

Shared visions: can community conservation projects' outcomes inform on their likely contributions to national biodiversity goals?

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Abstract: In New Zealand, as in other developed nations, community-led conservation groups work to maintain and restore ecosystems and conserve indigenous biodiversity. These groups receive support in the form of materials, technical advice and funding from central and local government and non-governmental organisations, who are required increasingly to demonstrate delivery of benefits or conservation returns on investments. However, there is little empirical evidence for the objective evaluation of the effectiveness of community-based programmes in achieving national conservation outcomes. In the absence of such evidence, we investigated whether information on community groups' desired outcomes, gleaned from a sample of applications to a major national fund, could indicate their likely contributions to the outcomes in the national New Zealand Biodiversity Strategy. We assessed groups' outcomes in terms of their alignment with those in the strategy and against SMART (specific, measurable, achievable, relevant and time-bound) project evaluation criteria. Of 89 individual project proposals, 53% contained one or more identifiable outcomes that were aligned to the national strategy; the remainder contained no clear, identifiable outcome statement. Project outcomes, where present, tended to focus on increasing awareness of and participation in conservation, and making positive changes to terrestrial and freshwater habitats and to indigenous species. In our sample, none of the aligned project outcomes met all five SMART criteria, only seven were measurable and only three were time-bound. The absence of clear outcome statements in many, and of measurable outcomes in most, community group applications means that funders would struggle to conclude anything about conservation returns on investments from the information provided. Without clear and measurable outcomes, empirical evaluation of projects' effectiveness is impossible. We suggest that funding providers can facilitate project evaluation by presenting requirements and advice for specifying project outcomes in applications. Furthermore, they should provide technical and financial support for identifying what to monitor and how to do so.

Key words: biodiversity; community conservation groups; evaluation; national biodiversity strategy; New Zealand; outcomes; return-on-investment

Introduction

In developed countries there has been a significant change since the 1990s from solely government-agency-driven natural resource management to a more collaborative approach involving regional and local community-led projects (Pretty 2003; Koontz & Thomas 2006). This shift has been made both to work around the financial constraints faced by agencies and to take advantage of local knowledge, skills and resources and the social capital and motivation of local communities. There is also evidence that engaging communities early in environmental projects can lead to the maintenance of benefits beyond what may be possible for agencies to maintain (Pretty & Smith 2004).

Community conservation groups tend to be focused on a local area or asset, self-organised, not-for-profit, independent of government, and primarily voluntary, and can range in size from relatively informal collectives to quasi-corporate entities with formal legal structures and strategic processes (Forgie et al. 2001; Wilson 2005; Hardie-Boys 2010). Their goals are mainly environmental and social, with little emphasis on delivering economic outcomes (Peters et al. 2015). Such groups, although often less well trained and resourced than professional environmental agency staff, have other advantages: they are able to use local knowledge, are often highly motivated, and,

when projects are self-initiated, they are more likely to commit to longer-term stewardship of their local environment (Forgie et al. 2001; Pretty & Smith 2004).

To achieve their goals, community conservation groups rely frequently on support from central and local government and non-governmental organisations for materials, technical advice and, particularly, funding (Jones & McNamara 2014). Funding agencies, especially those distributing public funds, are increasingly required to demonstrate delivery of cost-effective benefits (Ferraro & Pattanayak 2006; Jones & McNamara 2014), and this expectation flows downstream with an expectation from funders that local groups deliver environmental gains corresponding to funder priorities in return for support (Forgie et al. 2001; Koontz & Thomas 2006). However, there is little published evidence to allow an objective evaluation of the effectiveness of community-based environmental management in achieving positive outcomes (Thomas & Koontz 2011; Biddle & Koontz 2014). This lack of evidence presents two problems for funding bodies: decisions have to be made about where to invest limited funds to maximise environmental returns on investments, and there is a subsequent need to demonstrate value for money from that expenditure to taxpayers, ratepayers and wider stakeholders. These problems may be alleviated if funded community programmes are encouraged and supported to demonstrate explicitly that their

