Tackling Invasive Non-Native Species in the UK Overseas Territories

Gap Analysis of Biosecurity Capacity

Dr Jill Key, April 2017

Contents

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Executive summary

- A gap analysis of biosecurity practices and capacity was carried out across the 16 UK Overseas Territories (OTs);
- A template was devised with 22 components grouped in three areas: (i) Prevention, (ii) Early Warning and Rapid Response, and (iii) Management, Prioritisation and Frameworks. Capacity was rated as none (score = 0), basic (score = 1), some (score = 2) or good (score = 3).
- In total 33 people were contacted and consulted with regards to biosecurity capacity in the OTs;
- Overall, scores for capacity varied from 19 to 51 out of a total possible score of 66, with the UK being scored at 58 for comparison;
- The weakest area was that of Prevention with a mean score of 8.1, and strongest was that of Management, Prioritisation and Frameworks with a mean score of 11.8. Early Warning and Rapid Response was intermediate, with a mean score of 10.3.
- Of the individual components, the highest scores out of a total possible of 48 were achieved by the three components for baseline inventories: plants (score of 43), animals (vertebrate and invertebrates) and marine species (both with scores of 35). The lowest scoring components were horizon scanning and contingency planning for other risks, both with total scores of 8. The second greatest gap is a group of three components: rapid response for other risks, surveillance of other risks and non-native risk analysis, all with scores 12. Pest risk analysis also scored low, at 16.
- The OTs with the highest capacity were the sub-Antarctic territories of SGSSI (score of 51) and BAT, and St Helena Island (both with scores of 45). A group of four territories have total scores between 31 and 37: Falkland Islands, BVI, Cayman Islands and Gibraltar. A group of nine OTs had the lowest capacity with scores between 19 and 26 with only one or two points between each: Turks and Caicos Islands, BIOT, CSBA, Montserrat, Ascension Island, Anguilla, Bermuda, Tristan da Cunha and Pitcairn.
- Biosecurity practices tend to be based on historic legislation and procedures aimed at protecting agriculture and production, with limited extension to invasive non-native species of wider environmental concern.
- Capacity to detect and manage invasive non-native species in the marine environment is particularly weak.
- Recommendations for priority capacity building needs are as follows:
    - Address the fundamental areas of horizon scanning, pathway analysis and risk assessment, in order to provide the information necessary to develop a cost-effective biosecurity strategy appropriate to each territory's needs;
    - Establish the framework, both legal and policy;
    - Provide appropriate training to support implementation.
- Use of regional coordination bodies and networks is also recommended, either existing ones or the development of new ones.

Introduction

The 16 UK Overseas Territories (OTs) together account for 94% of the UKs unique biodiversity and as such make a significant contribution to global biodiversity (Churchyard et al, 2014). Being predominantly islands, the OTs are very vulnerable to the introduction of potentially harmful invasive non-native species, recognised as the biggest threat to island biodiversity, as well as to food security and sustainable development. Pressures are increasing with the continual growth of international trade, the main driver of the spread of invasive species, resulting in higher numbers of individuals of more species being moved around the world, both deliberately and accidentally. The chances of a new potentially harmful species arriving and establishing in a new area are therefore greater. The implementation of biosecurity measures is aimed at minimising this risk.

Biosecurity, defined as measures to reduce the risk of introducing or spreading invasive non-native species (and other harmful organisms such as diseases) in the wild, has long been acknowledged as the most cost-effective means of addressing invasive species threats for small islands (eg Tye, 2009). To be effective, biosecurity needs to be implemented across the biosecurity continuum, with pre-border controls at the country of origin, inspections and interceptions at the border, and post-border surveillance and interventions in the wider environment, all applied to both deliberate (legal and illegal) and accidental introductions.

Historically, where biosecurity has been implemented in the OTs it has been primarily to protect agricultural development in the form of plant and animal quarantine, with a focus on managing deliberate introductions to reduce the introduction of crop pests and livestock diseases. The broader threat posed by non-native invasive species on the environment has been relatively neglected, compromising the OTs capacity to manage invasive species.

IUCN, International Union for Conservation of Nature, recognising that action was insufficient, announced the Honolulu Challenge in 2016, calling for greater action to tackle the issue of invasive non-native species across the globe, with particular attention to preventative action and the development of effective biosecurity policies.

The UK Government responded to the challenge, and in 2016 the project *Tackling Invasive Non-Native Species in the UK Overseas Territories* was initiated, funded through the FCO's Conflict, Stability and Security Fund (CSSF). The project objective is "to improve the biosecurity of the OTs against invasive non-native species to improve their environmental resilience and food security; achieved through reducing the risk and impact of invasion and natural hazards via technical assistance and capacity building".

In order to plan the appropriate capacity building activities a gap analysis was carried out between January and March 2017 on biosecurity practices and capacity in all 16 UK OTs:

- Anguilla
- Ascension Island
- Bermuda
- British Antarctic Territory (BAT)
- British Indian Ocean Territory (BIOT)
- British Virgin Islands (BVI)
- Cayman Islands

- Cyprus Sovereign Base Areas (CSBA)
- Falkland Islands
- Gibraltar
- Montserrat
- Pitcairn Islands
- St Helena Island
- South Georgia and South Sandwich Islands (SGSSI)
- Tristan da Cunha
- Turks and Caicos Islands

Methods

A template was designed, identifying the components required for an effective biosecurity programme along the biosecurity continuum. Emphasis was given to the pre-border and post-border activities targeted by the project, grouped in three areas: (i) Prevention, (ii) Early Warning and Rapid Response, and (iii) Management, Prioritisation and Frameworks. The components were defined as follows:

Prevention

Pest Risk Analysis (PRA) – A system established and in use to evaluate the likelihood of the entry, establishment, spread or spread of a pest or disease, and the associated potential biological and economic consequences. Both phytosanitary and zoosanitary risks covered.

Non-Native Species Risk Analysis (NNRA) – A comprehensive framework exists to assess the risk of non-native species (plant and animal) becoming invasive.

Pathway Analysis - Pathways of entry identified and prioritised, with results used as the basis for biosecurity procedures.

Horizon Scanning - Horizon scanning exercise carried out to identify invasive species most likely to invade via identified pathways.

Contingency Planning - Formalised generic contingency plan or plans in place to deal with priority invasive species that are likely to arrive. This is divided into (i) Plants, including both plants and plant health risks (non-native plant pests and diseases); (ii) Animals, including both vertebrates and animal health risks (non-native vertebrates, animal diseases and parasites); and (iii) Other risks (invertebrates other than plant pests, and marine species).

Border Operations - In place and operational, considering staffing, provision of dedicated facilities, procedures and protocols in place, public awareness, and levels of compliance. Both phytosanitary and zoosanitary risks covered, as well as invasive non-native species in general.

Early Warning and Rapid Response

Alert System - Clear system in place for reporting incursions or new species, for both plant and animal (vertebrate and invertebrate) risks.

Surveillance – Generic and/or incursion-specific programmes in place for surveillance of priority invasive species. This is divided into (i) Plants, including both plants and plant health risks (non-native plant pests and diseases); (ii) Animals, including both vertebrates and animal health risks (non-native vertebrates, animal diseases and parasites); and (iii) Other risks (invertebrates other than plant pests, and marine species).

Monitoring - Generic and/or incursion specific programmes in place for monitoring established priority invasive species.

Rapid Response Capacity – Capacity (capability and resources) to provide rapid response to incursions. This is divided into (i) Plants, including both plants and plant health risks (non-native plant pests and diseases); (ii) Animals, including both vertebrates and animal health risks (non-native vertebrates, animal diseases and parasites); and (iii) Other risks (invertebrates other than plant pests, and marine species).

Management, Prioritisation and Frameworks

Prioritisation - Established invasive species prioritised for control/eradication based on global risk management best practice, such as the Guidelines for invasive species management in the Pacific (Tye, 2009).

Baseline Data - Baseline inventories available for plants (native and non-native), animals (terrestrial vertebrates and invertebrates), and other (marine species).

National Framework - Biosecurity legislation in place and enforced; biosecurity strategy or policy in place or endorsed, and being implemented.

Contacts were established in each OT and territory capacity was assessed though a combination of email, telephone and face-to-face interviews. A list of contacts for each OT is given in Annex 1.

Capacity for each component was assigned a rating and score as follows:

Rating	Definition	Colour code	Score
None	No action taken *or* Nothing in place		0
Basic	Some actions taken *or* Basic framework or actions in place *or* Actions planned in near future and expected to take place		1
Some	Some substantial advances while other actions remain to be done *or* Actions being actively implemented along a planned timeframe		2
Good	Substantive actions taken *or* Substantial framework or actions in place *or* Action being implemented *or* Action achieved		3

Cross checking and ground truthing

The text and ratings assigned to the components were in all cases agreed and approved by the contacts in-country for each territory. The resulting template was then cross-checked by Dr Niall Moore of the GB Non-Native Species Secretariat to ensure that the ratings matched the comments; any adjustments were then discussed and agreed by the relevant contacts.

Templates were then ground-truthed by visitors to the various OTs from the RSPB, IUCN, Animal and Plant Health Agency (APHA) and South Georgia Heritage Trust to ensure that the text and ratings matched their recent experience of the relevant territory. Again, any discrepancies were then discussed and agreed by the relevant contacts before the template was finalised.

Results

Responses were obtained from all 16 OTs. Overall, respondents welcomed the project and expressed frustration where they identified gaps in their territory.

Differences between territories

Scores for each territory in the three categories of Prevention, Early Warning and Rapid Response (EWRR) and Management, Prioritisation and Frameworks (MPF) are shown in Table 1, with the territories listed from the lowest overall score (weakest practices and capacity) to the highest (strongest practices and capacity). The estimated score for the UK is given for comparison.

Table 1. Overall scores in the three areas and total score for the 16 OTs in ascending order, out of a maximum score of 66. The overall mean score excludes that for the UK.

Territory	Prevention	EWRR	MPF	Overall score
Turks and Caicos	4	8	7	19
BIOT	3	5	12	20
CSBA	3	7	11	21
Montserrat	5	8	9	22
Ascension	5	8	10	23
Anguilla	8	4	12	24
Bermuda	5	9	12	26
Tristan da Cunha	7	7	12	26
Pitcairn	9	10	7	26
Falkland Islands	11	10	10	31
Cayman	11	9	13	33
BVI	10	14	10	34
Gibraltar	3	17	17	37
BAT	17	11	17	45
St Helena	14	18	13	45
SGSSI	14	19	18	51
UK	21	20	17	58
Overall mean score for the OTs	**8.1**	**10.3**	**11.9**	

The Fera invertebrate identification service was specifically named by nine OTs as a useful resource: Ascension Island, BVI, Cayman Islands, Falkland Islands, Montserrat, St Helena, SGSSI, Tristan da Cunha and Turks and Caicos Islands.

Capacity in each component is summarised in Table 2 for the 16 OTs; full templates for each OT are given in Annex 2.

Table 2. Summary of capacity for each component in the 16 OTs on a 4-point rating scale: None (score of 0), Basic (score of 1), Some (score of 2) and Good (score of 3).

PREVENTION

Territory	Risk Analysis		Pathway Analysis	Horizon Scanning	Contingency Planning			Border Operations
	PRA	NNRA			Plants	Animals	Other	
Anguilla	Basic	Basic	None	Basic	Basic	Basic	Basic	Some
Ascension	None	Basic	Good	None	None	None	None	Basic
Bermuda	Basic	None	None	None	Basic	Basic	None	Some
BAT	Basic	Some	Good	Good	Some	Good	None	Good
BIOT	None	None	Basic	None	None	Basic	None	Basic
BVI	Basic	Basic	None	None	Some	Some	Some	Some
Cayman	Some	Basic	Basic	Some	Basic	Basic	None	Good
CSBA	None	None	None	Basic	None	Some	None	None
Falkland	Some	Good	Good	None	None	Basic	None	Some
Gibraltar	Basic	None	None	None	None	Basic	None	Basic
Montserrat	Basic	None	None	None	Basic	Basic	None	Some
Pitcairn	Basic	Basic	Basic	Basic	Basic	Some	None	Some
St Helena	Basic	None	Some	None	Good	Good	Some	Good
SGSSI	Basic	Some	Some	None	Some	Good	Some	Some
Tristan	Basic	None	Basic	None	Basic	Basic	Basic	Some
Turks/Caicos	Some	None	None	None	None	None	None	Some
Scores	16	12	17	8	15	23	8	30

EARLY WARNING AND RAPID RESPONSE

Territory	Alert System	Surveillance			Monitoring	Rapid Response		
		Plants	Animals	Other		Plants	Animals	Other
Anguilla	Basic	None	None	None	Basic	Basic	Basic	None
Ascension	Some	Basic	Basic	Basic	Some	Basic	None	None
Bermuda	Some	Basic	Basic	Some	Basic	Basic	Basic	None
BAT	Good	Basic	Basic	Basic	Basic	Basic	Some	Basic
BIOT	Some	None	None	None	Some	None	Basic	None
BVI	Basic	Good	Basic	Basic	Good	Some	Basic	Some
Cayman	Some	Some	Basic	None	Basic	Some	Basic	None
CSBA	Basic	None	Some	None	Some	None	Some	None
Falkland	Basic	Basic	Basic	Basic	Some	Basic	Some	Basic
Gibraltar	Good	Good	Some	Basic	Good	Good	Some	None
Montserrat	Some	None	None	None	None	Some	Some	Some
Pitcairn	Good	Some	None	Basic	Basic	Some	Basic	None
St Helena	Some	Good	Some	Basic	Basic	Good	Good	Good
SGSSI	Good	Good	Some	Good	Some	Some	Some	Some
Tristan	Some	Basic	Basic	None	None	Basic	Basic	Basic
Turks/Caicos	None	Some	Some	None	Basic	Basic	Some	None
Score	30	23	17	12	23	23	24	12

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Territory	Prioritisation	Baseline Information			Framework	
		Plants	Animals	Other	Legal	National
Anguilla	Good	Some	Some	Basic	Some	Some
Ascension	Basic	Good	Basic	Good	Basic	Basic
Bermuda	Basic	Good	Good	Good	Basic	Basic
BAT	Good	Good	Good	Some	Good	Good
BIOT	Basic	Good	Good	Good	Some	None
BVI	Good	Good	Basic	Basic	Some	None
Cayman	Some	Good	Good	Some	Some	Basic
CSBA	Basic	Good	Good	Some	Basic	Basic
Falkland	Basic	Good	Good	Basic	Basic	Basic
Gibraltar	Good	Good	Good	Good	Good	Some
Montserrat	Basic	Good	Some	Some	Basic	None
Pitcairn	Basic	Basic	None	Good	Some	None
St Helena	Basic	Good	Good	Some	Basic	Good
SGSSI	Good	Good	Good	Good	Good	Good
Tristan	Some	Good	Basic	Good	Basic	Some
Turks/Caicos	Some	Basic	Basic	Basic	Some	None
Score	29	43	35	35	28	20

The three highest scoring territories are the two Antarctic and sub-Antarctic territories, and St Helena. BAT and SGSSI (with total scores of 45 and 51 respectively) benefit from their unique environmental status and considerable research input. St Helena (with a total score of 45) has been the subject of a 4-year project to strengthen biosecurity in anticipation of air access. The total score for SGSSI (51) is closest to that estimated for the UK (58).

A group of four territories have total scores between 31 and 36, comprising in ascending order: Falkland Islands, Cayman Islands, BVI and Gibraltar; Gibraltar has the joint lowest score in the area of Prevention, but scores highly in the other two areas.

A group of nine territories have the lowest totals, with scores between 19 and 26 and only one or two points between each, comprising in ascending order: Turks and Caicos Islands, BIOT, CSBA, Montserrat, Ascension Island, Anguilla, Bermuda, Tristan da Cunha and Pitcairn. Three territories are particularly weak in the area of Prevention, with very low scores relative to their overall total scores: BIOT, CBSA and Bermuda. All three have ratings of Basic or None for all components in this area with only two exceptions: Bermuda with a rating of Some for border operations, and CBSA with a rating of Some for contingency planning for animals and animal health risks. Anguilla has a very low score in the area of Early Warning and Rapid Response relative to its overall total score, with all ratings in this area of Basic or None.

