



Pacific Invasive Species Battler Series



**USE THE FRAMEWORK TO PLAN
AND IMPLEMENT AN INVASIVE
ANIMAL SUPPRESSION PROJECT**



Department of
Conservation
Te Papa Atawhai



SPREP
Secretariat of the Pacific Regional
Environment Programme





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DISCLAIMER

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This is a live document reflecting the latest technical information at the date of publication. It will need to be updated as new information and technology becomes available. Please check the [Pacific Regional Invasive Species Management Support Service \(PRISMSS\)](#) website to ensure you are using the latest version.

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Cover photo: © Christina Nasiu, Consultant, BirdLife International. *As part of the rodent control program at the ERWHS to assess the effects of Black rats on biodiversity and crop production, developing and empowering the capacity of women is key to addressing food security and wellbeing challenges.*



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Our vision: A resilient Pacific environment sustaining our livelihoods and natural heritage in harmony with our cultures



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Dear Invasive Species Battler,

We are a diverse bunch of people in the Pacific region, which spans about one third of the earth's surface and encompasses about half of the global sea surface. We have ~2,000 different languages and ~30,000 islands. The Pacific is so diverse that its **ecosystems** make up one of the world's **biodiversity** hotspots, with many species found only in the Pacific and nowhere else. In fact, there are 2,189 single-country endemic species recorded to date. Of these species, 5.8 per cent are already extinct or exist only in captivity. A further 45 per cent are at risk of extinction. We face some of the highest extinction rates in the world.

The largest cause of extinction of these endemic species in the Pacific is the impact of **invasive species**. Invasives also severely impact our economies, ability to trade, sustainable development, health, ecosystem services, and the resilience of our ecosystems to respond to natural disasters.

Fortunately, we can do something about it.

Even in our diverse region, we share many things in common. We are island people, we are self-reliant, and we rely heavily on our environment to support our livelihoods. We also share many common invasive species issues as we are ultimately connected. Sharing what we learn regionally makes us and our families benefit economically, culturally, and in our daily lives.

The Invasive Species Battler series has been developed to share what we have learned about common invasive species issues in the region. They are not intended to cover each issue in depth but to provide information and case-studies that can assist you to decide about what to do next or where to go for further information.

The SPREP Invasive Species Team aims to provide technical, institutional, and financial support to regional invasive species programmes in coordination with other regional bodies. We coordinate the **Pacific Regional Invasive Species Management Support Service** (PRISMSS), the **Pacific Invasive Learning Network** (PILN), a network for invasive species practitioners battling invasive species in Pacific countries and territories, and the **Pacific Invasives Partnership** (PIP), the umbrella regional coordinating body for agencies working on invasive species in more than one Pacific country.

For knowledge resources, please visit the Pacific Battler Resource Base on the SPREP website:
<https://brb.sprep.org/>

Thank you for your efforts,

SPREP Invasive Species Team



About this Guide

The Invasive Animal Suppression Framework is a National Invasive Species Coordinators and PRISMSS Partners initiative, aimed at helping countries and territories standardise effective planning and delivery of invasive animal suppression work. This publication is part of a collection of Battler guides on managing invasive species; see the Battler Resource Base at <https://brb.sprep.org>. **Bolded and underlined words** are linked to a technical definition in the list of **Key terms** at the end of this document.

This guide is for anyone in the Pacific region who wants to plan and deliver a project to **suppress invasive animal** populations. Whether you are a technical expert or a concerned local community member, we created this guide to help you protect the **values** you care about. Although the Invasive Animal Suppression Framework is designed to protect nature, it can also be used for safeguarding crops and homes.

The Invasive Animal Suppression Framework specifically address **feral** invasive animals that are land-based and established in a particular area. It focuses on ground-based **methods** and excludes topics related to weeds, insects, diseases, freshwater, or marine invasive species or the use of aerial **tools**.

The Invasive Animal Suppression Framework uses a simplified framework adapted from the IUCN Guidelines for Invasive Species Planning and Management on Islands (2018). It aligns with the regional **Guiding Framework for Invasives Species Management in the Pacific** but has a narrower scope, focused on land-based invasive mammals rather than covering suites of invasive species across the biosecurity spectrum. This Invasive Animal Suppression Framework was informed by New Zealand's Department of Conservation (DOC) *Operational Planning for Animal Pest Operations: Standard Operating Procedure* and recommends the use of tools and methods legally permitted in New Zealand.

All projects aimed at suppressing invasive animals in the Pacific region must comply with the regulatory framework of the country or territory in which the project is being conducted.

Verity Forbes and Kate Steffens from New Zealand's Department of Conservation (DOC) developed the Invasive Animal Suppression Framework. Gina Weldon (DOC), Nick Poutu (DOC), Souad Boudjelas (DOC), and Keith Broome (DOC) provided peer review.

PRISMSS partners are instrumental in sustained invasive species suppression work in the Pacific. In developing this document, special mention goes to Steve Cranwell (Birdlife International), David Moverley (SPREP), and Tehani Withers (SOP Manu). Thank you also to Tiffany Straza for the editing of this document.



Why do we need to suppress invasive animal populations?

Invasive animals whose harmful impacts are well documented in the Pacific region include rats, feral cats, feral pigs, and feral goats. Rats and cats prey upon native birds, reptiles, and small mammals. Pigs and goats disrupt **ecosystems**, causing soil erosion and nutrient imbalances through their digging, trampling, and browsing. These impacts are detrimental to local communities, leading to economic losses, food scarcity, and health risks as diseases are spread to humans and animals, and these impacts are worsened by **climate change**. Invasive animals that flourish in altered climate conditions will increase their damage, further threatening regional prosperity. A practical response to climate change is to reduce invasive animal impacts by suppressing their populations. In New Zealand, it has been demonstrated that keeping invasive animal populations low over time benefits nature, crops, people, and the economy.



Did you know?

The problem with invasive animals is not actually their presence – it is the damage they cause.



Suppression compared with eradication

Both suppression and eradication are options for managing pests.

Suppression aims to reduce invasive animal numbers in a specific area over time. It is often used when complete eradication is impractical due to difficulty or cost. Suppression, also known as 'management' or 'control', is used for well-established pests.

Eradication aims to completely remove invasive animals from a defined area within a specific timeframe. The decision to eradicate is typically based on early detection, controllable reinvasion pathways, available tools, and a favourable cost-benefit balance.

Why is planning important?

A strong emphasis is placed on planning because it is the cheapest and safest form of progress. Good planning will help you avoid common mistakes and achieve your goal (Figure 1). Planning helps to determine whether a project is possible, identify risks, allocate resources effectively, and set meaningful measures to determine whether the work is making a difference. It ensures everyone is working towards the same goal, with the right information, tools, and engagement. Good planning practice includes regular review of a plan to adapt to changing circumstances. It is also important to maintain the enthusiasm and support of others involved in the project.