aims (their local conservation project objectives) align with high-level (national or regional) outcomes for natural resource management and demonstrate contributions to achieving those outcomes. As with any environmental conservation initiative, assessment of value from investment requires an estimate of the effectiveness of the programme in achieving its goals, specifically in terms of outcomes for the environmental asset or wider community (Kleiman et al. 2000; Ferraro & Pattanayak 2006). This assessment is arguably best achieved using programme performance measurement (PPM), whereby intended levels of achievement for all stages of a project are defined at its initiation and used thereafter to define 'success' (Margoluis et al. 2009; Biddle & Koontz 2014; Mascia et al. 2014).

The adoption of new public management (NPM) reforms in the 1980s altered the New Zealand government's approach to defining strategic outcomes and specifying the outputs required to achieve these outcomes. Prior to NPM, New Zealand's public service focused on process accountability; after the reforms it focused on accountability for results (Bach & Bordogna 2011). Accountability for results was achieved by measuring performance through quantifiable outputs, a process that was strengthened by testing 'with well-defined output performance indicators' to determine whether the strategy taken was successful or not (Klijn 2012). As a result of NPM reforms, the measurement and reporting of achievement by public and community agencies was almost entirely compliance or activity based. Rules were followed and work was done with little or no indication of what progress had been achieved relative to what was planned. Reviews of New Zealand's public service argued that NPM had emphasised measuring quantifiable outputs to such an extent that medium- to long-term planning had been neglected (Schick 1996; State Services Commission 2001). More recently, PPM has meant a shift in focus away from whether or not outputs are being delivered, to the harder question of how those outputs contribute to high-level system outcomes and whether the approach taken is the most efficient and effective way to achieve those outcomes (Schacter 2002; Mascia et al. 2014). Although aimed initially at government departments and organisations, performance measurement can be relatively simple, inexpensive and applied readily to local, community-based projects across a range of scales (Kobori et al. 2016). Simply by setting clear goals and checking progress towards them, funded projects can demonstrate to investors that they are making a difference where it matters and that funds have been spent wisely.

Programme performance management: approach and terminology

PPM involves identifying one or more desired outcomes (changes in the state or condition of a targeted asset, such as habitat, biodiversity, social condition or behaviour), shorter-term intermediate outcomes (more immediate, measurable changes in the above), outputs (what is produced from programme activities), and the activities or interventions required to achieve the resulting steps. These components can be linked, linearly and graphically, in a 'causal chain' or logic model to illustrate how each leads to the next, and appropriate indicators or measures of achievement can be assigned to each step (Millar et al. 2001; Kellogg Foundation 2004; Hatry 2006). Therefore, ideally, a funder's return on investment in a conservation programme would be assessed based on whether the programme has achieved its stated outcomes, but measurable benefits from interventions in the natural

environment frequently take years, or even decades, to accrue. These time periods are likely to be well beyond the duration of most grants, so other, more short-term, assessments of success may be required, which is where a focus on intermediate outcomes in a logical chain has value.

As a first stage in evaluating a programme, there is some evidence that focusing on the clarity and quality of the stated outcomes may indicate likelihood of success. For example, Biddle and Koontz (2014) found that setting clear, outcome-driven goals may be a useful proxy measure of performance for collaborative resource management programmes. Furthermore, the setting of, and agreement of all partners on, programme outcomes as success criteria is an essential component of effective programme design (Kleiman et al. 2000; Kapos et al. 2009; Galbraith et al. 2016).

To begin the evaluation of the contribution of community-led conservation programmes to national biodiversity targets, we explored how the proposed outcomes in a sample of applications from community programmes to a national New Zealand funding provider aligned with national biodiversity outcomes contained in the New Zealand Biodiversity Strategy (NZBS; Department of Conservation and Ministry for the Environment 2000). We also assessed the quality of the stated outcomes against standard SMART (specific, measurable, achievable, relevant, time-limited) evaluation criteria for measurable goals in order to assess the quality of information the applications provided to funders and other evaluators. SMART criteria are used widely in programme evaluation, including in natural resource management (Doran 1981; Bjerke & Renger 2017).