Components of biosecurity

From Table 1 it can be seen that overall capacity is weakest in the area of Prevention, with a mean score of 8.1, and strongest in the area of Management, Prioritisation and Frameworks with a mean score of 11.9.

Table 3 shows total scores by component out of a maximum possible score of 48. This is divided into quarters to represent the four ratings, with scores from 0 to 12 shown in red, 13 to 24 in orange, 25 to 36 in yellow, and 37 to 48 in green.

The highest scoring components are the group encompassing baseline inventories. This is generally good, especially for plants, with a total score of 43 and the only component in the highest quartile. Baseline knowledge for animals (terrestrial vertebrates and invertebrates) and other (marine species) both had a total score of 35.

The next highest scoring component is a group of four in the third quartile with scores of 28 to 30: alert system, prioritisation, legal framework and border operations.

The greatest capacity gaps are those of horizon scanning and contingency planning for other risks, both with total scores of 8. The second greatest gap is a group of three components: rapid response for other risks, surveillance of other risks and non-native risk analysis, all with scores 12. Only five OTs have carried out horizon scanning, rated as Good only for BAT which has benefitted from considerable research input. There was a general lack of understanding among some of the other OTs of horizon scanning. “Other risks” comprises non-crop pest invertebrates and marine species, for which capacity is clearly weaker than for crop pests or plants; even for the UK where surveillance for other risks was the only component which was rated Basic, all the other components being rated as Some or Good.

Table 3. Total scores for each component; the maximum possible score is 48. Scores 0 -16 are shown in red; from 17- 32 in yellow, and from 33 - 48 in green.

Component		Total score
Prevention		
Risk Analysis (PRA)		16
Risk Analysis (NNRA)		12
Pathway Analysis		17
Horizon scanning		8
Contingency Planning	Plants and plant health risks	15
	Animals and animal health risks	23
	Other risks	8
Border operations		30
Early Warning and Rapid Response		
Alert System in Place		30
Surveillance	Plants and plant health risks	23
	Animals and animal health risks	17
	Other risks	12
Monitoring		23
Rapid response Capacity	Plants and plant health risks	23
	Animals and animal health risks	24
	Other risks	12
Management, Prioritisation and Frameworks		
Prioritisation		29
Baseline	Plants	43
	Animals	35
	Other	35
Framework	Legal	28
	National policy or strategy	20

Each territory was also asked the overarching question: “if you could do one thing, what you would do to build capacity in your territory to improve the biosecurity programme?” Responses are summarised in Table 4 under the main headings used for the template, where they occur, followed by additional areas of work; note that several territories named more than one thing.

Table 4. Identified priorities.

Component	Capacity need	OTs
Pest Risk Analysis	• A simplified PRA process, and/or access to support for the more complex cases.	St Helena
Border operations	• A system in place for the high-risk entry pathway. • Enhance biosecurity understanding and practice in the other Parties who operate within the same region in BAT. • Measures to reduce intra-continental transfer of species in BAT. • Assurance that the cargo offloaded is free of invasive species (plants, insects and reptiles).	Ascension BAT BIOT

Monitoring & emergency response	• Setting up a monitoring system coupled with an emergency response kit.	Ascension
Prioritisation	• Help with determining means to eradicate or control non-native micro-invertebrates.	BAT
Legislation	• Introduce some specific biosecurity related legislation. • Get assistance with drafting biosecurity legislation. • Endorse biosecurity legislation. • Put in place an appropriate legal instrument to guide the awareness and enforcement component of the Biosecurity Plan. The legal instrument will also provide for the needed resources (human and material) to address the issues.	Falklands St Helena Turks & Caicos
Awareness	• Change in consciousness and attitude of residents and visitors alike so that they do not want to introduce species and understand the measures that need to be take. • Change in consciousness of the Government so they would agree to a comprehensive Biosecurity Plan and provide adequate staff and supporting resources to execute and enforce same.	Turks & Caicos
Training	• Improved training of biosecurity officers at ports of entry. • Capacity building in the area of extended biosecurity practices and functions and policy development. • Up-skilling staff: provide training in biodiversity, conservation, climate change etc. • Have greater knowledge in techniques such as horizon scanning and pathway analysis.	Anguilla BVI Pitcairn
Workforce	• Increase the biosecurity workforce. • More man power within the Division to enable them tackle environmental issues such as invasive species etc.	Falklands Pitcairn
Facilities and equipment	• Have a designated area set aside to check all containers/shipments that may contain unwanted species. • Install a small incinerator at the port to dispose of items seized. • Develop a biosecure cargo unpacking area/cargo transit shed/inspection area which can accommodate all shapes and sizes of cargo. • Have a biosecurity dog. • Have dedicated biosecurity facilities.	Anguilla Montserrat SGSSI Tristan da Cunha

In addition to the components already covered in the formal gap analysis, OTs also listed activities in the areas of awareness, training, workforce and facilities and equipment. Training needs that were identified were broad, covering all areas of biosecurity, including biodiversity and climate change.

Summary of biosecurity in each territory

A summary of findings for each OT is given below. Area and population data are from McPherson (2016), except where indicated otherwise.

Anguilla

A group of one main and a number of smaller islands in the Caribbean region with a total area of 90km^2 and population of 13,572.

Generally low capacity across the components. Despite no formal procedure for horizon scanning the Department of the Environment notes that it keeps abreast of invasive species affecting neighbouring islands and reacts accordingly. Risk analysis is done on an ad-hoc basis. Biosecurity border operations are carried out by customs officers, and awareness training has been given. To address the issue of imported ornamental plant material, gardeners and horticulturalists are engaged post-border to compensate for the lack of border controls.

Capacity is weakest in the area of Early Warning and Rapid Response, with no surveillance and all other components in this area rated as Basic or None. The Anguilla Invasive Species Strategy highlights the importance of prevention and outlines the required biosecurity actions with agency responsibilities. It has been endorsed by government but not yet been fully implemented. Legislation is weak, and offshore islands are not covered. There is an overall lack of training and resources.

Ascension Island

A single main island in the South Atlantic, with an area of 87km^2 and population of 1000.

Generally low capacity across the components, and particularly weak in the area of Prevention. A biosecurity review was carried out for Ascension Island in 2016, which included a detailed pathway analysis. Subsequently, a part-time biosecurity post was created and a number of actions are planned to strengthen biosecurity on the island, targeting identified risks. This includes border and post-border operations, and the development of a national biosecurity strategy and/or policy. Risk analysis is not included, however, and no capacity to do this exists on the island.

The legislation is weak, providing inadequate biosecurity regulation.

Bermuda

Eight connected islands and over 190 smaller islands in the wider Caribbean with a total area of 53.7km^2. With a population of 65,038, it is most heavily populated of the OTs.

Bermuda scores for practices and capacity are close to average for the areas of Early Warning and Rapid Response, but notably weak for that of Prevention. Risk analysis is done

on an ad-hoc basis, and horizon scanning and pathway analysis have not been done. Border operations cover both agricultural and livestock issues, as well as invasive plants and marine species and sea shells.

Baseline inventories are good across all taxa. The legal framework is weak overall, with a focus on plant health and animal health issues, and it does not cover species established on-island. There is no national biosecurity strategy or policy, although there are invasive species items in the Biodiversity Strategic Action Plan.

British Antarctic Territory (BAT)

The territory consists of the Antarctic peninsula and two groups of nearby islands, with a total area of 1,709,400km^2 and no permanent population, although there is a small transient population of researchers.

BAT is one of the territories with the greatest capacity in biosecurity, with high scores across the components. Horizon scanning and pathway analysis have been done and are on-going, and the simplicity of the Antarctic system makes risk analysis relatively straightforward on an ad hoc basis. Border controls are very strict, for both tourists and scientists. Capacity is weakest in the area of Early Warning and Rapid Response, with most components rated as Basic. Legal and national frameworks are good, under the Protocol on Environmental Protection to the Antarctic Treaty.

An identified weakness is the risk of intra-continental transfer of non-native species from the other 18 nations operating within the BAT area, as standards of compliance are unclear. Specific priority needs are an enhanced biosecurity understanding and practices in the other 18 Parties who operate within the same region in BAT, in order to implement measures to reduce intra-continental transfer of species.

British Indian Ocean Territory (BIOT)

An archipelago of over 50 small low lying islands in the Indian Ocean, with a total area of 50km^2 and no permanent population, but a large permanent military presence.

Generally low capacity across the components, and particularly weak in the area of Prevention. Some pathway analysis has been done for the Brown tree snake, but there has been no horizon scanning and there is no process for risk analysis. Pathways of entry for BIOT need to be considered at two levels: firstly, at the main port of entry in Diego Garcia, and then to and between the 54 Outer Islands. Border operations are covered by customs officers and public awareness is good, with regular training on the introduction of invasive species, and specifically the Brown tree snake. Baseline inventories are good across all taxa.

The legal framework does not cover species established on-island. There is no national biosecurity strategy or policy.

British Virgin Islands (BVI)

Four main islands and over 50 small islets and cays in the Caribbean, with a total area of 151km^2, and population of 28,882.

Overall, reasonable capacity across the components, strongest in the area of Early Warning and Rapid Response. Horizon scanning and pathway analysis have not been done. Training has been received in pest risk analysis which is expected to be expanded with Plant Quarantine over 2017. One issue noted for border operations is the close proximity of the US Virgin Islands and frequent passage of private boats, which makes the potential for unlicensed importation of plant material and other invasive species difficult to control. There is also the issue of private islands in the BVI and the possibility of introduction of non-native species in that context with possible risk of spread to other islands.

BVI is unusual in being relatively strong in the field of marine species: contingency planning, surveillance, and rapid response capability.

The legal framework is weak overall, with a focus on plant health and animal health issues, and does not cover species established on-island. There is no national biosecurity strategy or policy.

Capacity building was noted as a requirement in extended biosecurity practices and functions, and policy development.

Cayman Islands

A group of three islands in the Caribbean, with a total area of 264km^2, and population of 54,397.

Overall, reasonable capacity across the components. The plant health and animal health aspects are particularly strong, with less capacity to prevent and manage invasive species in the environmental sector. Some pathway analysis and horizon scanning have been done, taking a regional approach and focusing on agricultural and livestock threats. Border controls are good, with high risk material such as live animals and plant material and cut flowers receiving 100% inspection. The Cayman Islands currently hosts the Chair of the Caribbean Plant Health Directors (CPHD) Forum and benefits from the regional approach to plant health issues being addressed by the CPHD.

Legislation is considered adequate for plant and animal health threats, covers non-native plant and animal species, and includes internal biosecurity for the sister islands. A multi-agency national biosecurity policy is in early draft form.

Cyprus Sovereign Base Areas (CSBA)

The territory consists of two separate areas, Akrotiri-Episkopi (the Western SBA) and Dhekelia (the Eastern SBA), on the island of Cyprus in the Mediterranean, with a total area of 254km^2 and population of 15,700.

Generally low capacity across the components, and particularly weak in the area of Prevention. No pathway analysis has been done, but a new Darwin grant will include a comprehensive horizon scanning exercise. There is no risk analysis process in place, and no border controls. Biosecurity planning must take into account the long and uncontrolled land border between the SBAs and the Republic of Cyprus, as well as air transport directly into the Western SBA.

There is a strong focus post-border on mosquitoes of public and animal health concern.

Legislation does not cover the management of established non-native species, and there is no biosecurity strategy or policy in place, although invasive species issues are broadly covered in the Akrotiri Peninsula Environmental Management Plan.

Falkland Islands

Two main islands and over 770 smaller islands in the South Atlantic, with a total area of 12,173km^2 and population of 2,841.

Overall, reasonable capacity across the components. Pest risk analysis is done on an ad hoc basis and further work is being done with CABI to build capacity. A framework is in place for non-native species risk analysis. No horizon scanning has been done, and an updated pathway analysis is needed as both marine and aviation pathways are expanding. Border operations are delivered together with customs staff under a Memorandum of Understanding. It is estimated that there is a good level of awareness and generally a high level of compliance.

Capability is weak for contingency planning, surveillance and rapid response, except for animal disease risks such as Foot and Mouth disease, and rat incursions on islands where rodent eradications have been attempted.

Legislation for biosecurity is complex and out of date, and introducing specific biosecurity legislation is noted as a priority need. There is no national biosecurity strategy or policy.

Gibraltar

A peninsula at the southern coast of Spain, with an area of 6.8km^2 and population of 31,465.

Overall, reasonable capacity across the components of Early Warning and Rapid Response, and Management, Prioritisation and Frameworks, but notably weak in the area of Prevention. Horizon scanning and pathway analysis have not been done, and risk analysis is limited to the introduction of ornamental plants. Border operations are very limited, but it is noted that there is a high level of awareness, and compliance is high for phytosanitary risks.

Effort is focused on post-border activities, with particular attention to the threat posed by invasive plants. However, the lack of information from horizon planning and pathway analysis will limit the effectiveness of post-border activities.

Legally, Gibraltar is covered by the EU Regulation No. 1143/204, but there is limited capacity to enforce the regulation locally. There is a well-developed national framework in the form of the Biodiversity Action Plan.

As there is no agricultural production all biosecurity activities are directed at environmental issues, and there is a good prioritisation process and baseline inventories are strong across all taxa.

Montserrat

A single island in the Eastern Caribbean, with an area of 102km^2 and population of 4,922.

Overall, capacity is just below average across all components. Basic pest risk assessment is carried out, with reliance on work done by neighbouring countries. Horizon scanning and pathway analysis have not been done. Border operations are handled by customs officers who have received training in phytosanitary issues. Levels of compliance are considered good.

Post-border, there is no surveillance or monitoring but some capacity for rapid response across all taxa as required.

Legislation is weak, and there is no national biosecurity strategy or policy.

Pitcairn Islands

A group of four islands in the South Pacific, with a total area of 48.7km^2 and population of 47, all resident on the main island.

Overall, capacity is close to average for the components in Prevention and Early Warning and Rapid Response, but weaker for those in Management, Prioritisation and Frameworks. New legislation, the Environmental Protection Ordinance, is expected to be finalised in 2017 and will include biosecurity provisions such as risk analysis, an import licensing system, powers to seize and search for post-border rapid response. The biosecurity team will need training in order to implement the new provisions. Awareness training for the entire community will also be required to ensure that the biosecurity officer receives community support, as compliance won't be achieved without backing in the context of a small population.

Horizon scanning and pathway analysis were carried out in 2006 in relation to new trading arrangements with French Polynesia.

Contingency planning and surveillance capacity is focused on the incursion of Tephritid fruit flies, and on Henderson Island, rats following an eradication programme. Protection of the islands honeybee population is also of concern, for the export honey market.

Considerable support has been given in the past through the Darwin Initiative programme and the Secretariat of the Pacific Community. This includes a review of biosecurity legislation. There is no national biosecurity strategy or policy. Inevitably, with such a small population, resources are identified as a constraint on biosecurity activities.

St Helena Island

A single main island in the South Atlantic, with an area of 121km^2 and population of 4,534[1].

St Helena Island is one of the territories with the greatest biosecurity capacity, with high scores across the components, having been the subject of a recent 4-year project to build capacity in biosecurity in anticipation of air access. Biosecurity provisions cover both terrestrial and marine species, as well as both agricultural and environmental threats.

Guidelines for risk analysis have been developed, defining three categories of risk depending on familiarity with the commodity. However, staff are not confident and specifically note the need for further training and support in this area. Horizon scanning has not been done.

Contingency plans have been prepared for a range of invasive species threats, and approved by the national Resilience Forum. Border operations are good for both phytosanitary and zoosanitary risks, with widespread public awareness and compliance.

Rapid response capacity is good across all taxa. The legal framework is in preliminary draft form, but drafting assistance is required to complete it. The national biosecurity policy is comprehensive and was endorsed in 2014.

South Georgia and South Sandwich Islands (SGSSI)

One main island and several small ones in the South Georgia group, and a group of 11 small islands in the South Sandwich Islands Group, all in the sub-Antarctic. Total area is 3,903km^2, and there is no permanent population, although there is a small transient population of researchers.

