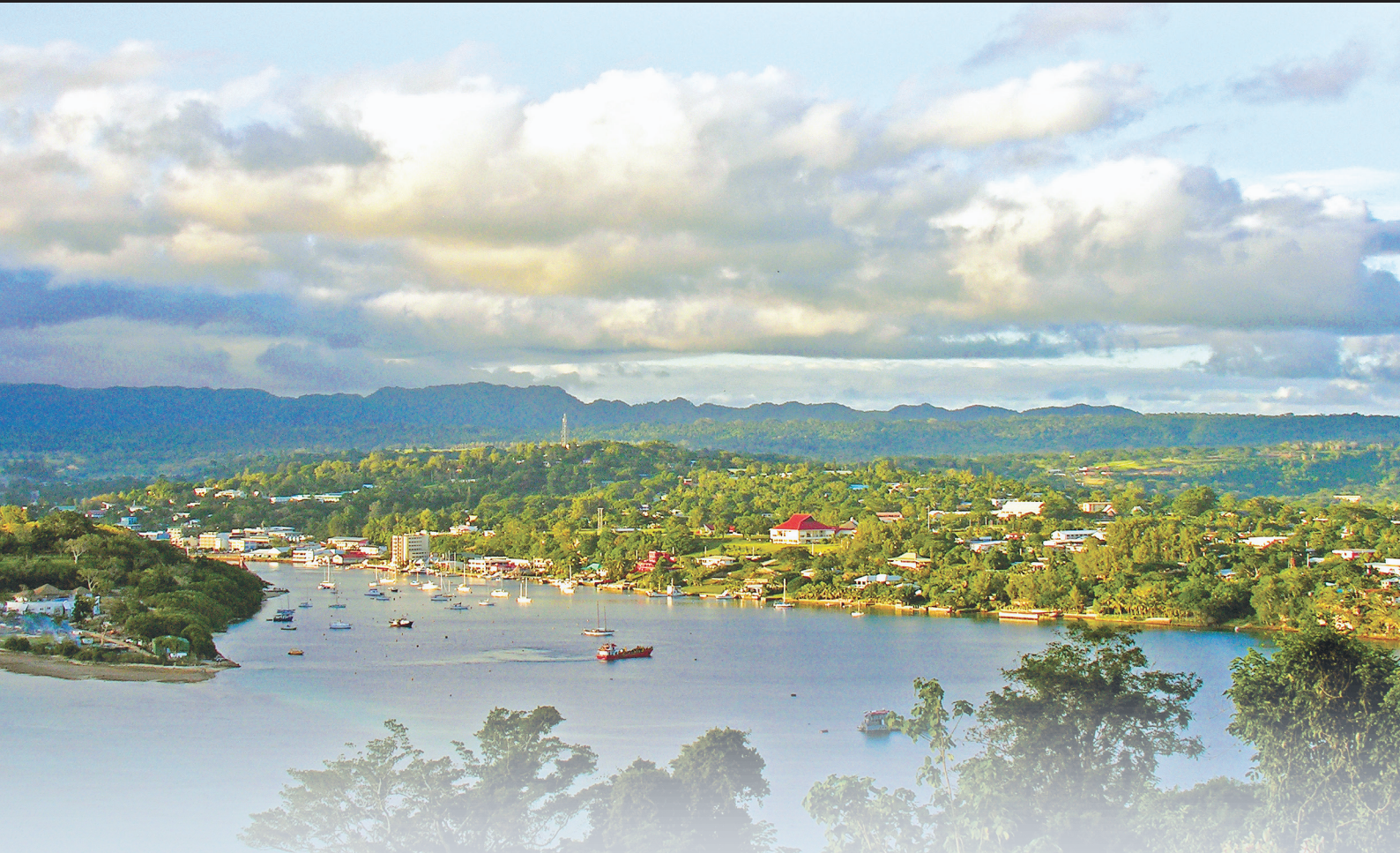




# Pacific Invasive Species Battler Series



## **CLEAN BOATS, CLEAN PORTS** A FRAMEWORK TO PROTECT PACIFIC ISLAND COUNTRIES AND TERRITORIES FROM INVASIVE SPECIES









**Pacific Invasive Species  
Battler Series**

**CLEAN BOATS, CLEAN PORTS**  
**A FRAMEWORK TO PROTECT**  
**PACIFIC ISLAND COUNTRIES AND TERRITORIES**  
**FROM INVASIVE SPECIES**