Methods

Community conservation in New Zealand

Conservation management in New Zealand is aimed at mitigating the impacts of introduced predatory and browsing mammals, invasive weeds (including wilding conifers), and human-induced habitat loss and modification. The central government Department of Conservation (DOC) is responsible for the management of natural and historical assets on approximately 8.6 million hectares of Crown land. Similarly, 11 regional councils and a further six unitary authorities manage declared plant and animal pests of significance in each region or district. Management varies according to the classification of each pest or weed relative to its perceived risk and impact and is justified in terms of the relevant authority's community outcomes.

In addition to this agency-led management, community groups are involved actively in efforts to maintain and restore ecosystems and conserve indigenous biodiversity across New Zealand (Jay 2005). The number of projects undertaken by community groups is substantial. Green and Clarkson (2005) reported there may have been as many as 3000 to 5000 community-led and private conservation projects underway in New Zealand in 2005. In a 2007 survey of DOC community partners, 201 groups responded, reporting that they involved 6232 volunteers who gave 174 812 hours of labour over a year, equating to a total financial contribution of NZ\$15.8 million (Hardie-Boys 2010). More recently, DOC reported that it was supporting 887 community partnerships (DOC 2016). Other estimates suggest that the total number of community members engaged in conservation activities nationally number in the tens of thousands (Handford 2011).

Community conservation efforts are focused typically on environmental and social goals and are funded by a range of contestable central and local government funds, philanthropic trusts and other non-government organisations (Peters et al. 2015; McNamara & Jones 2016). Investment in community-led conservation is considerable; for example, in the year ended 30 June 2013, three New Zealand central government contestable funds provided NZ\$10.5 million of financial assistance (NZOAG 2012; McNamara & Jones 2016). The 2015 funding round for DOC's Community Fund allocated more than NZ\$8 million to support 120 community groups, and the New Zealand Lotteries Environment and Heritage Fund provided nearly NZ\$3 million to natural heritage projects during the same period (DOC 2016; Department of Internal Affairs, pers. comm., 2017).

Data

To obtain a snapshot of the desired outcomes of community-led conservation projects we examined applications to a national fund, the Lottery Grants Board Environment and Heritage Fund (the Fund), which is administered by the New Zealand government's Department of Internal Affairs. The Fund has three categories: natural heritage, physical heritage and cultural heritage. The natural heritage category is aimed at projects that seek to:

- protect and restore habitats and ecosystems for native plants or animals
- protect and conserve native plants or animals that are rare, in danger or at risk in their habitats
- improve public access and information about native plants and animals.

As part of the application process, applicants must 'describe the condition of the area and why it needs to be restored, and provide a standard to measure the success of the project against' (DIA 2017). We requested information on all applications made under the natural heritage category between 2011/12 and 2015/16. We were interested in all applications, not just the subset that were funded, as the latter would likely bias the results of our study in favour of those applications more likely to align with higher-order national conservation goals. No information was sought on whether applications had been successful or that might allow groups and/or individuals to be identified. All original applicants were contacted by DIA staff and informed of the request for information and the reasons for it.