Did you know?

Most projects do not go wrong, they start wrong! We tend to have a bias toward action, which means we act first, think later. Wanting to get moving is natural, but for big or complex projects, we need to slow things down and plan. Use expert advice to avoid making expensive mistakes.

There are three supplementary resources to the Invasive Animal Suppression Framework. First, the **Templates and Prompts** resource translates the Invasive Animal Suppression Framework into a structured format, like a form, to make it easy to use. The first-level chapter numbers align with those in the Invasive Animal Suppression Framework, making it easy to cross-reference between the two. This means that if you ever find yourself unsure about a particular aspect, you can simply return to the Invasive Animal Suppression Framework for more guidance. The other two supplementary resources are worked examples of a **Feasibility Assessment Report** and an **Operational Plan** which provide fictitious but practical demonstrations of the level of information needed.



FIGURE 1. The Plan-Do-Review Cycle

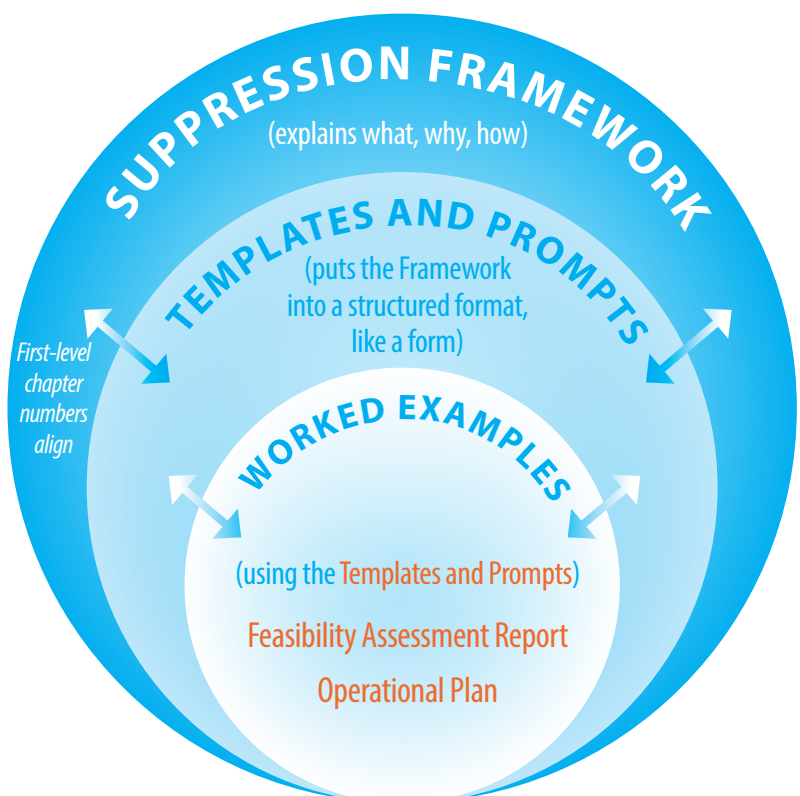


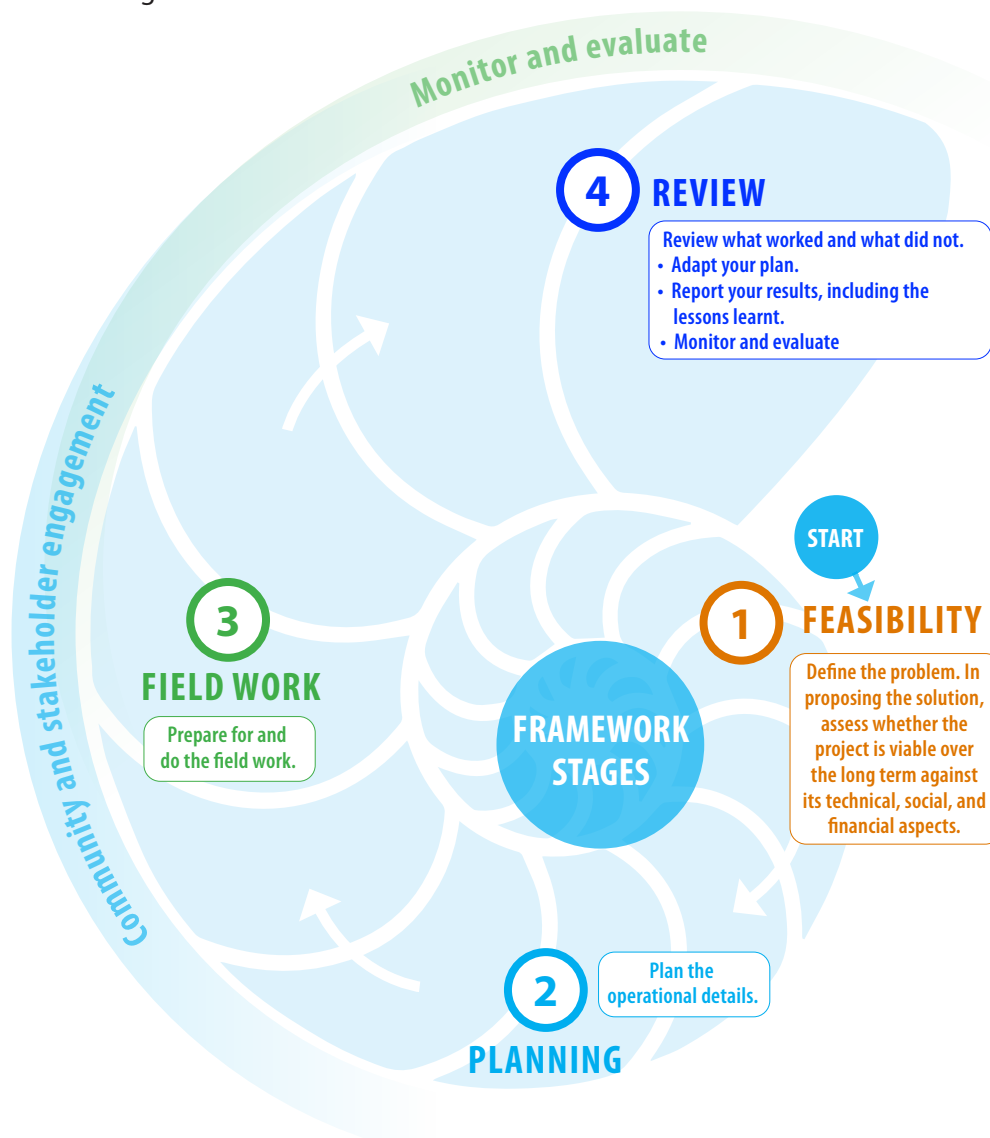
FIGURE 2. The relationship of the Framework to the Templates and Prompts and worked examples.

