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WWF-NZ Conservation Fund Project Monitoring Toolkit 2022




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Project Monitoring Toolkit

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Foreword

Community ecological restoration groups face significant challenges: raising funds, building and maintaining community support, ensuring their projects can be sustained into the future to name a few. Project monitoring is critical not only to measure the project outcomes but also to keep group's momentum going, but with so many challenges faced, project monitoring often is not a priority.

WWF and their Conservation Fund (CF) Advisors identified that project indicators need to be developed so that conservation gains of projects can be measured and assessed. As the Fund provides the social context for conservation, there is also a need for social and economic indicators.

These guidelines have been developed to assist with:

- Demonstrating the level of success of projects that the CF & The Tindall Foundation have invested in.
- Providing feedback, support and advice to grantees. Celebrating the achievements made, plus identifying any weaknesses and facilitating help to address them.
- Helping groups keep their momentum and continue with monitoring that is already in place
- Providing a feedback loop for information on the success of projects to maximise the long-term benefit from projects and from the CF.
- Provide practical guidelines to help groups collect information that may be required in reports to funders

Development of these guidelines has followed a survey of all groups who have received grants from the Conservation Fund, which assisted in identifying the key interests of groups and the level of monitoring guidance likely to be most useful. This has resulted in these guidelines focusing initially on simple project records systems as an essential component of project monitoring. The document is deliberately intended as a guideline that groups can access – not as a set of requirements. It is expected that the approaches provided will evolve and be improved over time through the input and experiences of groups.

WWF New Zealand intends to continue to support and develop these guidelines as a key component of ensuring the long-term success of the Conservation Fund Projects.

Contents

1. Introduction

1.1 Using the Monitoring Guidelines

These guidelines provide individuals and groups undertaking habitat protection projects with some initial help to monitor their project. The guidelines have been developed by WWF New Zealand in order to support groups receiving grants from the Conservation Fund. It is expected that these guidelines will also be useful to many others involved in habitat protection and biodiversity enhancement projects.

The Conservation Fund criteria cover a wide range of areas from conservation significance to local employment and environmental education. Consequently, projects funded have diverse objectives and monitoring is needed that encompasses this. Monitoring considered in these guidelines covers:

- Habitat and Ecological Gains
- Social Context / Community Gains
- Economic Gains

Attention is also given to two key areas of *project management* and *"learnings"* (or issues and innovations). These areas form important components of a successful project and some consideration of monitoring performance in these areas is important.

Structure of the Guidelines
These guidelines have been structured to encourage their use as a resource that can be "dipped into", and the most relevant and useful parts used. Habitat protection and restoration projects are very diverse in their scale and in the resources they are dealing with. Consequently, different projects will get value from different parts of these guidelines.

The guidelines and various record formats provided here are intended as an important resource for use by groups. They will never be the perfect answer and will always be open to improvement. The evolution and development of these guidelines by users is welcomed.

A summary of planning for your project is provided in section 1.2 and is recommended reading for everyone. It gives a quick overview of the steps in setting a good foundation for your project and how monitoring should be integrated with your whole project plan.

Section 2 sets out a range of basic record keeping systems that may be important to your project and can be used to provide simple monitoring, particularly of operations or "outputs". Keeping basic project records is an essential minimum requirement for all habitat protection projects. However, the records kept and the level of detail will vary depending on what is appropriate for the type and scale of project.

Guidelines for developing specific monitoring for your particular project are provided in Section 3. A process to work through in developing monitoring for your project is set out in section 3.1. A summary of some commonly used monitoring kits and other resources that are available to projects to assist with monitoring is provided in Section 3.2.

1.2 What is monitoring?

Monitoring is the assessment of change in some specific characteristic(s) over time, or between different areas. For example:

- Monitoring the change in possum populations from the start of our project, as we introduce and intensify possum trapping and then bait station operations;
- Monitoring how invertebrate communities in a stream have changed since we have fenced and planted along its length;
- Monitoring how invertebrate communities differ between streams with mainly overhanging native vegetation and streams with pasture and stock access to the waters edge;
- Monitoring how community understanding of the impact of land use on water quality has changed over the period since our project was established.

The characteristics we measure are referred to as **"Indicators"**. These are specific characteristics that can be measured to give an indication of some important aspect of environmental condition. For example, the diversity and abundance of aquatic invertebrates is a useful indicator of water quality – we can assess these populations to see what is happening with water quality.

Monitoring is usually grouped into two broad areas:

- **Operational (or Output) Monitoring:** This is monitoring that measures changes in the operations or things that you do as part of the project. For example, how many possums have you killed, how many community talks have you given, how many trees have you grown, what length of stream have you fenced and planted. This type of monitoring is useful to show what you have done, but it doesn't tell you what impact you have had.

- **Outcome Monitoring:** This is monitoring of what the actual impacts of your operations were. For example, how much has water quality improved following fencing and planting of the stream? How have bird numbers changed since you have trapped and poisoned possums and rodents?

1.3 Why is Monitoring Important?

Without some form of monitoring, we will be undertaking habitat protection and restoration projects with no way of knowing whether we are achieving anything. How do we know if we are getting anything done, and what impact is it having? Monitoring is an essential part of the project.

Monitoring is essential to evaluate how well different parts of the project have worked. This allows us to build on the areas that worked well and improve the others – so we can practice "adaptive management" and learn by doing. Without monitoring we are "flying blind" rather than seeing and understanding the changes resulting from our actions. This can result in resources being put into work that is not achieving useful results while other areas are forgotten.

We need monitoring to be able to report what is happening - to our members, the community, our supporters and funders. If we can't provide some form of monitoring results that show the benefits that are being achieved, it is easy to lose the support of these groups and individuals.

Demonstrating positive trends in native bird populations, improvement in forest understoreys and reduction in pest numbers are real and tangible benefits that projects can potentially show – but only with effective monitoring.

Habitat protection and restoration projects are often a long-term undertaking. We may not see the final results for a long time, but monitoring allows us to show we are moving toward them.

Significant amounts of money are often being invested in habitat protection and restoration projects by funding organisations such as private fund managers, central and local government. It is important to be able to demonstrate through monitoring that conservation returns are being generated from this investment.

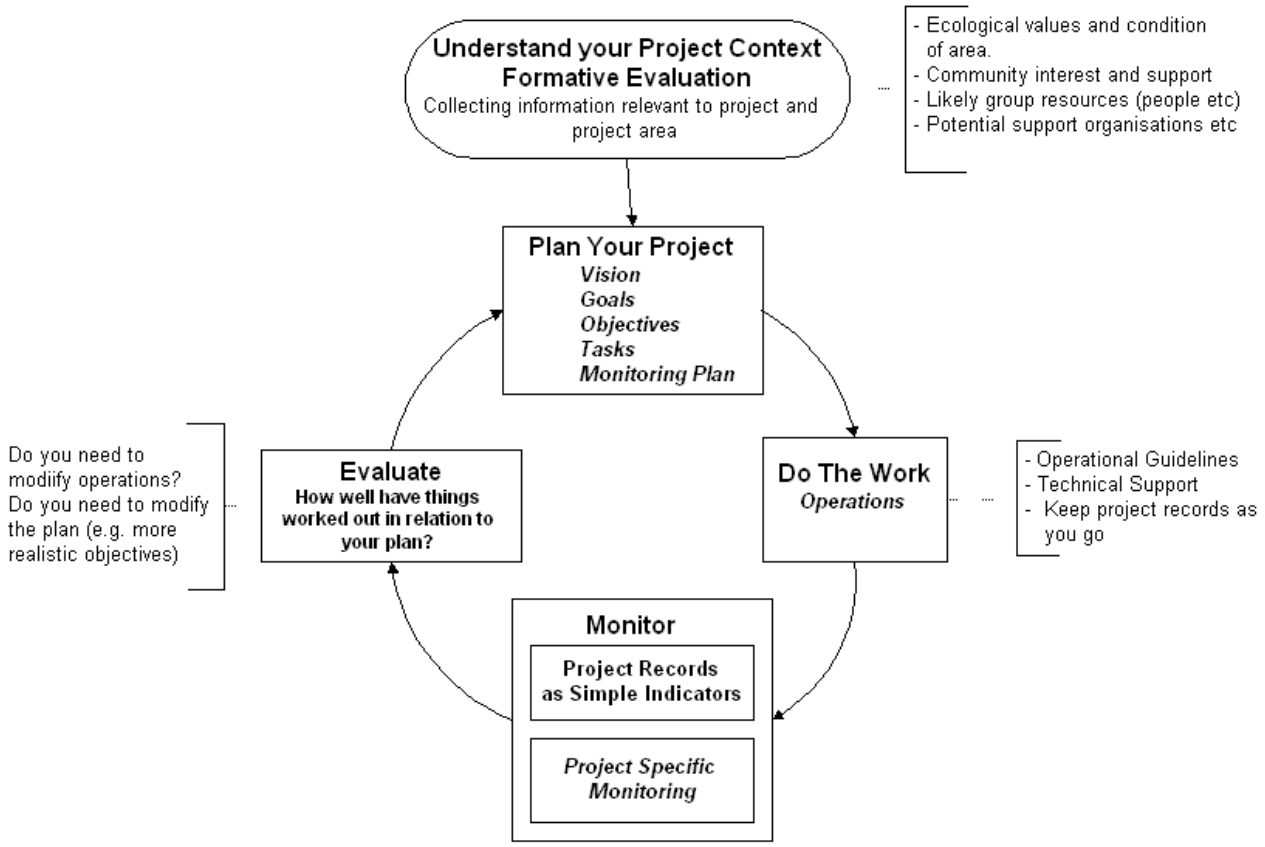
Monitoring is an important and essential component of any habitat protection and restoration project. As a rule of thumb, around 10% of project resources should go into monitoring and evaluation.

1.4 Monitoring as an essential part of project management

These guidelines are focused on monitoring, and are not intended to provide a complete guide to planning a project. However, monitoring is all about seeing how your project is going in relation to what you wanted to achieve – so a basic overview of planning is essential.

1.4.1 The project cycle

A simple representation of the project cycle, and where monitoring fits in, is set out below. Each section in this project cycle is then briefly explained.



Understanding your Project Context

In order to plan your project effectively you need a good initial understanding of the relevant project area, species, community etc. Gain as much easily accessed information as you can about the area and the habitats you are dealing with before you start. Talking with people from organisations such as the Department of Conservation and regional councils will help make sure you have any readily available information and knowledge. Information that is often useful to gather or brainstorm about at the start of a project includes:

- Boundaries of the project area;
- Maps and aerial photos of the area;
- Base information on the natural area, species, and vegetation communities that you are working with on your project;

- Understanding the basic natural values, condition and threats present on a site. If possible, rank values and threats in terms of order of importance:
    - Include animal and plant pests (weeds).
    - Assess the threat posed by weeds present in the project area, and in adjacent areas from which they could invade.
- Plant and animal species of the wider ecological district (including species that are likely to have been in your project area in the past);
- Likely level of community interest;
- Key stakeholders – who will be interested and affected, who do you need to involve;
- What are your likely initial resources going to be – number of people and funds (set yourself realistic objectives).

It is often important to do some basic assessment on site to gather information, particularly where there is little information or knowledge present. Approaches are available for some ecosystems that may help you with this initial assessment. For example the FORMAK Site Assessment, or Visual Bush assessment for forests. Stream monitoring kits such as SHMAK, Stream Sense or the Waterway Self Assessment Scale can be useful to do this.

Planning Your Project

The key steps in developing a plan, once you have gathered some initial context information, are set out below. Once again, this is intended only as an introduction on planning, not a full "how to" guide.

Developing a project vision

This is the long-term vision - what you aim to achieve over 10 years plus. What would you want to see when you visit the site in 15 years?

The vision should be:
- Inspiring to the whole group;
- Relatively general – so that it encompasses all project activities;
- Brief and easy to understand – so it can be easily communicated and remembered;
- Able to be assessed – worded in a way that you could track progress toward it.