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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 single-country 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 *clean boats, clean ports* framework is a Pacific Regional Invasive Species Management Support Service (PRISMSS) Protect our Islands (POI) initiative to enable countries to better secure international entry ports that are gateways to priority domestic destinations.

This Battler Series publication supports the prevention of the spread of invasive species among islands within countries. The document outlines a flexible framework that recognises the diverse situations in Pacific island countries and territories and that capitalises on existing strengths, while highlighting achievable and aspirational targets.

This publication is part of a collection of Battler guides on preventing the spread of invasive species in the Pacific region. For an introduction, read the Battler publications [Protect our islands with biosecurity](#) and [Catch it early: invasive species early detection and rapid response](#).

This guide is targeted for decision-makers prioritising improvements to prevent invasive species arriving, establishing, and spreading, to guide the implementation of targeted enhancements. The guide aligns with many aspects of the regional [Guidelines](#) and particularly C1. Biosecurity – Preventing the spread of invasive species across international or internal borders.

David Moverley suggested the *clean boats, clean ports* concept. Monica Gruber developed the framework and prepared this guide based on the experiences and knowledge shared by many around the region, especially in-country Agriculture and Environment directors, managers, and officers and PRISMSS partners. Ray Pierce, Greg Sherley, Visoni Timote, and Loia Tausi contributed significant ideas to the *clean boats, clean ports* framework.

We also thank Huggard Tongatule (Niue), Atelaite Lupe Matoto and Viliami Hakaumotu (Tonga), Daffodil Silver Wase (RMI), Sam Panapa (Tuvalu), and the SPREP Invasives Species Team for their contributions to the development of the framework and this Battler Guide.



"South-south" sharing of knowledge from around the region to benefit everyone. © Monica Gruber, Pacific Biosecurity



# Why do we need to prevent the spread of invasive species?

We aim to stop the spread of [invasive species](#) to protect resources (social, economic, and environmental) from the potential harm caused by the arrival of new living things.

A small minority of invasive [pests](#) (animals, plants, and diseases) can devastate economies, health, agriculture, cultures, and lifestyles in the Pacific [region](#). Prevention of their arrival is ideal. But even with the best prevention measures, the risk of arrival can be minimised but not completely removed.

Sometimes an unwanted species arrives in a country and remains undetected for a long time. By the time it is discovered, it may have spread to other areas and caused even more problems. [Biosecurity](#) and [quarantine](#) efforts reduce the risk of any unwanted species spreading around the country.

Pacific island nations face an enormous challenge due to the increasing impacts of climate change. Ensuring each country is as resilient as possible to these challenges is a major priority for the region. While we are still learning about the impacts of climate change, we do know some of the effects that are likely to increase the threat caused by invasive species already present.

- Increased intensity and frequency of extreme weather events creates more frequent disturbance of the environment. Having to respond to these events also affect a country's ability to quickly respond to invasive species threats.
- Disturbance to natural and human infrastructure provides opportunities for invasive species to spread, as invasive species often prefer disturbed areas and have characteristics that make them good colonisers. Frequent events can prevent natural cycles from re-establishing, which increases conditions favourable to invasive species.
- Climate change may expand or shift the habitable range of species, including a broader range for invasive species which are typically already more able to colonise a wide range of habitats. Species that are only moderately harmful may be more harmful if the new climate conditions are even more favourable.
- [Native species](#) are typically not well equipped to change in response to different climate conditions, weakening their resilience against invasive species that benefit from changing conditions.