Analyses

We received extracted data from 160 funding applications, of which 91 included a section on the 'community outcomes to be achieved by the proposed project'. The remaining 69 applications, which originated from a now-superseded online grants management system that did not collate data on community outcomes, were excluded from further analyses. Of the resulting 91 applications, we excluded a further two that clearly replicated others, probably representing different funding bids from a project in different years. We first reviewed the text in each application's 'community outcomes' section to identify and extract outcome statements, which ranged from whole sentences to key phrases describing a desired change. This was necessary because text in this section of the applications ranged from 19 to 919 words in length. We used the following definition, developed for the natural resources

sector, when identifying conservation outcomes in the text (Jones et al. 2012). 'Outcomes are the desired states of the community, biological system or production sector that the programme aims to achieve. Examples include improved ecosystem health, increased native bird numbers, reduced crop losses to bird pests, and local communities more aware of and contributing to environmental management. Outcomes are usually specified in terms of:

- conditions (biological or physical changes in a system)
- learning, including enhancements to knowledge, understanding, perceptions, attitudes and behaviours ('social' outcomes)
- skills (changed behaviours to accomplish results, or capabilities).'

Both authors reviewed the applications independently before comparing findings to reach consensus on outcomes in the text.

Next, we used the qualitative data analysis software NVivo (NVivo qualitative data analysis software; QSR International Pty Ltd. Version 10, 2012) to search for the most frequently occurring terms in the extracted community outcomes. We then used the software's word tree analysis function to give us an understanding of the conceptual linkages between any participle adjectives (e.g. 'improved', 'increased', 'restored') and the object of their action; or, in other words, what was to be improved, increased or restored in the community conservation group's proposal.

As an indicator of the alignment between community groups' desired outcomes and their national-level analogues, we then compared the extracted community outcomes with outcome statements from the NZBS. The Strategy is structured around 10 themes, each of which encompasses a series of desired outcomes to be achieved by 2020 (see Appendix S1 in Supplementary Material). Four of the themes (nos. 5, 6, 9 and 10) are targeted clearly at national-level structures and processes and the agencies that deliver them. Thus, we excluded these from our analyses. We focused on the 41 outcome statements from the remaining six NZBS themes that were of potential relevance to community-led initiatives.

Again working independently at first, we assigned each extracted outcome from the community applications to the most similar outcome from the NZBS, as appropriate. Any community group outcomes that did not align to one from the NZBS were assigned to a common 'other' grouping. Here and throughout we assumed that commonality between community outcomes and NZBS outcomes was an indicator of the degree to which community groups contribute to national biodiversity goals.

For any future assessment of a project's success in achieving its stated outcomes and, subsequently, of any conservation return on investment by the funder, it is essential that those outcomes provide enough clarity and detail to make them measurable. Therefore, we assessed each community outcome in the funding applications against the SMART criteria. We did this via a simple scoring process, recording whether an outcome met the following criteria:

- i. **specific:** i.e. defines what will change, where and/or by how much; is clear and easy for all stakeholders to understand
- ii. **measurable:** i.e. easily appraised; quantitative; includes information on a standard scale (e.g. number, percentage); uses data that are readily available or easy for non-experts to collect
- iii. **achievable:** i.e. realistic given the project parameters;

action-oriented; actors are reasonably likely to have the necessary resources, skills, capacity and information to implement the project successfully (achievability was clearly our subjective assessment, but was assessed based on proximity and strength of links between project scope and desired outcome)

- iv. **relevant:** i.e. aligned with national goals
- v. **time-bound:** i.e. included a date by which the outcome would be achieved.

Results

Of the 89 individual project proposals with useful information on what the funding application referred to as ‘community outcomes’, 47 (53%) mentioned one or more outcomes corresponding to our operating definition of the term (above). The remainder described what would be done if the project was funded or what the direct outputs of activities would be, or attempted to justify the need for the project. In these cases it was unclear exactly what difference the project hoped to make.

Further insight into the groups’ aspirations was revealed by our word frequency analysis. Here the most commonly used concepts in the ‘community outcomes’ section of the

applications were ‘awareness’, ‘biodiversity,’ ‘community’ and ‘conservation’ (Table 1). More detailed analysis showed that the five most commonly used participle adjectives were ‘increased’, ‘restored’, ‘improved’ and ‘enhanced.’ The word root ‘increas*’ was used mostly in association with social benefits such as community awareness, community support, farming participation and involvement, while ‘restor*’ linkages showed that the applicants planned to focus on biophysical (habitats, ecosystems, species) rather than social environments. In contrast, ‘improv*’, was most commonly associated with outcomes referring to freshwater quality.