For example:
- *Bringing back the call of the kiwi to the ….. Reserve.*
- *Creating a corridor of safe habitat for native birds from … to ….*
- *Restoring the ….. waterway to bring back the whitebait.*

Goals

Break down your vision into a number of key (but still quite general) areas of work that are essential to achieving the vision. For example:
- *Building support from local landowners and community.*
- *Healthy forest understorey.*
- *Reducing nutrient run off.*

These goals will help you narrow down your vision into something shorter term – and will enable you to develop more useful objectives.

Objectives

Identify more specific objectives under the vision statement (for example, things we intend to achieve over the next 5 years). Objectives should be SMART:

- ***S**pecific:* Make sure your objectives are clearly defined so that people involved in the project have the same understanding of what the objective means. They should be impact oriented - representing some key change in improving values or reducing threats that takes you toward your goals and vision.
- ***M**easurable:* Able to be defined in relation to some standard scale (e.g., numbers, percentages, fractions, yes/no state).
- ***A**chievable:* There are adequate methods and knowledge available that make it possible to achieve the objective (e.g., animal control methods are available for the species).
- ***R**ealistic:* They are practical and likely to be achieved given the project site, resources available etc. For example, it is achievable to eradicate possums from all of New Zealand with current technology, but this would not be realistic due to vast expense and other issues involved.
- ***T**ime limited:* Achievable within a specific period of time.

When dealing with natural ecosystems, it can sometimes be difficult to determine accurate timeframes – but a best attempt should always be made.

Examples of objectives could be:

- *Establishing and maintaining a stock proof fence around the entire area within 2 years.*
- *Contain the spread of boneseed so that no new infestations are found within 2 years.*
- *Undertaking fencing and riparian planting on 25% of properties in the catchment within 5 years.*
- *Increasing palatable seedling numbers by 50% within 5 years.*
- *Contain tradescantia within zone 1 (ongoing).*

Tasks – Providing a workplan

Set out the tasks to achieve your objectives. It is good to do this in detail for the first year and in moderate detail for the following 2 years. This provides a workplan for the project allowing tasks to be ticked off as they are completed. It also allows budgeting and planning for funding applications.

You should always be able to be logically trace any task you are undertaking in a work plan back to an objective, goals and project vision.

Monitoring plan

Once you have your basic project plan that identifies a vision, goals and objectives, you need to identify how you are going to monitor your progress toward achieving them.

Develop a simple plan of how you will monitor progress against your objectives. Use these guidelines to get you started. Examine the information you can collect from a basic records system and see how this will help you assess progress against your objectives (see section 2). For simple projects your only form of monitoring may be summarising and reporting your project records. To design more project specific monitoring, refer to section 3.

It is very important that you start your monitoring at the start of your project – before you have done any real work. This way you will be able to track the progress you make. A common mistake is to think “we

don't need to start monitoring because we haven't done anything yet". In fact, this is just the time you should start – so you can show how things were changed by your project.

A simple outline of your monitoring plan can follow the format below. Developing more detail on specific monitoring requires following the design process in section 3.

Planning summary table

Vision	Goal	Objective	Tasks	Monitoring
A vibrant and regenerating native forest in Waitane Reserve	Healthy forest understorey	• Increase palatable seedling numbers by 50% within 5 years	• Repair and complete stock proof fence around Reserve • Shoot goats • Possum control	*Outputs* • Fence records • Goat kill records • Possum trapping and bait station records. *Outcomes* • Seedling counts
		etc		
		etc		

Doing the Work

Once you have a project plan in place and have decided how you will monitor your progress, you can get on with the real work. Some key things to keep in mind are:

- Get hold of standard guidelines for key operations such as pest control and weed control, so that you working from a proven and safe starting point;
- Get expert advice to help you with setting up operations and training. Organisations such as regional councils, DoC, and the New Zealand Landcare Trust can often help you get started;
- Keep basic records of your project work (see section 2) as you go – it will save you a lot of work in the long run.

Monitoring

As already identified an important function of monitoring is to see how well you are doing in relation to the objectives you set. For example, what length of fence line have we completed, and how many streams are fenced and planted.

Monitoring allows you to collect useful data about your project or project area. Section 2 provides information on how to get basic monitoring information from your project records. Section 3 takes you through the process of designing specific monitoring for your project and identifies some of the existing resources that may help you.

Follow the monitoring plan you have developed, either in a basic form for a simple project or in more detail (see section 3.1).

Evaluate how your project is going

Once you have the basic data from your monitoring, it needs to be summarised and interpreted so it becomes useful information. For example, a long series of bird counts is only really useful information once

it is analysed to show how bird numbers have changed from year to year, or how the species mix has changed over time.

Use the information your monitoring provides to check how well you are going in relation to your objectives. It is important to do this briefly at least once a year – so you can check against any new information you have. A more thorough evaluation will be needed every 3-5 years.

If progress toward your objectives is going well – accept a pat on the back and make sure the group and others know that their efforts are reaping rewards. If it is not going well, what needs to be done? There are two broad options:

- *How can operations/approaches be improved?* Check if there is a more effective way you could, for example, be controlling pests or involving the community. Seek external advice and new ideas to help you.
- *Are the objectives in the plan realistic?* Check that the objectives you set in your plan can be achieved. Were you overly optimistic about the time frame or scope of a particular objective? If this is the case, amend the objective so you can realistically achieve it, making sure that it still meets the requirements for objectives (above).

Once you have evaluated and refined your project – continue with your work. Each time you come back and evaluate, you will be able to show more achievements, and how you have moved closer to achieving your vision.

1.4.2 The world is never perfect – where do we fit in?

Often projects are underway because of the motivation and drive of some key people in the community – which is great! However, without some attention to planning and monitoring it is very difficult to sustain a project in the longer term. If you are already underway, and want to start your planning or monitoring now… here are some scenarios:

- *Project underway but… no formal plan, or the plan needs a major upgrade, and no monitoring set up:* Though you don't have a formal plan or monitoring – you still have a head start on the planning process because you will have a lot of experience of your project area. You will know what works and doesn't. Try to pull together as much information and basic project records as you can from your work so far. Armed with this information and experience, start at the formative evaluation stage of the project cycle. You should be able to do this very quickly and move on to preparing a plan. This may well result in you modifying what you do now when you move on to the "do the work" phase as you match your tasks more closely with the objectives of your plan.

- *Project is underway, there is some monitoring – but no real plan:* Now you have the benefit of both experience of the project area and operations plus some monitoring information. You can draw this information into the formative evaluation and relatively quickly put your plan together. Once again, you may need to modify the work you do now - as you match your tasks more closely with the objectives of your plan.

- *Project is underway and has a basic plan, but there is no monitoring:* In this case you have started into the project cycle – you just need to come up with some monitoring that will check your progress against your objectives. Put together a basic monitoring plan, and carry on with your operations, only at the same time start collecting your monitoring data. Continue on with the project cycle as usual.

2. Using Your Project Records to Provide Simple Monitoring

Information you collect as you work on your project can provide useful monitoring information. A range of simple indicators can be monitored using your basic project records.

Project records are an essential part of any project. The detail and type of records that are needed vary. Small projects involving 1 or 2 people may require quite limited records compared to large projects over large areas with many people involved. This section sets out a range of basic project records that are likely to be relevant to many community projects involved with habitat protection and restoration. Simple bullet point notes describe the individual records and indicators they can provide. Methods and formats are briefly described for each type of record and reference provided to a range of standard record forms in the appendix. Notes on appropriate summary, interpretation and timing / type of reporting are provided.

This section breaks project records into those associated with organisation and project management (section 2.1), operational management (section 2.2) and simple outcome observations and photographs (section 2.3). The last part of this section provides some suggestions on keeping a project records folder and preparing basic project reports.

2.1 Organisation & Project Management

2.1.1 Employment & Volunteer Records

Volunteer hours & number of people

Description

- Records involvement in the project by volunteers. To be most useful this needs to record the number of hours and the number of people giving different levels of time. Volunteer input gives an indication of the level of community involvement and support. It also has relevance to environmental education, as community learning can come from involvement in the project.
- Volunteer hours are also part of the complete cost of undertaking the project.
- Records of volunteer input are often important in demonstrating “in kind” input to funders.

Indicators it can provide

- Total volunteer hours;
- Number of volunteers involved;
- Average hours per volunteer.

Methods & Formats

Where individual volunteers are working independently on a project and there is a need to record detailed information on daily hours and other inputs an individual timesheet may be used. This can sometimes be useful for example where a landowner is keeping records of inputs in relation to “in kind” contribution to a project.

- A1: Individual Voluntary Contribution Records

Individual timesheets can be combined in a monthly summary. Where less detail is required, information can be entered into the monthly summary as you go. At the end of a month, the number of volunteers who contributed different levels of hours during the month is totalled.

- A3: Monthly project hours record

Summary & Interpretation

- Combine figures for months during the year to prepare annual figures for reporting.
- Look for general increases or decreases in the total hours of volunteer input and in the total numbers of volunteers involved.
- Has there been a shift from many volunteers putting in few hours, to a few putting in lots of hours?

Reporting
Timing: Monthly – Annual – HPF Interim – HPF Final
Type: Social context / community

Employee hours & number of people

Description
- Records of hours worked by employees are kept. As well as being a necessary part of managing and paying employees, this provides a useful indicator of the level of local employment provided and is relevant to the economic and social benefit provided from the project. It is most useful where the number of people employed for different periods are recorded as well as total numbers and total hours.

Indicators it can provide
- Total employee hours;
- Number of employees;
- Average monthly hours per employee;
- Number of full time and part time employees.

Methods & Formats
In most cases some form of individual timesheet for employees will be required, allowing hours to be kept by day over a month.
  - A2: Individual employee timesheet

Where there is not a need for this level of detail, it is possible to use some form of combined monthly summary for employees. This can be recorded on the same monthly format as provided for volunteers.
  - A3: Monthly project hours record

Summary & Interpretation
  - Combine monthly records into an annual total.
  - Show how employment (numbers and hours) have changed over time.
  - Look for general increases or decreases in number of people employed and the mix between part time and full-time workers. For example, is employee input to the project increasing and volunteer input decreasing.

Reporting
Timing: Monthly – Annual – HPF Interim – HPF Final
Type: Social context / community

Contractor hours & number of people

Description

- Records of contractor involvement are important. While they are not directly employed by the project, input by contractors will often be significant. They also often represent local employment and business that is relevant to examination of economic and social benefit provided from the project. As with other people working on the project, it is most useful if both the total number of hours and the number of people employed for different levels of time are recorded.

Indicators it can provide

- Total contractor hours;
- Number of individuals involved;
- Average monthly hours per individual.

Methods & Formats

Contractors will not generally provide timesheets, as they are independent from the project. It may be possible to keep monthly summaries of hours of involvement from your knowledge of the project and from invoices provided.

  - A3: Monthly project hours record

Summary & Interpretation

  - Combine monthly records into an annual total.
  - Show how contractor inputs (numbers of individuals and hours) have changed over time.
  - Look at increases and decreases in the relative numbers and hours for contractors, employees and volunteers over time.

Reporting

Timing: Monthly – Annual – HPF Interim – HPF Final
Type: Social context / community

2.1.2 Fundraising

Funding grants and their status

Description

- Keeping records of project ideas requiring funding and following these through to funding applications and grants is an important part of maintaining a stable project. It helps ensure a smoother stream of funding and that funder time frames are met.
- These records are important to allow quick checking on the status of various applications and grants to avoid any important deadlines being missed.
- Records of funding grants also allow quick reporting on grant income and total money received from different grants.
- Records that track actual costs/ spending against grants are essential and reporting on these is required by all funders.

Indicators it can provide

- Total number and amount of grant applications;
- Number of grants approved over the year;
- Total grant income approved over the year.