Reducing the threat posed by invasive species therefore provides a practical benefit to climate resilience. Ensuring invasive species impacts are minimised and new arrivals are prevented from establishing are key actions to support nature-based, nature-focussed adaptation to the impacts of climate change.

Because effective international and domestic prevention (of arrival, establishment, and spread) is the most cost-effective way to manage invasive species, these actions contribute directly to maximising climate resilience.



White terns on Atafu, Tokelau. © Ray Pierce, Eco Oceania

## What is the *clean boats, clean ports* framework?

Pacific island countries and territories collaborate for effective international prevention (Biosecurity/Quarantine). Biosecurity/Quarantine teams are commonly part of the Agriculture Ministry, Division or Department based at international entry points. Effective inter-island prevention of invasive species spread can be difficult because of the availability of only small workforces in distant islands and difficulties in keeping training up to date.

But the Pacific islands region is a diverse place. Differences among countries and territories due to population size, number of islands, and economic and development status all affect the ability to prevent the spread of invasive species. The following list presents examples of different situations—which are not mutually exclusive.

- Some countries have few agricultural or other exports but are highly reliant on imports. The risks posed by imported goods and materials (particularly construction materials) to subsistence agriculture and the environment need to be managed.
- Many countries have diverse islands and archipelagos, multiple entry points, and therefore many points of risk. Often, although main islands have robust international biosecurity, outer islands have little capacity because the populations are very small and infrastructure is limited. In all cases, communities have a major role; however, local communities often do not have the resources, time, or experience to manage biosecurity actions. Some countries have Agriculture Extension Officers on outer islands, who have many other responsibilities. Keeping everyone effectively trained is a challenge.
- Larger countries with agricultural economies use market access for exports and trade as a major driver for biosecurity. These countries often have relatively robust systems and a stable workforce and as a result can implement advanced tools, such as shipping container hygiene systems and fumigation.
- Development status and access to development funding can be used to maintain capability. Biosecurity and quarantine resources to prevent the spread of invasive species are often a lower priority than other needs such as health or education. In some rare cases, there is little government support for biosecurity, including in some very large, developed countries. For these countries, the *clean boats, clean ports* framework provides a mechanism for advocacy and a staged approach to build biosecurity from the ground up.

### Moving beyond a one-size-fits all approach to biosecurity

Not all countries face the same challenges or have the same needs. Therefore, a one-size-fits-all approach for to prevent the spread of invasive species is unrealistic. We suggest a regional approach that can incorporate this diversity. The *clean boats, clean ports* framework promotes flexible options that countries can adopt depending on their unique circumstances. The programme has other benefits that are discussed later in this guide.

One of the fundamental principles of preventing the arrival, establishment, and spread of invasive species is to manage risk at its source. The source of invasive species to outer islands is often the main port of entry or the island that is home to the country's capital. In this guide, we refer to this as the main island.

This is the basis for *clean boats, clean ports*: to manage invasive species risks at the main port(s) of entry. The *clean boats, clean ports* framework has the goals of (1) securing the [pathways](#) that species can use to spread and (2) reducing the numbers of, or removing completely, the key threat invasive species at the main island. This does not mean that invasive species risks at the outer islands (or special protected islands) should be ignored, and these risks are also included in the framework.

The initiative provides a checklist that focuses on steps to reduce the risk of invasive species:

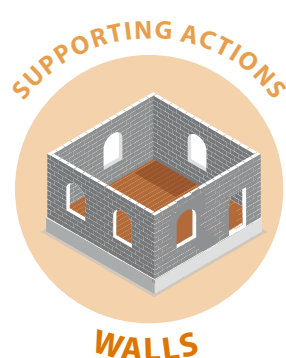
- at ports (and airports) and the areas around these sites at the main international arrival point, up to and including the whole island, and
- on boats, including smaller boats that operate locally as well as larger ferries and cargo vessels that service distant islands.

