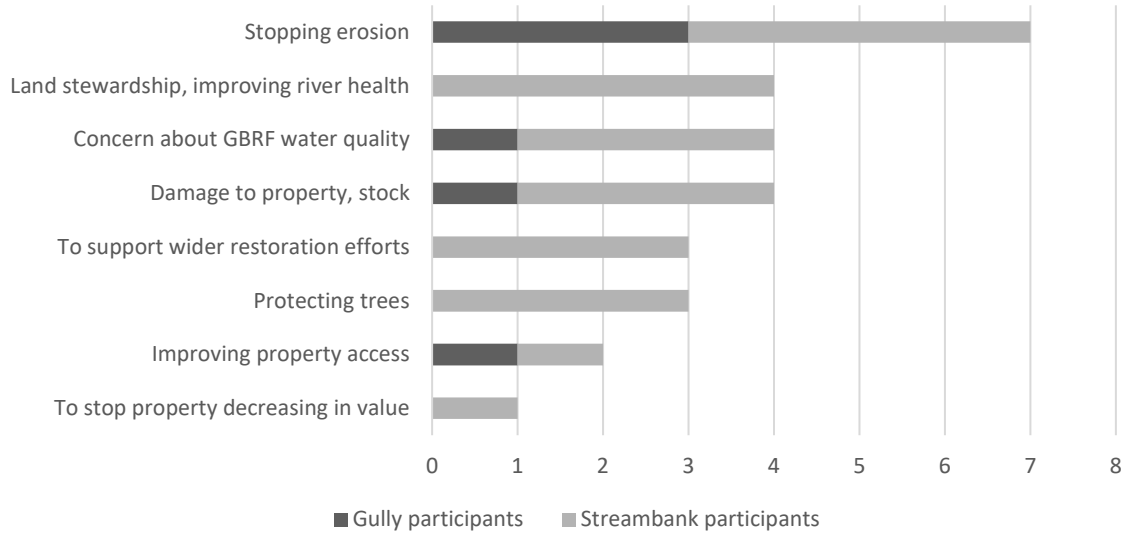
Stopping erosion was the primary motivation for participation, identified by all three gully participants and half of streambank participants (Figure 1). Participants valued erosion control primarily for protecting soil, maintaining productivity, and preserving land value. As one gully participant explained:

> …it was either have [the contractors] do something with it or basically lose the dam….it was a danger for us and a danger for our cattle (ID10, Upper Herbert).

Other motivations included a sense of land stewardship (n=4), concern about effects on Great Barrier Reef water quality (n=4), protecting old growth trees (n=3), and supporting wider restoration efforts in the Mary River region (n=3). One participant noted they only learned about the connection between erosion and Reef water quality through the project:

> …that is what changed everything for us. We were very enthusiastic about participating in a program which would have a material impact on the Great Barrier Reef (ID4, Mary).

Figure 1. Participants' motivations for participating in the restoration project



Note: some participants gave more than one reason

Perceived benefits, drawbacks, and community perceptions (KEQ2)

Benefits

Participants experienced predominantly positive outcomes. For both gully and streambank participants, successful erosion control was the most valued benefit, directly addressing their primary motivation. Gully participants emphasised preventing loss of productive land and eliminating hazards, with one noting direct productivity increases:

> …we're running the same number of cattle than we historically did, but on less country. So, we've got better ground coverage and quality feed (ID10, Upper Herbert).

Streambank participants similarly valued erosion control (6 of 8), with several noting they had already lost 2 to 10 acres of grazing land prior to restoration. Additional benefits included high quality contractor work (n=4), feelings of security and peace of mind (n=3), and habitat regeneration (n=2). As one participant described:

> The feeling of security that we're not going to keep losing land and that the problem is not going to keep getting worse is probably our biggest benefit (ID2, Mary).

Most participants expressed caution that the true test would come during the next major flood event.