SGSSI has the greatest capacity in biosecurity of all the OTs, with high scores across components. The simplicity of the Antarctic and sub-Antarctic system makes risk analysis and pathway analysis relatively straightforward, despite the lack of a formal process. Horizon scanning has not been done, this is the component with the least capacity and the only one to be rated None.

Border controls are very strict, for both tourists and scientists. Current gaps exist in the lack of adequate procedures and facilities in the Falkland Islands where goods are dispatched to SGSSI, and their reception in SGSSI, particularly with regards to potential rodent infestation. There is reasonable capacity post-border for monitoring, surveillance and rapid response for all biosecurity risks. Invasive species have been prioritised and are being addressed, and baseline inventories are good across all taxa.

[1] http://www.sainthelena.gov.sh/wp-content/uploads/2016/06/Census-2016-summary-report.pdf

The legislation has been found to be adequate up to now and is currently under review. The multi-sectoral Biosecurity Handbook formalised existing policies and practices, and is revised and updated on an annual basis.

Tristan da Cunha

A group of four islands in the South Atlantic, with a total area of 207km^2 and population of 268, all resident on the main island.

Overall, capacity is close to average for the components in Prevention and Management, Prioritisation and Frameworks, but weaker for those in Early Warning and Rapid Response.

Pest risk analysis is done on an ad hoc basis. Horizon scanning and detailed pathway analysis have not been done. Border operations vary depending on which island they are being applied to, with much higher standards imposed for Gough Island, a World Heritage Site for which there is a proposed mouse eradication programme in the planning stage. Compliance is poor and inconsistent.

Legally, biosecurity is covered by the Conservation Ordinance which is currently being revised. A national biosecurity policy was endorsed in 2016. As with Pitcairn, with such a small population resources are identified as a constraint on biosecurity activities.

Turks and Caicos Islands

Two island groups of over 120 small islands in the Caribbean, with a total area of 417km^2 and population of 49,000.

Overall, capacity is below average across components, and particularly weak for those in Prevention. Pest risk analysis is carried out for both phytosanitary and zoosanitary risks. Horizon scanning and pathway analysis have not been done, and there are no contingency plans. Border operations focus on plant and animal health, with good public awareness and compliance in terms of deliberate introductions. There is also the issue of private islands in the Turks and Caicos and the possibility of introduction of non-native species in that context with possible risk of spread to other islands.

Baseline inventories are poor across all taxa. Legislation is considered adequate for plant health and animal health issues, and specifically refers to all islands. New draft legislation includes provision for greater biosecurity powers both to prevent the introduction of new non-native species and to manage established invasive species. There is no national biosecurity strategy or policy.

Discussion

The relatively small population size of the OTs means that biosecurity officers often have a range of functions and responsibilities in addition to their biosecurity roles, lack access to specialist expertise and diagnostic facilities, and may also lack access to appropriate training. This compromises their ability to deliver effective biosecurity. There is a dependence on community support, itself dependant on good levels of awareness and understanding. Officers carrying out biosecurity functions work closely with customs, and this is clearly an important partnership.

Biosecurity practices tend to be based on historic legislation and procedures aimed at protecting agriculture and production, with few exceptions (for example BAT and SGSSI). Legislation is weak and scattered across a number of regulations relating to customs, plant health and animal health. Extension of biosecurity approaches to non-native species which aren't crop pests or livestock diseases is generally poor or non-existent.

For many OTs actions such as border operations and post-border surveillance are focused on easily-identifiable species such as Pacific lionfish, Brown tree snake, and Tephritid fruit flies. While this is a good starting point for biosecurity teams, actions need to go further and target more cryptic species identified as priority, as well as taking a generic approach to detect the unexpected. Biosecurity actions across the continuum are particularly weak for non-crop pest invertebrates, except where there has been a historic incident of note, such as the Jacaranda bug (*Orthesia insignis*) outbreak on endangered endemic gumwood trees (*Commidendrum robustum*) in St Helena in the mid-1990s, which raised attention nationally to the issue of invasive non-native species.

BAT is distinct in being one of the few OTs which is not an island but one of the 29 national Antarctic programmes. As such, BAT has no control over what is done on other stations, or what the tourism industry do with regard to biosecurity unless they come to BAT stations, rendering it vulnerable to intra-Antarctic transfer of non-native species. This issue is recognised as a concern in the Antarctic and included by the Antarctic Treaty Committee for Environmental Protection (CEP) in the 2016 CEP Non-native Species Manual.

CSBA and Gibraltar are also not islands and consist of enclaves adjacent to EU countries (Spain and Cyprus). CSBA has relatively few resources dedicated to biosecurity, and with relatively long leaky land borders with the Republic of Cyprus this is to be expected. Gibraltar puts most attention into actions in the areas of Early Warning and Rapid Response and Management, Prioritisation and Frameworks, with comprehensive monitoring programmes for existing invasive species, and surveillance programmes and rapid response capability in the event of an incursion. Actions are detailed in the Biodiversity Action Plan.

Low scores in the area of Prevention reflects the historic agricultural and production focus of biosecurity activities in the OTs, and the relative newness of addressing invasive non-native species in the marine environment. Where OTs have rated capacity as Basic or above in these components it is primarily due to the outcome of a specific research project or builds on a topical invasive species issue such as the Pacific Lionfish *Pterois volitans* and Pink Hibiscus Mealybug *Maconellicoccus hirsutus* invasions in the wider Caribbean.

Risk Analysis (PRA and NNRA) comes quite low, with scores of 16 and 12 for PRA and NNRA respectively. Risk analysis, when done correctly, is a time-consuming and complex

procedure which requires access to taxonomic and other expertise and, in most cases, funding to bring experts together. The small, resource limited OTs are challenged to achieve this, and most carry out simplified forms of risk analysis as well as they can, on an ad-hoc basis, with heavy reliance on published databases such as the CABI Invasive Species Compendium and Global Invasive Species Database, and on assessments carried out for Florida, Hawaii and the Pacific Islands for plant species. While these make a good match for Pitcairn, their suitability to the other OTs is less certain. Comprehensive, published assessments specifically for the island groups in the Caribbean and South Atlantic would be very helpful.

The introduction of new exotic species as pets is of concern, particularly to the Caribbean territories, due to the risk of escapes or deliberate dumping of potentially invasive species in the wild. In the Caribbean at least some introductions are linked to hurricanes: in Anguilla it is known that at least two monkeys escaped from an individual who had them as pets after a hurricane in 1999, and the green iguana was first introduced on logs of wood during a hurricane in 1995. Escapes of exotic fish are not considered a big problem, probably due to the lack of large bodies of fresh water inland in the OTs. Escapes of exotic birds are also not considered a big issue, possibly due to the relatively low numbers kept as pets. Currently, one of the commonest domestic species of concern is the cat. Unwanted kittens are frequently dumped in the wild and form feral populations, threatening wildlife such as the native Anguilla Racer Snake (*Alsophis rijgersmaei*), endemic Antillean Iguana (*Iguana delicatissima)*, or endemic St Helena Wirebird (*Charadrius sanctaehelenae*).

With the exception of CSBA, all the OTs carry out biosecurity border operations to a greater or lesser extent, and 12 out of the 16 rated this as “Some” or “Good”. Focusing limited resources on border inspections and interceptions is cost-effective for islands where the border is clearly defined and defendable. However, where there are multiple pathways of entry or in a continental context with relatively long, leaky borders which can’t be readily defended, an alternative strategic approach is to identify the priority species or pathways of concern and work more widely across the biosecurity continuum, particularly post-border. Tactics adopted are based on the results of pathway analysis and horizon scanning. In this context, high scores across the board for all components aren’t necessarily appropriate, instead a package of activities is adopted designed to minimise the identified risks. CSBA and Gibraltar are not island territories and have different priorities. In the CSBA the focus is on the zoosanitary risks of new animal disease outbreaks and public health issues, routine monitoring is of aerial insect vectors, specifically mosquitoes, and rapid response capacity exists to respond in the event of human or animal health outbreak. Gibraltar benefits from strong post-border monitoring, surveillance and prioritisation actions to protect its unique biodiversity, as laid out in the Gibraltar Biodiversity Action Plan and Reserve Management Plan.

Ascension Island and BIOT also rated border operations as “Basic”. Both territories have limited or no agricultural production and consequently little political incentive in the past to invest in biosecurity border controls. The limited resources available to biosecurity are targeted at post-border actions directed towards the highest risk species, namely mosquitoes of human health concern and fire ants in Ascension Island, and Brown tree snake in BIOT. This approach emphasises the importance of horizon scanning, pathway analysis and accurate assessment of risks in the first place, and the need to build capacity in these areas to provide information on where to target resources.

Priorities and recommendations

Aiming to build capacity for all OTs so that they have high scores across the board is neither realistic nor suitable. While for many OTs an appropriate strategy would be to devote a substantial proportion of available resources to border operations, for others, such as CSBA or Ascension Island, a more cost-effective strategy instead would be to establish post-border surveillance programmes targeted at identified priority species or pathways. In all the OTs resources are limited, and officers must be very focused in their activities. To do this effectively, each OT needs basic information on what invasive species are out there (horizon scanning), how they might arrive (pathway analysis) and how to assess risk (PRA and NNRA). Capacity in these fundamentals was found to be lowest in this gap analysis and it is recommended that the project concentrates in this area, as follows.

Build fundamentals:

- Horizon scanning linked with pathway analysis – to determine what potential invasive species are out there and the different ways they can arrive. The information is used to design an appropriate package of responses, which guides how the available resources should be best divided up between preventative actions, such as pathway or border operations, and reactive actions, such as surveillance and rapid response.
- Risk analysis – the process of assessing biosecurity risks. OTs need access to support for risk analysis, and a harmonised approach across the OTs to guide practices on-island for:
    - Assessment of plant or animal species for potentially invasive characteristics;
    - Assessment of the risks of a plant or animal species carrying potentially harmful pests, parasites or diseases.

Establish the framework:

- National policy or strategy - agreed actions to achieve the appropriate package of response, including a communications strategy for awareness to improve compliance and internal advocacy to promote government support.
- Legislation – regulate across the biosecurity continuum, including actions to contain, control and eradicate established invasive species. Provision of model legislation would allow a harmonised approach across OTs; assistance with drafting to apply it at the national level is also required.

Delivery:

- Training – on all aspects of biosecurity, with specific needs varying with the Territory. This is essential underpinning to provide the capacity to deliver the fundamentals and framework outlined above.

Add value:

- Regional coordination - use regional coordination bodies where they exist and are active, linking among the UKOTs and also to independent countries and other territories. As noted by Brian Crichlow, current Chair of the Caribbean Plant Health Directors (CPHD) Forum: “Often donor funds go to the independent countries of the region but through the networks like CPHD and Caribvet we the OT’s often still

manage to benefit from the reports or findings coming out of these projects. Similarly, any projects or programmes targeted at the OT's will not only benefit us directly but outcomes can be shared through the networks to benefit the entire region". Coordination bodies exist in the Caribbean and Pacific regions:

  - *Caribbean*: there are a number of regional coordination bodies and networks, such as the Caribbean Plant Health Directors Forum (CPHD), Caribbean Agricultural Health and Food Safety Agency (CAHFSA), Caribbean Invasive Species Working Group (CISWG), and the Greater Caribbean Safeguarding Initiative. The primary emphasis of these coordination bodies is to develop and strengthen national and regional agricultural (animal and plant health) and food safety systems in the context of trade facilitation.
  - *Pacific*: Pacific Invasives Partnership (PIP), coordinated by the Secretariat of the Pacific Regional Environment Programme (SPREP), has an environmental focus but covers all aspects of invasive species.

- Networking - build networks, either strengthening existing or developing new ones, to promote sharing and exchanges, and promote the confidence and inspiration which result from peer-learning networks. Again, these exist in the Caribbean and Pacific regions.
  - *Caribbean*: the Caribbean Invasive Alien Species Network (CIASNET), and the Caribbean Pest Diagnostic Network (CPDN).
  - Pacific: Pacific Invasives Learning Network (PILN), and the Pacific Invasives Initiative (PII).

Building capacity in the activities outlined above will equip the officers responsible for biosecurity in the OTs with the capacity to develop other actions such as contingency and rapid response planning.

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Annex 1. Contacts in the 16 OTs

Name	Position and Organisation
Anguilla	
Calvin Samuel	Department of Environment
Rhon Connor	Sustainable Development and Environment Coordinator, Department of Environment
Ascension Island	
Andrew Airnes	Terrestrial Conservation Officer and Reserve Warden
Judith Brown	Director of Conservation & Fisheries
Bermuda	
Terry-Lynn Thompson	Principal Plant Protection Officer, Department of Environment and Natural Resources
Drew Pettit	Director, Department of Environment and Natural Resources
British Antarctic Territory	
Kevin Hughes	Environmental Research and Monitoring Manager, British Antarctic Survey
British Indian Ocean Territory	
Helen Stevens	Environment Officer
Murielle Benjamin	Deputy Administrator
British Virgin Islands	
Nancy Woodfield-Pascoe	Deputy Director, National Parks Trust of the Virgin Islands
Joseph Smith Abbott	Deputy Permanent Secretary, the Ministry of Natural Resources and Labour
Arona Fahie-Forbes	Deputy Chief Agricultural Officer, Department of Agriculture
Cayman Islands	
Frederic J Burton	Manager, Terrestrial Resources Unit, Department of Environment
Brian Crichlow	Assistant Director, Department of Agriculture
Cyprus Sovereign Base Areas	
David Reynolds	Environmental Planner, MOD
Falkland Islands	
Ross James	Biosecurity Officer, Environmental Planning Department
Nick Rendell	Environmental Officer, Environmental Planning Department
Stephen Pointing	Senior Veterinary Officer, Department of Agriculture
Adam Dawes	Senior Agricultural Advisor, Department of Agriculture
Gibraltar	
Stephen Warr	Senior Environment Officer, Department of the Environment
Keith Bensusan	Gibraltar Ornithological & Natural History Society: UKOTCF
Montserrat	
Melissa O'Garro	Department of Agriculture

Gerard A.L. Gray	Department of Environment
Peter White	Customs and Revenue Service
Pitcairn Islands	
Jay Warren	Head of Biosecurity
Michele Christian	Division Manager, Environmental, Conservation & Natural Resources
South Georgia and the South Sandwich Islands	
Jennifer Lee	Environment Officer
St Helena	
Julie Balchin	Biosecurity Officer, Agriculture and Natural Resources Division
Natasha Stevens	Biosecurity Assistant, Agriculture and Natural Resources Division
Tristan da Cunha	
Katrine Herian	Conservation Policy Officer
Trevor Glass	Conservation Officer
Turks and Caicos Islands	
Wilhemina Kissoonsingh	Director, Department of Agriculture
Eric Salamanca	Assistant Director for Research and Development, Department of Environment and Coastal Resources

Annex 2. Complete responses for each OT.