To make the framework achievable, *clean boats, clean ports* can be seen as a staged system for the range of actions that can be taken around a port and on local and inter-island boat traffic. While the main responsibility for *clean boats, clean ports* would be held by the existing Biosecurity or Quarantine teams, these teams can also involve other participants in biosecurity, such as environment officers.

The checklist has three stages or categories, with each building on the next. The stages can be viewed as a house or building with the foundations, walls (or pillars) and roof, with all required to add up to a complete and strong system.



Core, fundamental actions typically require few resources other than occasional labour and are already part of the activities undertaken by many teams as part of ongoing international biosecurity work. Examples include casual visual surveillance of ports and boats during regular inspections of arriving ships (and planes) and informal talks with members of the community, businesses, port officials, and so on. For countries and territories just starting out in biosecurity, these actions provide simple targets.



More complex actions require additional finances or other resources or more labour. These actions can be implemented by larger, more developed countries and territories and are a target for development assistance to smaller countries. An example is placement of monitoring traps for invasive animals (such as Coconut Rhinoceros Beetle, mongoose, or rats) and regularly checking the traps (replacing lures/baits and so on).



For many countries, the most complex actions will probably only be possible when major project funds are available, and the benefits are greater than the costs. These actions are typically implemented in the larger countries in the Pacific region, who are often exporters. However, advanced actions can also be undertaken through development assistance for smaller countries or those with fewer resources. Examples include the implementation of sea container hygiene systems (or their principles) and fumigation facilities.



The actions are arranged roughly according to their cost and complexity to implement and maintain, with foundational actions being the least complex, least expensive, and most likely to be implemented by many countries. Although it would be helpful to be able to identify the cost of fulfilling the checklist, the costs will differ among countries.

Countries identify actions from the checklists to suit their needs. All the checklist actions are already being done to a greater or lesser extent by many countries in the Pacific. The full checklist of actions is available on the [clean boats, clean ports website](#) and in the [assessment survey](#), with examples provided on page 10–11 of this guide.

## Protect our Islands ‘buddies’

To enhance biosecurity capability, the implementation of the *clean boats, clean ports* framework supports ‘buddies’ to work alongside the teams responsible for invasive species prevention and . The buddy’s role is to help implement new actions from the checklist or to increase the frequency of ongoing actions. A buddy could be a member of a non-governmental organisation already in-country, or someone from outside, a retired local expert, or a specialist from a regional agency. PRISMSS is aiming to develop a mechanism for connecting with Protect our Islands buddies as a regional service.

The skills of the Protect our Islands buddy, and the amount of time they need to spend in-country, will depend on the needs of the country. The need might be as simple as an extra staff member to reduce overwork for a few months, or run biosecurity workshops, or a specialist in control of a specific pest several times a year over a few years. In all cases, the buddy would provide advocacy support to government agencies, communities, and other interest groups to increase understanding around the need for well-supported biosecurity/quarantine teams. Contact [PRISMSS](#) for more information about the buddies.



Line Islands visit with Environment officers from Kiritimati. A protect our Islands buddy can support local teams with awareness-raising in outlying communities. © Ray Pierce, Eco Oceania

## How do we implement *clean boats, clean ports* in our country?

The good news is that in many cases, *clean boats, clean ports* actions are already part of what your biosecurity/quarantine teams are doing.

Primary *clean boats, clean ports* actions take place on the islands where there are international arrivals.

The first step is to identify all the *pathways* (both transport mechanisms and the types of goods) that invasive species could use to travel to other islands.

It is also most helpful to know what invasive species are in both the main island and the destination islands, so that the best type of actions can be selected. This list can be created in a desktop survey, through local knowledge, or using invasive species databases, like the Global Register of Introduced and Invasive Species ([GRIIS](#)) and the Global Biodiversity Information Facility ([GBIF](#)). Information on which invasive species and pests are known to be present in various countries can be found in the [Pacific Pest List database](#) and other sources on the [Battler Resource Base](#) (and should be recorded on a biosecurity register). Contact PRISMSS if assistance is needed.