Drawbacks

Perceived drawbacks were minimal. All three gully participants stated they experienced no drawbacks. Among streambank participants, three reported no drawbacks, while two raised concerns about not being adequately listened to during the design process. These participants felt engineers did not incorporate their local knowledge, leading to concerns about long-term project success. One other participant noted the land was left with undulations that made it difficult to use, though they acknowledged the project was overall successful. Despite these concerns, all participants unanimously viewed project outcomes as beneficial.

Community perceptions

Limited data was collected on this question, as only two participants were directly asked about community views. Both believed other landholders viewed the restoration favourably. Three Mary catchment participants noted evolving community attitudes towards stewardship, with one describing a generational shift:

> We are certainly the first and we were considered greenie mavericks and weirdos...yet, it's got to the point where nearly everyone does it here now (ID2, Mary).

Another participant noted the project generated substantial interest, hosting field days to share experiences with other landholders.

Property values and productivity (KEQ3)

Five of seven participants asked about property values believed the restoration works increased their property value through protection from further erosion and remediation of dangerous features. Two streambank participants believed the works would negatively impact values, with one citing loss of cattle feed land.

Regarding productivity, none of the five participants who responded reported decreased productivity. Three anticipated short-term productivity loss during project implementation but expected long-term increases due to improved land condition. One believed there was no impact, while one gully participant reported direct productivity increases.

Stewardship intentions and maintenance challenges (KEQ4)

Practice changes

Around half of participants (n=6) had not changed how they manage their property as a result of the project work. Of the five who reported changes, modifications included reduced grazing pressure (n=2), new or improved fencing (n=2), and plans for rotational grazing (n=1). However, several landholders explained practical difficulties implementing these practices, such as leaving gates open (and therefore allowing cattle access to the restored site) due to extended wet conditions making areas inaccessible.

Regarding future land use, three participants intended to continue grazing on the restored site at similar rates, while two would graze the restored site only occasionally for fire or vegetation management. Three participants did not provide clear responses about future use.

Future challenges for ongoing maintenance

The three gully participants largely did not identify any future challenges associated with the projects. However, one mentioned a significant practical challenge related to implementing the new cattle rotation system:

> With [the contractor's] stipulation, we fenced a lot of the country up and now run bigger herds on smaller areas. We just shift them regularly to work all the country instead of just little bits of it. [But] it's a bit hard to work on this property, especially years like this, it's been so wet. And when I should have worked the cattle through three paddocks possibly more, I just can't move up here, so all the gates are open and they're working themselves. (ID10, Upper Herbert)

This example illustrates how even landholders committed to changed practices face barriers to implementation due to factors beyond their control.

Streambank participants identified a much wider range of future challenges (Figure 2). While three said they did not envision any challenges and one did not respond, six participants identified specific maintenance barriers. The most common challenge was keeping animals out of the restored area (n=3), which included not only the landholder's own stock but also potentially feral cattle or cattle from neighbouring properties. Two participants noted the need to look after revegetated areas over the long term, with concerns about undergrowth management.

Individual participants also raised concerns about needing to level the remediated site, their advanced age limiting capacity to undertake maintenance work, and doubts about whether the work would withstand future floods. One elderly participant, while remaining positive about the project, highlighted capacity limitations:

> I'm nearly 85 years old. Quite frankly, I can't do very much myself. But because of the way it's been done ...I can ensure that it is well protected as it can be (ID1, Mary).