Anguilla

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No established system, but done on an ad hoc basis as needed.	Basic
Non-Native Species Risk Analysis	No established system, but done as needed when necessary.	Basic
Pathway Analysis	Not done.	None
Horizon Scanning	No formal protocol for this as such, but the Department of Environment keeps abreast of what invasive species are affecting the region/neighbouring islands and depending on the nature of it, then sensitize the general public of its likely entrance and decide on a plan of action; This was done specifically with the Lionfish before its actual invasion in Anguilla.	Basic
Contingency Planning	Plants and plant health risks: The invasive species strategy highlights actions to follow if an invasion occurs, but is not specific to a particular species.	Basic
	Animals and animal health risks: The invasive species strategy highlights actions to follow if an invasion occurs, but is not specific to a particular species.	Basic
	Other risks: The invasive species strategy highlights actions to follow if an invasion occurs, but is not specific to a particular species.	Basic
Border Operations	One officer with part-time biosecurity functions, but not stationed at the border. Awareness Training has been done for Customs Officers with reference to biosecurity, but there is not anyone dedicated to biosecurity. The Agricultural officer is called on demand to inspect plants and animal imports. No dedicated biosecurity facilities, Large scale shipments (Containers) with plants and other products are delivered directly to the importers property or site. The container is then opened in the presence of an Agricultural officer and a custom agent. It's important to note that many containers with plants are destined for hotels and the garden shops/nurseries; since the containers are opened on site, the	Some

	Department of Environment has taken the initiative to engage the hotel gardeners/horticulturalist in biosecurity training. This is especially necessary since there is not adequate border security. An effort is made to keep the public aware of invasive species and their impacts, and the public is therefore adequately informed through literature and media blitz, but there is still a lot of work needed to heighten awareness of publics since the initiatives are not continuous. Compliance is not monitored.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	There is no hotline and not a clear system in place, but some sporadic awareness programmes are done to inform the general public.	Basic
Surveillance	Plants and plant health risks: no programme in place	None
	Animals and animal health risks: no programme in place	None
	Other risks: no programme in place	None
Monitoring	No specific monitoring of established invasive non-native species. However, regular monitoring takes place of land birds, sea birds, land reptiles, marine turtles, and some key landscapes and habitat areas, which will encompass a range of species including invasives.	Basic
Rapid Response Capacity	Plants and plant health risks: There are personnel from selected agencies to address the occurrence of an incursion, but there is no standard operating procedures established to facilitate. Adequate resources are not available to deal effectively with the issue.	Basic
	Animals and animal health risks: There are personnel from selected agencies to address the occurrence of an incursion, but there is no standard operating procedures established to facilitate. Adequate resources are not available to deal effectively with the issue.	Basic
	Other risks: Not available to deal with new invertebrate species, or for marine invasive species which are extremely difficult to control, and the Department of Environment does not have adequate resources to handle them.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	In the Invasive Species Strategy, there are some terrestrial species recommended for eradication and control. These species were identified at an invasive species workshop by Anguilla stakeholders, and the process did not necessarily used global best practice. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for Anguilla. Key invasive alien vertebrate species are goats and black rats.	Good
Baseline	Plants: terrestrial native and invasive species reasonably well known.	Some
	Animals (terrestrial vertebrates and invertebrates): Birds and land reptiles relatively few and well known. Terrestrial native and invasive invertebrate species reasonably well known.	Some
	Other: marine reptiles well known. Other marine organisms are less well known.	Basic
Framework	Legal framework: There are several pieces of legislation that cover some aspects of biosecurity, but there is a need for stronger legislation. Powers exist with relation to the prevent of the spread of diseases for animals and plants (powers of inspection, entry, search, restriction of movement, seizure and destruction). Diseased imported plant and animals can be seized. This is primarily concerned with animal and plant health, and invasive species are not mentioned explicitly. No release of flora and fauna into marine parks. No monkeys allowed. Internal biosecurity is weak: Offshore islands are not explicitly mentioned in legislation.	Some
	National framework: The Anguilla Invasive Species Strategy highlights the importance of prevention and outlines the required biosecurity actions with agency responsibilities, including Department of Environment, Department of Agriculture, Department of Health Protection, Department of Fisheries and Marine Resources	Some

	and Anguilla National Trust. The Strategy was endorsed by the Government of Anguilla in or around 2009 and is being implemented.	

Ascension Island

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No system in place.	None
Non-Native Species Risk Analysis	Basic system in place for non-native plant species. Invertebrates system not in place as it depends on building baseline first.	Basic
Pathway Analysis	Pathway risk analysis carried out as part of the Ascension Island Biosecurity Review, May 2016.	Good
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risks: None in place.	None
	Animals and animal health risks: None in place.	None
	Other risks: None in place.	None
Border Operations	Currently limited in scope. A new post (from August 2016) will have up to 50% biosecurity function by 2017. Proposed components of border operations include the development and implementation of border procedures, including formulation of a white list, import health standards for sea containers and inspection procedures, development of biosecurity treatment capability, and a public awareness campaign. This is expected to cover targeted phytosanitary and zoosanitary risks only. Different agencies will be involved in delivery. Operations at the airport depend on collaboration with MOD/Interserve and US Airforce as all flights are military at the moment. Specific protocol in place for all visitors to Boatswain Bird Island, covering zoosanitary and phytosanitary risks.	Basic

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	Informal system in place, all novel reports are sent to the Conservation Department. Wide awareness among border staff (airport and pier head) and local community.	Some
Surveillance	Plants and plant health risks: Planning to set up programme	Basic

	for crawling invertebrates.	
	Animals and animal health risks: Researchers are expected to report on any problems (eg diseases, failed nesting, nest destruction, abandoned nests etc) with seabirds on Boatswain Bird Island.	Basic
	Other risks: MOD are running a mosquito monitoring programme at all ports of entry and island-wide. Planning to set up programme for fire ants. A disease outbreak amongst the conspicuous feral donkey or sheep population would be quickly spotted despite the lack of formal surveillance.	Basic
Monitoring	Periodic plant surveys done, both native and non-native species: 'living' map. Bird, land crab and green turtle monitoring, surveys and mapping programmes in place. Non-native invasive species monitored around beaches. Plans to set up crawling invertebrate monitoring system in near future. Four Malaise traps being set up to monitor flying insects, checked on a monthly basis. Baseline being developed. Plans to set up mammal monitoring programme. The MOD are in the process of setting up a mosquito monitoring system.	Some
Rapid Response Capacity	Plants and plant health risk: will use Fera invertebrate identification service to identify biosecurity interceptions. Otherwise nothing in place at the moment.	Basic
	Animals and animal health risks: nothing in place at the moment. There is no resident qualified vet on the island.	None
	Other risks: nothing in place at the moment.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Not done for plants or invertebrates. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for Ascension. Key invasive alien vertebrate species are black rat, house mouse, rabbit, sheep, common myna and	Basic

	donkey.	
Baseline	Plants: Biannual plant census (March and September) for endemic species; baseline habitat map (including satellite images) and herbarium of species underway There is a terrestrial herbarium database for all species, native and introduced, with 300 species on it (including positions) and this is ongoing work.	Good
	Animals (vertebrates and invertebrates): few vertebrate species present and well known; an invertebrate database exists, having been built up on an ad hoc basis but is poor.	Basic
	Other: Marine species: Quantitative fish and marine invertebrate baseline abundance studies established and conducted both spatially and temporally. Good knowledge of marine species present and database of species exists. Long term turtle nesting studies established. Seabird population and productivity monitoring established.	Good
Framework	Legal framework: Legislation review done in 2009 (Shine 2009), and biosecurity legislation and polices reviewed as part of the Ascension Island Biosecurity Review, May 2016 and found to be weak. The Prohibited Animals regulations (1967) prohibits the importation of primates and birds of the Order Psittaciformes in order to prevent the importation of disease. The Dogs and Cats ordinance (2000) prohibits the keeping or importation of un-neutered cats and dogs and aims to prevent the colonisation of the Island with feral populations after the successful feral cat eradication. The Bahamas agreements (2005) and Final Governing Standards for Environmental Protection by United States Forces when operating on Ascension Island (2002) provide a basis to allow the AIG to effectively require the USAF to implement a range of biosecurity measures to prevent the introduction of invasive pests.	Basic
	National framework: there are plans to develop a national biosecurity strategy/ policy.	Basic

Bermuda

PREVENTION

Component	Status	Rating
Pest Risk Analysis	Phytosanitary risks: This is done on an ad-hoc basis, and there is no formal procedure. Importation of regulated items is done only for Agriculture controlled commodities and requires an application process that enables the authorities to access the phytosanitary risks the species and or country (area) where it is exported from. Supporting information, including pest free areas and details of the in-country phytosanitary program is requested as well. Regulated articles listed in the application are checked against an official restricted and invasive plant species list to verify that the articles pose no or minimal risk to Bermuda Zoosanitary risks: In a similar way, there is a process that follows a mostly qualitative import risk analysis. The hazard analysis is binary: does a hazard exist or not. This considers not only the animal species itself – could it be a pest? – but also the risk it is carrying a harmful disease. This is followed by risk assessment: entry assessment, exposure assessment, consequence assessment and risk estimation. Then through risk management the Appropriate Level Of Protection is determined.	Basic
Non-Native Species Risk Analysis	No programme in place.	None
Pathway Analysis	Not done.	None
Horizon Scanning	Not done.	None
Contingency Planning	Plant and plant health risks: Contingency plans are in place for certain agricultural pests such as Tephritid fruit flies. For new weed species or pests of endemic plants, no contingency plans have been developed as yet.	Basic
	Animal and animal health risks: Basic protocols exist in the event of a new exotic vertebrate pest. No contingency plans for animal diseases presently exist but if an outbreak occurs international recommendations are followed.	Basic
	Other risks: No contingency plans are in place for a new marine species, or terrestrial invertebrate pest which is not	None

	a plant pest, eg a fire ant species.	
Border Operations	There is no 'biosecurity team' as such. For border control the main players are the Plant Protection Section (includes agriculture) and Animal Control Section, of the Department of Environment and Natural Resources (DENR). HM Customs and the Marine Resources Section of DENR also play a role here. Phytosanitary: There are 3 dedicated officers at the Plant Protection lab (Principal Plant Protection Officer, Plant Protection Officer and Laboratory Assistant in the Plant Protection Lab). A new position for a 4th dedicated officer is planned. More staff needed for plant inspections. The Plant Protection Lab issues importation and exportation (and CITES) permits and inspect incoming plants and related products. There is an application process and import permit system for Importation of regulated articles. Regulated articles requiring permits include: live flowers, floral arrangements, greenery, fresh produce, Christmas trees, plant material for propagation (includes plants, bulbs, tubers, rhizomes or cuttings), seeds, potting media, sand, stone, gravel and insects. Importers who have applied for a release form (e.g florists) can transport products for inspection to the Plant Lab themselves from the point of entry. A formal list of black listed agricultural produce is available. A permit is required before importing fresh fruit or vegetables that are considered High Risk Produce or from a High Risk Area (relating to the threat of Pink Hibiscus Mealybug *Maconellicoccus hirsutus*). All produce is subject to inspection upon entry into the island. A black list for seeds is also available. An informal black list of potentially invasive plant species prohibited from import is used. The list is not formal or publicly available. Soil and topsoil are prohibited entry into Bermuda. Potting media, sand, stone and gravel can be imported with a permit. Articles declared to Customs or discovered in searches at the airport are seized and transported to the Plant Lab for inspection, then confiscated or released to the importer. Used equipment and vehicles are required to be cleaned of quarantine risk material. they may be required to be steam cleaned or fumigated prior to importation.	Some

	There are dedicated biosecurity facilities in the form of the Plant Protection Laboratory at the Department of Environment and Natural Resources Headquarters. Export permits are issued for wood products and plant materials. Zoosanitary: There is 1 dedicated officer in the Animal Control Section (Chief Veterinary Officer). The Animal Control Section issue importation and exportation (and CITES) permits and inspect incoming animals and related products. More staff needed for vet functions and administration. Import permit applications are online for the import of dogs, cats, birds, horses, ponies and equines. Import permit applications and associated veterinary documents are assessed by the DENR. There is no quarantine facility for animal imports. Imports of marine species are regulated by the Senior Marine Resources Officer and Marine Resources Officer. Import permit applications for fish, marine fish, lobsters and sea shells are online. Individuals do not qualify for such a permit. The importation of any live marine species (animals, fish or plants) is strictly forbidden without permit. Individuals do not qualify for such a permit. These same items may be imported by individuals without a permit if these items are fully and visibly cooked or frozen at the time of import. The importation of clean sea shells is permitted without a permit, except where the species is protected by law. The importer should expect to have his/her shells confiscated by Bermuda Customs so that the shells can be inspected by the Marine Resources Section of the Department of Environment and Natural Resources. If the imported items pass inspection, the shells will be returned to the importer. Research is ongoing on vessel biofouling to identify potential invasive species. For deliberate introductions, residents know that they require an import permit to import plants and plant products, animals and animal products, marine species etc. The public are aware they can bring plants that they suspect are diseased or insects to the Plant Lab for identification, and that they can report unusual animals to the DENR. On occasion pest animals (e.g red eared sliders and chickens) are surrendered for euthanasia. For marine species there is moderate to high level of awareness for importation and of	

	Lionfish, low awareness of the threat of vessel biofouling. Unusual marine specimens are kept in the natural history collection at the Bermuda Aquarium, Museum and Zoo.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	Formal reporting of plant pests and diseases is done by contacting the Plant Protection Lab by phone, email, online contact form (with photo upload capability) or an office visit. Reports from the public about unfamiliar animals may be sent to a number of sections within the DENR or to the Bermuda Aquarium, Museum and Zoo. There is no formal reporting procedure unless the animal is in distress. Bird kill events are reported to the Government Vet using an online form. Reports from the public about unfamiliar marine animals may be sent to sections within the DENR or to the Bermuda Aquarium, Museum and Zoo. There is no formal reporting procedure unless the animal is in distress. There is no formal reporting procedure for unfamiliar marine plants. Fish kill events are reported to the Marine Resources Section online. Lionfish are an established pest species, widely recognized by the public, and with an active culling programme. There is little informal reporting now, as they are established and widespread. They are informally reported by telephone and email, and formally reported online.	Some
Surveillance	Plant and plant health risks: General surveillance is carried out by field officers of the DENR and public reports in terrestrial habitats.	Basic
	Animal and animal health risks: For animal disease surveillance, passive surveillance exists amongst small animals, and limited surveillance amongst farm animals. No surveillance exists for backyard flocks and wildlife. No surveillance for escaped exotic vertebrate pests.	Basic
	Other risks: General surveillance is carried out by field officers of the DENR and public reports in marine habitats, and covers all taxa. However, there is no specific	Some

	surveillance programme to detect new marine species. Department of Health has an active island-wide monitoring and control program for mosquitoes and vermin. This is run by the Vector Control section.	
Monitoring	Informal monitoring of some garden ornamentals and fruit plants.	Basic
Rapid Response Capacity	Plant and plant health risks: Low capacity to respond. Some capacity through the Terrestrial Conservation Crew (3 people) to cull small infestations of plants. Little capacity to respond to outbreaks of plant diseases or control plant pests. New species are identified from published material, online resources, communication with contacts (both experts and contacts from academia, and officers from other jurisdictions). Once a species is on-island, the Biodiversity Section and Terrestrial Conservation Section of the DENR are responsible of eradication, monitoring and some surveillance. Record keeping and some identification are done by the Natural History Museum (part of DENR).	Basic
	Animal and animal health risks: Low capacity to respond. Several pest-control shooters are licenced by the Bermuda Police Service and the Protection of Birds Act (PoBA) - Pest Bird management (mainly DENR staff members). At present, they only deal with established pest birds as listed under the PoBA. Little or no capacity to deal with incursions of small terrestrial vertebrates or invertebrates. No on-island facility to house captured animals. They would need to be immediately euthanized, which would tax the resources of the Government Vet, and the carcasses would have to go into the household waste stream. Reportable diseases: Outdated list of 'communicable diseases', capped off by the catch-all phrase "Any other disease or conditions communicable to man". The Department is ill equipped to respond to a report of a communicable disease in an animal. Once a species is on-island, the Biodiversity Section and	Basic