Most commonly (n = 19) only one outcome was identified, but a further 14 and 10 applications mentioned two or three outcomes, respectively, with one application mentioning six desired outcomes from the proposed project. Of those applications in which we were able to identify outcomes, 27 (30%) aligned with the NZBS theme of ‘community participation and awareness’, whereas 25 (28%) aligned with the NZBS theme of ‘biodiversity on land’. Fewer proposals focused specifically on marine and freshwater environments, and none aligned with the theme of conserving genetic resources (Table 2).

The distribution of aligned community outcomes against national strategic outcomes provided a more detailed picture

Table 1. Frequencies of use of the most commonly included words (including ‘stemmed’ words sharing the same root) from 81 outcome-based goal statements identified in a sample of applications to the New Zealand Lottery Grants Board Environment and Heritage Fund. Weighted percentage refers to the frequency of the word relative to the total words counted. The value is weighted to account for the potential for part of the word to be a component of other words.

Term	Count	Weighted percentage	Stemmed words
Increased	21	3.66	increase, increased, increases, increasing
Restoration	19	3.32	restore, restored, restoring
Awareness	15	2.62	
Biodiversity	15	2.62	
Community	14	2.44	communities
Improved	13	2.27	improve, improves, improving
Conservation	11	1.92	conserve
Enhance	11	1.92	enhanced, enhancing, enhancement
Habitat	10	1.75	habitats
Native	9	1.57	
Local	8	1.40	locally
Species	8	1.40	
Participation	7	1.22	participate
Populations	7	1.22	population
Quality	7	1.22	
Water	7	1.22	
Kiwi	6	1.05	
Significance	6	1.05	significant
Sustaining	6	1.05	sustained, sustainable, sustaining

Table 2. Alignment of a sample of applications to the New Zealand Lottery Grants Board Environment and Heritage Fund containing identifiable outcomes (n = 47) with themes in the NZBS.

Theme	Number of aligned applications	Percentage of applications
1. Biodiversity on land	25	53
2. Freshwater biodiversity	11	23
3. Coastal and marine biodiversity	8	17
4. Conservation and use of genetic resources	0	0
7. Māori and biodiversity	4	9
8. Community participation and awareness	27	57
9. Other (ex-strategy)	6	13

Table 3. Alignment of identifiable community group funding application outcomes with NZBS outcomes. Note: only the six most commonly aligned NZBS outcomes are shown.

Strategy outcome	No. of aligned applications	Percentage of applications with identifiable outcomes (n = 47)	Percentage of all applications (n = 89)
Children and adults are learning about biodiversity through schools, polytechnics and universities and community programmes, and are actively involved in its care.	17	36	19
Populations of all indigenous species and subspecies are sustained in natural or semi-natural habitats, and their genetic diversity is maintained.	14	30	16
New Zealanders have embraced a vision for conserving and sustainably using biodiversity. They have an enhanced and broader appreciation of New Zealand's biodiversity and better understand the indigenous species, habitats and ecosystems associated with the places where they live – on farms, in and around towns and cities, and in the surrounding natural areas.	13	28	15
A net gain has been made in the extent and condition of natural habitats and ecosystems important for indigenous biodiversity.	9	19	10
The extent and condition of remaining natural freshwater ecosystems and habitats are maintained.	7	15	8
Individuals within management agencies, researchers and professionals, private resource managers (and users), iwi and hapu and the wider community know and respect each other's roles in biodiversity management and are sharing their knowledge. Each group has sufficient information and capability and is actively incorporating biodiversity priorities in its management programmes, businesses and day-to-day activities. All are involved in, and contributing in some way, towards the achievement of New Zealand's biodiversity goals.	4	9	4

of groups' aspirations (Table 3). Community project outcomes aligned with only a small subset of NZBS outcomes: of 42 outcomes identified in the six relevant themes of the Strategy, community groups aligned with 20, with most applications (72%) aligning with the six outcomes listed in Table 3. This alignment illustrated a clear focus of community groups on (1) increasing awareness of and participation in conservation, and (2) making positive changes to terrestrial and freshwater habitats and to indigenous species. This narrow focus indicates that the conservation outcomes in the NZBS are far broader in scope than the projects envisioned by community conservation groups in New Zealand.

