

BIOSECURITY PLAN

Title: *Poor Knights Islands invasive plant management programme*

Author: *Glen Coulston*

Reviewers: *Bill Nagle*

Version History:

VERSION	DATE	AUTHOR	REASON FOR CHANGE
1	2/3/12	G Coulston	Drafting

Citation:

This report should be cited as:

Coulston, G. 2012. Poor Knights Islands Operational Plan. Department of Conservation, New Zealand.

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Worked Example

1 INTRODUCTION

This Biosecurity plan has been designed to give effect to minimising Biosecurity risks the Poor Knights Islands could be exposed to from implementing an Invasive Plant Management Project on the Islands.

By virtue of having to land on the islands our very management actions could introduce further pest incursions. This plan highlights how we will minimise the chances of this occurring.

It should be noted that should an incursion occur, the Whangarei Area Office island contingency response plan outlines the course of actions to respond and remove such an incursion once discovered.

2 THE SITE

The Poor Knights Islands comprise a total area of approximately 272ha. The island group consists of 7 islands and islets - 2 large fully vegetated islands, the rest smaller partially vegetated islands. The islets and coastal edges of Tawhiti Rahi and Aorangi are steep cliffs and broken terrain. Tawhiti Rahi and Aorangi rise to flat plateaus with highest points approx 200m above sea level. Access onto the islands is via difficult boat landings onto rock ledges in calm conditions or via helicopter.

Iwi have *mana whenua* over the Poor Knights Islands. The islands are therefore extremely *tapu* and sacred sites to Iwi with extensive layers of archaeological sites.

The only mammalian pests to have inhabited the islands were pigs which Captain Cook introduced to Aorangi Island only. These were eradicated in the 1930s.

Diving charter operators are frequently in the waters exploring the world class diving, but landing on the islands is by Nature Reserve Landing Permits and only after consultation between the Department of Conservation and Iwi. Approvals are only given where the purpose of the visit has a cultural, scientific or biodiversity benefit.

Table 1: Summary of site Information

Site Unique ID	PKI
Site name	Poor Knights Islands Nature Reserve
Easting	NZTM E 175 7639
Northing	NZTM N 607 4772
Municipality	Whangarei District
Village	N/A
Community	Tutukaka Coast
Landowner	Public Conservation Land- Nature Reserve
Search radius (m)	N/A entire island 272ha
Notes	See database for more information on site details



Figure1: The Poor Knights Island group

The invasive plant infestations are predominantly in open disturbed coastal areas, lightwells and second growth coastal forest post-maori settlement sites. Climax pohutukawa forest is largely free of invasive plants other than in occasional large lightwells. The main front of infestation is the Puweto Valley on Aorangi which was a site of occupation and was denuded at the turn of the century. A secondary front is at the northern end of Tawhiti Rahi where old

gardens existed and a fire had cleared the area 100yrs ago. Outlier invasive plant sites are scattered throughout the island group.

3 RISK SPECIES

Island visitation could introduce any number of unwanted organisms and their source could be from a global traveller volunteering on the Weedteam to a local resident DOC ranger. The likelihood increases with the proximity of source pests to the site and therefore the most likely incursion species will be those found at the departure points and Area Office base.

The measures further described to reduce the likelihood of incursion should also prevent any type of species from anywhere on the planet from eventually arriving on the Poor Knights.

Table 2: The most likely, given the departure points utilised, invasive species, that could arrive at the Poor Knights Islands (there are too many plant species locally available to focus on just one or two).

Local Name	Scientific Name	Impact Category*	Potential impacts of an invasion
Rainbow skink	<i>Lampropholis delicata</i>	High	Extinction of endemic species. Loss or decline of threatened and native species from the site.
Argentine ant	<i>Linepithema humile</i>	High	Extinction endemic species. Loss or decline of threatened and native species from the site.
Rodent species	<i>Rattus rattus</i> <i>Rattus norvegicus</i> <i>Rattus exulans</i> <i>Mus musculus</i>	Critical	Extinction of endemic species. Loss or decline of threatened and native species from the site
American cockroach	<i>Periplaneta americana</i>	Medium	Extinction of endemic species. Loss or decline of threatened and native species from the site.
100+ species of invasive plants		High	Extinction of endemic species. Loss or decline of threatened and native species from the site.
Plant/animal diseases		High	Extinction of endemic species. Loss or decline of threatened and native species from the site.