	Terrestrial Conservation Section of the DENR are responsible of eradication, monitoring and some surveillance. Rodent eradication is carried out by the Vector Control division of the Department of Environmental Health. New species are identified from published material, online resources, communication with contacts (both experts and contacts from academia, and officers from other jurisdictions).	
	Other risks: No capacity to respond to a new marine pest species. Current marine invasive species control efforts (lionfish) are largely undertaken by the public. There is little or no capacity to deal with incursions of marine fish, invertebrates or plants/algae, or to detect and respond to occurrences of harmful marine micro-organisms/pathogens (including fish diseases and agents that cause human illness). New species are identified from published material, online resources, communication with contacts (both experts and contacts from academia, and officers from other jurisdictions).	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Invasive species are prioritized for eradication based on other conservation goals (e.g because they are a threat to a particular endangered species, or because they are a problem in a particular nature reserve). Three pest bird species are prioritised for eradication because they are a public nuisance and a threat to agriculture and endangered species. Also the pathway is closed, so there is the possibility of success. There is a Control Plan in place for the invasive Lionfish. Not done for plants or invertebrates, terrestrial or marine. Mosquito and vermin control are prioritised by the Vector Control section of the Department of Health. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for Bermuda. The study did not identify any priority vertebrate	Basic

	eradication projects for this territory.	
Baseline	Plants: The Bermuda Natural History Museum maintains a biodiversity database with approximately 8,000 records of species known from Bermuda; either presently or from historic records. Good records exist for major plant taxa and marine algae. Less comprehensive records exist for minor plant taxa (especially bryophytes) and fungi. Bermuda's biodiversity is well documented, and specimens, images and literature are held in on-island collections and overseas.	Good
	Animals (terrestrial vertebrates and invertebrates): Good records exist for terrestrial vertebrates, marine vertebrates and birds (including regular migrants). Less comprehensive records exist for some families of terrestrial invertebrates (others are well documented). Bermuda's biodiversity is well documented, and specimens, images and literature are held in on-island collections and overseas.	Good
	Other: Good records exist for established and native fish and marine reptiles. Less comprehensive records exist for some families of marine invertebrates (others are well documented). Bermuda's biodiversity is well documented, and specimens, images and literature are held in on-island collections and overseas.	Good
Framework	Legal framework: Legislation is weak, and focused on plant health and animal health issues for agricultural production and livestock. Powers exist with relation to the prevent of the spread of diseases for animals and plants (powers of inspection, entry, search, restriction of movement, seizure and destruction). Diseased imported plant and animals can be seized. Diseased imported plant and animals can be seized. No sand, soil or earth allowed on stock. No sand or gravel without permit. No legal powers to seize/destroy plants that have become invasive. (e.g *Schefflera*, now invasive and sold in commercial nurseries). No flexibility to restrict sale or propagation of a plant species that becomes a pest once it	Basic

	is on the island. No legal right to access private property to cull invasive plants. No legal power to induce land owners to cull invasive plants. No animal products from South America. No live or unfrozen and uncooked fish allowed into the waters of Bermuda except under license. No powers to prevent release of animals into the environment. There is little leeway to prohibit/restrict importations of animals and animal products in response to the dynamic disease patterns and incidents that occur. Weak quarantine: the Vet Officer has ability to restrict movement of animals into/out of a quarantine area, but powers do not extend to vehicles and people. A species can be denied entry on ecological grounds, but once found here, the ability to control it does not appear in legislation other than in defence of some protected species. e.g. smuggled. Seizure of property becomes a Bermuda constitutional issue. Border control is fairly strong (with some additional legislation/policy needed), but there is no legislation managing invasive species that have established on the island. Offshore islands not explicitly mentioned in legislation.	
	National framework: There are several biosecurity and invasive species items in the 2003 Biodiversity Strategic Action Plan, but no stand-alone strategy. A number of sections of the DENR are involved in long-term management of invasive species, as are the Dept. of Parks and a number of local NGOs.	Basic

British Antarctic Territory

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No routine PRA process carried out. Some taxa (e.g. Collembola) have been assessed.	Basic
Non-Native Species Risk Analysis	No formal framework in place. However, very few non-native species are present, and most are invertebrates. All are considered high risk within BAT. Antarctica only has two native flowering plants and two native higher insects. Therefore the new introductions dramatically increase the continent's plant and insect biodiversity and can have substantial (if so far very localised) impacts upon native ecosystems.	Some
Pathway Analysis	Completed as part of the Review of BAS Biosecurity Practice, March 2013. In addition, a range of studies have been done on different pathways / taxa. An assessment of biofouling risks was published in 2016.	Good
Horizon Scanning	Various exercises have been carried out as part of the Antarctic Treaty Systems Committee for the Environmental Protection 'Non-Native Species Manual', and publications: Continent-wide risk assessment for the establishment of nonindigenous species in Antarctica (Chown et al 2012), and Global thermal niche models of two European grasses show high invasion risks in Antarctica, (Pertierra et al 2017).	Good
Contingency Planning	Plants and plant health risks: A response protocol has been developed and will be proposed to the Treaty Parties in May.	Some
	Animals and animal health risks: Mass Animal Mortality Event (MAME) Response Plan.	Good
	Other risks: No contingency plan in place.	None
Border Operations	Biosecurity duties are part of environmental function. There are no specific biosecurity facilities, but boot washers and other biosecurity equipment are provided. Strict biosecurity controls are applied to visitors (including tourists, with the tourism industry represented by the International Association of Antarctica Tour Operators (IAATO)) and vessel access, to research staff, vehicles,	Good

	cargo, and food supplies. All visitors apply self-policing protocols. Internal biosecurity (between stations) is also rigorous for some pathways. Procedures, protocols and detailed Handbook in place. The protocol on environmental protection to the Antarctic Treaty demands a black list approach. Non-native species can only be introduced with a permit for scientific purposes or food, and then must be destroyed. Code of Conduct have been prepared by the Scientific Committee on Antarctic Research (SCAR) that provide advice for scientists regarding non-native species. These Codes apply to BAT. Good levels of awareness and generally good compliance by the UK. However, standards vary in the 18 other nations operating in BAT, in terms of both biosecurity protocols and compliance in the field. This is of particular concern for those operating in the climatically less extreme areas of the northern Peninsula where non-native species establishment may be more likely. The CEP non-native species manual has been endorsed by all 29 Antarctic Treaty Consultative Parties through Resolution 4 (2016). However, levels of compliance are unclear, both within Antarctica and at other points in the supply chain.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	BAS operate an accident/incident/near-miss/environment (AINME) reporting system with a special category for non-native species.	Good
Surveillance	Plants and plant health risks: no formal programme in place. BAS staff are expected to report any sightings of novel species.	Basic
	Animals and animal health risks: BAS staff are expected to report any sightings of suspected animal disease.	Basic
	Other risks: no formal programme in place. BAS staff are expected to report any sightings of novel species.	Basic

Monitoring	Some studies on plants and non-native invertebrates has been done; no formal long-term programme in place.	Basic
Rapid Response Capacity	Plants and plant health risks: limited local capacity exists to rapidly eradicate small number of non-native plants; no capacity to respond to anything other than the smallest invertebrate incursion. BAS staff expected to take immediate "reasonable" action to deal with any sightings.	Basic
	Animals and animal health risks: Rats unlikely to survive unless associated with research station buildings - no infestations known within BAT. No capacity to respond to an animal disease outbreak.	Some
	Other risks: BAS staff expected to take immediate "reasonable" action to deal with any sightings of invertebrates (fly, spider, etc.) within station buildings and ships. BAS lacks the technology to eradicate non-native micro-invertebrates without doing severe damage to the existing rare terrestrial habitat.	Basic

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	There are relatively few non-native species within BAT. Two non-native plant species have been eradicated and there are plans to remove all non-native plant species within the next 2-3 years. A protected area, managed by the UK, was established specifically to protect a remote nunatak with unusual species assemblage from non-native species introductions.	Good
Baseline	Plants: The nature of the territory means that there are few species present. Only two native plants present. Only one non-native plant (*Poa annua*) at one location and eradication work underway. Monitoring is very poor so others may exist (and probably more so for invertebrates).	Good
	Animals (terrestrial vertebrates and invertebrates): The nature of the territory means that there are few species present. No native vertebrates in BAT and no non-native vertebrates established.	Good

	At least 13 non-native invertebrates established within BAT.	
	Other: Marine species are not well known. Micro-organisms are relatively well known.	Some
Framework	Legal framework: Biosecurity legislation is contained within Annex II to the Protocol on Environmental Protection to the Antarctic Treaty, which is enacted into UK legislation through the Antarctic Act 1994, 2013. With a few exceptions, the legislation prohibits the introduction of all non-native species.	Good
	National framework: The Protocol on Environmental Protection to the Antarctic Treaty agreed in 1991 and entered into force 1998. Procedures are detailed in the comprehensive Biosecurity Handbook.	Good

British Indian Ocean Territory

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No system in place	None
Non-Native Species Risk Analysis	No system in place	None
Pathway Analysis	Completed for the Brown Tree Snake in 2013. Pathways of entry for BIOT need to be considered at two levels which should be considered separately. Firstly, the pathway via Diego Garcia, where cargo (and personnel) are regularly transferred both by ship and by air. Secondly, to and between the 54 Outer Islands. These are visited rarely by i) scientists ii) personnel based on Diego Garcia and iii) occasionally by persons from private yachts which are given permission to travel through BIOT. Access to the islands is possible only by small vessel (i.e. RHIB or similar) or by swimming, as coral reefs impede landing from larger craft.	Basic
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risks: No plans in place	None
	Animals and animal health risks: plan in place for Brown Tree Snake detection.	Basic
	Other risks: no plans in place	None
Border Operations	BIOT does not have dedicated biosecurity officers. There is a customs team who inspect luggage and personnel for contraband items (drugs etc), but would not proactively check for plant or animal materials. The customs team look at all containers coming onto the island for infestations. If they see any evidence of this, they seal the containers and get pest control in to fumigate the affected container. Imported materials (large granite rocks) for coastal defence are inspected for the presence of soils etc. These are stored on a concreted area for a period of c.28 days before being utilized.	Basic

	Public awareness is good, with regular monthly training on the Diego Garcia Final Governing Standards covering the introduction of invasive species, pests, and twice a year training on Brown Tree Snake and other invasive species awareness.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	Emergency phone numbers in use but no dedicated line or system. Inspection by Pest Control in cases of sightings, and extermination if detected.	Some
Surveillance	Plants and plant health risks: No programme in place.	None
	Animals and animal health risks: No programme in place.	None
	Other risks: No programme in place.	None
Monitoring	Long term monitoring system in place for cats, rats, donkeys, agama lizards, sensitive plants (*mimosa*), and spiders. Long term monitoring system in place by the Zoological Society of London (ZSL) on coral, reef fish, marine turtles and reef sharks.	Some
Rapid Response Capacity	Plants and plant health risks: For chronic and widespread species capacity is very limited.	None
	Animals and animal health risks: There is a pest control team who would be called to eradicate a non-native species should it be detected incidentally where the species may be a threat to human health (i.e. a non-native spider or snake). For snakes, Guam has a Rapid Response Team to respond to Diego Garcia requirements. However, given the relatively recent establishment of agamid lizards, capacity is clearly lacking. For chronic and widespread species capacity is very limited.	Basic
	Other risks: no capacity to respond.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Some species are prioritized (for example current eradication of cats) and a feasibility study for the eradication of rats on Diego Garcia has been undertaken, but not completed based on global best practice. There is an eradication programme for cats (on Diego Garcia) in place, which involves monitoring activity using cameras. Traps are then set according to detected movement patterns. This has reduced the cat population from several hundred to c.30 individuals. However, other species, for example rats are only managed in certain areas – for example rat poison is used around human habitation and buildings, but the rats are widespread across the rest of the island. Not done for plants or invertebrates. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for BIOT. Key invasive alien vertebrate species are black rats.	Basic
Baseline	Plants: Royal Botanical Gardens Kew has compiled a full plant species list for the Territory.	Good
	Animals (terrestrial vertebrates and invertebrates): Updated species lists are being formulated by ZSL as part of a long-term monitoring project.	Good
	Other: coral, reef fish, marine turtles and reef sharks	Good
Framework	Legal framework: The Prohibited Imports and Exports Order 2009: an Order made under the Imports and Exports (Control) Ordinance 2009 which includes the prohibition of importing into the Territory any fill material which contains plant or animal material not originating in the Territory and also prohibits the exportation without written permission of any wildlife (including seashells, corals, eggs etc.) whether alive or dead. Under The Visitors and Visiting Vessels Ordinance 2006, Guidance for Visitors includes the following: Fauna and flora from outside the Chagos Archipelago must not be introduced into the Territory. In particular, pets are not to be landed.	Some
	National framework: None in place	None

British Virgin Islands

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No system in place. Training of one officer for pest risk analysis was conducted in Antigua in November 2016. This officer is the Head of Plant Quarantine and will train the other officers as part of the work programme for 2017. A training manual has been developed to conduct this training.	Basic
Non-Native Species Risk Analysis	No system in place. The National Parks Trust of the Virgin Islands (NPTVI) have conducted targeted invasive species pest risk, where it impacts biodiversity in national parks.	Basic
Pathway Analysis	Not done.	None
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risks: Contingency plans are in place.	Some
	Animals and animal health risks: Contingency plans are in place.	Some
	Other risks: There is a contingency plan and on-going programme for the incursions of new marine species. A prime example is the Pacific Lionfish.	Some
Border Operations	The Department of Agriculture (DOA) has 10 staff with biosecurity functions who conduct Port control. There are no dedicated facilities. DOA has posters of certain agricultural pests in Ports of entry. There is a licensing process for the phytosanitary and/or zoosanitary risk goods, and the manuals developed by FAO are followed when carrying out inspection procedures. There is an estimated 85% compliance. The Government Information Services is utilized to periodically conduct public awareness campaigns throughout the territory. Many people import plant material without permission, also the BVI's close proximity to the USVI means that people with private boats travel frequently between the islands, with	Some

	potential for illegal importation of invasive species. Any unidentified specimens are sent off to the UK for identification by Fera.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	There is no dedicated hotline. People call the Department of Agriculture to report new sightings.	Basic
Surveillance	Plants and plant health risks: Active surveillance programmes for Giant African Snail, Black Sigatoka, Tephritid fruit fly species, Lethal Yellowing, Red Ring Disease and Citrus Greening. The quarantine team randomly conducts surveys throughout the year to determine if there are any new sightings of pests and diseases within the territory. With the aid of GPS machines and GIS documentation.	Good
	Animals and animal health risks: There is an active surveillance programmes for new animal species or animal diseases. This area is governed by the Veterinary Division within the Department of Agriculture.	Basic
	Other risks: The Conservation and Fisheries Department has an active surveillance programme for new marine species entering the territory.	Basic
Monitoring	NPTVI uses GPS to map invasive plant species within national parks and areas where plant inventories are being conducted. This is then mapped in a GIS. Species monitored are: *Casuarina equisetifolia*, *Scaevola taccada*, *Leucaena leucocephala*, *Iguana iguana*, and the Pacific Lionfish *Pterois volitans*.	Good
Rapid Response Capacity	Plants and plant health risks: Medium capacity available., NPTVI are currently trialling invasive plant removal techniques under a BEST 2.0 project with RSPB within a national park. Collaboration is made with other government agencies, other sectors will aid in the onset of biosecurity problem. Resources available to carry out rapid eradications: staff, equipment, funding and legal powers.	Some
	Animals and animal health risks: There is basic capacity to respond to an animal disease outbreak, or new animal	Basic

	species detected. Resources available to carry out rapid eradications: staff, equipment, funding and legal powers must be budgeted for and any pertinent legislations must be amended to protect officers and compensate producers where applicable.	
	Other risks: Lionfish control is being undertaken by the Conservation and Fisheries Department and Dive operators. Research and testing have been conducted and reduce the population of the Lionfish by preparing it in a particular way and eating it. This procedure is documented. There is medium capacity to respond to an outbreak of a new invertebrate species (non-plant pest).	Some