Methods & Formats

- **Combined grant record:** A useful approach to keeping track of funding grants is to keep some form of grant application record. Initial project ideas that fit within the project plan should be recorded. The best funding source(s) for the project is then identified and recorded along with application due dates. The record is then kept up to date, tracking the application to whether approval is given and if it is delivery deadlines.
    - A4: Grant record form

- **Individual grant expense record:** Recording of money spent against a grant will be required by all funders. It allows you to check progress as you go, to adjust project work, if necessary, to meet budget requirements. Grant expense records should be regularly checked against the budget for different stages, or "milestones" when dealing with larger grants.
    - A5: Individual grant expenses form

Summary & Interpretation

- Check to see that grant applications are made for important tasks.
- Make sure that deadlines are met for grant applications and completing funded projects.
- Identify the total grant income applied for and grant income received in a year. Look for changes in success rate e.g., is there something you need to do to try to improve the portion of grant applications approved.
- Regularly check expenditure against individual grants so you can adjust project work as necessary to stay within the budget.

Reporting

Timing: Monthly – Annual
Type: Project management

2.1.3 Partnerships

Partnerships and agreements

Description

- Habitat protection and restoration projects invariably involve a range of important partnerships between the project group and other organisations and individuals. These can include ongoing provision of advice, regular financial support, access/ pest control agreements with landowners, and a whole range of other important relationships. Having some record of these partnerships and agreements is important. Without it, knowledge of what various partners can provide, or what the group has agreed to do, is held in people's heads. This can become distorted over time, or people can leave – and take this knowledge with them. Misunderstandings and missed opportunities can result.
- Group membership is a key set of partnerships/ agreements that are often important to groups. For larger groups, records of membership – who is involved and what information and contact they need to receive should be kept.

Indicators it can provide

- Number and type of organisations that provide support or advice to the project;
- Types of support provided by different organisations and individuals;
- Number of individuals that directly support the project through some form of membership.

Methods & Formats

- **Project partner/supporter record:** Keeping a simple list of organisations and individuals that have some support or partnership relationship with the project is important. This a quick reference for contacting partners and drawing on support where necessary. It also allows a quick check of the groups understanding of the relationship with an individual or organisation. This record can also be used as the basis for reporting on the numbers of organisations or individuals that support the project and the types of support they provide.
    - A6: Project partners & supporters record

- **Membership:** Some form of basic membership list or database should be kept. This becomes increasingly important with larger groups. This list is important to allow for contact with newsletters and other information, calling for any membership fees etc. Electronic lists allow "mail merging" for bulk mail outs or provision of circular emails. Membership lists can also be used to report on membership levels.

Summary & Interpretation

- Count the number of organisations and individuals who have some form of partnership or support relationship with the project. Group these into different types of organisations and individuals (e.g., local authorities, landowners, businesses providing sponsorship).
- Look at how the numbers of partnerships/ supporters are changing and how the types of organisations/ individuals involved changes.
- Look at changes in membership levels and types of members.

Reporting

Timing: Annual - HPF Interim – HPF Final
Type: Project management – Social / Community context.

2.1.4 Budgets & Financial Monitoring

Description
Some form of budget and financial records are essential to all projects. The level of budgeting and records required will depend on the size of project. A small, one off project, undertaken by an individual or small group with a single funding grant may only require a budget prepared for the original grant, and a record of expenditure against this grant amount.

More permanent and formal groups involved in ongoing project work will require some form of annual accounts. Depending on your organisation structure, there are legal minimum standards of financial reporting that must be met. Some Information on these minimum requirements can be obtained from Inland Revenue in IR320 and from the www.community.net.nz website provided by the Department of Internal Affairs. These resources and advice of specialists (where necessary) should be obtained in developing a financial records system that is appropriate for your project.

What ever the appropriate and required level of financial record keeping, these records can provide a range of valuable information on the project and its community and economic contribution. It is important to carefully think through what you wish to report when deciding how to keep your financial records, so that expenses can be grouped in a useful way.

Indicators it can provide
- Total annual income;
- Total annual grant income;
- Total of all other income (e.g. membership, sponsorship etc);
- Total project costs / expenditure for the year;
- Total wages / employment cost for the year (excluding PAYE);
- Total annual spending on contractors and other local businesses.

Methods & Formats
Background information on how to keep financial records is set out in Inland Revenue publication IR320. This should be referred to if you are in the process of deciding how to keep your financial records. Useful guidelines are also provided on finances and budgeting are also provided on www.community.net.nz.

In order to be able to report the indicators above, your financial records will, as a minimum, need to identify the following as separate amounts:
- Income from grants;
- Wages and employment costs;
- Contractor and local business costs.

In situations where you are involved with a one-off grant and not an ongoing project, extracting these items from a record of expenditure against the grant may be sufficient.

Record of individual grant expenses: Records of spending against an individual grant will be required by funders. The grant amount should be recorded and a running total (or balance) kept as the grant is spent on items, wages etc. This record can then be provided to funders on completion of work under a grant. Some funders will also require receipts for the expenditure. An example of a simple format for recording individual grant expenses is attached.
    - A5: Individual grant expenses form

Summary & Interpretation
- Follow legal requirements for summarising and reporting financial information.

- Total records for the year and report against the broad headings for revenue and costs identified under indicators above, and a range of other specific cost and revenue items you may wish to report.
- Look at changes from year to year in revenue and spending.
- How closely does your spending relate to what you budgeted and what are the reasons for any differences? How could you take these into account in the future to budget more accurately and or manage costs?
- What are the trends in total revenue (turn over), spending in the community, costs etc.

Reporting
Timing: Monthly - Annual – HPF Interim – HPF Final
Type: Project management – Social / Community context.

2.1.5 Project Issues & Innovations

Issues & Innovations

Description

- Having a basic system for keeping a note of new and important issues that crop up that affect the success of the project is important. It can be a useful way of making sure that you start to find solutions – "we have this issue, how do we sort it out". Issues can be a wide range of points, from problems with operational matters such as weed control, through to difficulties of communication within a group. Issues may flow logically into funding applications to address them. Identification of issues in this way is also important so they can be reported to others that provide support or advice to your project. These supporters/ advisors quickly see how they can provide a solution.
- As you undertake project work, you will often come up with new ways of doing things. You will also find innovative ways of dealing with any issues that face you. Record any key innovations the group has come up with to make the project more effective, e.g., a new approach to weed control, or the best way to attract good volunteers. This makes sure these improvements are communicated through the group and are not lost in the future. Keeping records of innovations makes sure that one person's good idea is used, rather than being forgotten. Innovative new approaches will only be applied while people who know them are around. If they move on, and others forget, you are back to square one.
- Records of issues and innovations provide a mechanism to learn from your project's successes and failures both within your group, and also sharing this with other groups so they can benefit from your experience.

Indicators it can provide

- Key groups of issues identified;
- Issues that have been successfully dealt with;
- Key groups of innovations developed.

Methods & Formats

- All that is required is a consistent approach to recording issues and innovations as they come along, and making sure that you regularly re-visit them. This makes sure that thought and effort is going in to sorting out issues, and important new innovations are being applied. An example of a form that can be used to keep these records is provided below. A useful approach can be to check on any new issues and innovations when a group has regular meetings.
    - A7: Issues & Innovations Record

Summary & Interpretation

- Check that issues are being addressed and key innovations have now become standard practice.
- Are there key types of issue that are starting to occur regularly? Does this point to something you need to change? E.g., are a range of weed pests continuing to turn up in the project area that could be addressed by wider community involvement in the project.
- Summarise the key issues and innovations during the year and share them with other groups and your supporters.

Reporting

Timing: Monthly - Annual

Type: Learnings - Project management – HPF Interim – HPF Final.

2.2 Operational Management

2.2.1 Access

Access routes and tracks

Description

- Projects will often involve work on access routes and tracks. These can range from access routes for trapping animal pests, to providing public walking tracks – which may be a major focus of the project. Records of these tracks can be important to allow easy reporting on these project works to funders. They also provide a basic record of construction and maintenance requirements.
- Records generally involve simple maps and notes on different types of tracks constructed.

Indicators it can provide

- Length of different type of track established;
- Length of maintenance works undertaken.

Methods & Formats

- Keep records of the lengths of different types of tracks maintained.
    - Animal control route (e.g., taped bait station or trap line)
    - Access track: some cutting and occasional benching of steep areas.
    - Public access track: high quality access track maintained for public use includes benching, drainage, crossings etc.
- Record new access routes and tracks established and length of tracks maintained.

A format for keeping simple records of tracks is provided below.

- A8: Track record form

Summary & Interpretation

- Look at total lengths of different types of tracks that the group is involved with.
- How have levels of track construction and maintenance changed over the years. Why have these changes occurred.

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

2.2.2 Weed Control

Weed species and areas of infestation

Description

- Record of the ecological weed species that are present on the site. These are plant species that have an important negative impact on habitat and ecological values in the project area.
- The weed species present are recorded and approximate estimates of the area and or % of the project area affected are recorded.
- The current status of weed species is recorded including their stage of invasion, threat, invasiveness and difficulty of control.

Indicators it can provide

- Number of weed species present;
- Area affected by weeds;
- Percentage of project area affected by weeds;
- Area affected by a particular weed species;
- Percentage of project area affected by a particular weed species.

Methods & Formats

- **Weed infestation record:** As important new weed infestations are identified; a weed infestation record can be completed. This records the location and nature of an infestation so any change can be checked, and control can be planned if necessary. Where infestation is scattered across the whole project area, one infestation record is completed for the whole area.
    - A9: Weed infestation record form

- **Weed and weed control summary:** In order to keep an overview of weeds and weed control for the project area, a weed control summary sheet can be filled out. This provides a list of weed species, including their current status and area of infestation. It also identifies any control undertaken. This sheet allows the total area affected by weeds and the total area of control undertaken to be reported. Where weed infestation or control areas for different species overlap, the area is only counted once. This means the total is the area affected by one or more weeds. The weed summary needs to be checked, and updated (if necessary), once a year.
    - A10: Weed species & control summary

Summary & Interpretation

- Look at changes in the area and status of weed species over time. Are they being reduced in area through control, or continuing to expand?
- Are new weed species arriving at the site?
- Are the number of weed species increasing over time?
- What is the total area or level of infestation by higher priority weeds?

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat Protection & Restoration.

Weed species areas treated

Description

- Record of the weed control operations undertaken on different species in the project area.
- Record the type of control undertaken (herbicide and rates used, mechanical method used etc).

Indicators it can provide

- Total area of weed control undertaken;
- Area of control for individual weed species.

Methods & Formats

- **Weed control notes:** Keep records of the weed control method used in different operations so that the success of different approaches can be considered.
- **Weed and weed control summary:** Record the area of weed control for individual species on the weed presence and control summary sheet. Brief notes about the control operation can also be recorded. Where weed control areas for different species overlap, the area is only counted once. This means the total control area is the area where one or more weed has been controlled. The weed summary needs to be checked, and updated (if necessary), once a year.
    - A10: Weed species & control summary

Summary & Interpretation

- Look at changes in the area of individual weed species treated over time. Is the area treated reducing or increasing over time? How does this compare to the area of infestation?
- How is the total area of weed control operations changing from year to year? How does this compare to the total area with weed infestation?

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

2.2.3 Fencing

Fence length constructed and maintained

Description

- Records are kept of the length of new fence constructed and the length of fence maintained in a year.
- Assessment of new fence locations or fence maintenance requirements are also recorded.
- These records can be used to report on fencing and budget for future fencing work. They help ensure that fences are maintained to protect important areas.

Indicators it can provide

- Length of new fence constructed;
- Length of fence maintained;
- Length of fence assessed for construction or work.

Methods & Formats

- **Fencing record sheet:** Assessment of new fence locations and maintenance needs of existing fences are recorded on the sheet. This can be used to plan and budget fencing work. A date of completion is recorded once the assessed work is completed. Total length of new fence competed, maintenance completed, and length of fence line assessed can by reported from the sheet. The record sheet should be updated as assessments are undertaken. It should be checked and updated if necessary at least once a year.
    - A11: Fence assessment form
- **Stock fence classification:** It is often useful to classify the state of different sections of a fence during the assessment. This allows you to get an idea of future maintenance needs. An example classification for standard post and batten fences is provided below:
    - A12: Fence condition classes

Summary & Interpretation

- Look at cumulative length of fence constructed and fence maintained.
- In some situations, more than one sheet may need to be totalled, if a number of different fenced blocks are involved.
- What is the total length of fence being managed?
- Are regular assessments of fence condition being undertaken?
- What is the length of fence in different condition classes? How can this be used to plan future maintenance?
- How does the length of fence constructed and maintained vary over time? Why are these changes occurring, e.g., has initial construction of fence been completed so that all necessary fencing is done?