Project mentoring

Having a mentor to work with throughout the project lifespan will give you the best chance of success. The mentor should be someone who is familiar with the site, suppression and ecological principles, the values needing protection, and the socio-political context. Contact **PRISMSS** to find a suitable mentor to support your project.

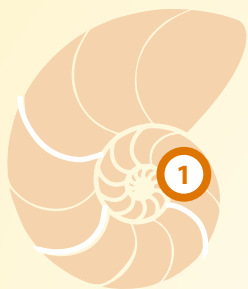
What is the Invasive Animal Suppression Framework?

The Invasive Animal Suppression Framework outlines four project stages (Figure 3) for planning and delivering a project to reduce invasive animal numbers and keep them at low levels over time, safeguarding what matters most to us. The four sequential stages, which need to be worked through in order, are: Feasibility, Planning, Field Work, and Review.. The circle on the outside shows that Engagement, **Monitoring**, and Evaluation are done throughout the project lifespan to ensure continuous improvement. Figure 4 provides an overview of the Invasive Animal Suppression Framework stages.



Adapted from the Project Cycle in IUCN (2018)

FIGURE 3. Invasive Animal Suppression Framework.

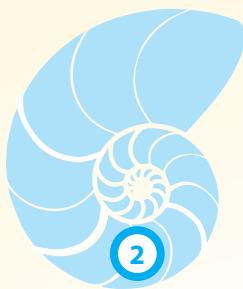


1 FEASIBILITY

Preparation actions

Feasible projects are achievable, sustainable, and acceptable. Here, you will assess whether the project is worthwhile and possible. This will entail gathering baseline information to understand the problem and determine if suppressing invasive animals is the right solution. You will evaluate options, choose the best approach, estimate costs, and identify dependencies. Securing long-term funding is essential because if the project stops, the invasive animals will bounce back.

If it becomes evident that the project is unlikely to succeed and neither research nor additional funding will make it feasible, then it is best not to proceed with it.



2 PLANNING

Planning actions

In this stage, you will create an Operational Plan to achieve your project goals. Focus on the specific actions, resources, and staff needed to carry out the project, ensure its sustainability, and evaluate if it is bringing about the desired changes.

Creating a timeline and mapping out actions will help you keep the project on track.

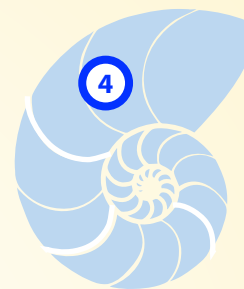


3 FIELD WORK

Doing actions

During this stage, you will put the Operational Plan into action and maintain records to track progress.

After delivering the suppression work, you will check if the invasive animal numbers have been successfully reduced to the desired target level. Then, you will measure how much progress you have made toward achieving your overall outcome goal.



4 REVIEW

Learning actions

This stage is about refining your knowledge and the project long-term to sustain the progress made. You and your team will examine what happened compared to the initial plan, capture the lessons learned, and begin a new, refined plan in preparation for the next round.

Analysing levels of invasive or valued populations to inform decisions will be an ongoing task, and one that is sometimes done annually.

FIGURE 4. Introduction to the four stages of the Framework.

The Invasive Animal Suppression Framework

This next section steps you through the four stages of the Invasive Animal Suppression Framework: *feasibility, planning, field work, and review.*

1 Feasibility · Is the project possible?

This preparation stage offers guidance on assessing whether your project is possible and worthwhile, capturing the analysis in a Feasibility Assessment Report. The Feasibility Assessment Report should explain the goal(s) and scope of the project, provide site details, identify the community and stakeholders and their needs, outline the project's delivery and monitoring design, and highlight the required resources and long-term funding. Throughout this process, you may discover dependencies or knowledge gaps and identify ways to address them. Additionally, you will collect baseline information to understand the problem and determine if invasive animal suppression, targeting one or multiple species, is the right solution.



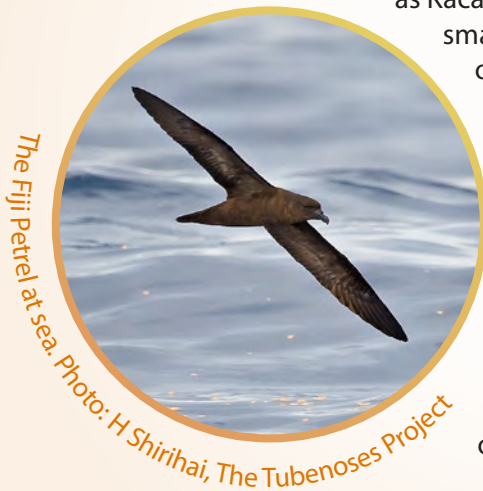
1.1 Setting the project goals and scope

- a. *Describe the value(s) you want to protect.* The project is important for safeguarding what matters to you. To protect the value you care about, you need to understand it. For instance, to protect a native bird species, you must consider its habitat, diet, breeding, home range, seasonal behaviour, and nesting success rate.
- b. *Describe the problem.* Start by understanding the presence and density of the valued and invasive animals at your site. Building this understanding requires **initial monitoring** to establish baseline information. Once you have information on what invasive animals are present at your site, assess which animals are causing the problem and how they are creating a harmful impact. One way of doing this is to create a simple food web illustrating the pressures on the value and how they interact (Figure 5). The food web exercise will help identify the priority invasive animal(s) to target for suppression and will reveal questions that need to be addressed before proceeding. For instance, in the Kacau case study, initial information revealed Kacau populations were under threat of extinction caused by feral cats, feral pigs, and rats. Project planning needed to factor in suppressing all three invasive animal populations to save the Kacau.
- c. *Describe the invasive animal and the harm it is causing.* Describe the target animal's ecology (such as breeding, behaviour and life cycle, diet over the seasons, home range, and preferred habitat), known distribution, and impacts. Highlight knowledge gained from the site (for instance, how and when the target animal established at the site) and indicate whether further research is needed to understand the problem.