In assessing the community groups' outcomes against the SMART criteria, we considered that only seven of the 47 applications met four of the five criteria (six met SMAR; one met SMRT). These seven were notable as they were the only outcomes meeting the 'measurable' criterion. Examples included, 'enhance the survival and growth of [species] on private land in XX District' and 'increased community awareness of [the project site] and the natural values and significance of the area.' Three outcomes were time-bound; no others specified when outcomes might accrue. The majority of community outcome statements (27, or 57%) aligned with the single SMART criterion 'relevance'.

Discussion

The majority of community conservation groups in our sample of funding applications, and for which we were able to identify outcomes, aimed to increase local awareness of issues affecting native biodiversity and/or to turn this awareness into active involvement in protecting natural habitats and the species within them. Other frequently mentioned outcomes involved focusing more directly on improving the condition of terrestrial and freshwater habitats and species. Our findings correspond broadly with those of other recent summaries of community conservation efforts in New Zealand; both Hardie-Boys (2010) and Peters et al. (2015) reported a similar focus on environmental and social outcomes. Groups target their efforts on restoration and protection of local habitats in particular, with an emphasis on forests, waterways and wetlands (Peters et al. 2015; Galbraith et al. 2016).

Wilson (2005) warns that local conservation goals may not reflect national or other agency priorities. The outcomes that we were able to identify from the funding applications reflect groups' desire to make a difference, primarily at local scales. However, in the 53% of applications containing outcome statements, there was a high degree of alignment with outcomes in the national NZBS. Although the distribution of community

group outcomes was relatively narrow compared to the scope of the NZBS, all community outcome texts corresponded to at least one outcome in the Strategy. This correspondence suggests that the proposed projects have at least the potential to contribute to national biodiversity outcomes.

Specifying outcomes vs outputs

Although the alignment between identifiable community group outcomes and those in the Strategy is encouraging, there are still significant barriers to using project designs as an early indicator of the likely conservation returns on investment for funders. In our sample, 47% of funding applications contained no clear and identifiable outcome statement, so it was impossible to ascertain their alignment with national outcomes. Text in the 'community outcomes' section of these applications contained frequent references to the planned activities, the methods to be used, and the justification for the project, based on repeated descriptions of the environmental problem the project aimed to solve. Many of this group of applications focused on outputs (e.g. plans, new infrastructure) as end-points, which were also detailed in another section of the application, 'Achievement Proof'. In part, this is understandable because plan preparation is one of the groups of activities the funding scheme supports and also because outputs generally represent what is achievable during the life of the project. Furthermore, they demonstrate meeting contractual obligations to the funders and may also be driven by a general emphasis from funders on reporting management outputs rather than outcomes (Peters et al. 2016). However, a number of authors have cautioned against the use of outputs as indicators of a project's success unless there are robust causative mechanisms linking those outputs to desired outcomes (Tear et al. 2005; Ferraro & Pattanayak 2006; Thomas & Koontz 2011). A general focus on outputs without evidence of these links assumes that output production will lead to positive environmental change, yet the degree of implementation of project actions can be a poor indicator of success (Kapos et al. 2009). Where conservation is output-driven, there can be significant declines in levels of environmental protection compared with programmes where outcome-driven performance targets are used (Svancara et al. 2005).