Any specific sites that are important to protect are to be identified. These sites might be refuges for protected species, for example, or important harvesting sites.

Drawing a picture can be helpful to figure out these pathways, and based on the pathways, the goals for inter-island biosecurity can be set. This is easiest done on a map. The diagram below shows an example for a hypothetical country.

In this example, some of the key goals would be preventing new invasives (particularly rats, cane toads, and *Wedelia*) from reaching the conservation motu and preventing ship rats from reaching a distant motu.



The next step is to compile a list of all the biosecurity actions currently being done. Use the *clean boats, clean ports* list of actions as a guide and add to them as needed. This can be a very quick exercise as the list can be added to later. To make this assessment easier, we have developed an online [survey](#).

If the assessment is to be used as a basis for seeking development funding, it should be completed by the country's Technical Advisory Group for invasive species or other organisation or at a minimum by the government agency or agencies mandated to undertake biosecurity/ quarantine and invasive species management.

Once this assessment is complete, decide on priority actions that can be implemented easily or on actions that will need external support. PRISMSS partners can help you complete the survey and identify appropriate targets. Think about the ways a Protect our Islands buddy could help to implement some of these changes.



## Using iNaturalist to report and identify new invasive species in Tuvalu

The earlier a newly arriving invasive species is detected, the more likely it is to be eradicated. Everyone who lives or works at an international port of entry has an important role to play in [early detection](#). The simplest awareness message is "if something looks new, report it".

Some countries have systems such as help desks and freephone numbers to report new arrivals, but many developing countries do not. Importantly, even if the detection is reported, the new arrival also needs to be accurately identified. Small developing countries might not have experts with the skills needed to accurately identify a new species.

The [iNaturalist](#) app can help with both issues. Sam Panapa, a former Director of Agriculture from Tuvalu now working on the GEF 6 Regional Invasives Project, was alerted to a bird found in the Government building in Funafuti by Quarantine staff.

Sam posted a picture of the bird on [iNaturalist](#), and it was quickly identified by other members as the Jungle myna (*Acridotheres fuscus*). Tuvalu has close trading links with Fiji, where Jungle myna are widespread, and this was the most likely source of the bird found in Tuvalu.



© JM Garg, CC BY-SA 3.0

Sam has been using [iNaturalist](#) to help identify several other species. The [iNaturalist](#) system grades identifications based on whether the community agrees on an identification, improving data quality and ensuring the identification is certain.

The [iNaturalist](#) app is easily downloaded and used on any smartphone with a camera. Other digital applications and tools can assist with species identification, including those focused on taxonomic groups (such as [Pl@ntNet](#) or [PIAkey](#)) and fast and easy options such as Google Lens, although these lack the step of community verification.





# The *clean boats, clean ports* stages and actions

The *clean boats, clean ports* framework is a collection of actions arranged according to stages, with each stage building on the others and reflecting increasing complexity and cost to implement. Not all actions need to be implemented – the required actions depend on the needs of the country. The list is evolving, and the full checklist of actions is available on the [clean boats, clean ports website](#) and in the [assessment survey](#). Some examples are provided here.

## Foundational actions

- The country has a fit-for-purpose legislation/regulation framework for biosecurity.
- Biosecurity teams have enough staff to do their regular assigned work. This also applies if biosecurity actions are being undertaken by communities.
- Port workers, government agencies (Customs, Health, etc.) and businesses operating at the port are aware of biosecurity risks (species to look out for) and who to contact if any are found.
- Businesses, boat operators, other government agencies and communities support the work of the biosecurity team.
- An advocacy programme is in place to increase awareness of the benefits of invasive species prevention by all the above sectors.
- Checklists are provided to tourist operators to outline requirements for visiting protected islands and sites.
- A citizen science approach, such as use of the [iNaturalist](#) app, is used as an early warning system for reporting detections of invasive species.