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

2.2.4 Animal Control

Animal pest species trapping and kill records

Description

- Trapping of pest animals is something that many projects are involved with. Trapping records provide a useful source of information on pest populations.
- Records of individual trap lines are kept, including the number of trap nights and animals of different species caught.

Indicators it can provide

- Total number of animals killed, by species;
- Total number of traps used;
- Total number of trap nights for different trap types;
- Trap nights per animal kill for different pest species;
- Area of trapping pest control.

Methods & Formats

- **Trapping Data Sheet:** Every time traplines are checked, the results from each trap are recorded. Information recorded includes the days the trap has been set since it was last checked, and the species and sex of any animal caught.
    - A13: Trapping Record Sheet
- **Animal control summary:** A monthly summary of trapping records is compiled for the main pest species from the trapping data sheets and estimation of the area being controlled. Annual totals can also be calculated.
    - A15: Animal control summary

Summary & Interpretation

- Look at trends in total traps, total kills, and trap nights per kill for different species.
- Increasing number of trap nights per kill suggests a reduction in relative abundance. However, it is important to check that there has not been some other change, such as traps being operated by a less skilled trapper, that could have caused the change.
- Look for parts of a trapline or trap types with higher or lower kills. This may help you improve your technique.

Reporting

Timing: Monthly - Annual – HPF Interim – HPF Final
Type: Habitat Protection & Restoration (operational).

Animal pest bait station records

Description

- As with trapping, many projects run bait station lines to control animal pests. Bait take can provide useful information about pest populations.
- Records are kept of individual bait stations to identify the amount of bait that is being taken by pest animals. When bait is "pulsed" through bait stations, the bait applied and the bait removed at each station is recorded.

Indicators it can provide

- Total number of bait stations used;
- Average bait take per bait station at each "pulse";
- Total bait take per station over a year;
- Total bait take per hectare over a year;
- Total area with bait station control.

Methods & Formats

- **Bait station data sheet:** Every time bait stations are filled, the results from each bait station are recorded. The type and amount of poison bait applied and the amount of bait removed are recorded.
    - A14: Bait station record sheet
- **Animal control summary:** A monthly summary of bait station records is compiled on this form. Annual totals can also be calculated.
    - A15: Animal control summary

Summarising & Interpreting

- The amount of bait taken by pests from bait stations in regular pulsing operations can be used to give a broad index of relative population levels. For example, declining levels of bait take suggest falling pest population levels.
- See if the average bait removed per station is increasing or decreasing.
- Is more bait taken from some areas than others? Sometimes this can identify if there are certain areas that may need more intensive control, possibly including trapping or other methods.
- Calculate the total bait used and average bait per hectare for the area over the year. This can provide a general index of relative trends in pest numbers. It also allows you to check if levels of toxin applied are rising to a level where another approach (e.g., a different toxin or trapping is required).

Reporting

Timing: Monthly - Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

Animal pest species observations

Description

- As you move about and work on a project site pest animals may be seen. Keeping simple consistent records of these observations can help give an indication of relative pest numbers.
- Any observations of key animal pest species seen on the site during day-to-day operations are recorded. Numbers and location of any species seen are recorded.

Indicators it can provide

- Number of individuals of a pest species seen over a month or year;
- Average number of individuals of a species per sighting;
- Distribution of pest species.

Methods & Formats

- **Animal Observation Record:** Whenever pest animal species are seen in the project area, details of date, time, location, number etc are noted and recorded on the animal observation record.
    - A16: Animal observation record

Summary & Interpretation

- Examine the total numbers of different species seen over a month or year.
- What is the average number seen in each observation? When populations are higher, groups will often be seen together. As numbers drop, mainly individuals are seen.
- If you have records of hours that are spent in the field (use your volunteer/employee/contractor hours if these are mainly spent on the site), work out the number seen per 8-hour day. This can give you a better idea of possible changes in relative abundance as it takes into account the amount of time spent on the site. That is, if you spend more time on the site you are more likely to see pest animals.

Reporting

Timing: Monthly - Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

2.2.5 Plant Propagation

Plant Propagation Records

Description

- Records are kept for each batch of seed sown or cuttings set in the nursery. This allows the success of each stage from germination to various potting up stages to be tracked. It allows successes and failures to be identified, helping make your nursery more effective.
- These records are also valuable in recording the source of plant material used in a project, checking that native material is appropriately "eco-sourced" from the local ecological district.

Indicators it can provide

- Germination rate or cutting set rate;
- Survival rate at different pricking out and re-potting stages.

Methods & Formats

- **Nursery operations diary:** This system can be used to keep all basic plant propagation records. A key feature of this system is that when seed is sown or cuttings set into trays, they are given a "batch number". This batch number is marked on a label with the plants, and in the nursery diary. The standard batch number used is *year – month – day – species.* The first record in the diary, when seed is sown, records the seed source and the seed treatment received. Whenever any nursery work is done such as pricking out, bagging on etc, a new line is filled out in the nursery diary for each batch worked on, showing the work done and the number of plants.
    - A17: Nursery operations diary

- **Plant production summary:** To summarise information in the nursery operations diary, a plant production summary sheet can be used. This can be filled out as each batch is completed to a "ready to plant" stage. Alternatively, it can be filled out as part of an annual nursery stock take
    - A18: Plant production summary

Summary & Interpretation

- Check the relative success of different seed treatments and propagation methods etc for a plant species. What is the quickest and most successful approach in your nursery?
- Look at changes in nursery survival rates for different species over time (year to year). Are they increasing or decreasing? What has caused this change and how can you manage it?

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

Numbers of ready to plant stock produced

Description

- Records are kept of the final production of ready to plant stock from the nursery, by species.

Indicators it can provide

- Total number of plants produced;
- Number of plants of different species produced.

Methods & Formats

- As identified under plant propagation records this information can be provided by keeping a nursery operations diary and summary.
    - A17: Nursery operations diary
    - A18: Plant production summary

- Alternatively, a simple annual stock take prior to planting can be used to record the number of "ready to plant" plants produced. However, this does not provide useful information on seed source and propagation to help improve your plant production.

Summary & Interpretation

- Look at changes in total plant numbers and numbers of different species from year to year.
- Check the numbers and mix of species match what your project needs.

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

2.2.6 Planting

Number of plants planted

Description

- Records are kept of planting undertaken. This includes the location, species and number of plants. These records are important to allow follow up checks and maintenance on planting, check on plant survival, and improve the success of planting operations.

Indicators it can provide

- Total numbers of plants planted;
- Number of plants of different species planted;
- Distribution of planting – i.e., numbers of plants in different areas.

Methods & Formats

- **Planting record:** This format can be used to keep basic planting records for the project. The species, type and number of plants and their location are recorded. Number of plants can be totalled for a particular site and the project as a whole.
    - A19: Planting record form

Summary & Interpretation

- Total the number of plants for individual sites and for the project as a whole.
- Look at annual levels of planting and changes over time. Do these match project objectives and targets?
- Examine any changes in species mix over time. Does this fit with project objectives?

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

Area planted

Description

- Planting records include estimation of the area planted. This allows the total area planted to be reported. It also allows checking of planting density (i.e., number of plants per hectare).

Indicators it can provide

- Total area planted;
- Area planted in different species;
- Average plants per hectare.

Methods & Formats

- **Planting record:** The same planting record format can be used to provide this information. The approximate area planted in each species is recorded. The approximate spacing between plants is also recorded.
    - A19: Planting record form

Summary & Interpretation

- Examine the total area planted and the area planted in different species by totalling information from the planting record.
- Divide the area planted by the number of plants planted to get the average number of plants per hectare.

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

Plant survival

Description

- Planted areas are checked to determine the number of plants that have survived and identify any immediate needs for maintenance such as releasing from weed competition, animal pest control etc.
- It is useful to check plantings after spring weed growth following planting to check if releasing or other work is required prior to plantings being exposed to their first summer. A follow up check on survival is then required in autumn to identify if any planting of dead areas or "blanking" is required. You may need to repeat these checks for a planting area over subsequent years until plants are well clear of grass or other competition.

Indicators it can provide

- Total number of plants alive at end of first summer;
- Percentage survival.

Methods & Formats

- **Planting record:** The same planting record format used to record number of plants planted allows for checking of original plants. Number of plants alive can be recorded against original plantings.
    - A19: Planting record form

Summary & Interpretation

- Identify the total plants still alive after the first summer and compare this against the total numbers planted to calculate percentage survival.
- Examine the difference in survival rates between different species and sizes/ types of plant stock to see which are more successful.
- Determine what areas need to be blanked (areas of poor survival needing re-planting).

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

2.2.7 Community Involvement & Environmental Education

Description

- A basic list of community involvement and publicity and environmental education is kept. This allows reporting on the amount of community involvement and environmental education activity undertaken by the project group. This is important to show project outputs that are relevant to community project awareness.

Indicators it can provide

- Frequency of media reports;
- Frequency of community involvement;
- Frequency of different types of environmental education activities.

Methods & Formats

A basic list or diary of publicity and community involvement/ environmental education activities is kept. Keep a "scrapbook" of newspaper clippings etc. Keep your basic diary list under the following headings:

- Newspaper/ printed media articles that mention the project.
- Television or radio items that mention the project.
- Newsletters, pamphlets etc provided to the community.
- Talks, seminars, field days etc provided.
- Work with local schools, getting students involved with aspects of project work or ideas.
- Other community involvement and environmental education.

Summary & Interpretation

- Keep a total of the numbers of different types of community involvement/ environmental education activities you are involved in each year.
- Look at what types of activities are most common and how these change from year to year.
- What activities appear to give the most impact/ involvement for the least amount of work?

Reporting

Timing: Annual – HPF Interim – HPF Final
Type: Social context / community gains.

2.3 Outcome Observations & Photos

2.3.1 Fauna Observation

Description

- As you move about and work on a project site key native animal species may be seen. Keeping simple consistent records of these observations can help give an indication of the presence and relative abundance if important native species.
- Any observations of key fauna species (e.g., kereru) seen on the site during day-to-day operations are recorded. Numbers and location of any species seen are recorded.

Indicators it can provide

- Number of individuals of a species seen over a month or year;
- Average number of individuals of a species per sighting;
- Distribution of sightings of a species.

Methods & Formats

- **Animal Observation Record:** Whenever key species are seen in the project area, details of date, time, location, number etc are noted and recorded on the animal observation record.
    - A16: Animal observation record

Summary & Interpretation

- Examine the total numbers of different species seen over a month or year.
- What is the average number seen in each observation? When populations are higher, groups will often be seen together. When numbers are low, mainly individuals are seen.
- If you have records of hours that are spent in the field (use your volunteer/employee/contractor hours if these are mainly spent on the site), work out the number seen per 8-hour day. This can give you a better idea of possible changes in relative abundance as it takes into account the amount of time spent on the site. That is, if you spend more time on the site you are more likely to make sightings.

Reporting

Timing: Monthly - Annual – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (operational).

2.3.2 Photo points

Description

- Photographs of parts of a project area are taken at a fixed point, generally marked with a peg in the ground. Repeat photographs are taken at regular intervals (e.g., every 1-2 years), to give an excellent visual record of any major changes in a site. This can be very useful to show major changes occurring following planting, fencing etc. Photo points are particularly good for planting projects, stream restoration, fencing etc.

Indicators it can provide

- Visual demonstration of changes in vegetation, waterways etc.