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Invasive species prioritised for control or eradication, using methods based on global best practice. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for BVI. Key invasive alien vertebrate species are feral cat, dog, goat, cow, sheep, donkey, feral chickens, pig, brown rat, black rat, green iguana, Cuban treefrog and small Asian mongoose. Lionfish *Pterois volitans* eradication project was initiated in 2009. Lionfish removal uses techniques developed within the Caribbean region. NPTVI, RSPB and *Jost van Dykes Preservation Society* (JVDPS) are currently involved in a BEST-funded project to eradicate goats from the Tobagos and undertake a rat eradication feasibility study. This project also looks at developing a biosecurity protocol. The Environmental Profiles have compiled information on alien invasive species. They identify known invasive species, in addition to those that have been identified as potentially invasive. Those species that are of immediate concern because of the conservation challenges they pose.	Good
Baseline	Plants: Flora being surveyed as part of a Darwin Plus project, started in 2015. GIs mapping of invasive plants	Good

	across BVI has also been undertaken.	
	Animals (terrestrial vertebrates and invertebrates): turtles and seabirds well known, with monitoring programmes in place. Invertebrate species (pest, introduced and native species) are not well documented in a database for the greater general public use. Additionally, proper storage of specimens need significant improvement.	Basic
	Other: marine species and habitats being surveyed under a Darwin Plus project.	Basic
Framework	Legal framework: National biosecurity legislation does not give adequate protection. There are provisions for regulations concerning imports of animals and plants. Early detection and rapid response of invasive species isn't covered, although powers exist with relation to the prevention of the spread of diseases in plants. No soil from a foreign territory is permitted in. Law and regulations exist (stop, search, seizure and arrest) to minimise intentional or accidental introduction of invasive species to the marine environment. Internal biosecurity is not covered. Improvements are now being made to existing legislation.	Some
	National framework: There is no national biosecurity policy. Invasive species management is with NPTVI and the Conservation and Fisheries Departments.	None

Cayman Islands

PREVENTION

Component	Status	Rating
Pest Risk Analysis	When requests are received for importation of products from countries that the Cayman Islands has not previously imported from or for new products from some importing partners, the DOA routinely conducts Risk & Pest Risk Analysis, following the guidelines of the OIE or the IPPC. Although technical staff is limited the DOA has successfully undertaken multiple PRA's. In general animal and plant products for consumption originating from the USA, Canada, Australia, New Zealand, UK or the EAU are not subject to PRA's. Live plants or animals, however are subject to more stringent risk assessment and import conditions. There is a proposal for White and Black lists for more expeditiously dealing with requests to import live plants for the ornamental and landscaping sectors, currently in discussion stage as is the idea of a biosecurity policy. Import control will remain the responsibility of the DOA under existing laws. The draft biosecurity policy includes definitions and logical procedures for assessing individual taxa, and establishing white lists and black lists to limit the amount of individual assessment that needs to be done on an ongoing basis. It also a process for risk assessment in cases where import and /or release of taxa not on white list or black list has been applied for. Cayman Islands also routinely imports construction aggregate from several countries. To facilitate this the Department of Agriculture has developed a PRA procedure for aggregate importation and the inspection of exporting quarries. Just last year this procedure was adopted by the Caribbean Plant Health Directors (CPHD) Forum to be used as a regional guidance document for the other members in the Caribbean.	Some
Non-Native Species Risk Analysis	The draft bio-security policy will include provision for NNRA.	Basic
Pathway Analysis	In preparation. A regional pathway analysis was conducted several years ago by a team led By Dr. H Meissner. This document has been adopted by the CPHD Forum. Given	Basic

	the commonalities of the region and the small size of the island states it is the opinion that a regional approach is the most value for money approach to this issue rather than undertaking individual analyses. The CPHD has for several years been seeking funds to update the Meissner study, most recently as part of a submission through CIRAD to an upcoming INTERREG project.	
Horizon Scanning	Some substantial advances have been made in the field of plant health and animal health, while other actions in the broader field of invasive species remain to be done. There is awareness of several future threats in the areas of plant health and animal health. The Cayman Islands is an active member of the CPHD (currently holding the Chair) and Caribvet. Through these organisations and their linkages to other international bodies such as GICSV (The Inter-American Coordination Group in Plant Protection), OIE, IPPC, IICA, FAO, USDA-APHIS. etc. the Cayman Islands is kept well apprised of potential threats. The CPHD has in fact made it part of its annual meeting to report on new potential threats in the area of plant, that are not yet in the region.	Some
Contingency Planning	Plant and plant health risks: The DOA developed rapid response protocols following the introduction of the Pink Hibiscus Mealybug, using this as a test case. Both regional and national rapid response plans are being developed. In the meantime, contingency planning for phytosanitary risks is done on a case by case basis by the DOA.	Basic
	Animal and animal health risks: contingency planning for zoosanitary risks is done on a case by case basis by the DOA.	Basic
	Other risks: No contingency plans present for marine invasive species or invertebrates (not plant pests).	None
Border Operations	The DOA is responsible for regulating importation of all animal, plants and their products. This is done under The Animals Law and the Plants Importation and Exportation law via the issuance of import permits and setting of import conditions. Customs and Agriculture staff at ports of entry carry out biosecurity functions. The DOA operates an Agriculture Health Inspection Services (AHIS) unit with 8 full time staff (7 Inspectors) that are responsible for issuing import permits, inspection of imports and border protection. The work of the unit is	Good

	guided based on potential risk. There is an AHIS officer in the customs arrival hall at the airport to support the Customs service at all times the airport is operational. All imports of live animals and plants and cut flowers and foliage receive 100% inspection as do any shipments of agricultural products arriving via air cargo. Fresh produce and meats arriving via ocean containers receive random checks. The DOA did operate an agricultural detector dog at the airport, however the programme is temporarily suspended awaiting recruitment of a new handler. The draft biosecurity policy includes definitions and logical procedures for assessing individual taxa, and establishing white lists and black lists to limit the amount of individual assessment that needs to be done on an ongoing basis. Public awareness is reasonable. The US awareness programme “Don’t Pack A Pest” is being extended across the Caribbean region, including the Cayman Islands. Compliance is considered reasonable overall. The Fera invertebrate identification service is widely used, as is also the USDA identification service.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	The DOA maintains a network of (66) sentinel sites at key locations, such as around ports of entry, nurseries, etc. that are monitored monthly to collect and identify any new pest. These sites serve as an early detection network. In addition, periodic surveillance for specific pest groups are conducted and samples of pests for identification are collected by extension service or brought in by farmers and backyard gardeners.	Some
Surveillance	Plant and plant health risks: Surveillance is very good for pest species of agricultural concern, but weaker for invasive species of environmental concern. DOA surveys its network of sentinel sites monthly on Grand Cayman and Cayman Brac and quarterly on Little Cayman. Periodically DOA staff will conduct surveillance exercises for specific pest groups, eg. mites or white flies, etc. during which all specimens found are collected for identification. This process has helped expand the DOA’s National Pest	Some

	list. DOA has also undertaken surveys for specific pest species as part of regional initiatives, and has an active plant health service who would quickly become aware of any new pest outbreak. DOA also has a very active surveillance and monitoring programme for Tephritid fruit flies comprising of 5 trap lines in Grand Cayman & 1 trap line in Cayman Brac with some 97 traps. DOA is also an active member of the CPHD Tephritid fruit fly technical working group and all trap data is logged in the regional online Fruit Fly trapping data base. There is no active ongoing surveillance for molluscs but period surveys have been undertaken to collect and identify molluscs on island as DOA is well aware of the risk of Giant African Snail. As part of regional initiatives surveys have been done for *Tuta absoluta*, *Fusarium oxisporium*, *Frankliniella occidentalis* on pepper, cactus moth, citrus hindu mite, red palm mite, lobate lac scale, cotton seed bug, several mealybugs, and other species.	
	Animal and animal health risks: No formal surveillance in place, but the Department of Agriculture has an active animal health service who would quickly become aware of any new disease outbreak.	Basic
	Other risks: No surveillance in the marine environment	None
Monitoring	Green Iguanas are being monitored by the Department of the Environment. DOA has an active monitoring programme for Tephritid fruit flies and other pests, see above under surveillance. No monitoring of non-crop pest invertebrates or marine species.	Basic
Rapid Response Capacity	Plant and plant health risks: The DOA has good response capacity and has repeatedly been able to respond to pest introductions for example Pink Hibiscus mealy bug. DOA works closely with colleagues in the region via the CPHD and other contacts as well as with the USDA-APHIS. When new pests have been identified the DOA has been able to respond either via introduction of bio-control agents and or application of appropriate pesticide treatments combined with education of farmers, back yard gardeners and nursery / landscape professionals. Although it has proven impossible to eradicate plant pests once introduced, in virtually all cases these pests have been successfully	Some

	managed. On the plant side the CPHD has a technical Working Group focused on emergency response which is currently working on a regional plan. National emergency response plans were developed several years ago by IICA and it is the CPHD's goal to update this plan to be used as a template for adoption by member countries and territories. Very limited capacity available in the Department of Environment. New species are identified using published material, direct communication with expert contacts. There is no "biosecurity team" as such, but the Department of Agriculture and Department of the Environment are the main players.	
	Animal and animal health risks: The DOA has limited capacity to respond to a new animal disease outbreak, due to the small number of qualified vets available at any one time (the DOA employs two full time veterinary officers). On the animal side, due to very stringent regulation of live animal imports there have only been a very small number of instances of introduction of new animal pest and diseases. National programmes have been implemented to address some of these cases such as liver fluke and horn flies in cattle.	Basic
	Other risks: No capacity to respond to a new marine pest species.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	The DOA is committed to addressing issues of prioritization at a regional level. On the Plant health side, the CPHD has developed a regional priority pest list of the top 10 threats to the region. The methodology used to develop the list is now being extended to the national level with persons trained in 10 member countries / territories. The goal is for each member to develop a national list which in turn will be rolled up into the regional list. The goal is to train all 32 member countries and territories and to update the regional list every two years. On the animal side, Caribvet has developed a similar national animal disease prioritization tool.	Some

	The Department of the Environment and the national Conservation Council has done some internal work on this. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for the Cayman Islands. Key invasive alien vertebrate species are feral cat, dog, black rat and green iguana. Regionally many Caribbean territories including the Cayman Islands have concerns with some of the published data in terms of what pests are listed as present in specific countries.	
Baseline	Plants: The National Trust of the Cayman Islands operates the Cayman Islands only herbarium, available internationally in digital form online. Botanists have catalogued most of the wild plants of the Cayman Islands. There is excellent baseline information for most taxonomic groups, but weak at the micro-organism level.	Good
	Animals (terrestrial vertebrates and invertebrates): The National Trust of the Cayman Islands maintains an insectarium that includes both historic and recent collections. There is excellent baseline information for most taxonomic groups. The DOA maintains and continuously updates its national pest list. All entries on this list have been taxonomically identified and confirmed by recognised experts either in the US or UK. The DOA also routinely reports to the OIE on the status of animal diseases. Terrestrial vertebrate species are few and relatively well known.	Good
	Other: Marine species (marine turtles, sharks and cetaceans, conch) are well known. General surveys have not been undertaken.	Some
Framework	Legal framework: Legislation is considered adequate. Importation of plants and animals requires a licence, they must be imported through a specified port, with powers of inspection. Importation of Plants is regulated under the Plants Importation and Exportation law. Both this law and the Animals law are overdue for updating and this is a priority of the DOA. The Animal Law 2015 restricts the importation of animals (including carcass, dung, bedding, biological product of any animal) without a licence. Animals from Asia, Africa, Central	Some

	and South America are banned. Powers exist with relation to the prevention of spread of diseases for animals and plants (powers of inspection, entry, search, restriction of movement, seizure and destruction). Diseased imported plants and animals can be destroyed. Penalties exist for contravention and release of pests and disease carriers. Internal biosecurity is covered, the legislation specifically refers to sister islands.	
	National framework: A multi-agency national biosecurity policy is in early draft form. Biosecurity policy is currently a draft document being discussed. The DOA will remain the lead agency for regulation of animal and plant health and importation of animals, plants ad their products. The Cayman Islands is closely involved in regional biosecurity forums such as the Caribbean Plant Health Directors Forum, Caribvet, CARICOM CVO's and other CARICOM and regional bodies.	Basic

Cyprus Sovereign Base Areas

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No system in place.	None
Non-Native Species Risk Analysis	No system in place.	None
Pathway Analysis	Not done	None
Horizon Scanning	A Darwin grant has been awarded and part of this will involve comprehensive horizon scanning for invasive species, including plant species & certain fish.	Basic
Contingency Planning	Plants and plant health risks: No contingency plans in place for new plant pest or disease risks, or new weed species.	None
	Animals and animal health risks: Contingency planning exists for new animal disease outbreaks, and public health issues (eg mosquito species or bird flu).	Some
	Other risks: No contingency plans in place for new marine pest risks.	None
Border Operations	There are no border controls to the SBAs themselves, only between the north and south parts of the Republic of Cyprus. These do not include biosecurity controls, except in the event of public health outbreaks such as bird flu.	None

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	No formal system in place. There is an Area Officer in each of the two Areas, these are the interface with the Cypriots who live and work in the SBAs and any reports of new species would come to them. Within military there are separate lines of contact.	Basic
Surveillance	Plants and plant health risks: No programme in place for new plant pests and diseases, or new weed species.	None

	Animals and animal health risks: Departments in the Republic of Cyprus carry out surveillance for animal disease outbreaks, and those of public health concern. The Joint Services Health Unit (JSHU) has a mosquito surveillance system in place to not only catch native species but additional trapping designed for Invasive Alien Species. They have been working more closely with the Republic of Cyprus Ministry of Health department to monitor for invasive species; they have put some traps around Limassol Port. The JSHU has also been working with the University of Cyprus in Nicosia who are screening birds for West Nile Virus by providing *Culex* mosquitoes for sampling. The concern is the amount of migratory birds in the area.	Some
	Other risks: No programme in place for new invertebrate or marine species.	None
Monitoring	Routine monitoring takes place of birds. There is also routine monitoring of aerial insect vectors, specifically mosquitoes. The JSHU has permanent monitoring stations (e.g. RAF Aki Airport) and routine monitoring at the top end of the SBA near the Limassol Port. If something different was detected they would engage with the RoC and coordinate immediate action. Due to the amount of equipment the JSHU has if the RoC found an invasive species they would no doubt come for help.	Some
Rapid Response Capacity	Plants and plant health risks: No capacity to respond to a new weed or plant pest outbreak within the SBAs.	None
	Animals and animal health risks: Capacity exists to respond in the event of human or animal health outbreak.	Some
	Other risks: No capacity to respond to a new marine pest within the SBAs.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	*Acacia saligna*, is native to Australia and was introduced in Cyprus in the last Century. It is the most invasive exotic species in Cyprus and constitutes a main threat to natural habitats at Akrotiri, Episkopi and Dhekelia. It has been spreading rapidly, especially in areas affected by fire or	Basic

	mechanical disturbance. The efforts for its management within the SBAs are still at an early stage and include mapping, prioritisation and experimental control.	
Baseline	Plants: Good knowledge of native and non-native plants, database available.	Good
	Animals (terrestrial vertebrates and invertebrates): Good knowledge of bird and mammal species; good knowledge of invertebrate species.	Good
	Other: Reasonable knowledge of marine species.	Some
Framework	Legal framework: The SBA Administration (SBAA) seeks to replicate as far as possible the legislation of the Republic of Cyprus and this also applies to environmental legislation. British Forces Cyprus (BFC) are bound by the SBAA environmental legislation and by UK environmental legislation where the standards set are higher. In addition, BFC has an obligation to implement MOD sustainable development policies. The Protection and Management of Nature and Wildlife (Amendment) Ordinance, 2008, includes prohibition on introduction of non-local species of wild flora and fauna.	Basic
	National framework: No specific policy or strategy in place, although invasive species issues are broadly covered in principle in the Akrotiri Peninsula Environmental Management Plan 2012 for Akrotiri Peninsula.	Basic

Falkland Islands

PREVENTION

Component	Status	Rating
Pest Risk Analysis	Use an ad hoc risk assessment process. Are standardising the approach with a tailored risk assessment template being produced by CABI. Previously, PRA training was given by a consultant, and PRAs of citrus fruits and various stone fruits carried out, but skills lost, primarily due to change of staff.	Some
Non-Native Species Risk Analysis	Use the Risk Assessment undertaken by Whitehead for species identified in the Falklands in 2008. It includes a formal framework comprising a database of all invasive species recorded in the Falklands. While this was completed in 2008 it is still very current, and the impact of invasive species can be changed easily to reflect geographic spread of species, and additional species added.	Good
Pathway Analysis	Legislation review done in 2009 (Shine 2009) which includes identification of the main pathways and vectors. Pathway analysis was also carried out by visiting consultants (Simpson and Hellstrom) in October 2004 and partially reviewed in 2008. Both marine and aviation pathways are expanding. Main source of shipping is Chile, Uruguay and UK. Main source of air traffic is Chile, Argentina and the UK.	Good
Horizon Scanning	Not done	None
Contingency Planning	Plants and plant health risks: No plans in place	None
	Animals and animal health risks: Limited contingency planning for the risk of rat incursions of rodent-free islands, and unapproved plans for a Foot & Mouth Disease outbreak. Simulation for a FMD outbreak planned for the future.	Basic
	Other risks: No plans in place	None
Border Operations	One full time Biosecurity Officer with the Department of Agriculture (DoA), responsible for pre-border and border relating to imported goods and cargo. Veterinary staff deal with imports of live animals, and support in matters relating to the import of meat and foods of animal origin.	Some