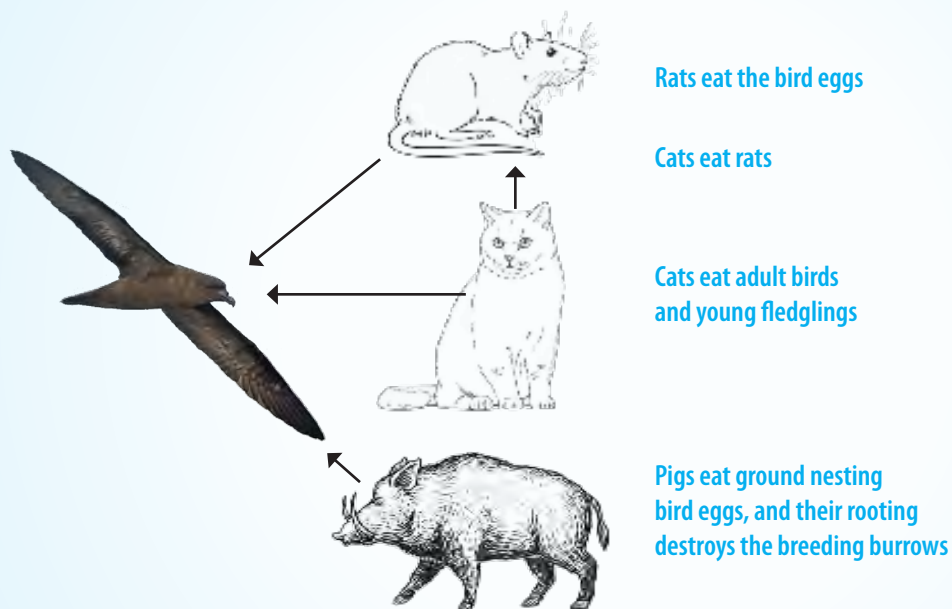


CASE STUDY: Invasive animal suppression planned for Gau Island to protect endangered Kacau seabirds

In 2023, a project plan was formed to protect two endangered species of petrel seabirds, known as 'Kacau', in Fiji. The Kacau ni Gau is one of the world's most endangered birds with total numbers up to 50 individuals. The second species, known as Kacau vula, is found on Fiji's main island, Viti Levu, with smaller numbers on other islands in Fiji. The rapid decline of Kacau vula numbers is mainly due to the presence of invasive animals. Feral cats prey on adult petrels and grown nestlings during fledging, while rats eat eggs and young nestlings. Pigs destroy the petrels' breeding burrows and prey on ground-nesting bird's eggs.



The project plan is intensifying past suppression efforts to reduce invasive animal numbers to recover the Kacau vula population, and developing local skills and knowledge to prevent the extinction of Kacau ni Gau.



The food web reveals the invasive animals' impact to the Kacau at all lifecycle stages: breeding, reproductive, fledging, and adult stages. It also illustrates the possibility that reduced rat numbers may cause cats to increase their harmful impact to Kacau due to lower food availability.

FIGURE 5. A basic food web showing the Fijian Kacau's relationship to invasive animals on Gau Island.

d. *Describe the goals of the project and the rationale behind them.* Having clear goals helps to define what you want to achieve in terms of the values you aim to protect. Goals, also known as outcomes, serve as the desired endpoint and are separated into SMART targets that are specific, measurable, achievable, relevant, and timebound. For instance, for the Kacau case study:

- A result target for rats could be to suppress rat abundance to less than 5% tracking tunnel index (a specific measurable target) within the Kacau breeding area (a specific site) by 2027 (a specific timeframe).
- An example of an outcome target is to increase the Kacau population to more than 20 breeding pairs on Gau Island by 2032. This outcome target is accomplished by achieving the result target through the invasive animal suppression efforts at the site.

Before setting the result target, it is first useful to know the level to which the invasive animal population needs to be reduced for the desired outcomes to be achieved. If the result target levels are not known, they can be informed by looking at similar suppression projects. Additionally, the result target levels will become clear as you learn from the project itself.

The [New Zealand DOC Biodiversity Inventory and Monitoring Toolbox](#) provides information on the methods that can be used to monitor native and invasive animals. While this Toolbox does not inform about result target levels to achieve outcomes, it will help with how to monitor species to gauge whether your result target levels are sufficient or need adjusting. Use a [PRISMSS](#) mentor to help with this advice.

e. *Describe the site of your project.* Visit the site to understand its characteristics. Some important factors to consider are:

- the location and physical environment of the site, including the size (in hectares) required to safeguard the desired values. Note that there are no strict rules for selecting a site for a suppression project and there are too many variables to determine a general optimum size for invasive species projects;
- the vegetation and terrain, waterways and any inaccessible areas (such as gorges);
- values present, such as [biodiversity](#) values, and their known distributions in the site;
- how and when the invasive animal(s) established at the site, including pathways through which the target animal may reintroduce itself;
- land ownership, occupants, cultural values and use (such as crops, harvesting, and hunting areas);
- site access (entry and exit points);
- existing infrastructure, such as buildings, roads and wharves;
- historic and current suppression projects;
- other issues as relevant, such as surrounding land use and whether the proposed project provides challenges or opportunities for the community (such as education or eco-tourism); and
- whether any local people are present who understand the size of the commitment and are willing to sustain the suppression activities.

If you are working on an ecological restoration project, the pressures may involve a combination of invasive species like animals, weeds, or insects, diseases, or other threats such as fire and land use changes. Dealing with complex threats to restore an ecosystem is a broader topic than what is covered in this guide. For holistic site management advice, refer to the Battler guide [Build resilient ecosystems and communities by managing invasive species in high-priority sites](#).

- f. *Outline the project's scope.* For an invasive animal suppression project, the scope covers the size of the treatment area and the animals the project aims to manage (that is, both the invasive animals for suppression and the valued animals that require protection). Constraints, like budget or timeframe, fall within scope. It is also good practice to outline any exclusions. the
- g. *Describe any additional benefits* from reducing levels of the target invasive animal, such as the benefits to crops within neighbouring sites
- h. *Describe potential unintended consequences* of the project. State whether there are knowledge gaps that require research.



Did you know?

The foundation of successful project management is having a clear goal and committing to its scope. Many projects succumb to 'scope creep', which is the continuous or uncontrolled growth of a project.

Never lose sight of your goal and be disciplined about controlling its scope, from beginning to end.

1.2 Designing the suppression and monitoring regimes

Once you begin talking to the community and others, there will be some level of expectation that you will do something. For this reason, it is useful to identify what is broadly technically feasible before consulting. Do a desk-top exercise to determine how to reduce the invasive animal populations to protect the value(s) you care about, and how to measure change.

- a. *Evaluate the suppression method and tools* based on the site's size and the strengths and weaknesses of the available tools. Options typically include toxin baits, traps, or hunting. When weighing costs and benefits, factor in potential risks to people, crops, non-target species, and the environment. Incorporate strategies into your plan to reduce or prevent these risks. Take into account the community's preferences when selecting a suppression tool. Before using poisons, particularly in rural areas, determine if the risks to people are acceptably low through elimination, mitigation, or avoiding the hazards altogether.
- b. *Select the suppression method and tool(s) for your project. Describe the tool layout within the site and estimate the start and finish dates for using them.* Clarify how often the tools will be required in the future to sustain the project goals (for example, every three years). Some projects use multiple tools in various stages; provide the reasoning behind using them in sequence. If you are dealing with multiple species of invasive animal, describe the logic for targeting them in a specific order.