Left: Show days help increase biosecurity awareness. Right: Avoiding contact between ship and shore, using a barge to offload is good biosecurity practice. Photos: © Monica Gruber, Pacific Biosecurity

## Supporting/Intermediate actions

- The **Pacific Marine Biosecurity Toolkit** is used to assess hulls for biofouling.
- Aggregates, timber, building materials, machinery, and so on are appropriately treated before arrival at the main island. Certificate of clearance is an alternative but must be rigorously implemented.
- International biosecurity requirements and obligations are consistently upheld.
- Biosecurity provisions for preventing domestic movement of invasive species are in place and followed. These provisions could include legislation, rules, protocols, regulations, or other mandates.
- Biological control (biocontrol) programmes are in place for priority weeds (to reduce numbers on the main islands and therefore the threat to other islands).
- Chemical or physical control of invasive species is used on board boats (for rats, insects, and other species).
- Regular port 'clean-ups' are organised to remove rubbish and weeds and to reduce/remove other places where invasive species can hide.
- Simplified fire ant surveillance is undertaken (using lures and checking for possible species of concern).
- Ongoing control is undertaken of high-risk species on the main island that are not found on destination motu/islands (such as weeds, rats, and fire ants).



## Advanced actions

- An Early Detection, Rapid Response or Emergency Response programme is in place (including planning, readiness, ongoing regular surveillance, and regular simulations) for priority species.
- If marine invasive species are present at the main island, ballast water of inter-island boats is exchanged in the open sea.
- Drone surveillance or other remote monitoring of key areas in the main island and vegetation analysis is used to assess weed extent, damage to plants, and loss or recovery of canopy.
- Targeted surveillance of other high-risk species happens regularly without support, or occasionally with support.
- Regular, scheduled surveillance is undertaken for all priority species.
- The country is an endorsed member of the regional **Sea Container Hygiene System**.





## A Customs Broker in Tonga finds a Giant African Snail at Tongatapu's main seaport

Siutoni Tupou, Head of MAFF-Quarantine Division for the Kingdom of Tonga, describes how her team dealt with a recent incursion of Giant African Snail (GAS, *Achatina [Lissachatina] fulica*).

"On Friday morning 26 August 2022, a Customs Broker found one snail on the doorstep of the Customs Office. On the same day, our Quarantine Inspectors scattered some Blitzem snail bait around the Customs compound. The next day, Blitzem was applied to the main port of Queen Salote wharf and imported container yards. The Quarantine Inspectors monitored and scouted for more snails three times over the following six weeks. To date, no further snails have been found, but daily radio announcements call for the public to report any more sightings."

Siutoni's team's experience highlights how effective awareness is to help prevent the establishment of new species and how other government workers can support the work of the biosecurity/quarantine teams.

The speedy action by Tonga's Quarantine team eliminated the risk of the snails travelling from the port to other island groups.

Giant African Snail is a priority species for prevention in the region. The snail can devastate all types of crops and carries a rat lungworm parasite that can cause a brain inflammation in people. It damages native plants, altering the natural habitats needed by native species. It also probably outcompetes native snails, which are a group that is threatened by invasive species in many Pacific countries.



Siutoni Tupou



Giant African Snail.  
© Alexander R Jenner, CC BY-SA 3.0



## Principles underlying the *clean boats, clean ports* framework

- Actions need to be achievable by the wide range of countries and territories in the Pacific region, to meet their needs. We need a system that caters for diverse situations.
- Control measures to keep populations low at the main entry point are important to reduce 'propagule pressure' – the risk of spread is increased by larger source populations and more opportunities to hitchhike.
- Inter-island/intra-island biosecurity should target the highest risk source (the international entry port or main island) and the risk species already present at that source. This prioritisation capitalises on the relatively larger number of people and infrastructure at these main island entry points.
- Biosecurity is treated as more of a continuum than a distinction between inter- and intra-island actions. The main entry point is the first 'gate' an invader must open, and often it is these points that are the source for threats to islands domestically.
- The framework aligns with the 'one health' concept. The framework focusses on all threats (regardless of whether it is a potential crop pest, health concern, or threat to biodiversity).
- The framework encourages continuing collaboration between Environment and Agriculture teams and aims to 'synergise' their actions.
- The framework aligns with the 'pre-export/pre-border' notional segments of biosecurity, undertaking actions at the source of the risk prior to (in this case, domestic) export. The main island is in effect acting as a good neighbour to outer islands.
- New actions do not replace any existing actions, plans, or projects, but only formalise the framework around the actions.