Methods & Formats

Key points related to photo point establishment are:

- **Location:** Pick a point to photograph from that:
  - Records something that is likely to change over a relatively short time frame (e.g., 2-5 years at the most). This might include an area that you are about to plant, a waterway you are about to fence etc.
  - That won't have its view quickly obscured by vegetation.
  - That you can get to easily to re-photograph in the future.
- **Peg or mark the point:** If possible, permanently mark the photo point with a peg driven into the ground – so you always photograph from the same place.
- **Before, then regularly after:** If you are planning to plant, fence a stream etc, make sure your first photograph is taken before you start the work – so you can see the greatest difference over time.
- **Consistent photography:** Accurately record the details of the photograph, including the light conditions. When you repeat the photograph, try to photograph on a similar date, time and weather conditions. This will make it much easier to compare photographs.
- **Photo point record:** Use the standard photo point record form to make sure you have a permanent record of your photo point and photos.
  - A20: Photo point record form

Summary & Interpretation

- Look at changes between photos and present a time series of photos together to show changes.
- Sort photos from different photo points that show improvements and declines. Try to identify the causes of these differences?

Reporting

Timing: Annual / periodic – HPF Interim – HPF Final
Type: Habitat & Ecological Gains (outcome).

2.4 Project Records Folder

A good approach to keeping project records, and having them available to provide simple monitoring, is to keep a project records folder. It is best to have one folder of records for the project. This ensures records are kept up to date in one place. Copies of these records can then be regularly made and stored elsewhere for security against loss or damage.

A few suggestions about keeping a records folder are set out below:

- Use a ring binder (a larger “eastlight” type binder is best), 10 tab dividers, and a hole punch.
- Print off copies of the various instructions and forms in this monitoring guideline and put them in different divided sections of your folder.
- Keep your simple monitoring plan, and a summary of the management plan, with your records folder so you have them handy to refer to when reporting or checking your monitoring.
- Put a “project reports” section at the front of the folder (or the back, depending on how you like to work). You can summarise project report information into this section from the various records in the folder.
- Give someone in the group responsibility for making sure that records in the folder are being kept up to date. They can, for example, make sure trapline records are regularly provided by people undertaking trapping.

2.5 Project Reports

Your records become of real value once they are summarised and reported.

Develop a basic approach to reporting information from your project records that suits the way your project/ group operates. Different groups will have a range of needs for reporting some examples are set out below:

- If you are an individual or small informal project group involved in a one-off project, generating a single summary report at the end of your project may be enough.

- For a small but ongoing project run by a small and informal group, reporting once a year may be appropriate.

- If you are a group that has regular (e.g., monthly or quarterly) meetings or provides a regular newsletter, you may want to report updates to each of these from your project records. In addition, you are likely to want to provide an annual summary.

- Any groups that operate under a formal structure such as an incorporated society will have an Annual General Meeting and present annual reports. Your project records provide the ability to quickly summarise information into an annual report.

Points to consider when summarising and interpreting the individual records are listed in the individual sections of this document.

Where you are receiving funding from grants, you will often need to provide reports to funders on progress and completion of the part of your project that is being funded. Use your project records to help you compile information for these reports. Information that funders want you to report will vary – so check their particular requirements.

A reporting checklist suitable for the WWF Conservation Fund interim and final reports is provided below. This may also be appropriate for a wide range of other uses such as annual reports.

  - A21: Project report sheet

3. Developing Specific Monitoring Approaches for Your Project

The previous section set out ways to provide some monitoring information from your day-to-day project records. This can be a cost effective way of obtaining information, however it does not deal with the specific and more detailed monitoring questions of many projects. This section provides an outline of how to design this next level of monitoring for your project, and sets out some of the resources and approaches that are available.

3.1 Design Process

If you need to develop some specific monitoring around your project in order to effectively assess how well you are achieving your objectives and possibly collect other additional information, it is important to design this monitoring using a step-by-step process. This will help ensure that your monitoring is done in the most time and cost effective way – while providing the information you need.

Key steps in designing specific monitoring for your project are set out below.

3.1.1 What are your monitoring questions?

In order to design monitoring effectively you need to know what you are trying to find out – what are your monitoring questions. The first place to look for these is the objectives in your management plan. As already discussed in sections 1 and 2, a major function of monitoring is to see how you are progressing against your project vision and objectives. If you don't have a project plan of some form that sets out your project vision and objective, you need to develop this before you can effectively design useful monitoring (see section 1 for an introduction to the planning process).

Referring to each of your project objectives, write down the particular questions you need to answer to monitor your progress toward meeting the objective. For example, if you have an objective of containing the spread of a particular weed, then you clearly have an information need to identify the current extent of the weed and then monitor if the infestation is increasing in size or moving to new areas. If you have an objective of increasing kereru in the area, you need to have monitoring to track changes in kereru relative abundance in the area.

3.1.2 Design monitoring to answer the questions

What sort of difference needs to be detected

Based on your monitoring questions identify whether you need to pick up small differences over a short timeframe, or only relatively large differences over an extended timeframe. Identify the coarsest difference that will allow you to answer your question. The level of differences ranges from:

Large difference: You only need to pick up large changes, such as a major decline in forest canopy condition over a 10-year period, or a major improvement in the stream environment over a 5-year period following fencing and streamside planting.

Small difference: You need to pick up small changes, such as a relatively small increase in seedling numbers in the forest understorey over a two-year period following a reduction in browsing animal numbers.

What will you measure – What Indicators?

An indicator is something that you can measure to give an indication of some important aspect of environmental condition that will help you answer your monitoring questions. There may be several indicators that could be used to answer a monitoring question. Examples of indicators include:

- Possum abundance;
- Bird abundance;
- Bird distribution;
- Abundance of aquatic invertebrates;
- Diversity of aquatic invertebrates;
- Number of volunteers;
- Total volunteer hours.

Once you have set out your monitoring questions/ information needs, you need to select the best indicators that you can measure to answer these questions. Think about the following questions in relation to each of the indicators you are considering:

- *Is it relevant to your monitoring questions:* Make sure measuring the indicator will help you answer your monitoring questions. For example, if you need to know how bird populations are changing following pest control, you need to measure indicators related to bird abundance and diversity, not forest understoreys.
- *Is it likely to show change within a useful timeframe:* Does the indicator respond in the short term or longer term? Make sure the time frame fits with your project. For example, changes in forest canopy browsing and foliage density will occur over a year or two, but changes in the rate of mortality of canopy trees may take many years to measure.
- *Is it able to be measured in a way that provides sufficient measurement precision:* An indicator that is difficult to measure precisely should not be used to examine small changes.
- *Are the skills and resources available to measure it:* If you don't really understand an indicator and don't feel confident to measure it, involve an expert, or look for other indicators.
- *Is it easily understood:* Make sure the indicator can be easily understood by your group, supporters and others who will see your monitoring results.

Select indicators that will meet these requirements for each of your questions.

How will you measure them - Measurement methods

There are often a range of different methods of measuring an indicator. For example, you could measure possum relative abundance using trap catch or wax tag interference. Identify the different ways you could measure an indicator and select the most appropriate measurement methods based on:

- *Measurement error:* Will the measurement error associated with the method be OK for picking up the level of difference you are interested in? Some methods, such as those involving visual assessment, have relatively large measurement errors. If the same assessment, for example, of percentage of different substrates on a stream bed is made several times, the measures will be slightly different because people's visual estimates vary. Methods with large measurement error can make it hard to pick up small differences. They can be fine if you are expecting large changes. Make sure measurement error is suited to the level of difference you are interested in.
- *Do you have the skills to use the measurement method:* Don't select complex methods that that you or others in the group don't have skills to undertake.
- *Do you have the resources to use the method?* Some methods may, for example, require you to pay for laboratory analysis of water or soil samples – can you sustain these costs in the long

term? Can you afford to purchase any specific equipment required for a particular method? How long does it take to do? - will you and the group have the time to use the method?

Where and when will you measure?

Monitoring is about comparisons and looking at change over time or between different areas. You need to carefully plan where and when you measure to be able to look at change. Some important points to remember are:

- **Consider the monitoring question:** Make sure particular requirements related to areas or time frames in your monitoring questions are incorporated.

- **Understand the site:** It is essential to understand the site and its management history when designing your monitoring, including the selection of sites for study and comparison. Your formative evaluation for the project (see section 1) is an important time to collect this information. Gather information on:

    - *History:* What previous impacts have occurred, such as, wind damage and high browsing animal numbers in a forest area, or a major flood event affecting a waterway. What management operations have taken place, for example, animal or plant pest control.
    - *Previous monitoring:* Have there been any previous studies? You may be able to link into these and make your monitoring more valuable by accessing a greater area or time period of monitoring.
    - *Local knowledge on issues and impacts:* What do local landowners, managers and others know about current and previous issues and impacts?
    - *Studies and knowledge from similar areas:* Are there studies of similar areas or issues that help you?
    - *Vegetation types, values, uncommon species, etc.* What information is available on the location and extent of different forest types, wetland types or other habitats? Is there information on the presence of uncommon plant or animal species?
    - *Visit, walk through the area:* For small areas of forest make sure you walk through the area and identify some of the important issues and impacts.

- **Consider how you will examine change**. To examine change, you need to compare, and test for differences, different areas or times of measurement. A common way of doing this is through what is called a BACI – Before-After, Control-Impact design.

    This means that you design your monitoring so you are measuring before and after some impact, such as a possum poisoning operation, and that you measure both the area that has been impacted, for example, the poisoned area, and an area that has not been impacted (the “control” area). This allows useful comparisons to be made to examine change.

    We can compare the changes that occurred on the impacted area with those on the non-impacted or “control” area. For example, if there was a major response in the forest understorey following a poisoning operation, we would expect to see an increase in certain types of species when comparing the before and after measurements for the poisoned area. If this same change did not occur on the non-poisoned “control” area, this would help confirm our conclusion.

To apply a BACI design, it is important to identify a suitable "control" area that can be compared with the main area of interest. The two areas should be as similar as possible in terms of attributes such as size, vegetation type and altitude.

How many measurements? – Sample Size

When we are measuring an indicator, we are almost always measuring a sample. For example, it is not feasible to count every seedling in a forest reserve to see if the numbers have increased, so we sample small areas within the reserve and use this to estimate the situation for the whole reserve – the whole population.

If you take one sample of say, 10 counts of invertebrates in a stream, then repeat it and take another 10 counts, the results you get from each sample will inevitably be different. How much the result from different samples is likely to vary is called ***Precision***. How many sample measurements you take, and how you select them has a big effect on the precision of your estimates. Designing sampling that you will use for your monitoring is all about deciding the number of measurements and how you will select them.

Some of the monitoring resources listed in Section 3.2 provide guidance on standard sampling for the measurements undertaken. If you are designing a monitoring programme for a larger and more complex project, you may need to get specialist advice with deciding how to sample.

Can you afford it?

Once you have outlined what you are going to measure, how you are going to measure it and the number of measurements – you need to stop and check if you can afford it. Will you be able to afford do follow it through, doing measurements in an ongoing way – can you meet any costs involved and do you have the people and time to do it. If not, you need to revise your approach and look for something simpler and less ambitious. A simple monitoring programme that is consistently followed year in year out, will be more useful than a very complicated approach that is partly measured once.

3.1.3 Field work

Before you launch into doing your measurements in the field, make sure you have everything you need and have thought through the logistics of the fieldwork. Some things to consider are:

- Safety first: Make sure the approach you plan is safe and you have identified and managed any health and safety hazards.
- Checklist of equipment.
- Standard forms – so you don't miss recording important information.
- Always record sufficient information so that someone else could repeat what you have done.
- Mark or otherwise identify sample points so they can be easily re-located.
- Have a plan for fieldwork tasks first – including timing. As a checklist, your plan should include:
    - Indicators;
    - Measurement methods and specific written protocols;
    - Fieldwork tasks;
    - Fieldwork timing – timeline.
- For any major monitoring projects always do a quick trial first to identify any problems, confusion, or lack of skill and sort it out before you gather the main data.
- Fieldworkers must have adequate knowledge and training.
- Keep notes on anything different, unusual about your field measurements – e.g., if for some reason you have varied slightly from the standard protocol, or there is a particular important factor at a site.