If you have chosen to use anticoagulant, comply with the Battler guide *Use anticoagulant rodent bait safely*.

- c. *Select the monitoring methods and tools and establish a **monitoring regime**.* Monitoring methods and tools will vary based on the animals involved. There are three main types of monitoring done for different reasons, but all are connected to an invasive animal suppression project goal (Figure 6).



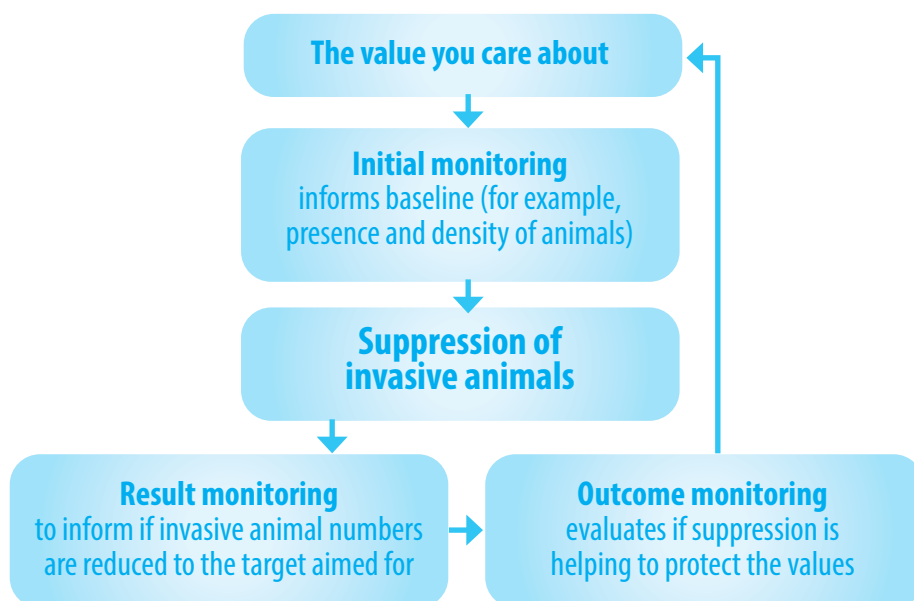


FIGURE 6. Relationship between protecting the value, initial monitoring, suppression work, result monitoring, and outcome monitoring.

- i. **Initial monitoring** provides baseline information on the animals (both valued and invasive) at the site. Initial monitoring can answer feasibility questions, identify knowledge gaps, and address stakeholder information needs. The initial monitoring method and tools you use depend on what baseline information you need to inform the state of the value or the problem. For instance, to understand whether a native bird population is at risk, initial monitoring may include measuring the bird population abundance and breeding success *before* suppression work.
- ii. **Result monitoring** determines if invasive animal numbers are reduced to the desired level. For instance, in an ecological project protecting native birds from rats, result monitoring may involve measuring rat abundance *after* suppression treatment to assess the reduction in rat numbers.
- iii. **Outcome monitoring** measures changes in the value being protected. For instance, to protect a native bird population, monitoring may include measuring the bird nesting success and conducting bird counts *after* suppression work, to gauge the extent of protection from suppressing rats. Outcome monitoring also helps determine if you need to review and adapt the level of suppression for the target invasive species.



FIGURE 7. Collecting monitoring data in the field from rat tracking tunnels, New Zealand. Photo: DOC

Sometimes, monitoring is needed for other reasons that may be peripheral to your goal, such as monitoring non-target species to ensure they are not impacted by the suppression method (and changing tools as you need to mitigate any harmful impacts).

These links provide valuable guidance on designing your monitoring regime: [Monitoring: Predator Free 2050 \(PF2050\) \(doc.govt.nz\)](#), [Introduction to animal pest monitoring v1.0 \(doc.govt.nz\)](#), and the NZ Department of Conservation [Inventory and Monitoring Toolbox](#). The latter resource lists each method with standards to plan the monitoring including how data is to be recorded and analysed.

- d. *Evaluate the suppression and monitoring methods, tools, and design against technical achievability.* Taking into account your proposed methods, tools, and suppression design (scale, timing, and frequency of suppression tools being applied), assess how likely you are to reach the project's outcome goal, and make a recommendation on the project's technical feasibility.

1.3 Assessing social acceptability

- a. *Ensure the project is consistent with any legal or planning requirements in your country or territory.*
- b. *Describe what permits and consents are needed, what precedents exist for these, and the typical lead-in times required.*
- c. *Describe any institutional and political awareness, support, or opposition.*
- d. *Before starting consultation, develop a Communication Plan to guide and keep track of discussions and updates.* The plan should include communication aims, the main messages to deliver, and a list of communication resources to be used. There tends to be low understanding of the seriousness of the invasive species problem among local communities. Even the term 'invasive species' is mainly relevant to experts. For these reasons, your messages, style, and delivery need to be targeted.
- e. *Engage the local community and key stakeholders early.* Their support is crucial for project success. Through consultation, you will gain an understanding of the project's impact on the community (pros and cons). Consider what can and cannot be managed. Whenever possible, try to create opportunities for community members and stakeholders to actively participate and contribute to the success of the campaign. It will help people become personally invested in the project's success.
- f. Consider aspects like leadership, church authorities, elders, vulnerable or marginalised groups, landowners, stakeholders, cultural significance, site uses (like local food-collection practices), species of interest, or any other ongoing projects with the community. Be cautious about making promises, because promises may lead to misunderstandings or expectations that are hard to manage once set. Avoid giving the impression of project approval without it being officially granted.
- g. *Identify who will be consulted and notified and the specific purpose for each person or group.* If you need to obtain consent from landowners or occupiers, take note of any conditions they may have.

To get started on your communication stage, refer to the Battler guide [Campaign to battle invasive species](#).

CASE STUDY: Involving the Niuean community in feral pig suppression

Feral and wandering domestic pigs cause significant environmental and economic damage in Niue. They harm the revered uga coconut crab populations integral to Niuean culture, as well as seedling coconuts and plantation crops like cassava, vanilla, kumara, and taro.

In 2014, a successful plan was developed to trial socially acceptable and effective methods to suppress pig populations. Locals were trained as professional hunters, and shot pigs were distributed within the community for food – a popular move which ensured community support for the programme. The hunting project led to a remarkable reduction in pig numbers. The monitoring of pig rooting, plantation damage, and hunting records identified the problem's origin in the eastern and north-eastern side of Niue. The problem was also confined to this area. Result monitoring showed pig numbers were halved within 12 months of the hunting programme. Although data on the ecological and economic outcomes were not available, a key lesson was that five trained hunters with dogs and Global Positioning System technology were effective for suppressing Niue's pig problem.



