BIOSECURITY PLAN for (name of island)

Incorporating Prevention, Surveillance and Incursion Response

Author(s):

Date:

Review date: *First review should be 1 year after sign-off date*

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SUMMARY

To include brief points about:

- *the island's natural history, conservation value, ownership and management*
- *the pathways by which mammalian INNS could reach the island*
- *Direct readers to information within the plan on:*
  - *Routine surveillance activities (table, section and/ or page number)*
  - *Who to contact in the event of finding possible or probable INNS sign, or just for further information (table, section and/ or page number)*
  - *Actions to take if <u>possible signs of rodents</u> are found (intensive surveillance)*
  - *Actions to take if <u>probable or definite signs of rodents</u> are found (incursion response)*
  - *Actions to take if <u>possible</u> or <u>probable or definite signs of other invasive species</u> are found*

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1 INTRODUCTION

This Biosecurity Plan is aimed at preventing the invasion of: *[list species]*

The island has been maintained free of mammalian invasive non-native species (INNS)/ has previously benefited from eradication of a mammalian INNS species. *(Delete as appropriate. If the latter, give details)*

INNS already present: *(Name species already on the island that are likely to damage interest features, if any – see section 3 for a list)*

This Plan is intended for use by island management and staff to implement/encourage preventative measures (or barriers) along key incursion pathways to the island; to inform the routine surveillance of the island; to provide necessary information for a rapid response in case of detecting invasive mammals; and to provide information for the supporting staff who may advise on any rapid response activities required.

Simple, routine biosecurity measures will protect the island by enabling any newly arriving INNS to be detected quickly before they have a chance to spread and damage the island's ecosystem or other interest features. This routine surveillance, coupled with a clear and effective incursion response plan, ready to be put into effect at short notice, will maximise the chances of the island staying free of INNS and offer the best protection. The methods described in this plan are based on the RSPB's *Current Recommended Procedures for UK (bait station) rodent eradication projects* (Thomas *et al.* 2017[1]), in particular annexes 3 and 4, which are in turn based on international best practice.

Surveillance (and associated record-keeping) is the responsibility of:

Incursion response is the responsibility of:

[1] Thomas, S., Varnham, K. & Havery S. (2017). *Current Recommended Procedures for UK (bait station) rodent eradication projects. (Version 3.0)* Royal Society for the Protection of Birds, Sandy, Bedfordshire. http://www.nonnativespecies.org/index.cfm?pageid=613 (Annexes 3 and 4 are also available via this link)

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2 SITE DESCRIPTION

Table 1: Site details

Size of island (at mean high water)	
Area under [name of organisation] management	
Other ownership/key stakeholders	
Distance from neighbouring islands/mainland. Consider prevailing currents/winds and proximity to a river mouth/estuary	
Is the island inhabited? Or does it have regular visitors?	
Who & what comes to the island? From where & how?	
What is the access? e.g. quays, slipways, beaches	
What native species are present on the island? (especially those at risk from INNS or from eradication techniques)	

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Figure 1: Map of island

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3 RISK SPECIES

Which mammalian INNS species could potentially arrive on the island? Include invasive species targeted in any previous eradication operation and other potential new invasive species present nearby

May include: brown rat, black rat, house mouse, American mink, feral ferret, stoat (where not native), feral cat, hedgehog (where not native), fox (where not native)

4 PATHWAYS

Describe the major pathways that invasive species may use to invade the island, including human-mediated (e.g. different kinds of boat transport – ferries, fishing boats, leisure boats) and natural means (e.g. swimming from nearby islands or mainland areas).

Useful tools:

- *Seabird Biosecurity Best Practice Annex 4: Guidelines for Biosecurity Planning and Incursion Response for Rodents* [[or just refer to biosecurity manual, section 3]]

5 PREVENTION

Preventing INNS from becoming established is by far the cheapest and easiest solution as well as the one likely to cause the least damage to native species. A biosecurity culture among island staff, volunteers and visitors (that invasions can and do occur, but that the chances of this happening can be minimised with careful preparation) is essential to protect the island in the long term. Simple measures such as ensuring bags are packed/ repacked in the day of travel, food waste on the island is stored in a rodent-proof bin and sources of rat harbourage are kept to a minimum will reduce the chances of rodent INNS reaching the island or, if they do, make them less likely to become established and easier to trap or poison. Similarly, any bulky items and cargo taken to the island should be stored in a rodent-free environment prior to transfer to the island and checked before transferring it onto a vessel. Care should be taken when unpacking goods once they reach the island, remaining vigilant for any sign of stowaways. These measures will also reduce the risk of other mammalian predators being accidentally transported to the island.