Table 3: * The Impact Category (either Invasiveness Category for Plants or Critical/High/Medium/Low for animals) has been defined on the following severity basis.

Impact category (for animals)	Explanation of severity of impact		
	Biodiversity	Economic	Cultural
Critical	Loss of a threatened species from the site.	Inability to re-grow crops, no income from tourism, and/or high costs in management.	Extinction or permanent destruction of cultural value.
High	Loss of at least one native species from site.	Loss of major crops, reduced income from tourism, or high management costs.	Major degradation of cultural value.
Medium	Decline in populations of many native species.	Decrease in food and income from crops and/or tourism.	Degradation in an area or decline in species of

			significance.
Low	Decline in population of at least one non-endemic species	Small decrease in crop yields, little effect on tourism.	Small changes in abundance of culturally significant native species or quality of an area at site

4 PATHWAYS

Table 4: Pathways

Invasive Species	Pathway(s)
Plant species	Seed in soil. On equipment/clothing
Invertebrate species	Hiding in equipment/clothing. Eggs in soil
Diseases	Soil, fresh produce, on animal/plant material, hidden in equipment
Mammal species	Hidden in equipment or on boats/vehicles
Reptile species	Eggs in soil. Hiding in equipment

There are 6 primary pathways for Biosecurity incursion on PKI:

Human assisted

1. Fresh food supplies we transport to the island to eat.
2. Soil stuck to equipment, footwear, clothing, etc
3. Hiding in places that act as collectors/vestibules such as Velcro, clothing pockets or nook and crannies in equipment.
4. Risk of intra-island dispersal of invasive plants into clean areas. Due to weeding sites and then moving elsewhere on the island there is a high risk of spreading seed on the island from one part of the island to another.
5. Illegal landings

Wind and bird dispersed

6. At any point in time when the conditions of strong westerly winds coinciding with seeding seasons invasive plants transported on the wind or stuck to birds could jump the 16km water gap.

5 PREVENTION

Quarantining process

All equipment and supplies go through thorough cleaning processes before being packed focusing on the pathway above described. Independent Quarantine inspection is undertaken pre trip departure to double-check individual's diligence and quality control.

The expedition barrels are sealed and not opened again once signed off by the quarantine inspector. These sealed barrels are stored in the pest-proof quarantine store. As they are water- and air-tight barrels they are also animal/insect proof.

Food supply rules

No open packages of processed food are transported. Fresh produce is washed and inspected (and de-seeded where practical). Fresh tomatoes, cucumbers and eggs are prohibited due to risk of fungus and disease to native species. For all other fruit and

vegetables that may contain viable seed, the seed is eaten and/or seeds collected during consumption and destroyed or bagged for removal.

Onsite and intra-island dispersal risk.

This is managed by the following measures:

1. Weeders will clean themselves off when they finish weeding a site and before moving to the next site. This includes clearing velcros, pockets, dusting each other and clearing the dirt out of boots and equipment.
2. Clean areas of the island will be searched first, then areas with low site numbers and lastly large and/or site treated for their first time are left until the end of the trip.
3. Trip timing is designed to avoid periods when invasive plants are heavy with seed set.

Reverse Biosecurity breaches

Be aware of reverse incursions where species from the islands can be brought back to the mainland when returning. All barrels are swept clean, inspected repacked and sealed. Tents emptied and swept clean, inspected before repacking. Equipment and open food packets cleaned, inspected and repacked.

Illegal landings

The awareness campaign should help prevent illegal landings, but the Weedteam can intercept any such landings while they are on the islands and take the appropriate action.

6 SURVEILLANCE

Active surveillance is undertaken throughout the preparation and landing stages through visual observation and inspections.

A constant watch and search for unwanted organisms is undertaken at every stage of packing from purchase at the shop to enclosure in the sealed barrels and then during reopening those barrels once on site.