Hunters Huggard, Dan and Hele with a wild boar, Niue. Photo: SPREP 2016

1.4 Sizing cost against scale, time, and frequency

- a. *Outline a recommended project structure*, including project management, decision making, staff recruitment, any work contracted out, agencies directly involved, and how they contribute to the project.
- b. *Identify the numbers of staff and the skills needed to get the job done*. Include technical support, peer review of planning, communications, and data management support. List any training or development needs.
- c. *Briefly describe what infrastructure and equipment is required*, such as storage facilities that may already be at the site or what might be required to make storage available and fit for purpose, vehicles, suppression tools, and so on.
- d. *Describe important logistical constraints* and what is needed to resolve them. Logistical constraints could include difficulties accessing the site, available suitable transport, or seasonal limitations.
- e. *Summarise any knowledge gaps that might require research*. This section does not need to solve these areas of uncertainty, only identify them.
- f. *Describe key dependencies* and actions required to manage them. For example, suppressing wandering and feral pigs in Niue was dependent on employing skilled hunters for the duration of the project, which in turn was dependent on local community support.

- g. *Estimate the annual costs* for equipment, infrastructure, services, staff, and training. Give an approximate timeframe of suppression and monitoring frequency over the long-term. While detailed budgets are not expected at this early stage, it is important that investors are given clear and realistic expectations of the project, enabling them to evaluate the costs, risks, benefits, and timing. Some costs may not be known during the feasibility assessment but become clear as you build the detail of your Operational Plan. For this reason, costs at the feasibility stage may differ from the operational budget.
- h. *Decide and recommend.* Provide a clear concise recommendation, with rationale.
- i. *Locate an independent peer reviewer for the Feasibility Assessment Report* before putting the proposal to investors. Contact **PRISMSS** if you need help finding a suitable reviewer.
- j. *Secure long-term funding for the ongoing delivery of the project.* Identify any knowledge gaps that research could address and include the costs for that too. Long-term funding is critical because if the work on the ground stops, the invasive animal numbers will bounce back. Two Battler resources are available to help generate support for your project: *Use economic analysis to battle invasive species* and *Create sustainable financing for invasive species management*.

CASE STUDY: Saving Kākerōri in Takitumu Conservation Area, Rarotonga by getting the long-term arrangements in place

In 1989, there were only 29 kākerōri birds left in the world, and they were on the brink of extinction in Rarotonga. Researchers found that rats were their main predators. In the same year, an annual rat-suppression programme using poison in bait stations was set up, which continues to this day.

In 1995, the Cook Island Environment Service talked with traditional landowners and community leaders about the possibility of establishing a Conservation Area in the kākerōri's main breeding zone. This led to the establishment of the Takitumu Conservation Area in 1996, now privately managed by three families. Thanks to the creation of the Takitumu Conservation Area and the sustained rat suppression, the kākerōri population in and around the area increased to at least 471 birds by 2017.



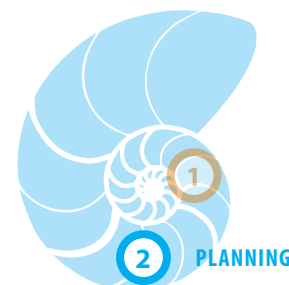
Juvenile kākerōri. Photo: Kate Beer (DOC)

"This is one of the true success stories in Pacific conservation, and one that the Takitumu Conservation Area landowners can be justifiably proud of."

Robertson et al. 2020

2 Planning · Is the project well planned?

Writing an Operational Plan prepares you to deliver, monitor, and maintain your project. A detailed plan covering actions, resources, staffing, logistics, and timing shows that you are knowledgeable and ready to achieve your goals.



2.1 Preparing the Operational Plan

- a. *Use the information from the feasibility stage to write an Operational Plan:* the Plan is essential for effective project management and will evolve throughout the life of the project. Eventually, it will have a few documents linked to it.

Describe the value(s) for protection, the problem, scope, goals, and targets. Also briefly describe the findings from the feasibility assessment.

The suppression part of the Plan should include tasks on reducing the invasive animals to a specific target level, against a budget and timeline. The monitoring part of the Plan should align with your result and outcome targets and describe your monitoring regime, including data collection and analysis. Ideally, you will establish initial monitoring for a set period to collect baseline data before starting the suppression work, so you can evaluate whether the suppression is bringing about the desired changes. Remember to include monitoring for other reasons as you need, such as monitoring non-target species.

Establish a financial system for budget management. A spreadsheet, for example, will allow you to itemise costs, forecast expenditure, and administer, oversee, and track the finances related to the project.

Be prepared to adapt your plan to deal with unforeseen circumstances, such as extreme weather events.

- b. *Organise the project team and structure, resources, logistics, and training:*

- Set up a financial management system.
- Identify tasks and **milestones** and place them against a timeline so you can track the project.
- Assemble a team with the right skills for the job. Establish a clear team structure with defined leadership, roles, and responsibilities. Responsibility for a task should be designated to a single individual, even if they have assistance from others. Remember that monitoring may require different skills than suppression work. Provide support and relevant training to team members as necessary.
- Prepare task lists with task specifications for briefing field staff. Task specifications are instructions describing how to do certain complex tasks. These enable workers to do the task while in the field. (There is a task specification example in Appendix 3 of the **Templates and Prompts** resource.)

Battler tip

A general rule is to always start any plan with a clear sense of why you are doing it, what you want out of it, and what that entails. While this may feel like duplication, plans tend to be targeted to different audiences and clarity is important.



FIGURE 8. Training Raumatariki staff on how to use bait stations, French Polynesia.
Photo: Roberto Luta

- Include health and safety standards for team safety, public safety, and team wellbeing into your Plan. (There is a field safety plan example in Appendix 2 of the [Templates and Prompts](#) resource.) As well as describing how to use the tools safely (such as the safe handling of toxins, traps, or firearms), include suitable weather conditions for doing the work and any other safety factors such as topographical risks.
- Provide team briefings, allocate tasks, and ensure everyone understands their responsibilities (there is a checklist to help you with your team briefing in Section 3 of the [Templates and Prompts](#) resource).
- Obtain equipment, supplies, and any storage needed.
- Establish a calendar of planned tasks, taking into account weather and climate information (see above regarding health and safety standards), cultural factors, and local activities.
- Organise transport to and from the site access points and elsewhere as needed.
- Prepare and obtain warning signs when methods include pesticides, translating them into local language(s). Factor in the size and number of signs needed. Organise the sign locations and describe them in your Plan. Signs need to be located at normal points of site entry, and at least A3 in size. Warning signs in other places can be A4 in size.