3.1.4 Analysis and data storage

If your monitoring has been well designed and aims to answer well defined monitoring questions, analysis will be much easier to undertake. It will focus on turning the data you have collected into useable information that can answer these questions. Common ways to look at data include:

- *Examining difference:* This involves determining if two estimates from different places or different times are different. For example, is the number of birds this year more than it was last year? Or, are there more invertebrates in this stream than the other stream? The mean of the samples for each measurement and their precision are examined to see if there are real differences.
- *Examining trend:* Often the quickest and easiest way to monitor change over time is to look at trend. We often look at trends over time. One way to do this is to plot your estimates from the samples you took at different times on a graph. Are the points trending up or down over time, or are they just scattered up and down? The longer the time series of measurements you have the better. You will generally need a minimum of 4 points before you can start to examine if there is a trend.
- *Examining relationships:* Is there a relationship between two indicators? When one is low, is the other one low? When one is high, is the other one low? For example, are spotlight counts of fish in the stream low when invertebrate counts are low?

Data storage is an essential part of your monitoring – identify how you are going to store data so that it is:

- Secure – multiple copies/backups;
- Well described;
- Easily accessed;
- People know where it is;
- Standard format;
- Well linked to geographical and other information.

3.2 Indicators and Methods – Resources Toolbox

This section identifies some useful monitoring kits and resources and provides a general discussion under a number of broad monitoring areas that may be of interest to different projects. You may wish to see if any of the "off the shelf" monitoring kits are likely to meet your needs, and or look at more specific indicators. If you are looking at putting together indicators for your project you may need to seek specialist advice.

The information provided is an initial list of resources you can refer to under key project areas. For more options and ideas you can refer to specialists in organisations such as regional councils, Department of Conservation, and ecological consulting companies. WWF New Zealand is committed to assisting groups involved in habitat protection and restoration projects to develop effective project monitoring.

3.2.1 Forests

Some resources available for monitoring of projects associated with forest ecosystems are set out below:

- **FORMAK** (Forest Monitoring and Assessment Kit): This is a monitoring kit intended for immediate use by land owners, landcare groups, community groups and other "hands on" users interested in assessing the condition of native forest ecosystems. It includes measurement equipment and instructions. FORMAK provides data entry/ storage and access to simple reporting and electronic versions of instructions at www.formak.co.nz. FORMAK is currently comprised of four modules:
  - *FORMAK Site Assessment:* A walk through visual assessment of condition of the area using standard criteria and a visual guide.
  - *FORMAK Vegetation Plot:* Permanently marked vegetation plots where measurements of forest canopy, understorey and forest floor are made.
  - *FORMAK Bird Count:* Permanently marked 5-minute bird counts where all birds seen or heard over a 5-minute period are recorded.
  - *FORMAK Pest Transect:* Marked lines where the frequency of bite marks on lines of wax blocks is used to assess relative numbers of possums and rodents. Presence of faecal pellets of different large pest animal species are also recorded at wax block sites.

- **Bush Vitality:** This booklet provides a visual assessment and scoring of key aspects of forest condition. It has a particular focus on assessment of resources for native birds. It is undertaken in a similar way to the FORMAK Site Assessment from a walk through of the site.

- **Native Forest Monitoring** - A guide for forest owners and managers: This publication, first printed in 2000, provides a fairly comprehensive reference for those wanting to design a monitoring programme for a forest-based project. It provides an overview of designing a monitoring programme, sampling, fieldwork and analysis. Some possible approaches and a comprehensive list of potential indicators and measurement are provided. FORMAK has selected and refined a sample of the approaches from this publication. A copy of the forest owners and managers guide by Peter Handford is available here: https://groundtruth.co.nz/wp-content/uploads/2019/09/Native-Forest-Monitoring-Guide.pdf .

- **Flowering and fruiting records:** A format for recording observations of the timing and intensity of plant shoot growth, flowering and fruiting is provided in the Native Forest Monitoring Guide. Interest in assessment of these indicators has increased in recent times due to concern over global climate change. Recording these observations may provide useful long-term information on climate change as species growth patterns change or decline in response to significant change in climate.

3.2.2 Streams and Waterways

Over the last decade a wide variety of kits and programmes supporting community monitoring of water quality have been developed. These have a range of different target audiences and approaches. They commonly involve some assessment of the stream environment, biological condition of the stream and often a general assessment of the land use/ management occurring in the local catchment. A summary of the main packages of resources is set out below.

SHMAK (Stream Health Monitoring and Assessment Kit)
This kit includes a manual of instructions and a range of equipment for measuring aspects of the stream environment and biological condition. Indicators assessed include:

- Steam environment
  - water velocity
  - water Ph
  - water temperature
  - water conductivity
  - water clarity
  - composition of stream bed
  - presence and extent of loose deposits on stream bed
  - stream bank vegetation
- Biological data
  - types of invertebrates
  - types of periphyton

These indicators are used to calculate an overall score for the stream and classify stream health.

A computer package for entry of data and calculating scores as well as the full SHMAK manual and various identification images can be found at https://niwa.co.nz/freshwater/management-tools/water-quality-tools/stream-health-monitoring-and-assessment-kit.

Stream Sense
This is an Environment Waikato programme. Information about the programme and resources can be obtained at: https://www.waikatoregion.govt.nz/assets/WRC/WRC-2019/stream-sense-getting-Started.pdf

Stream sense has many similarities to SHMAK but is targeted at a community and secondary school audience. It provides a comprehensive and well set out resource. The manual includes instructions on assessment of:

- The catchment;
- The stream reach;
- Habitat assessment along the stream reach;
- Chemical and physical factors;
- Biological survey.

Waterway Self Assessment Scale
This approach was developed by AgResearch (published in 1997) and is aimed at rural landowners and intended to allow them to assess their own waterways. It is designed to require a minimum of equipment and knowledge. It involves visually assessing the stream area and filling out a questionnaire giving ratings to a wide range of indicators of stream health. A “Self Assessment Index” is then calculated from these scores to classify the overall condition of the waterway.

The self assessment scale gives a quick, broad assessment of waterways that can be easily undertaken to show major changes in stream health.

Waicare
This is an Auckland Region programme that involves community groups and schools in waterway monitoring and action. The programme is particularly focused on urban waterways. Monitoring resources cover a similar range of data collection as SHMAK. See www.waicare.org.nz.

Whitebait Connection
This programme was developed in Northland and utilises material from a range of the other waterway programmes and adds additional focus around stream life. It is targeted at community groups, tangata whenua and schools. Assessments cover:

- The catchment;
- Habitat assessments;
- Invertebrates;
- Freshwater fish;
- Water clarity.

Cultural Health Index for Streams and Waterways – *Indicators for recognising and expressing Māori values*.
This approach was prepared for the Ministry for the Environment in 2003. An updated version from 2006 is available for download here: https://environment.govt.nz/assets/Publications/Files/cultural-health-index-for-streams-and-waterways-tech-report-apr06.pdf. This assessment involves visual assessment of the site and completion of a questionnaire in a similar way to the waterway self assessment – but from a Māori perspective. It includes identifying feelings about drinking water and eating fish from the site plus the presence and historical use of "mahinga kai" at the site. Assessment form includes:

- Catchment;
- Stream habitat;
- Adjacent land use;
- Perceptions of safety of water for drinking and providing food;
- Mahinga kai (diversity and abundance);
  - Birds
  - Plants
  - Fish
- Access.

3.2.3 Wetlands

A wetland monitoring resource, the Handbook for Monitoring Wetland Condition has recently been developed along with an initial approach to monitoring Māori indicators of wetland condition.

Handbook for Monitoring Wetland Condition.
This publication was produced as part of a project to develop coordinated monitoring of wetlands, funded by the Ministry for the Environment's sustainable management fund. Phase one of this project involved developing a classification system for wetlands. The Handbook can be obtained from the Landcare research website at https://www.landcareresearch.co.nz/assets/Discover-Our-Research/Biodiversity/Restoring-wetland-ecosystem-functioning/handbook_wetland_condition.pdf.

The monitoring set out in the handbook has two parts to it:

Wetland record sheet: This provides a visual assessment of the wetland area and includes:

- Classification of the wetland (system, subsystem, wetland class, wetland form).
- Scoring of condition indicators.
- Scoring of pressures that are likely to affect future condition.

Wetland plot sheet: A series of bounded plots (standard size is 2m x 2m) are assessed. This involves three main components.

- Plant species presence, abundance and height in different structural tiers.
- Calculation of indicators based on abundance of introduced plant species.
- Physical and chemical parameters. Some of these are measured in the field, others require laboratory analysis of samples.

Māori Indicators – Wetland Monitoring Form

This is incorporated as an appendix in the Wetland Monitoring Handbook and was developed as part of the same project. A full report on these indicators can be found in the Appendices of the Handbook and is available at: https://www.landcareresearch.co.nz/assets/Discover-Our-Research/Biodiversity/Restoring-wetland-ecosystem-functioning/handbook_wetland_condition.pdf. This assessment involves evaluating aspects of the wetland from a Māori perspective, which covers:

- What is causing the problems – what is degrading te Mauri;
- Taonga and Mauri;
- Trends / Change – is the wetland getting better or worse.

3.2.4 Estuary and Marine

Resources for estuary and marine monitoring are less well developed than those for other areas. Some resources available are:

Estuary monitoring kit

An initial version of an estuary monitoring kit has been produced in Otago. This kit includes cockle counts, assessment of benthic communities, and basic classification on sediment cores on tidal mudflats. NIWA has a copy of the monitoring toolkit available on their website at: https://niwa.co.nz/te-kuwaha/tools-and-resources/ng%C4%81-waihotanga-iho-the-estuary-monitoring-toolkit

Cockle counts

These are a relatively widely used indicator in estuaries. For example, the Guardians of the Pauatahanui Inlet are continuing a regular cockle count programme in the Pauatahanui Inlet that began in the 1970s. The latest count protocol can be obtained from, Guardians of Pauatahanui Inlet (https://www.gopi.org.nz/).

Kaimoana Survey Guidelines for Hapū & Iwi

These guidelines were produced in 2003 by the Ministry for the Environment. They are aimed at providing hapū and iwi with information and a suggested process for undertaking a survey of kaimoana resources. They also have considerable attention to building partnerships with other organisations that have an interest in this resource. The guidelines cover assessment of main coastal rocky shore shellfish and seaweeds. They broadly set out the process for designing a survey and give standard record sheets for undertaking a qualitative survey at points on the coastline, and for quantitative survey involving counts within quadrats on a series of transects.

The Kaimoana Survey Guidelines for Hapū & Iwi can be obtained from the MfE website: https://environment.govt.nz/assets/Publications/Files/kaimoana-manual_0.pdf

3.2.5 Social and Community Context

There are apparently no packaged resources or kits available at present for assessing the social and community context of projects in New Zealand. A general outline of areas to consider when monitoring of social and community context are set out below.

Community involvement

A range of indicators can potentially be used to provide a general understanding of the level of community involvement, these include:

- Volunteer numbers and hours provided;
- Local employees involved;
- Level of local membership;
- Numbers of key partnerships/ relationships with the project for e.g., land access, advice, pest control help etc.;
- Local donations and sponsorship.

These types of data can be used to look at changes in the level and types of direct involvement by the community over time. It can also be used to look at the level of benefit the project has provided through employment, and how many people have potentially received new skills or ideas from working on the project. Most of this basic information can potentially be collected from a well operated records system for your project (see section 2). To more effectively assess how your project has increased community knowledge or resulted in some change in behaviour, you need to look at evaluating environmental education outcomes of the project.

Evaluating Environmental Education

Developing good approaches to evaluating the effectiveness of environmental education is an area of study in its own right, but as with all monitoring it should be focused on evaluating performance against well thought out project objectives – in this case objectives relating to environmental education. A strategy and action plan for environmental education has been developed by Department of Conservation and can be found on their website here: https://www.doc.govt.nz/globalassets/documents/getting-involved/students-and-teachers/environmental-education-for-sustainability-strategy-and-action-plan.pdf.

The particular way you monitor the impact of your project in terms of environmental education will depend on the particular project and objectives you have set. A couple of areas that will often be relevant to environmental education performance are set out below.