### Red imported fire ants: we are doing something right!

Red imported fire ants are a cross-cutting threat to the Pacific and have caused billions of dollars of economic harm, species extinctions, and human deaths elsewhere. Yet despite the threat being present and increasing for over 20 years, no incursion (arrival) has been documented on any Pacific island.

What is the reason for this success? Good biosecurity, particularly shipping container hygiene at ports across the region, is a likely contributor, as are training programmes in ant identification and surveillance at high-risk sites.

But the region must be constantly aware. Red imported fire ant is spreading in Queensland in Australia and at ports in China, a major trading partner for many countries in the Pacific.



© Phil Lester



# Benefits of clean boats, clean ports

## Benefits for countries

### *The clean boats, clean ports framework:*

- makes the most of infrastructure, legislation, and capacity already in place. In the rare cases where there is no biosecurity, it provides staged targets for capacity-building;
- recognises that all countries have different needs, challenges, and capabilities;
- reinforces that what countries are already doing is good, moving away from “do it our way, do it better” expectations;
- does not require new legislation. Existing legislative frameworks focus on international biosecurity, and domestic biosecurity provisions are typically limited to containing spread (and responding to incursions). Clean boats, clean ports overcomes this constraint by focusing on containing spread;
- focuses on pathways as well as impacts, providing a more equitable approach to invasive species management. The clean boats, clean ports framework helps managers take a holistic, nature-based approach that will assist with resilience to predicted increasing pressures on the environment;
- ensures simple actions are achievable with minimal training. In some cases, no training will be needed, as they are already being done, or all that is required is a little extra effort;
- does not create additional burden on recipient villages/extension officers on outer islands;
- increases awareness among port staff, communities and so on, through familiarity enabling simple actions to detect change and make biosecurity officers more visible. This familiarity can eventually lead to behaviour change among communities;
- helps embed actions through the use of Protect our Islands buddies; and
- highlights the good work already being done, providing positive reinforcement.



## Benefits for the region

### *The clean boats, clean ports framework:*

- supports opportunities for 'south-south' knowledge exchanges through Protect our Islands buddies and enhanced capability region-wide;
- generates a shared vision for inter-island biosecurity;
- does not replace any existing approaches, resources, and so on – they can all be used;
- builds greater awareness of biosecurity overall, which contributes to regional security;
- encourages ownership of invasive species management as countries self-define their domestic biosecurity needs for their situations;
- fosters cross-agency collaboration by not being constrained by a single sector.
- can also detect warning signs for other impacts, such as those of climate change, through the greater emphasis on detecting change;
- generates better resilience to climate change threats by reducing the risk of spread of invasive species;
- facilitates measurable change in capacity regionwide; and
- provides a mechanism in its assessment framework to record actions that are working well for some countries and that may be useful to others.

## Benefits for funders, regional agencies, and project implementors

### *The clean boats, clean ports framework:*

- provides a framework for implementation of progressive improvements to domestic biosecurity over time;
- establishes a means of assessing capability country-by-country, identifying baselines, and setting targets;
- makes the most of development funding by 'filling in gaps' (such as occasional major surveys or a refresh of equipment) and bolstering on-going actions;
- acknowledges the sporadic nature of development project funding. Initiatives in small island countries often cannot be maintained once project funding ceases;
- removes the expectation that one-off projects complete capability and highlights where repeat projects are needed, reducing the pressure to 'oversell' what a single project can deliver; and
- enables a tailored, rather than a one-size fits-all, approach to enhancing capability.