	The Biosecurity Officer has the support of other departments and individuals, and there is a MoU with Customs. One full time Environmental officer in the Environmental Planning Department (EPD) covers internal and inter-island biosecurity, as part of wider role, and supports the DoA on many biosecurity issues. Licencing system in place with three main categories; allowed, restricted and prohibited. Prohibited items are banned from import, allowed items can be imported freely, and restricted items may require an import permit, phytosanitary or zoosanitary certificate as appropriate. Border operations for other risks (eg marine, predatory invertebrates) are poor. No dedicated biosecurity facilities. Working towards a white list approach, but lack the pest risk analysis process. Inter-island biosecurity: no mandatory rules or systems in place, but guidance given to cruise ship passengers, visitors, and ship captains. Good level of awareness with generally a high level of compliance and buy-in from the public and importers.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	System in place, but no formal hotline. There is a website (www.bugs.co.fk) but it is not yet fully populated and as such has not been widely publicised. There is a degree of uncertainty of 'who to call' from the public.	Basic
Surveillance	Plants and plant health risks: For agricultural/horticultural pests, agricultural advisers "keep their eyes open" during farm visits.	Basic
	Animals and animal health risks: Limited, carried out on an ad hoc basis. EPD place rat bait stations on high risk rat free islands, and the inter-island ferry. DoA have placed rat traps on FIPASS (Port facility in Stanley Harbour) and undertake ad hoc surveillance at importers premises, container yards etc. Mandatory reporting only under the Animal Health Ordinance.	Basic
	Other risks: There is no systematic surveillance in place in relation to environmental pests, although some ad hoc	Basic

	surveys take place, notably follow-up surveys on small islands (up to 1000ha) where rodent eradications have been attempted. Marine surveys around Kidney Island may reveal the presence of invasive species.	
Monitoring	Several programmes in place for conservation monitoring on invasive species impacting seabird colonies and/or specific islands. The annual invasive plant control programme led by EPD has monitoring elements included in control on priority species and early invasive species. Early invasive plant monitoring is not systematic and is focussed on the Stanley area.	Some
Rapid Response Capacity	Plants and plant health risks: FI make use of the Fera invertebrate identification service to identify biosecurity interceptions. Rapid ID can sometimes be provided via photographs, otherwise the slow turnaround time of sending samples to UK means that results are often too late to base decisions on. There is no plan in place to deal with incursions of agricultural or plant pests. Limited resources to carry out local eradications. There is no plan in place to deal with incursions of agricultural or plant pests. It is felt that advice could be sought quickly in the event of an incursion.	Basic
	Animals and animal health risks: A plan has been put in place for dealing with Foot & Mouth outbreaks.	Some
	Other risks: There are several basic contingency plans in place for small island rodent incursions. There is no plan in place to deal with incursions of environmental pests or marine species.	Basic

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	The Whitehead risk assessment is used. Pro-active control and trials supported on priority species.	Basic
Baseline	Plants: Rebecca Upson and Richard Lewis published a document in 2014 “Updated Vascular Plant Checklist and Atlas for the Falkland Islands. Daffyd Crabtree recently undertook a study on behalf of Falklands Conservation to document non-Vascular plants (unpublished). This	Good

	information is not available online.	
	Animals (terrestrial vertebrates and invertebrates): Terrestrial vertebrates are relatively well known and understood but data gaps exist with invertebrates. Alexander G Jones produced a “Insects of the Falkland Islands species checklist” in 2011, and Alastair Lavery “The Spiders, Harvestmen and Pseudoscorpions of the Falkland Islands” in 2014. Otherwise there is little data on other classes of arthropods. This information is not available online.	Good
	The marine environment has significant data gaps, and while the commercial species are well studied and understood it is not the case with invertebrates and near shore species.	Basic
Framework	Legal framework: Legislation review done in 2009 (Shine 2009). Legal framework in place, but is complex and out of date. Biosecurity framework constructed around existing legislation: Customs Ordinance 2003 (live animal), Animal Health Ordinance 1998 (animal products), Plant Disease Regulation Ordinance 1944 (plant material), Prohibited Goods Ordinance 1992, and Conservation of Wildlife and Nature 1998. An MoU was agreed between Customs and Department of Agriculture in 2012.	Basic
	National framework: Government resources in this area remain low, and there is no clear lead on all biosecurity issues (prevention, surveillance, control, eradication) within government. Biosecurity objective captured in the FI Biodiversity Framework 2016-2030. This includes the development of a biosecurity and invasive species strategy including a risk assessment framework, strengthened border controls, and legislation/management provisions to support management of priority invasive species.	Basic

Gibraltar

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No system in place at the border although technical staff from the Gibraltar Botanic Gardens assess risks prior to the introduction of any species to the gardens and landscaped areas.	Basic
Non-Native Species Risk Analysis	No system in place.	None
Pathway Analysis	Not done.	None
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risks: No contingency plans in place for new plant pest or disease risks, or new weed species.	None
	Animals and animal health risks: No contingency plans in place for new exotic vertebrate pest or invertebrate species such as fire ants. Contingency planning exists for new animal disease outbreaks, and public health issues (eg mosquito species or bird flu).	Basic
	Other risks (invertebrate (not plant pests) and marine species): No contingency plans in place for new marine pest or disease risks.	None
Border Operations	There are no border controls to Gibraltar with a specific biosecurity remit, and no dedicated biosecurity facilities. There is a high level of public awareness on invasive species. Compliance is high for phytosanitary risks as gardening is limited and most work is carried out by conscientious people.	Basic

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	There is a hotline for reporting new sightings of new non-native species or disease outbreaks.	Good

Surveillance	Plants and plant health risks: Surveillance programme in place for all terrestrial species considered invasive as detailed in the Gibraltar Biodiversity Action Plan and Draft Gibraltar Nature Reserve Management Plan.	Good
	Animals and animal health risks: Departments in Gibraltar carry out surveillance for animal disease outbreaks, and those of public health concern. The Gibraltar Environmental Agency and Gibraltar Botanic Gardens have a detailed and intensive programme in place for mosquito detection, which includes sampling in Gibraltar and following trends in Spain. No surveillance for new exotic vertebrate pests.	Some
	Other risks (invertebrate (not plant pests) and marine species): Surveillance programme in place for all marine species considered invasive as detailed in the Gibraltar Biodiversity Action Plan and Draft Gibraltar Nature Reserve Management Plan. Gibraltar Botanic Gardens carry out invertebrate sampling on-site and new exotic invasive species have been intercepted. In one case, this had led to biological control. Ants are regularly surveyed.	Basic
Monitoring	Monitoring is done on all terrestrial and marine species considered invasive, identified in the BAP and Draft Gibraltar Nature Reserve Management Plan. The status and trends of the main EU-listed habitats in Gibraltar have been determined through two classification exercises carried out in 2007 and 2013 respectively. These were carried out in-line with the requirements of the EU Habitats Directive. In line with this Directive, there is continued habitat surveillance and data management. Specific assessments of marine biodiversity have been carried out in line with the requirements of the Marine Strategy Framework Directive. There is also surveillance monitoring of the Marine Special Area of Conservation.	Good
Rapid Response Capacity	Plants and plant health risks: Medium/High capacity to respond. Actions undertaken by Department of the Environment, Heritage and Climate Change (DEHC), Environment Agency, Botanic Gardens, GONHS and HM Customs. Novel species are identified by a combination of expert	Good

	knowledge, fieldwork and casual observations. Support and technical assistance for invasive species or biosecurity issues available in Spain.	
	Animals and animal health risks: Medium/High capacity to respond. Capacity exists to respond in the event of human or animal health outbreak. Support and technical assistance for invasive species or biosecurity issues available in Spain.	Some
	Other risks: No capacity to respond to a new marine pest. Support and technical assistance for invasive species or biosecurity issues available in Spain.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Actions for invasive species have been prioritised under the BAP. Twenty-two plant species have been identified of concern that have become established outside garden areas. They are classified as very problematic (already causing serious damage and spreading significantly) problematic (less damaging and threatening but also capable of spreading) and potentially problematic (serious invasives in other countries and could become a serious concern in the future, but are not at present established in Gibraltar). Management plans have been prepared for 18 species. The BAP also identified 6 vertebrate pest species, “pest” being defined as “species that are detrimental to the indigenous biodiversity, and could also have an impact on environment and human health”; these species can either be native or naturalised. Management plants have been developed for five of them. The sixth, Barbary macaque, has a species action plan. Invasive invertebrates are not currently included in the BAP but this is under revision.	Good
Baseline inventories	Plants: In line with EU Habitats Directive there is continued habitat surveillance and data management. Good knowledge of native and non-native plants, database available.	Good
	Animals (terrestrial vertebrates and invertebrates): Good knowledge of bird and mammal species; good knowledge of invertebrate species.	Good

	Other risks (invertebrate (not plant pests) and marine species): Specific assessments of marine biodiversity have been carried out in line with the requirements of the Marine Strategy Framework Directive.	Good
Framework	Legal framework: Nature Protection Act 1991 and all the Regulations that come under the Act include sections dealing with the introduction of fauna and flora that are not indigenous to Gibraltar. The Plan and the relevant Regulations are implemented and enforced by the Environmental Protection and Research Unit of the Department of the Environment and Climate Change as well as the Gibraltar Nature Reserve Management team. Gibraltar is now covered by EU Regulation No 1143/204. However, there is limited capacity to enforce the regulation locally.	Good
	National framework: Invasive non-native species are included in the Gibraltar Biodiversity Action Plan and the Upper Rock Management Plan, implemented under the umbrella of the Gibraltar Nature Reserve Management Plan. In support of the GNR Management Plan and through consultation with the DECC, the Ministry of Defence implemented their Integrated Rural Management Plan during 2014, for MOD estates in Gibraltar. This plan also contains an Invasive Species Control Programme. The overall direction is managed by the DoE.	Some

Montserrat

PREVENTION

Component	Status	Rating
Pest Risk Analysis	Basic risk assessment is carried out. Montserrat depends largely on the work done by neighbouring territories and literature searches using CABI and other sources.	Basic
Non-Native Species Risk Analysis	No system in place.	None
Pathway Analysis	Not done.	None
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risks: There is no formalised plan. For phytosanitary risks staff collaborate with regional partners and adopt whatever programmes they have. If it is a specific national matter they meet and strategise as the need arises.	Basic
	Animals and animal health risks: There is no formalised plan. For zoosanitary risks staff collaborate with our regional partners and adopt whatever programmes they have. If it is a specific national matter they meet and strategise as the need arises.	Basic
	Other risks: No plan in place.	None
Border Operations	There are no dedicated biosecurity officers, biosecurity functions are handled by Customs Officers who attend the Plant Quarantine Course that phytosanitary officers attend. There are about seven phytosanitary officers and three zoosanitary officers who all have other duties within the Ministry of Agriculture. The Fera invertebrate identification service has been used. There is a fair level of public awareness. The level of compliance is fairly high because the Customs Officers are fully cognisant of the threats and collaborate closely with the officers from the Ministry of Agriculture, Trade, Land, Housing and the Environment. Customs Officers are in dire need of CITES operational and ID training.	Some

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	There is no hotline but people report anything they perceive to be a new sighting to the Department of Agriculture.	Some
Surveillance	Plants and plant health risk: No programme in place.	None
	Animals and animal health risks: No programme in place.	None
	Other risks: No programme in place.	None
Monitoring	No programme in place. Forestry staff, from the Department of Environment, conduct an annual bird monitoring exercise to determine the bird populations in the Centre Hills of Montserrat.	None
Rapid Response Capacity	Plants and plant health risks: When rapid eradication is required a task force is normally set up and resources are sought to carry out the necessary actions. Usually there is difficulty in acquiring all of the necessary elements in a timely manner.	Some
	Animals and animal health risks: When rapid eradication is required a task force is normally set up and resources are sought to carry out the necessary actions. Usually there is difficulty in acquiring all of the necessary elements in a timely manner.	Some
	Other risks: When rapid eradication is required a task force is normally set up and resources are sought to carry out the necessary actions. Usually there is difficulty in acquiring all of the necessary elements in a timely manner.	Some

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Not done for plants or invertebrates. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for Montserrat. Key invasive alien vertebrate species are the feral pig, goat, cow, feral cat, black rat, and cane toad. The study also identified that biosecurity should be a high priority for Montserrat, to prevent the establishment of more	Basic

	invasive alien vertebrate species.	
Baseline	Plants: are well known and a database exists	Good
	Animals (terrestrial vertebrates and invertebrates): relatively few vertebrates and well known. Plant pests well known, but other inverts poorly known.	Some
	Other: Initial surveys undertaken on marine species and a database exists.	Some
Framework	Legal framework: Permits required for live animal import and animals from some origin countries banned. Powers exist with relation to the prevent of the spread of diseases for plants (powers of inspection, entry, search, restriction of movement, seizure and destruction). Diseased imported plants and animals can be destroyed. All imported plants and animals are imported through specified ports or places of entry, with the appropriate documentation and inspected.	Basic
	National framework: No national biosecurity policy in place.	None