- **Awareness of the project and project issues:** Some anecdotal information can be gained from the experience of group members working with others in the community. For example, group members may report that landowners and the community now know about the project, where as they didn't in the early stages of the project. Or, people are now much more positive and supportive of project aims than they were.

  To evaluate community awareness in a useful way that can be tracked over time, some form of community survey is often used. Ideally this should be first done at the stage you are developing your project and any environmental education objectives, and then repeated in the future to assess how awareness has changed. Such a survey involves using a questionnaire to ask people (face to face, over the phone, by mail etc) a series of questions about the project, related environmental issues etc. Assistance can be obtained from private consultants, university staff and other specialists to help you with the design of such a survey.

  A list of some different evaluation tools, including some approaches which will be useful to assessing project awareness are provided in Appendix A22.

- **Behaviour change:** Assessing whether community behaviour has changed in a way that is positive in terms of the project objectives is very important in showing how successful the project has been. For

example, do locals now avoid dumping weeds over the back fence into the reserve, or washing their car and sending detergent into stormwater drains? Are landowners now actively trapping animal pests on their land etc. Design of such assessments will again potentially require specialist input to develop effective questionnaire and survey approaches.

A list of some different evaluation tools, including some approaches which will be useful to assessing behaviour change are provided in Appendix A22.

- **Evaluation framework for an environmental education programme:** If you are specifically involved in environmental education as a key part of your activities, you may wish to consider evaluation of your whole environmental education programme. An example of a framework for doing this (from Karen Bell, Enviro Solutions NZ Ltd) is set out below.

What to evaluate?	Evaluation type	Means what?
The process	Methods	Are the intended processes in place, what happened and did that approach work? e.g., outline what was done and how and whether this worked e.g., the use of TV as in the "Reduce Rubbish" campaign.
Implementation	Methods	Is the project, programme or activity being implemented in the manner anticipated? e.g., Were participants and stakeholders satisfied with the implementation of the Reduce Your Rubbish Campaign? Were the goals of the campaign met? What worked and what could be done differently in future?
Outputs	Results	What were the material products of a project, programme or activity e.g. number of pamphlets produced, number of people involved, number of trees bought, amount of publicity for a sponsor eg how many TV ads were there in the Reduce Your Rubbish Campaign? How many people were involved?
Outcomes • educational • environmental	Results	What were the achievements or changes brought about by the project, programme or activity? This may be a supportive context or steps towards longer-term cumulative effects or impacts i.e., what did people learn and do differently or what environmental outcomes were achieved? e.g., In the Reduce Your Rubbish Campaign how many people changed their attitudes and behaviour and in what ways/why? What did people learn?
Impacts • educational • environmental	Results	What were the longer-term cumulative effects of the project, programme or activity? e.g., were there lasting changes? e.g., was there less waste disposed of to landfills? Did people make lasting waste reduction changes?

A wide range of different approaches can be used to evaluate theses different aspects of an environmental education programme. A list of a range of different evaluation tools is provided in Appendix A22.

3.2.6 Economic Monitoring of Biodiversity Enhancement Projects

Habitat restoration and protection projects can often provide significant economic benefit, particularly to local communities. It is possible to monitor the economic benefit that a project provides. Detailed

assessment of economic costs and benefits of projects is a specialist field. If you need to undertake such assessment for a larger project you may need to seek specialist advice.

Some aspects of economic benefit that are useful to keep in mind for projects are set out below.

Project Economic Benefits

Direct benefits
Direct benefits are the benefits sought by the project – that are set out in your vision, goals and objectives (see section 1). These benefits can be either monetary or non monetary. A monetary example might be where a project has an objective of restoring a harbour ecosystem to improve fish catches – and fishing incomes go up as a result of a successful project increasing fish populations. Non monetary benefits will be common for habitat restoration and protection projects and could include an increase in numbers and diversity of native birds, or clean water for swimming.

Indirect benefits
Indirect benefits are those that occur as a consequence of the direct impacts of the project, as a "spin off" from your main objectives. These can cover a broad range of areas and may be monetary or non monetary. Examples of some indirect benefits that may result from habitat restoration projects are set out below:

- **Spending in the local economy** on wages and local businesses that supply goods to the project. These are monetary benefits and can be obtained from your financial records (see section 2).

- **Agriculture benefits**
  - Improved stock health from cleaner water (less microbial contamination) increases production and reduces animal health costs.
  - Improved farm production through ability to graze areas more intensively - to their capability once forest wetland or other areas are fenced, rather than having to limit grazing to avoid stock moving into wetland or forest etc when feed gets short.
  - Ability to muster stock more quickly and easily due to forest and wetland areas being fenced off from stock access.
  - Avoiding stock losses in wetlands, waterways and other areas.
  - Lower risk of TB introduction because vector pests such as possums are controlled to low levels.

- **Tourism**
  - Increased visitors and period of stay for example, due to creation of a more attractive natural environment, opportunities for viewing wildlife etc. More people visit, stay the night, increasing local spending on accommodation, meals and other services.
  - Economic benefit can sometimes be provided by opportunities for the establishment of local interpretation and nature tour type businesses.

- **Property values**
  - Projects can sometimes make a significant impact on local amenity through for example establishment of vegetation, increasing birdlife, providing cleaner streams. This Increase in amenity means more people want to live in the area, raising demand for property and increasing property values in the area.

- **Reduced flood damage**
  - In some catchments projects involving major planting initiatives may have benefits in reducing rapid flood run off and reducing bank damage etc.

Project Economic Costs

Direct Costs
The money that the local community spends on the project through e.g., bills paid directly, including where they are funded through subscriptions, donations and sponsorship.

Indirect Costs
The costs of any negative impacts that result from the project. Again, these can be monetary and non monetary. For example, fencing of a waterway to improve water quality may result in a stock water supply system having to be installed. This would be a monetary indirect cost to the farmer. Another example would be danger to other people's domestic pets from traps and pesticide use (a non monetary indirect cost).

Valuing non monetary costs and benefits

Often projects generate non monetary benefits or costs, for example increasing native bird diversity, or improving recreational appeal of a stream. So how do you put a dollar figure to that?

One approach to valuing non monetary costs or benefits is to estimate a likely “willingness to pay” (WTP) for the specific product/ benefit. This is the maximum amount an individual would pay for the product/ benefit. For example, how much are individuals in the community prepared to pay to be able to swim in a clean local stream. This can also be expressed as “willingness to accept compensation” – or the amount of compensation an individual would expect to receive to forgo the benefit e.g., how much would an individual have to be paid as compensation for not being able to swim in a clean stream and having it replaced by a slimy foul smelling one. While these are theoretical approaches – they can be useful in giving a broad indication of the value associated with a project.

Overall Project Economic Benefit or Cost

Once all costs and benefits have been identified and valued, the total of costs is subtracted from the total of the benefits to calculate the net benefit (or cost) of the project.

APPENDICES

A1: Individual Voluntary Contribution Records

Project: ______________________

Name: ______________________

Month & Year: ______________________

Use like a diary. Note all costs. Start a new sheet each month.

Date	**Hours**	**Other costs** (mileage, equipment, machinery use)	**Details**

A2: Individual Employee Time Sheet

Project: ______________________

Name: ______________________

Month & Year: ______________________

Use like a diary. Note all costs. Start a new sheet each month.

Date	**Hours**	**Other costs** (mileage, equipment, machinery use)	**Details**

A3: Monthly Project Hours Record

Day	WINZ Employees	Employees	Contractors	Volunteers
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
Total				
Grand total				

Summary of numbers of people

Average hours worked by an individual per month	Number of WINZ employees**	Number of employees	Number of contractors	Number of volunteers
0-2 hours/ month				
3-10 hours/ month				
11-60 hours/ month				
61-120 hours/ month				
Over 120 hours/ month				
Total*				

Notes: *If there are no employees/ volunteers – enter zero in the total; **subsidised

A4: Grant Record Form

Project Name: _____

	Application					Delivery			
Project Idea or Title	Funding Source	Due Date	$ Sought	Date Sent	Outcome	Date Contract	Grant $	Project Due Date	Date Completed
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
			$				$		
Totals			$				$		
			$ Sought	Number Made	Number Successful		$ Granted		Number completed

A5: Individual Grant Expenses Form

Project Name: ________________________ Sheet _____ of _____

Grant: ________________________ Total Grant Amount: ________________________

Date	Reference Number	Payee (who you paid)	Description	Amount ($)	Balance ($)	
					$	⇦ Opening Balance
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	
				$	$	

A6: Project Partners & Supporters Record

Project Name: _____

Organisation or Individual Name	Contact Person	Phone	Email	Description of Involvement/ Partnership	Special notes or conditions	Record Date

A7: Issues & Innovations Record (Project "Learnings")

Project Name: _____

Issues

Date	Description	Type*	Actions	Who	When

Innovations

Date	Description	Type*	Actions	Who	When

<u>*Type options:</u>

1. **Operational:** Associated with operational work on habitat protection/ biodiversity protection & enhancement etc.
2. **Community:** Associated with community relationship and support, landowner involvement etc.
3. **Financial/ economic:** Associated with access to funding, financial management etc.
4. **Group/ organisation management:** Associated with group dynamics, responsibilities, maintaining involvement etc.

A8: Track Record Form

Block/ Project:

Track diagram and notes – or refer to attached aerial photo or map.

Section Location		**Length**	**Date**	**Track Type***	**New or Maintain**	**Notes**
Start	Finish					

<u>*Track Type options:</u>

1. **Animal Control Route (ACR):** e.g., bait station or trapline, marked with tape, little or no cutting
2. **Access Track (AT):** Some cutting and occasional benching of steep areas
3. **Public Access Track (PAT):** High quality access track maintained for public use includes benching, drainage, crossings etc.

A9: Weed Infestation Record

Completed by: _____ Date: _____

Location name: _____ GPS: _____

Pest Plant

Common name: _____ Tentative name: _____

Scientific name: _____ Sample taken: _____

Infestation

Description/ sketch of infestation location:
Vegetation Description (predominant species in the area):

Feature	**Estimate (tick appropriate level or write estimate)**	**Notes**
Size of infestation	Estimate size in m² or hectares:	
Distribution of infestation	□ One small patch □ Locally scattered □ Local patches □ Scattered throughout □ Patches throughout □ Common throughout	
Invasion phase	□ Establishment (localised spread) □ Expansion □ Full occupation	
Threat	Threat to important biodiversity values: □ Low □ Medium □ High	
Invasiveness	How rapidly does it spread and invade new areas (species with bird or wind spread seed generally have high invasiveness): □ Low □ Medium □ High	
Difficulty of control	How difficult is the species to control? □ Low □ Medium □ High Species that can be easily killed by cutting, pulling or standard herbicides have low difficulty. Species that are difficult to control often have underground rhizomes, sucker or resprout and are difficult to kill with standard herbicides.	
Notes – possible control, etc		

A10: Weed Species & Control Summary

Project Area: _____

Species	Date Found	Weed Assessment							Control			Notes
		Distribution	Phase	Area of infestation (ha)	% of project area infested	Threat	Invasiveness	Difficulty of control	Area Treated (ha)	% of infestation treated	Date treated	

Phase: See growth curve diagram (1: establishment, 2: expansion, 3: full occupation)
Distribution: 1 (one small patch), 2 (locally scattered), 3 (local patches), 4 (scattered throughout), 5 (patches throughout), 6 (common throughout)
Threat: Threat to important biodiversity resources managed (High-H / Medium-M / Low-L).
Invasiveness: How rapidly does it spread and invade new areas species with bird or wind distributed seed that establishes vigorously are most invasive (H / M / L).
Difficulty of control: species that can be easily killed by cutting, pulling or standard herbicides have low difficulty. Species that resprout, sucker etc after cutting, have underground tubers or rhizomes, and are difficult to kill with herbicides are difficult. (H / M / L)

A11: Fencing Assessment Form

Block/ Project:

Fence diagram and notes – or refer to attached aerial photo or map

Section location		Length	Date	Fence class	New or repair	Difficulty	Materials				Notes	Date Finish
Start	Finish						Strainers	Posts	Wire	Battens		

Difficulty	**Fence Type**
L= Machine access, can machine drive posts. M = No machine access due to e.g. slope, but relatively easy hand digging. May be able to machine auger some of posts. H = Steep slopes and / or hard rocky hand digging.	Electric: 3-4 wire electric fence. Post: Conventional wire fence, but no battens. PostB: Conventional post and batten fence. Netting: Post and netting fence. Deer: Full height deer netting fence.