Whilst the Weed team sweep searching during site treatment are undertaking active surveillance for target plants. they are also undertaking passive surveillance for other plant, insect and pathogen pests that may have found their way onto the island via human assisted and wind/bird assisted self dispersal.

During the period camp sites are occupied lures are left available to actively detect any animal or insect presence particularly rodent and argentine ant. The biosecurity pest incursion hotels are also an ongoing active surveillance tool.

7 INCURSION RESPONSE

7.1 Response decision making

For the invasive plant project team, their primary action is to respond with the resources they have available and try and eliminate the incursion. They are to immediately inform the Whangarei Area Office an incursion has been located and describe what type of incursion.

Prompting Questions

1. Have they arrived on island and found an existing incursion?
2. Has the incursion arrived with them?
3. Is there evidence of a population or an individual?
4. What actions have been undertaken to address the incursion?

Table 5: Biosecurity Management Plan

	Action	Responsible
1	Report incursion incident to Whangarei Area Office immediately	Weed team leader
2	Record all actions taken to eradicate incursion and collect all evidence until such time as an incursion response team arrives.	Weed team leader
3	Decide on deployment requirements for the incursion based on information made available and the Island Eradication Contingency plan.	Islands Programme manager

7.2 Response readiness

All Weed team members are made aware of biosecurity requirements and are familiar with identification of the most likely individual species, the pathways for any type of invasive and the hygiene standards they need to comply with.

A mini response kit is carried with the team as part of their kit.

A full contingency response kit and plan is kept at the Area office if required.

All equipment goes through comprehensive hygiene and quarantine procedures.

One barrel has the incursion kit and a tent enclosed. When arriving on the island this tent barrel is the first opened and the tent set up. All equipment barrels are then opened and emptied in the confine of this sealed tent before unloading into the campsite. This helps to check for unwanted organisms.

7.3 Incursion Response

Initial reactive response to a discovery of a breach is as follows:

1. Attempt to catch and kill every individual found and collect samples in sealed pottles.
2. Inform Area office island coordinator of an incursion immediately.
3. Establish monitoring to see if any others remain and keep trying to catch anything that has escaped.
4. Hand over management to the incursion response co-ordinator.
5. Continue to deploy incursion response resources as they arrive and keep servicing as is relevant to the event and as directed by the coordinator.

A long term response is described in the Area Office Contingency Response Plan and in consultation with the Department's Island Eradications Advisory Group (IEAG)

7.3.1 General response activities

Any breach of biosecurity systems during trip preparation and transport is to be dealt with immediately and the decision made whether it is safe to proceed or to defer trip landings.

Quarantine store incursion – Destroy individuals found and assess if a nest or an individual was present. If a population is found, defer trip packing until the nest is destroyed and the quarantine store considered hygienic again.

In-transit incursion - Where a transporter is found to have an incursion, destroy individuals. Check that equipment seals have not been breached. Consider if the incursion on the transporter is an individual or nest. Defer landing until the transporter has been cleared and deemed to be hygienic and that all equipment going to the island is still sealed with no breach.

On island - Should an equipment barrel have been found to harbour an invasive, implement incursion response as describe in 6.3 should be

7.3.2 Equipment

As part of the Weedteam’s general kit they will carry the following items for an initial response and until further contingency response provisions can arrive.

Every landing site and camp site also has a Biosecurity surveillance hotel permanently positioned at it. These are to be inspected and baits refreshed on arrival. These are to be used as well as the kits the team carries in the case of an incursion.

Table 6: Equipment List

Item	Number/amount	Tick when in kit
Aerosol can of broad spectrum contact killer insecticide	1	
Sticky pad for insects, reptiles, mice	1	
Tracking tunnel and ink card	1	
Rat Snap trap	1	
Mouse snap trap	1	
Insect sample pottles	3	
(As part of food supplies - every trip shall have these items available to provide for any incursion and routine surveillance in camp)		
Jam	1 jar	
Chocolate	1 block	
Cheese	1 block	
Peanut butter	1 jar	