See Figures 9a–c for examples of warning signs used by DOC for suppression projects using toxin and traps. Changes on tailoring the sign to your project are suggested in speech boxes. Further examples of toxin warning signs can be found here: [NZ DOC warning sign templates](#).

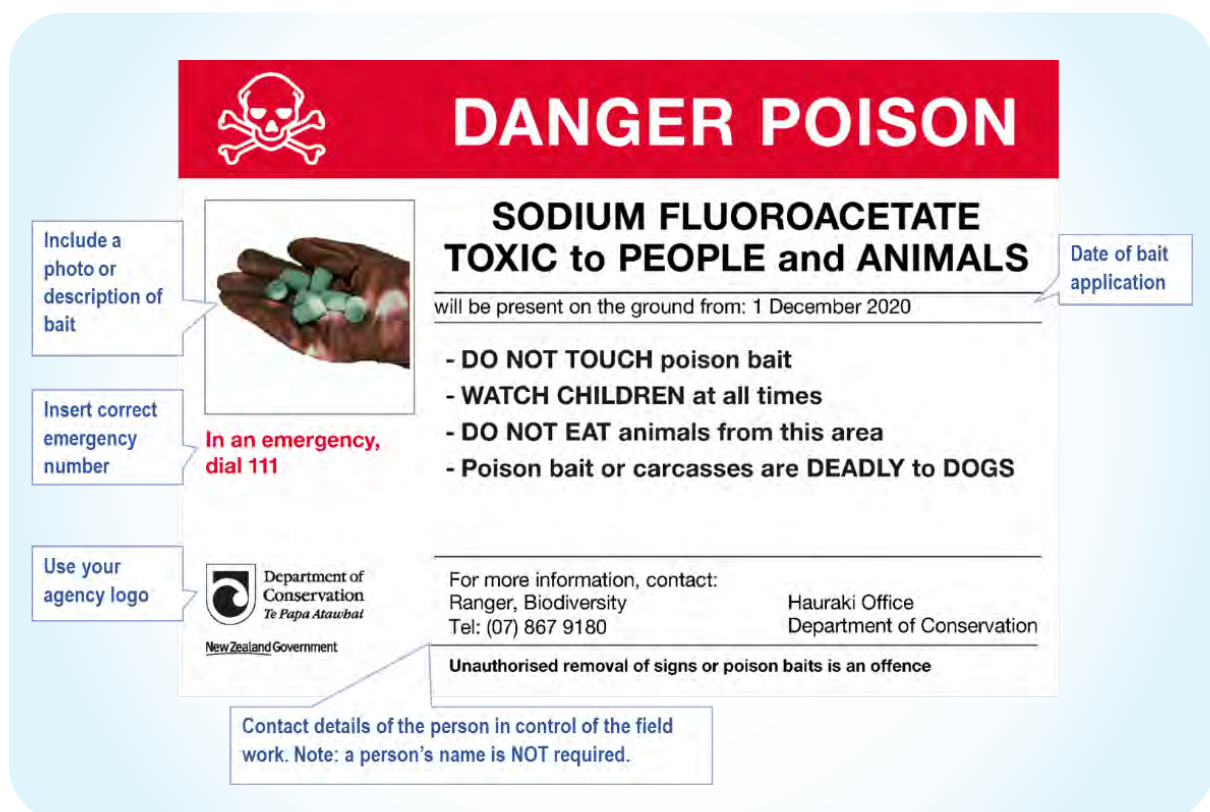


FIGURE 9a. Example of a warning sign for using the pesticide sodium fluoroacetate, used by DOC for suppression projects using toxin.
Changes to tailor the sign to your project are suggested in speech boxes.



FIGURE 9b. Example of a warning sign used by NZ DOC for suppression projects using traps. Changes to tailor the sign to your project are suggested in speech boxes.



FIGURE 9c. Example of a warning sign used by NZ DOC for suppression projects using traps. Changes to tailor the sign to your project are suggested in speech boxes.

c. *Prepare for consultation:*

- Create a project information sheet summarising the proposed operation, its purpose, methods, intended dates, and a map of the treatment area with clear boundaries, roads, and recognisable features (there is a project information sheet in Appendix 1 of the [Templates and Prompts](#) resource). Include risk assessment and mitigation details, the job title and organisation of the person in charge, and their contact information. The project information sheet can be provided to people during consultation, so they have a written record of the project.
- Build on the Communication Plan started in the feasibility stage. Specify who to engage with (such as landowners, community leaders, and so on) and the reasons for these interactions. Determine the appropriate timing for communication and choose suitable methods that reflect Indigenous cultural values, traditional protocols, and processes. Record any relevant discussion outcomes or consents needed to work on the site, with specific species, or with the chosen methods.
- Schedule reminders for individuals who need them (such as landowners, land occupants, or community leaders) before the operation begins.

Battler tip

Keep your messages as simple as possible in your communication material. Answering these questions will guide the key points:

- What is the problem?
- Why should I care?
- What can I do about it?



d. *Do your consultation:*

- Conduct consultation openly. Be prepared to adapt your plan to address concerns about the project. Document your response to consultations, noting the actions you have said you will do, including consent conditions or reasons if you decide not to take any action. Remember to update the Communication Plan as you progress.

e. *After consultation:*

- Confirm the site, suppression methods, and tools. Once you have chosen the suppression method and tools, mark the tool placement on the site map, along with the site boundary, roads, and recognisable features.
- Have your Operational Plan peer reviewed, after updating it with current arrangements and feedback.



3 Field work • Is the project delivered well?

FIELD WORK



Do your readiness check (using the readiness checklist in Section 3 of the [Templates and Prompts](#) resource), then put your Operational Plan into action. Remember to adapt as you need to and keep records as you go.

3.1 Doing the work

- a. *Ideally, initial monitoring should be done before suppression begins* to establish baseline data for setting targets and monitoring results and outcomes.
- b. *Use the weather forecast to schedule a suitable start date for the suppression work.* Consider factors like fine weather periods required for applying toxin bait and ensuring safety.
- c. *Follow your Communication Plan.* Inform the community and stakeholders before embarking on field work.
- d. *Install and manage warning or project advocacy signs at all necessary locations before starting.* If using toxin, write the date of bait application on all warning signs. Keep the signs maintained throughout the operation stage and remove them when they are no longer needed.
- e. *Brief your team and receive their report-backs.* Routinely communicate with your team to provide them with updates. Provide maps and share information on sensitive boundaries and exclusion zones. Check that they know how to carry out the field work safely and effectively. Regular two-way communication with the team will help identify and resolve issues promptly. Keep a record of all briefings. (There is a checklist to help you with your team briefing in Section 3 of the [Templates and Prompts](#) resource.)
- f. *Proceed with the field work as delegated in the Operational Plan.* The project team should complete their designated tasks.
- g. *Maintain records during the delivery stage.* Note any specific issues encountered and any deviations from the planned approach, such as changes in timing, weather challenges, feedback from staff or stakeholders involved in the operation, incidents, and complaints. (There is a table to help capture Team Debrief discussions in Section 3 of the [Templates and Prompts](#) resource.)