A12: Fence Condition Classes for Post & Batten Stock Fencing

The following classes can be used to classify fences:

Class	Description
1	Virtually new – complete new fence post, wire and batten.
2	Still fully stock proof, but may require maintenance in 1-2 years' time.
3	Some maintenance (relatively minor) required to replace occasional missing battens, tension wires etc. Fence is generally stock proof, but may have occasional places where stock are getting through.
4	Major maintenance required (e.g., some posts, battens, wire) but possible to rebuild fence. Fence is no longer stock proof – many places where stock can get through.
5	Fence no longer functional – does not restrict stock. Has missing sections and areas of collapse. Requires complete replacement.
6	No fence.


Class 3


Class 4


Class 5

A13: Trapping Record Sheet

Start each month on a new sheet

Operator: _____ Location: _____ Form Nr: _____

Date	Property	Line	Trap Type	Trap Nr.	Bait	Days set	Catch	Sex	Notes

A14: Bait Station Record Sheet

Start each month on a new sheet

Operator: _____ Location: _____ Form Nr: _____

Date	Property	Line	Bait station Nr.	Poison used	Amount Applied	Amount Removed	Notes

A15: Animal Control Summary

Property: _____ (Individual property name, or “all” if grand summary)

Year: _____

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Bait Stations	Number													
	Bait applied													
	Bait removed													
	Area of control (ha)													
Possum trapping	Number of traps													
	Trap nights													
	Kills													
	Average nights/ kill													
	Area of control (ha)													
Mustelid trapping	Number of traps													
	Trap nights													
	Kills													
	Average nights/ kill													
	Area of control (ha)													
Rodent trapping	Number of traps													
	Trap nights													
	Kills													
	Average nights/ kill													
	Area of control (ha)													
Cat trapping	Number of traps													
	Trap nights													
	Kills													
	Average nights/ kill													
	Area of control (ha)													
Total trapping	Number of traps													
	Trap nights													
	Kills													
	Average nights/ kill													

A16: Animal Observation Record – For key native and pest animal species

Start each month on a new sheet

Project Area: _____

Month: _____

Date	Time	Location (GPS or describe)	Species	Number observed	Name of observer	Notes/ behaviour
Total						

Summary Pest Animals:

Species:	Number:

Summary Key Native Species:

Species:	Number:

A17: Nursery Operations Diary

Project: ______________________

Date	Batch Number*	Action	Quantity	Notes

***Batch Number** = year/ month/ day/ species/ source (optional for batch nr, but include in first diary note)

A18: Plant Production Summary Sheet

Can be filled out as each stage is finished for a batch. *<u>Complete final stock take prior to planting.</u>*

Project: ______________________ Year: ______________________

Batch nr.	Source	Seed Treatment	Germination/ setting		Pricked out		Re-pot		Ready to plant	
			Quantity (e.g. trays)	Notes	Quantity	Notes	Quantity	Notes	Quantity	Notes

A19: Planting Record Form

Site: _____ Year: _____

Planting Diagram	**Planting Notes** (site preparation – e.g. spot spray, planting methods used)
	First Inspection Notes (end Spring after planting)
	Second Inspection Notes (Autumn after planting)

Planting							**First Inspection**				**Second Inspection**			
Species	Stock Type*	Number	Spacing	Approx. area (ha)	Date	Notes	Date	Number Alive	% Survival	Notes	Date	Number Alive	% Survival	Notes

*record nursery batch number if known

A20: Photo Point Record

Photo point location:

Location Name:		**Photo site Number:**	
		Grid Reference/ GPS:	
Date Established:		**Fieldworker Names:**	

Peg Placed at site: Yes/ No

Sketch of Location: *Identify photopoint location, key features to assist in location and direction of photographs taken.*

Photo frame Data:

Record information for individual photos taken at the photo point

Photo Nr.	Magnetic Bearing	Description	Time	Weather (sunny, etc.)	Focal Length	1st Date	2nd Date	3rd Date	4th Date

A21: Project Report Sheet

Project: _____ Period: _____

Habitat Protection & Restoration – Operational

Weed Control

1. Number of ecological weed species present (& list)		Weed species & control summary
2. Area affected by ecological weed species		Weed species & control summary
3. Weed control operations – area treated during period		Weed species & control summary

Fencing

1. Length of fence assessed		Fencing assessment record
2. Length of new fence built		Fencing assessment record
3. Length of fence maintained		Fencing assessment record

Pest Animal Control

1. Animals caught - species		Animal control summary
2. Animals caught - number		Animal control summary
3. Trap nights		Animal control summary
4. Total area trapped (ha)		Animal control summary
5. Number of bait stations		Animal control summary
6. Total bait used		Animal control summary
7. Area with bait stations (ha)		Animal control summary
8. Pest animal observations – number of species seen		Animal observation record
9. Pest animal observations – number of animals seen		Animal observation record

Nursery

1. Number of “ready to plant” plants produced		Nursery records

Planting

1. Total number of plants planted		Planting records
2. Total area planted		Planting records

3. % survival to end of 1st summer after planting | | Planting records

Project Specific Operational Monitoring

1. Describe monitoring undertaken and present results | |

Habitat Protection & Restoration – Outcome

Fauna Observations

1. Number of key native fauna species seen - species | | Animal observation record
2. Number of key native fauna species seen - number | | Animal observation record

Photo points

1. Present repeat photos of photo points taken | |

Project Specific Outcome Monitoring

1. Describe monitoring undertaken and present results | |

Social & Community Context

Social & Economic
Employee & Volunteer Involvement

	Hours	*Nr.*	
1. Hours worked and number of employees (avg/month)			Monthly project hours records
2. Hours worked and number of volunteers (avg/month)			Monthly project hours records
3. Hours worked and number of contractors (avg/month)			Monthly project hours records

Environmental education

	Nr.	*Notes*
1. Newspaper/ printed media articles on project		
2. Television or radio items on project		
3. Newsletters/ pamphlets provided to community		
4. Talks/ seminars/ field days etc provided		
5. Work with local schools/ student involvement		
6. Other community involvement/ education		

Partnerships

	Nr.	*Notes*
1. Number of organisations that provide support or advice to the project		
2. Number of individuals that directly support the project through membership, landowner contribution etc.		

Project Specific Social & Community Context Monitoring

1. Describe monitoring undertaken and results	

Funding & Economic Performance

Income

	$	*Notes*
1. Number of grants received over the period		
2. Total grant income over the period		
3. Total of all other income (e.g. members, sponsors)		

Expenditure

	$	*Notes*
1. What was the total amount spent on the project		

Spending in the local community

	$	*Notes*
1. What was the total amount spent on wages (ex PAYE)		
2. What was the total amount spent on contractors and other local businesses.		

Project Specific Economic Monitoring

1. Describe monitoring undertaken and present results	

Project Management

Issues and Innovations

1. List any key issues that have faced the project (see issues and innovations record).

2. Key innovations or solutions you have come up with (see issues and innovations record).

A22: Evaluation Tools for Environmental Education Programmes

A list of evaluation tools, a brief description of them and ideas on when they could be used is provided below. This document is provided by Karen Bell, Enviro Solutions NZ Ltd.

	Evaluation mechanism	Description	Possible use or value
1	The use of pre/post campaign research (mostly via phone and written questionnaires.	This helps assess involvement or attitudes and behaviour prior to implementation and afterwards.	Helpful to gauge the effectiveness of a project and assess whether you have preached to the converted.
2	Questionnaires: • Telephone surveys • Administered face to face	A series of specific structured questions which may be read out and answered over the phone, asked by an interviewer face to face or provided as a form to fill in.	Provides quantitative information often from a large number of people. Useful is you need numeric analysis/ representative samples. Can provide information about perceptions but is simple.
3	Website questionnaires.	Provides information on-line on initiatives. These tend to be a short number of structured questions (e.g., Sorted website).	This can provide quick and easily analysed feedback on specific questions. Useful quantitative information.
4	Observational and field surveys.	This involves going "into the field" and observing behaviours, and asking people questions.	Useful to substantiate the findings of questionnaires & gain a more in-depth understanding of a project of initiative.
5	Semi-structured interviews.	Guided conversations where broad / open-ended questions are asked. Can provide qualitative information. Relatively informal and relaxed.	To gain information from people on an issue or topic. It is possible to find out about people's perceptions and why they think or do something.
6	Focus group sessions with those affected by a project.	A small group discussion (often facilitated) on a topic/issue. A broad (open ended) question or questions is usually asked.	To collect information about an issue with a small group of selected people (about 8 people allows full participation).
7	Workshops – either independently facilitated or not.	A meeting where all participants are involved in the discussions and come to a conclusion about a topic/issue.	Useful for gaining feedback on a project or for discussing options. Independent facilitation can be useful.
8	Hui.	Similar to a workshop. Culturally appropriate workshop in which tikanga Māori is followed. Sometimes held on a marae.	Useful for gaining feedback on a project or for discussing options, particular from Māori participants.
9	Case studies.	In-depth studies of particular projects and approaches. These can be used to gather information on the way something was approached.	Useful for new or complicated projects, or when there is insufficient funding for other evaluations.
10	Developing, regularly monitoring and reporting on indicators of success.	Indicators help track progress and monitor change. Indicators provide signs of the success of the project.	Performance indicators show whether the outcomes of a project satisfy the objectives. Output indicators can quantify project outputs.
11	Reflective discussions and questioning.	This is the use of simple reflective questions such as: • What did you like? • What would you change? • Where to from here.	Can provide useful qualitative information. Help to work out what worked well and could be done again and how to improve things in the future.
12	Team evaluations and inhouse meetings, seminars and workshops.	This could be to plan an evaluation or for the actual evaluation process and may be for the project team or the team and participants.	Useful for reflection and learning. Can take time to assess whether a project is on track.
13	Video or photos documenting of project activities and progress.	This provides a visual record of the project activities and progress.	Useful to show people how a project works and what it looks like. Can be used to promote a project.
14	Environmental impact assessments.	These assess likely impacts of a particular course of action.	To assess environmental outcomes or a particular course of action.
15	External peer review and audits.	This provides an independent assessment of the project or activity and may be carried out using a variety of methods.	Useful when an independent review is needed, when things are technically complex or to provide credibility.

	Evaluation mechanism	Description	Possible use or value
16	Participatory appraisal approach.	Participants are involved in appraising the worth of options, including determining what these options are.	For participatory evaluations and when the input of key stakeholders is needed.
17	Economic analysis and modelling (including cost benefit analysis).	Identifies the costs and benefits of various options, such as roading options.	Useful for potentially expensive projects.
18	Diary of project activities.	This provides a log or record of the project and documents the process and key events etc.	Useful as a record of process used for a project.
19	Surveying participants at project events.	Similar to observational and field surveys.	Useful to gain in-depth understanding of a project or initiative.
20	SWOT analysis – for mid-term project reviews.	Strengths, weaknesses, opportunities and threats to a project are identified either by an individual, as a group brainstorm or in a small group or workshop.	To identify the strengths, weaknesses, opportunities and threats to a project which can be useful reflection as a mid-term review of a project.
21	Employing consultants for specialist information/advice.	Provides some form of expertise that is needed for a project to progress, such as an indicators expert or market research company.	To ensure that the methods used are appropriate and produce good / credible independent results. Useful for complex technical issues.
22	ORID approach to evaluation.	• Objective data – what happened? • Reflect – on the project • Interpretation – what does this mean? • Decision – on where to from here?	Provides some structure to involving people in an evaluation and provides qualitative information.