5.1. Creating barriers

Consider each pathway and, using the principle of multiple barriers, identify appropriate barriers and suitable locations.

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The concept of 'barriers' in this context includes any action taken to avoid INNS incursion, so may also describe a behaviour e.g. avoid landing boats at night

Table 2: Barriers to non-native species invasion

Pathway	Barrier	Who implements*
	1. 2. 3.	

* this could be island staff, visitors to the island, other organisations etc. Where action is needed from others, include an action for liaison or other means to communicate this e.g. information leaflets

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6 ROUTINE SURVEILLANCE

For each invasive species, describe the surveillance methods you will use on the island to detect whether it has evaded the prevention measures. For rodents, best practice advises using as wide a range of methods as possible e.g. wax monitoring blocks, tracking tunnels etc., at a density of 1/ ha if feasible, focussing on areas where invasives are likely to appear or congregate. Checking them as often as possible and being prepared to respond immediately.

Possible methods include: Permanent monitoring/baiting stations, wax blocks flavoured with: chocolate/coconut/peanut butter (see appendix 1), soap, chew sticks, resin blocks, tracking tunnels, traps: live/kill, cameras, UV light, hair traps (velcro)**,** visual searches for signs, trained detection dogs (if available)

Consider frequency, duration and timing of visits and select appropriate methods. If resources are limited or there are many potential invasive species, focus the surveillance effort on invasive species that have greatest impact severity.

Useful tools:

- *Seabird Biosecurity Best Practice Annex 3: Guidelines for Rodent Surveillance & Identification.* [[biosecurity manual section 2]]

Table 3: Surveillance methods for detecting non-native species

Risk species	Surveillance method	Frequency of check
e.g. Brown rats		
e.g. Mink		

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New staff and volunteers on the island should be taught about biosecurity surveillance as part of their induction.

If it is appropriate to record GPS locations of your surveillance devices, insert a table of this information here. Ensure that records of checks on detection devices are kept and checks are incorporated into work programmes.

Figure 3: Map of surveillance tools

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7 INCURSION RESPONSE

7.1 Confirming whether invasive species are present

Detecting and identifying any sign of mammalian INNS is an essential part of island management and should be carried out by island staff. However, expert advice is on hand if needed to help interpret the evidence. If there is any uncertainty over the sign at least two experts should be contacted for their opinions.

If signs of mammalian INNS are found on the island that are classed as **POSSIBLE** sign of INNS, the routine surveillance should be immediately replaced with the intensive surveillance protocols for rodents (see section 7.2.1).

If **PROBABLE OR DEFINITE** signs of mammalian INNS are found then the appropriate full incursion response plans should be implemented (see section 7.2.2). See the appropriate sections for definitions of **possible**, **probable** and **definite** signs. **If in doubt, seek advice from the people listed in the Table 4.**

Any known or credible incursion should be responded to immediately with the aim of initiating the full incursion response plan within 48 hours, preferably less.

Note that anyone buying or handling rodenticide will need to do a 1-day course in safe rodenticide use. A list of approved courses is available at https://www.thinkwildlife.org/training-certification/ (see 'current certification' table – online courses are available)

Table 4: The incursion response team

Give names and contact details of the people who need to be informed/involved. Consider what would happen if the named person could not be contacted, and who would be the next person to contact.

	Name	Role	Contact details
1			
2			
3			
4			
5			

7.2 Responding to signs of invasive species

For each species, or group of species the response is split into two sections – 1) intensive surveillance, responding to possible sign and 2) incursion response, responding to probable or definite sign. Complete these two sections for each of the potential invasive species listed in Table 2.

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7.2.1 Intensive surveillance: Responding to <u>possible</u> signs of <u>rats or mice</u> (different methods and approach may be needed for other mammalian predators)

<u>Possible</u> signs include finding one or more dead birds showing possible signs of predation, unclear or degraded footprints or droppings, sightings made by people unfamiliar with rodents or unclear sightings made by people who are familiar with rodents, bulky high risk cargoes being brought to the island, such as building materials, or storm debris washing ashore on the island.

	Action	Responsible
1		
2		
3		
4		
5		
6		
7		

7.2.2 Incursion response: Responding to <u>probable or definite</u> signs of <u>rats or mice</u>

<u>Probable</u> signs of rats and mice include clear toothmarks on monitoring tools or other items, droppings, footprints, predated birds or other clear feeding sign, shipwrecks, inconclusive photographs, or partial or brief sightings made by people familiar with rodents. **<u>Definite</u>** signs include carcasses, clear photographs and clear sightings made by people with experience of rats or mice.