Figure 2. Future challenges identified by streambank participants5. Future challenges identified by streambank participants

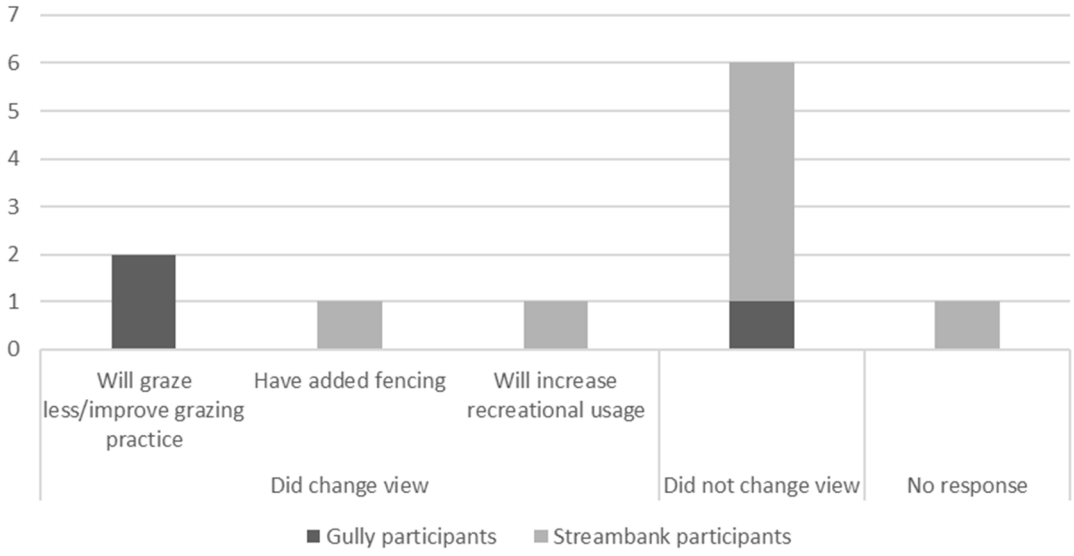
Future land use and overall satisfaction

Regarding future land use (Figure 3), three participants intended to continue grazing at similar rates, while two would graze only occasionally for fire or vegetation management. Three participants did not provide clear responses.

Despite the identified challenges, most participants said they would recommend the project to others (n=6), with one neutral. When asked whether they would still undertake the project in hindsight, ten of eleven responded affirmatively. One participant wished the opportunity had been available earlier:

> …we've lost a huge area of land that, if it had happened a few decades ago, it would have been a lot better (ID7, Mary).

Figure 3. Change in participants' stewardship practices and views



Recommendations for improving future projects (KEQ5)

Six participants did not have recommendations for improvement, while two did not provide responses. Two streambank participants who felt inadequately listened to during design recommended that future projects ensure contractors actively incorporate landholders' perspectives and local knowledge. One participant requested more flexible timelines to account for local conditions and unexpected delays:

> …once the approval came through, then they had to employ hydrologists, surveyors, engineers, get it all sorted...I think by the time they could actually get the job; they were getting very close to storm season (ID10, Upper Herbert).

Discussion

This paper evaluates landholder perspectives on streambank and gully restoration projects in Queensland, Australia, examining the social outcomes experienced by landholders and how these relate to the likelihood of long-term stewardship and maintenance of restoration sites. The evaluation focused on motivations, perceived benefits and drawbacks, and maintenance intentions.

Landholders' motivations for participation

The primary motivation for undertaking restoration work was erosion control. All three gully participants and half of the streambank participants named stopping erosion as their key motivation. Importantly, erosion control was valued primarily for protecting soil, maintaining productivity, and preserving land value, rather than for improving water quality in the Reef. Other motivations included a sense of stewardship for the land (n=4) and concern about effects on Reef water quality (n=4), though these were secondary to direct property benefits. This finding aligns with research showing that landholders are primarily motivated by private benefits rather than public environmental outcomes (Pannell et al. 2006; Moon & Cocklin 2011).

The dominance of private economic motivations has important implications for long-term stewardship. Since these landholders are directly motivated by protecting their own soil and property value, they have a personal incentive to ensure the restoration work remains effective over time (Pineiro et al. 2020; Groce et al. 2022).

Perceived benefits and drawbacks of participation

Participants experienced predominantly positive outcomes. For both gully and streambank participants, the key benefit was successful erosion control, which directly addressed their primary motivation. Streambank participants also highly valued the quality of contractor work and the psychological relief of "security" and "not going to keep losing land." This aligns with research showing that loss of land condition are significant sources of psychological distress for farmers (Ellis & Albrecht 2017), implying that successfully addressing these risks provides relief.