Evaluating success and performance of projects

No programme can be evaluated effectively unless the criteria for its success are defined at its initiation (Kleiman et al. 2000; Galbraith et al. 2016). The first step in programme design should be to define the programme's objectives clearly so that managers, stakeholders and funders have something against which to measure delivery and performance (Possingham et al. 2001; Murdoch et al. 2007; Day 2008). Such clarity and precision can be provided by checking project outcomes against the SMART criteria, a simple framework that has been used extensively to evaluate objectives in a wide range of fields, including natural resource management (Day 2008; Schroeder 2009; Bjerke & Renger 2017). In our sample, no outcomes met all five of the SMART criteria, only seven were measurable and only three were time-bound. Conservation programmes, whether run by government agencies at large scales or by community groups in their local area, aim to make a positive difference to the natural environment. In the absence of clear and measurable objectives, it is impossible to evaluate the degree to which this is achieved. Indeed, some studies have suggested that the setting of clear programme outcomes is a

better indicator of the likelihood of the project's success than the degree to which its planned activities are implemented (Forgie et al. 2001; Kapos et al. 2009; Biddle & Koontz 2014). Although this issue has been reported in reviews of community-led conservation initiatives (e.g. Galbraith et al. 2016), it is not confined to community groups; others note the use of vague, abstract and ambiguous terminology (e.g. 'to protect biodiversity') in management agency planning and policy documents (Tear et al. 2005; Day 2008; Schroeder 2009).

As well as defining a project's success, clear outcomes facilitate the design of monitoring for performance evaluation, defined by Possingham et al. (2001, p. 226) as 'monitoring explicitly designed to assist decision-making and management.' Without some form of evaluation against predetermined objectives or outcomes, the effectiveness of conservation initiatives is assessed on little more than 'case study narratives' (Ferraro & Pattanayak 2006). By defining outcomes clearly and unambiguously, project managers can determine easily what is important to measure to evaluate success. Without this clarity (e.g. what does one measure to evaluate whether biodiversity is 'protected?'), monitoring will tend to focus on what is done (activities) or produced (outputs), and subsequent reporting will be based on efficiency rather than a project's effectiveness in making a difference. A focus on reporting outputs meant that only 16% of US habitat conservation plans reviewed by Kareiva et al. (1999) included monitoring capable of informing on progress towards achieving outcomes.

Use of SMART project evaluation criteria

In New Zealand, community groups rate their contribution to conservation subjectively as moderate to high (Hardie-Boys 2010), but there is little emphasis on monitoring against project milestones to demonstrate success objectively (Galbraith et al. 2016; Peters et al. 2016). This lack of objective monitoring is likely to stem from a number of factors, including a negative perception of the need for evaluation by community group members, who want to push on with taking action, in association with a general lack of institutional drivers and support for outcome monitoring (Jones & McNamara 2014). If funders' reporting requirements are focused on project outputs, there is little incentive and no technical or financial support for groups to define or monitor outcomes (Forgie et al. 2001; Koontz & Thomas 2006; Peters et al. 2016). In a recent review of eight major competitive funds for community-led conservation in New Zealand, two included eligibility criteria requiring alignment with strategic conservation priorities, while only one funder asked applicants for information on how project effectiveness would be monitored, evaluated and reviewed, and requested SMART key performance indicators (McNamara & Jones 2016). DOC invested more than NZ\$8 000 000 in 2015/16 in partnerships with community conservation groups, but the only performance indicators reported by the Department are based on the numbers of partnerships, volunteer workday equivalents and 'knowledge and skill-sharing initiatives', with no mention of the differences that such investments make to conservation outcomes beyond a single 'case study narrative' (DOC 2016). This is not an issue unique to New Zealand: international studies have painted a similar picture of significant investments into community conservation initiatives without any robust empirical evidence of their effectiveness in achieving positive environmental outcomes (Koontz & Thomas 2006; Thomas & Koontz 2011; Biddle & Koontz 2014).