	Action	Responsible
1		
2		
3		
4		
5		
6		
7		

NOTE: If other species are also considered invasion risks (e.g. feral cats, American mink) repeat sections 7.2.1 and 7.2.2 for each of them

7.3 Risks to non-target species

Consider the potential risks to native or other resident species from any of the actions listed in the intensive surveillance or incursion response sections listed above. These include risks from using rodenticide (primary or secondary poisoning), traps (live or snap traps) and any other methods.

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7.4 Equipment (for rodent surveillance and incursion response)

(To include monitoring methods, as well as appropriate lethal control methods such as traps and poison). Example info included here, edit as necessary for your site

Table 5: Equipment required for routine surveillance, intensive surveillance and incursion response (the figures in column 2 are for a 10ha island and are included as a guide – amend these as appropriate)

Item	Number/amount	In kit?*
Reference information		
Laminated sheets showing rodent sign (droppings, footprints etc)	5	
Laminated sheets showing marks left on wax monitoring blocks	5	
Laminated recipe sheet for wax blocks (see appendix 1)	5	
Copy of SIRP Biosecurity Manual	2	
Map of island with monitoring/bait/tracking tunnels etc	5	
Record keeping		
Notebooks, pens, pencils etc	10 of each	
Access to laptop/ tablet for entering biosecurity data		
Surveillance		
Wax monitoring blocks (see recipe in appendix 1)	100	
Tracking tunnels (Black Trakka from gotcha.co.nz)	10	
Tracking ink pads	40	
Tracking ink (bottle)	1	
Snap traps, Trapper T-rex rat size**	12	
Snap traps, Trapper T-rex mouse size**	12	
Bait stations (Protecta or similar, and/ or wooden rat motels)	24	
Large clear plastic boxes for storing reference and detection kit	2-4, as needed	
Trail camera	1	
Incursion response/ Eradication		
Additional bait stations (Can be commercially available boxes, custom-made pipe stations or a combination of the two)	To a total of 40-45	
Rodenticide bait, wax block formulation (seek SIRP advice before buying – only 1.5kg needs to be held on the island) *Buying rodenticide in packs larger than 1.5kg requires the buyer to show that have attended a training course in safe and responsible rodenticide use. Ideally at least two people should have this qualification. Contact the SIRP team for more information.*	1.5kg held on island 20kg to be bought in case of probable or definite incursion	CHECK IT IS IN DATE
Flagging tape for additional monitoring points	1 roll	
30cm wires for additional monitoring points	50	

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*Checking the kit at six-monthly intervals and ensuring that it contains the appropriate items is the responsibility of *(insert name here)*.

**it's very important to use appropriately sized traps for the species you think is present. Mice are not heavy enough to set off rat-sized trap and rats are very unlikely to be killed in mouse-sized traps. Injured rats may escape and then be wary of approaching other traps or monitoring tools.

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Appendix 1: Instructions for making wax monitoring blocks

Flavoured wax blocks are simple and effective monitoring tools that can be used to detect rodents (and other species). This is the recipe provided by Wildlife Management International Ltd, the NZ-based contractors who have run many of the successful rat eradication projects in the UK in recent years.

Makes approximately 30 large or 60 small blocks

Equipment:

Standard 25 cm saucepan

Heat source (e.g. gas ring and gas bottle)

Silicon muffin tray (12 large or 24 mini)

Wooden spoon for mixing

Heatproof glass jug for pouring

Different flavour blocks are made as follows:

Chocolate wax:

Ingredients:

12 standard white wax candles

5 heaped tablespoons of pure cocoa powder

Instructions:

Melt candles in pot, remove wicks, add cocoa powder, stir thoroughly to mix, pour into silicon tray. Just before wax sets, put hole through centre of the block (alternatively put bent paperclip for hanging in tree/vegetation). Note: do not use drinking chocolate as this contains milk powder and the mixture will split and burn.

Coconut wax:

As above but add 5 teaspoons of coconut essence one spoonful at a time (taking care as the mixture will bubble and fizz) or ½ block of creamed coconut after removing the chocolate wax from the heat. (Cocoa is still added to make teethmarks easier to see on the wax block).

Peanut wax:

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As for chocolate wax but omit the cocoa and add ½ jar of smooth peanut butter instead (do not leave on the heat too long as the peanut butter can burn). Note: this wax does not last or store as long as the other types as it can spoil due to the peanut butter content

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