FIGURE 10.
NZ volunteer setting rat traps to protect native birds in Taranaki.
Photo credit: Predator-Free Programme (npdc.govt.nz)

4 Review • How will success be understood?



This stage is about refining your knowledge and project to sustain the progress made. As you go through this cycle, you will not only maintain progress achieved but will also build expertise at suppressing invasive animal populations to protect the values important to you.

4.1 Conducting an annual project review

- a. *Debrief with your team and identify what went to plan and what could be improved.* Take note of what you would do differently next time and why.
- b. *Inform people that the delivery stage has ended* and update the Communication Plan.
- c. *Remove signs* when neither suppression nor monitoring tools are in use at the site.
- d. *Revise your Operational Plan for the next round of suppression*, taking into account lessons learned or changing circumstances. Consider factors such as:
 - strong views from new community leaders regarding certain aspects of the project;
 - disruption caused by extreme weather events affecting your site and species;
 - logistical changes, including transport, storage, and infrastructure;
 - improvement opportunities identified through experience at this site or elsewhere; and
 - project budget against actual costs.

If there are significant changes, be prepared to review the feasibility of the project.

4.2 Conducting result and outcome monitoring analysis and review

- a. *Carry out post-suppression monitoring*, in accordance with the monitoring part of your Operational Plan.
- b. *Record the monitoring data* according to the planned data quality standards.
- c. *Analyse the monitoring results to inform future planning.* Analysing levels of invasive animals or the state of the value will be an ongoing task, to inform future decisions. Sometimes this analysis is done annually.
- d. *Write an annual report and share it with the appropriate individuals*, including project sponsors if required. The report should consolidate the delivery, communication, financial, and monitoring aspects, including lessons learned, results not achieved, or unintentional impacts from the operation (for example, on non-target animals).

Discuss with **PRISMSS** the best way to share the information with those planning similar projects in the Pacific region. If you wish to publish the invasive species data from your project on the Global Biodiversity Information Facility to help other Pacific communities, environmental managers, and the global research community, refer to the Battler guide *Share Pacific Invasive Species data using the Global Biodiversity Information Facility*.

Store the report securely for future access and provide it to new staff or leaders as needed.

5. What comes next?

Suppression work is completed in cycles. You will iteratively 'plan, do, and review', adjusting the project based on lessons learned and changes in the local context.

Suppression of invasive animals has many benefits, including for local economies, native ecosystems, and priority native species. Suppression is often integrated into efforts aimed at restoring natural areas and building climate resilience. Ideally, the work done in a suppression project informs and is interlinked with this broader national, regional, and even global effort.

Consider sharing your work with the [Pacific Invasive Learning Network](#) (PILN), a network for invasive species practitioners battling invasive species in Pacific countries and territories, and the Pacific Invasives Partnership (PIP), the umbrella regional coordinating body for agencies working on invasive species in more than one Pacific country. The [PRISMSS](#) team is available to assist you in your work and in sharing its results.

Key terms

Biodiversity	Biological diversity or the variability among living organisms from all sources, including land, marine, and freshwater ecosystems and the ecological complexes of which they are a part; this includes diversity within species (including genetic diversity), between species, and of ecosystems.
Climate change	Changes in global or regional climate patterns that are evident over an extended period (typically decades or longer). May be due to natural factors or human activities.
Ecosystem	A community of plants, animals, and microorganisms in a particular place or area interacting with the non-living components of their environment (such as air, water, and mineral soil).
Establishment	The process of an invasive animal in a new habitat successfully producing viable offspring with the likelihood of its continued survival.
Feral	An invasive animal that is living in a wild state. (By contrast, a domestic animal means any cattle, sheep, horse, mule, ass, dog, cat, pig, or goat, but does not include any such animal that is living in a wild state, or any other animal not referred to in this definition notwithstanding that it may be living in a domestic state. A valued introduced is one whose presence is welcome because it provides recreational, economic, environmental, or cultural benefits to society.)
Initial monitoring	Programmes which measure baseline information at a site, such as the presence and density of invasive animals.
Invasive animal	An animal species taken beyond its natural range by people, deliberately or unintentionally, and which becomes destructive to the environment or human livelihoods.
Method	Method refers to accomplishing or approaching something in a systematic way (for example, trapping may be the method, while a leghold trap is the tool). It can also refer to broader strategies, such as ground control.
Milestones	In a literal context, a milestone is a physical marker on the roadside indicating the distance to a specific location. In a project context, it signifies a crucial stage that serves as a measurable point, helping you assess the progress towards completion. For example, the completion of a Feasibility Assessment Report is a milestone.
Monitoring	Programmes to detect change, including changes in the distribution and abundance of invasive species or the success of management projects, such as the recovery of native species impacted by invasive species.
Monitoring regime	A description of the systemic monitoring approach, detailing: tool selection, purpose (such as initial baseline, result monitoring, or outcome monitoring), sequence (order in which the monitoring tools will be deployed), duration (how long for), and frequency (how often).

Native	A species that occurs naturally on an island or in a specified area, having either evolved there or arrived there without human intervention.
Outcome monitoring	Programmes that evaluate whether the suppression work has brought about beneficial change in the values to be protected.
Pathway	The process, mechanism, or route by which a species is moved from its native area into a new area where it has not previously occurred.
Result monitoring	Programmes which measure whether the target suppression levels for the invasive animals have been achieved.
Suppression	Actions taken to reduce population levels, in this case of invasive animals. Also called management or control.
Tool	A tool refers to a specific mechanical way of accomplishing a task (for example, leghold traps and toxins may be the chosen tools, while ground control may be the described method).
Values	Four broad categories of values for protection include human health, the environment, the economy, and social and cultural values. Values may include intrinsic values (the value placed on something for what it is rather than what it can provide) or utilitarian values (such as value generated through primary industries).

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Join the Fight

Protect our islands from invasive species

Håfa Adåi Aloha
Mogetin
Rahn Anim
Alii Kaselehlie Len Wo
Ekawomir Omo Mauri
Mālō te ma'uli
Halo Tālofa nī
Halo Tālofa
Halo Tālofa
Ni sa Bula Fakaalofa lahi atu
Bonjour Mālō e lelei Kia Orana
Hello la Orana
Bonjour
Kia Ora