## Key concepts

Concept	Description
<b>Biocontrol or biological control</b>	Controlling an invasive species by introducing a natural enemy, such as an insect or fungus, that specifically attacks the target species and does not attack other native or economically important species.
<b>Biodiversity</b>	The variety of living organisms on Earth or within a defined system, including the variability within and between species and within and between ecosystems.
<b>Biosecurity</b>	Preventing the spread of invasive species across international or internal borders. Involves prevention of arrival, establishment, and spread of invasive species.
<b>Containment</b>	Keeping an invasive or pest species within a defined area.
<b>Control</b>	Reducing the population of an invasive species (numbers and distribution).
<b>Early Detection and Rapid Response (EDRR)</b>	Early detection and rapid response plans target invasive species or pests. EDRR includes prioritisation, surveillance (for early detection), and being actively prepared should the target species arrive.
<b>Emergency response plan</b>	When targeting pests and diseases, usually referred to as an incursion response plan. An incursion response plan is an emergency response plan to deal with a newly detected invasive species, plant or animal disease, or pest.
<b>Introduced species</b>	Plants, animals, and other organisms taken beyond their natural range by people, deliberately or unintentionally.
<b>Invasive species</b>	Introduced species that become destructive to the environment or human interests; can also include some native species that proliferate and become destructive following environmental changes caused by human activities.
<b>Monitoring</b>	Programmes to detect change, such as change in the distribution of invasive species, the success of management projects, and so on.
<b>Native species</b>	Plants, animals, and other organisms that occur naturally on an island or in a specified area, having either evolved there or arrived without human intervention.
<b>Non-native species</b>	Non-native species are those species that have been introduced by people. Non-native species include both harmful (that is, invasive) and beneficial species.
<b>Pacific Regional Invasive Species Support Service</b>	Pacific Regional Invasive Species Support Service (PRISMSS) is a collaboration of leading organisations supporting invasive species management for biodiversity protection in the Pacific islands region. PRISMSS currently provides technical support across five regional programmes: Natural Enemies–Natural Solutions (NENS); Predator Free Pacific (PFP); Protect our Islands (POI); Resilient Ecosystems, Resilient Communities (RERC); War on Weeds (WOW).
<b>Pathway</b>	The means by which an invasive species can be transported.
<b>Pest</b>	A pest is an animal or plant that harms the environment directly or harms human interests in an environment (agriculture, people’s health, and so on), whether it is native or introduced. Any animal that is harmful, unwanted, or annoying.
<b>Quarantine</b>	Technically, a period or place of isolation in which people or animals that may have been exposed to infectious disease are placed. In the Pacific, the term is often used synonymously with international border biosecurity, reflecting historical usage.
<b>Region</b>	When not otherwise qualified, means the Pacific Ocean with specific reference to the island states and territories members of Pacific Community and SPREP.
<b>Surveillance</b>	Monitoring to detect the arrival of new invasive species.



### For more information

The Battler Resource Base contains information and materials for battling invasive species in the Pacific. Information on invasive species management in the Pacific can be found on the SPREP [Battler Resource Base](#) and by request directly to [PRISMSS](#).

The PRISMSS Protect our Islands programme supports the collection, development, and implementation of resources to help with preventing the arrival and spread of invasive species in the Pacific islands region.

An up-to-date checklist of actions within the *clean boats, clean ports* framework is available from the [clean boats, clean ports website](#) and in the [assessment survey](#).





# Join the Fight

Protect our islands from invasive species



Håfa Adåi

Aloha

Mogetin

Rahn Anim

Iokwe

Alii

Kaselehlie Len Wo

Mauri

Ekawomir Omo

Mālō te ma'uli

Halo

Tālofa nī

Halo

Tālofa

Halo

Tālofa

Ni sa Bula Fakaalofa lahi atu

Bonjour

Mālō e lelei

Kia Orana

Ia Orana

Bonjour

Hello

Kia Ora