Perceived drawbacks were minimal. All three gully participants stated they experienced no drawbacks. Among streambank participants, several raised concerns about not being adequately listened to during the design process, with two feeling engineers did not incorporate their local knowledge, leading to concerns about long-term project success. This finding aligns with the 2022 Reef Scientific Consensus Statement (Q7.2), which emphasises that management practices should be developed through collaborative processes that actively involve landholders from the planning stages (Murray-Prior et al. 2024).

The overwhelmingly positive perception of benefits relative to drawbacks suggests high satisfaction with the program. However, satisfaction with outcomes does not automatically translate to changed management practices, as discussed below.

Community perceptions

Limited data was collected on community perceptions, as only two participants were directly asked about how other landholders view the restoration work. but responses suggested other landholders view restoration favourably. Three streambank participants in the Mary catchment noted evolving community attitudes towards stewardship, with one describing a generational shift from being seen as "greenie mavericks" to widespread acceptance. This positive shift in community norms is significant, as peer influence and social norms strongly affect adoption of land management practices (Hobman and Taylor 2018; Dean & Schultz 2023).

Property value impacts

Five of seven participants who were asked about property values believed the restoration works had increased their property value through protection from further erosion. However, this finding should be interpreted within the study's sample composition, which was heavily skewed towards the Mary catchment where smaller lifestyle properties command higher per-hectare values. The perceived benefit of increased property value may not generalise to larger inland properties in other catchments (Cleary et al. 2022).

Regarding productivity, none of the five participants who responded said restoration decreased their productivity, removing a common barrier to adoption of conservation practices (Pannell et al. 2006; Murray-Prior et al. 2024).

Relationship between social outcomes and long-term stewardship

The critical question is whether positive social outcomes translate into sustained stewardship. The findings present a mixed picture.

In favour of maintenance being likely was that most participants would undertake the project again (10 of 11) and would recommend it to others. The alignment between landholders' private economic motivations and the need to maintain sites creates a self-reinforcing incentive structure.

However, a critical concern emerged: around half of the landholders (n=6) reported they had not changed how they manage their property as a result of the project work. This is problematic because preventing future erosion requires changed land management practices around the restored site. Of the five participants who reported changes, modifications included reduced grazing pressure, new fencing, and rotational grazing. However, several landholders who had installed fencing reported leaving gates open due to practical constraints such as extended wet conditions leading to lack of access to the gate.

This gap between satisfaction with outcomes and actual practice change reflects well-documented barriers in agricultural contexts, including economic constraints (Pannell et al. 2006; Coggan et al. 2016), competing priorities for limited time (Dean & Coffey 2016), behavioural inertia (Greiner et al. 2009), implementation challenges (Coggan et al. 2015), and social factors (Pannell et al. 2014). More broadly, it aligns the intention-behaviour gap widely observed in pro-environmental behaviour literature, where positive attitudes and intentions do not automatically translate into sustained practice change (Kollmuss & Agyeman 2002; Bakker et al. 2025).

Furthermore, future maintenance challenges identified by participants included keeping animals out of restored areas, maintaining revegetation, landholder ageing and limited capacity, and site accessibility, reflecting well-documented challenges to long-term restoration maintenance (Gann et al. 2019; Marini et al. 2024)

The findings suggest that positive social outcomes and high satisfaction are necessary but not sufficient conditions for long-term stewardship. Without explicit commitment to changed practices and support for overcoming implementation barriers, there is substantial risk that restored sites will not be adequately maintained.

Study limitations

Several limitations should be considered. The sample was small (11 participants) and heavily skewed towards the Mary catchment (8 of 11), where smaller lifestyle properties are more common. Local environmental conditions, property types, landholder social norms, and implementation partners vary significantly across regions, and these contextual factors may influence both restoration effectiveness and landholder engagement (Murray-Prior et al. 2024).