Project return on investment

The concept of return on investment is a fundamental principle for evaluating and comparing investment opportunities in business and economics, whereby investors choose to invest in those where rates of relative return are highest (Murdoch et al. 2007). It is concerning that these principles are not applied to the investment of tax and ratepayer dollars into conservation funding. If community-led conservation projects are to demonstrate a return on funders' investments, they will need to overcome a series of challenges common to the evaluation of any programme of natural resource management and conservation, including:

- the likely time-lag between actions and environmental responses – natural systems may take considerable time for measurable changes to accrue, often beyond the duration of project funding
- a perceived difficulty in attributing environmental responses to actions taken in what are often complex and variable natural systems
- the costs and technical requirements of collecting robust data on outcomes.

The first two challenges can be overcome during a project's planning stage through the use of a simple logic modelling approach (Thomas & Koontz 2011). Where time-lag prevents a project from reporting on its end outcomes, shorter-term system or behavioural changes (intermediate outcomes) can be identified that will lead to the desired end state. These changes can act as proxy indicators for the end outcomes. Similarly, to address the challenge of causal attribution, the programme logic model needs an accompanying 'performance story' that:

- argues convincingly, based on strong evidence wherever possible, that activities and outputs are likely to contribute to ultimate outcomes (the programme's documented theory of change)
- demonstrates that activities and outputs are contributing to outcomes at some more measurable level (intermediate outcomes and their associated performance indicators)
- communicates clearly and explicitly the logical steps in linking inputs to outcomes.

The existing literature on the science and practice of pest and weed management, ecology and biodiversity conservation contains much valuable information about the success and failure of past management activities. This information can provide managers with varying levels of support for the causal pathways that may be proposed in logic models (Kellogg Foundation 2004; The Heinz Center 2009; Jones et al. 2012). The application of an intervention logic approach does not mean that community groups need to become experts in programme evaluation, as model development should be a relatively simple process if groups are supported to do so.

The third challenge to project evaluation is to provide groups with adequate funding and technical support in both project design and outcome monitoring. This must be driven by funding providers, both via requirements for specifying clear project outcomes (and providing applicants with advice on how to do this) in applications and by providing the technical and financial support to identify what to monitor and how to do so. We echo the concerns of Galbraith et al. (2016) that demands for technical support from community conservation groups in New Zealand are increasing at the same time as reductions occur in the numbers of agency technical staff able to provide that advice. Funders can have a significant influence on what

is done, how it is monitored and how projects are evaluated (Koontz & Thomas 2006; Jones & McNamara 2014; Peters et al. 2016). By demanding and supporting robust, but simple, project design standards and emphasising the achievement of outcomes – not activities – as measures of success, they can better support community conservation groups to demonstrate the real differences they make in return for the investments received.

Conclusion

In New Zealand, as in other developed nations, community-led conservation groups work to maintain and restore ecosystems and conserve indigenous biodiversity. The majority of such groups receive financial and technical inputs from funders to whom groups must apply for support. We reviewed a sample of applications to see if groups' intended outcomes indicated their likelihood of contributing to national biodiversity outcomes and therefore a return on conservation investment to the funders. Just over half of the 81 applications contained one or more identifiable outcomes that were aligned to the national strategy; the remainder contained no clear, identifiable outcome statement. The absence of clear outcome statements in many, and of measurable outcomes in most, community group applications means that funders would struggle to conclude anything about conservation returns on investments from the information provided. Without clear, measurable outcomes, empirical evaluation of projects' effectiveness or value for money is impossible. We suggest that funding providers can facilitate project evaluation by presenting requirements and advice for specifying project outcomes in applications. Furthermore, they should provide technical and financial support to community groups for identifying what to monitor and how to do so.

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Supplementary Material

Additional supporting information may be found in the online version of this article:

Appendix S1. Relevant themes and outcomes from the NZBS and the number of identifiable community group funding application outcomes aligned to each.

The New Zealand Journal of Ecology provides online supporting information supplied by the authors where this may assist readers. Such materials are peer-reviewed and copy-edited but any issues relating to this information (other than missing files) should be addressed to the authors.