The predominantly positive findings, including high levels of landholder satisfaction, strong maintenance intentions, and general willingness to continue restoration efforts, may reflect the specific characteristics of the participating regions, the quality of partner organisation support, and the particular cohort of landholders who chose to participate in the program. This study focused exclusively on landholders who had already engaged with restoration programs, potentially creating a selection bias toward those more predisposed to environmental stewardship. The perspectives and barriers experienced by non-participating landholders remain unexplored, yet understanding these factors would be crucial for developing more inclusive and effective restoration programs.

The temporal scope also presents limitations, as maintenance intentions were captured shortly after restoration completion. Long-term follow-up could elicit different perspectives in relation to intentions and would be valuable to determine whether intentions translate into sustained behaviours (Campbell et al. 2018). There is broad consensus that short, project-end monitoring is insufficient and long-termer, longitudinal monitoring is required (Lindenmayer et al. 2022).

Practical implications and recommendations

Despite these limitations, this research provides important insights. Three major recommendations emerge:

Secure explicit commitment for changed land management practices

The finding that many landholders did not change management practices despite high satisfaction represents the most critical challenge. Future programs should not assume practice change will occur but should explicitly seek and document landholder commitment to specific management changes. This could include formal agreements with maintenance checklists, creating

psychological ownership and clear expectations, alongside education and ongoing implementation support.

Provide extended support for vegetation maintenance

Current funding typically covers only one to two years of maintenance, which may be insufficient. Extended support would improve long-term success. Some practitioners have recommended a minimum of seven years (Brooks et al 2009; Brooks et al 2013; Brooks et al 2014; Shellberg et al 2013).

Plan for extreme weather events

Sites designed to withstand intense weather can still fail under extreme events, requiring expensive reconstruction. Future programs should either increase work resilience or factor additional budget for reconstruction. James et al.'s publication in this special edition discusses the risks of restoration programs and consideration in planning budgets and process to maximise their success.

Other program improvements

Additional improvements for future programs included: enhancing landholder involvement in design through active listening and incorporation of local knowledge; maintaining high-quality contractor work; enabling flexible timelines; continuing landholder education about farm-environment connections; and facilitating knowledge sharing among the community through field days.

Conclusion

This pilot evaluation examined social outcomes experienced by landholders participating in large scale gully and streambank restoration projects in the Great Barrier Reef catchment, addressing a critical knowledge gap regarding long-term stewardship. While restoration programs have assumed landholders will maintain sites over time, this assumption has remained untested due to the absence of systematic long-term monitoring.

The findings reveal that when restoration projects align with landholders' economic interests, providing tangible benefits such as erosion control and property protection, participants develop strong satisfaction and positive maintenance intentions. The alignment between private motivations (protecting property value and productivity) and public environmental outcomes (reducing sediment flow to the Reef) creates favourable conditions for stewardship. Landholders overwhelmingly viewed their participation positively, with minimal perceived drawbacks and strong willingness to recommend projects to others.

However, a critical gap emerged between satisfaction and practice change. Around half of participants had not changed their land management practices despite being satisfied with restoration outcomes. This presents the most significant threat to long-term success, as preventing re-erosion requires changed practices around restored sites, not just passive maintenance of the restoration itself. The findings suggest that positive social outcomes and high satisfaction are necessary but not sufficient conditions for sustained stewardship.

Future restoration programs must move beyond assuming compliance to actively securing commitment for necessary management changes. The recommendations provide practical pathways for strengthening program longevity: explicitly documenting landholder commitments to specific practices, extending maintenance support beyond typical one-to-two-year periods, enhancing landholder involvement in project design, and planning for extreme weather events. As public investment in restoration continues, ensuring the durability of these projects through sustained landholder stewardship becomes essential for achieving meaningful and lasting water quality improvements for the Great Barrier Reef.

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