Pitcairn

PREVENTION

Component	Status	Rating
Pest Risk Analysis	Under the new Environmental Protection Ordinance (due to be finalised in 2017) the Bio Security Department will assess each permit application and follow a checklist before approving or disapproving the application. This process is under development and is being followed whilst waiting on the official documentation.	Basic
Non-Native Species Risk Analysis	No formal protocols in place but invasive species are monitored and managed accordingly.	Basic
Pathway Analysis	In 2006 an analysis of the risks associated with new trading arrangements with French Polynesia included a detailed pathway analysis. No subsequent pathway analysis has been done.	Basic
Horizon Scanning	As part of the 2006 analysis of the risks associated with new trading arrangements with French Polynesia, a preliminary horizon scanning exercise was carried out in the form of an assessment of potential non-native invasive species present in French Polynesia and the wider region which could be introduced by the new pathway.	Basic
Contingency Planning	Plants and plant health risks: training conducted on Emergency response to any incursion of fruit flies in 2013 by the Secretariat of the Pacific Community (SPC).	Basic
	Animals and animal health risks: Annual bee hive inspections for disease are carried out. Domestic goats kept in captivity as a food source. Goats are annually vaccinated and external vet (New Zealand) advice is available to all registered goat owners.	Some
	Other risks: no plans in place.	None
Border Operations	The Bio Security Department consists of 2 staff one being the Director of Bio Security and the other a Bio Security Officer. An Environmental Protection Ordinance is in development and will be finalised in 2017. It includes permits for importing controlled plants and controlled animals and	Some

	native organisms. There is a big concern for Tephritid fruit fly introduction. There is a phytosanitary declaration form but it is not used as the nearest neighbour is 300 miles away by sea in French Polynesia (Mangareva Gambier Islands) and has no biosecurity officers on the island. There is a zoosanitary declaration form in place, used for the Pitcairn Honey industry products. Pitcairn honey is tested on an annual basis in New Zealand by a reputable organisation for certification into the UK and EU. All honey producers are aware of zoosanitary declaration forms the Bio Security department provides printed declarations when required. There are posters and signs for raising biosecurity awareness. There are dedicated biosecurity facilities and limited functions are carried out at that location. Another facility would need to be developed to handle wider range of biosecurity matters. Constraints with offloading the cargo boat, such as bad weather, can make implementing border operations difficult. Compliance is variable. The Biosecurity operations for Pitcairn Islands was established in 2006 with the assistance of SPC. In March 2010 the technical assistance was reviewed. Biosecurity operation and importation systems were also reviewed and there was a biosecurity awareness campaign conducted to the Pitcairn island community on the importance of biosecurity and respecting the biosecurity systems put in place (2013, SPC). Further awareness is required for the new procedures being put in place. In 2015 biosecurity practices were reviewed and recommendations drafted under a Darwin Initiative project.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	There is a reporting system in place where community members notify the Biosecurity department.	Good
Surveillance	Plants and plant health risks: fruit fly surveillance trapping Queensland fruit fly (*Bactrocera tryoni*), and the non-	Some

	economic *Bactrocera setinervis*	
	Animals and animal health risks: No programme in place.	None
	Other risks: Henderson Islands has surveillance for rats, following eradication	Basic
Monitoring	A monitoring and surveillance process is in place for some taxa which would encompass a range of species including invasives. Regular monitoring takes place for birds, lizards, rats, and the native plant *Cenchrus echinatus*.	Basic
Rapid Response Capacity	Plants and plant health risks: Once the draft Environmental Protection Ordinance comes into effect the Bio Security department will have more powers to seize and search, monitoring permit holders for compliance, and act on any breaches. The Bio Security department manages all aspects with the assistance from another Division Department such as Contracts & Cleaning who carries out lawn maintenance of all government buildings and recreational areas around the island. Pitcairn is on budgetary aid and therefore funds are limited to what can be achieved in terms of rapid response. External funding would be required that would include a small team to conduct the work, this is due to capacity issues and human resources.	Some
	Animals and animal health risks: Local capacity is limited. RSPB conducted a Henderson Rat Eradication program 2011. During the 2012, Pew Charitable Trust and National Geographic Society visit to Henderson a rat was detected and reported to the Island Council, the Environment, Conservation and Natural Resource Division and RSPB.	Basic
	Other risks: No capacity.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Pitcairn is currently working with other South Pacific territories ie Wallis and Futuna, and French Polynesia in a project application based on Invasive Management. Pitcairn will be requesting an invasive assessment to be carried out and the development of an invasive management plan. A small team is required to initially kick the project off as Pitcairn has capacity issues	Basic

	and requires the assistance. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for Pitcairn. Key invasive alien vertebrate species are goats, feral cat and Pacific rats.	
Baseline	Plants: In 2007, the Secretariat of the Pacific (SPC) carried out a basic survey on weeds listing the different species. Other taxa have not been surveyed.	Basic
	Animals (terrestrial vertebrates and invertebrates): no database available.	None
	Other: Between March - April 2012, Pew in conjunction with National Geographic Society conducted a comprehensive marine survey looking at the health of marine ecosystem including listing all marine species within the Pitcairn Islands group (includes outer islands).	Good
Framework	Legal framework: RSPB-led Darwin Plus project which included work to improve Pitcairn's biosecurity legislation, 2016 (http://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2016-06-08/39960) The new Environmental Protection Ordinance is expected to be finalised in 2017. No bee products are allowed by Law to be imported into Pitcairn. The Bee Keeping Ordinance sets out conditions for bee keepers. A couple of years ago the Division introduced standard registration forms, apiary registration, and bee keeper identification numbers.	Some
	National framework: No national biosecurity policy in place.	None

St Helena

PREVENTION

Component	Status	Rating
Pest Risk Analysis	Risk-based approach established as a guiding principle of the national biosecurity policy. Guidelines for risk analysis for phytosanitary risks drafted, defining three categories of commodity depending on familiarity with the commodity and therefore the confidence with which specific levels of risk for each commodity can be evaluated. Simplified rapid PRAs carried out for some low risk commodities using data from the CABI Crop Protection Compendium and internet tools such as GISD, CABI Invasive Species Compendium and PIER. Biosecurity staff given basic training in applying the Guidelines. Confidence in carrying out PRAs is weak. PRAs for commodities of high concern can't be done due to lack of data and lack of access to expertise.	Basic
Non-Native Species Risk Analysis	NNRA not established as a priority activity. Staff lack the mandate, skills, access to data and expertise. Darwin Plus project approved for 2017 – 2019 includes development of a national invasive plant strategy.	None
Pathway Analysis	Legislation review done in 2009 (Shine 2009) which includes identification of the main pathways and vectors. This has guided actions in the implementation of the national policy. Survey being done on selected high risk shipping containers. Main high risk pathways are marine, from Cape Town and Ascension Island (which links to the Americas) via a single passenger/cargo ship. Air access currently still very limited, with occasional small private jets and medevac flights. The situation in St Helena is very simple due to its isolation and limited (three) ports of entry.	Some
Horizon Scanning	Not done. Staff lack the skills, access to data and expertise.	None
Contingency Planning	Plants and plant health risks: Contingency plans in place for risks at different levels, approved by the national Resilience Forum as the Biosecurity Major Incident Plan in 2016. Plans are generic, but use species specific examples to illustrate each case. A simulation exercise for the Tephritid fruit fly incursion	Good

	contingency plan was carried out in 2016.	
	Animals and animal health risks: Contingency plans in place for risks at different levels, approved by the national Resilience Forum as the Biosecurity Major Incident Plan in 2016. Plans are generic, but use species specific examples to illustrate each case. The outbreak of Newcastle disease among poultry in 2014 provided the basis for the level 1 disease emergency response action plan.	Good
	Other risks: Contingency plans in place for marine biosecurity risks and exotic vertebrate predators. Plan for aerial insect vectors in draft form and remains to be completed.	Some
Border Operations	In place and operational including: two trained dedicated staff based at the Agriculture & Natural Resources Division (ANRD); licencing system based on white-list approach for phytosanitary and zoosanitary risk goods; adequate biosecurity facilities at the airport and current sea port; biosecurity detector dog in operation; widespread public awareness and acceptance; indicators established, consistently above threshold indicating a good level of compliance. Border operations for other risks such as predatory invertebrates are also reasonably good. For risks in the marine environment protocols exist and there is good awareness, although capacity to carry out inspections of eg yacht hulls for fouling is more limited. ANRD maintains a reference collection of pests and biosecurity interceptions. The Fera invertebrate identification service is widely used.	Good

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	“Stop the Spread” campaign initiated with ANRD as the point of contact, information via leaflets, newspaper articles and radio interviews; feedback given via same media. Top-down approach; regular reports are received from the public and farming community. Both phytosanitary and zoosanitary risks covered;	Some

	zoosanitary risks also picked up by the government veterinary service during their normal activities.	
Surveillance	Plants and plant health risks: Programme in place with monthly checks by trained staff, includes written protocols, reference material and baseline data for plants and invertebrates being developed under Darwin Plus projects. Generic programme for crawling invertebrates at ports of entry Incursion programme with pheromone baited traps for five species of Tephritid fruit flies.	Good
	Animals and animal health risks: No formal programme, but any animal problems are reported to the vet team which results in effective surveillance.	Some
	Other risks: Marine invasive species monitoring in key areas. Mosquito monitoring at the airport is being planned, operated by Public Health working with Biosecurity.	Basic
Monitoring	Informal reports for both phytosanitary (reported to the biosecurity team) and zoosanitary risks (reported to the vet team) are followed up, but there is no formal programme. Darwin Plus project 2016 – 2018 in place for island-wide vegetation mapping for which one output is a “living map” allowing invasive plant distributions to be tracked at a macro-level. Darwin Plus project application submitted for 2017 – 2019 includes development of a monitoring programme for introduced plants species.	Basic
Rapid Response Capacity	Plants and plant health risks: Active use of the Fera invertebrate identification service. Rapid identification can sometimes be provided via photographs, otherwise the slow turnaround time of sending samples to UK means that results are often too late to base decisions on. Staff also rely on internet tools. Darwin Plus Buglife projects 2013 – 2015 and 2016 - 2018 provide entomological expertise on-island. A national invertebrate reference collection being developed and baseline inventory of invertebrates built up. There is extensive knowledge in ANRD to identify pests and diseases of crops and other plants. There are reasonable resources available for rapid	Good

	eradications in terms of: pesticides, pesticide application equipment including PPE, trained pesticide users, sampling and trapping equipment and trained staff. Basic stocks to be held in the event of an incursion are specified in the contingency plans.	
	Animals and animal health risks: There are reasonable resources available for rapid eradications in terms of veterinary equipment and a qualified vet with trained assistants. Basic stocks to be held in the event of an incursion are specified in the contingency plans.	Good
	Other risks: There are reasonable resources available for rapid eradications of aerial insect vectors in terms of pesticides and trained staff. For non-native invertebrates which are not plant pests there are reasonable resources available for rapid eradications in terms of: pesticides, pesticide application equipment including PPE, trained pesticide users, sampling and trapping equipment and trained staff. Basic stocks to be held in the event of an incursion are specified in the contingency plans. For marine invasive species there is reasonable capacity to respond. Basic stocks to be held in the event of an incursion are specified in the contingency plan.	Good

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Control programmes of invasive species (feral cats, rats, some invasive plants) in selected areas to protect endemic species. A Weed Management Action Plan is in place, with initial prioritisation of invasive plants based on local criteria. Darwin Plus project application submitted for 2017 – 2019 includes development of a national invasive plant strategy with prioritised species. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for St Helena. No priorities identified under this study for this territory.	Basic
Baseline information	Plants: Survey work was carried out under the SAIS project and a series of field guides now published (flowering plants and ferns, lichens, mosses). Fungi are poorly known.	Good

	Currently two Darwin Plus project are working on vegetation mapping and monitoring. This information is not yet online but will be in the future under the Darwin Plus projects.	
	Animals (terrestrial vertebrates and invertebrates): Few vertebrates present and well known; Buglife project is currently building an invertebrate database, although spiders are poorly known. The database for pests is on-line on the SHG Integrated Pest Management web page.	Good
	Other: Monitoring for marine species is being done, with a reasonable level of knowledge of invertebrates, vertebrates and megafauna.	Some
Framework	Legal framework: Legislation review done in 2009. There is no existing overall biosecurity legal framework or specific biosecurity legislation. The biosecurity system operates under the Customs Ordinance 1999, with specific regulations outlined in six other Ordinances. The focus is on the protection of agricultural production, and is out of date. Preliminary draft revised legislation is with the Attorney General's office, covering phytosanitary and zoosanitary risks. Other biodiversity risks are covered by the Environmental Protection Ordinance 2016.	Basic
	National framework: The first national biosecurity policy was endorsed in 2014. "Biosecurity St Helena" provides an integrated approach across the biosecurity continuum. It is multi-sectoral with six strategic objectives and five key performance indicators, two of which are reported monthly and all five annually. ANRD is the lead agency, with the Head of ANRD as the Authorised Officer under the Customs Ordinance. The Head or his/her designated officer has the authority to approve import licences, and to initiate emergency response procedures in the event of an incursion.	Good

South Georgia and the South Sandwich Islands

PREVENTION

Component	Status	Rating
Pest Risk Analysis	No formal process has been put in place as the amount of imports is comparatively low and a formal process has not been considered necessary. The precautionary approach is adopted to try to stop anything which is non-native being introduced	Basic
Non-Native Species Risk Analysis	There is currently a fairly limited suite of non-native species. Some have already become invasive and been eradicated (rodents, reindeer), others are invasive but have been assessed as being near impossible to eradicate now either because of their extent or mode of reproduction e.g. dandelions. Non-native plant species have been categorized based on their extent and prioritised for control. CABI conducted a feasibility assessment on control of terrestrial invertebrates in 2012 and concluded at present, this was not feasible.	Some
Pathway Analysis	No formal pathway analysis carried out but South Georgia is accessible only by sea with relatively few pathways for people or cargo to get to the island. Key suppliers have been identified and there is a high awareness of risks. Plans in place to mitigate risk on key pathways over the long and short term. Legislation review done in 2009 (Shine 2009) which includes identification of the main pathways and vectors.	Some
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risk: Contingency plans in place for non-native plant incursions. Because of the relatively small number of pathways and the limited ability to deal with an incursion the response plans are limited to high priority species for which a response is possible.	Some
	Animals and animal health risk: Basic contingency plans in the event of a major disease outbreak amongst wildlife (e.g. avian cholera), currently being revised to go from plans which deal with immediate response to finding dead things to one which outlines how/who decides next steps and how this is	Good

	communicated to various key stakeholders. Response plan has been tested through an outbreak of avian cholera in chinstrap penguins in 2009.	
	Other risks: Formal response plans for invertebrates would be helpful; earwigs are a particular worry. Contingency plans in place for rodent incursions; further strengthening is required to support the rat eradication programme at King Edward Point (KEP). The rodent incursion plan is practiced every year to make sure staff are prepared. There was also an earwig incursion (i.e. an individual found outside the biosecurity facility) which was dealt with it successfully using traps and sprays and extra biosecurity checks. Response plan has been tested through detection of rat tracks at KEP in October 2013, and weaknesses identified.	Some
Border Operations	In place and operational. One officer responsible for biosecurity policy and oversight in addition to other duties and three Government Officers with part-time biosecurity responsibilities. Dedicated biosecurity facilities at KEP but not large enough to accommodate all cargo (including high risk items like building materials); plans to enlarge KEP facility, and also to build a new biosecure room at Bird Island where currently there is no dedicated biosecurity facility. There is also no dedicated facility in the Falklands to check cargo pre-departure, currently checks are made on the dockside and there is no method of securely unpacking containers at KEP. In addition, there is no comprehensive checking of vessels for rodents but consideration is being given to the feasibility of using rodent detector dogs based in the Falkland Islands. Comprehensive Biosecurity Handbook in place, inspection protocols being developed, licencing system based on white-list approach for phytosanitary and zoosanitary risk goods; black-list also present. Stringent controls of cargo pre-border and on arrival; feedback provided to suppliers each year on how many 'infringements' have been detected in their consignments. Strong biosecurity controls are strictly applied to visitors (who are required to sign declarations to confirm they have complied with requirements), and vessel access. Generally very good public awareness helped by the recent high profile eradication projects. Fishing vessels have observers placed on board and one of	Some

	their jobs is to check for rodent biosecurity and report this back to the Government of SGSSI.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	Any incidents or concerns must be raised as soon as possible with the Government Officer, in particular any suspected sightings of rodents in rodent free areas or of any sick seals and birds. On-line reporting system planned for 2017/18.	Good
Surveillance	Plants and plant health risks: Baseline for non-native plant species extent and identification guide being developed.	Good
	Animals and animal health risks: Extensive monitoring for non-native invertebrates and rodents in and around buildings at KEP and Bird Island, with plans to extend the rodent monitoring to popular visitor sites. Currently surveillance on shore and vessels is limited to passive monitoring techniques.	Some
	Other risks: Settlement plates in the harbour to detect non-native marine species	Good
Monitoring	Good monitoring in place to monitor success of rodent project and report signs of incursion. Done for plants as part of the weed management project. Plans to monitor a non-native beetle which seems to be spreading.	Some
Rapid Response Capacity	Plants and plant health risks: Use the Fera invertebrate identification service or BAS to identify invertebrates, and Kew to identify plants. Well placed to carry out small scale eradication in the immediate vicinity of the research stations but as the spatial extent increases it would rapidly become more difficult. Can call on BAS and South Georgia Heritage Trust for additional man power.	Some
	Animals and animal health risks: Use the Island Eradication Advisory Group to help identify mammal signs. Well placed to carry out small scale eradication in the immediate vicinity of the research stations but as the spatial extent increases it would rapidly become more difficult. Can call on BAS and South Georgia Heritage Trust for additional	Some

	man power.	
	Other risks: Well placed to carry out small scale eradication in the immediate vicinity of the research stations but as the spatial extent increases it would rapidly become more difficult. Can call on BAS and South Georgia Heritage Trust for additional man power.	Some

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Invasive species have been prioritised and are being addressed. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for SGSSI. Rodents and reindeer were identified as the biggest priority and have been eradicated. Non-native plants are now being tackled over the next 5-years with a capacity building element included to ensure sustainability into the future.	Good
Baseline	Plants: 41 species of introduced vascular plants. Comprehensive database of occurrence, spatial extent and management interventions. Recent possible introduced fresh water algae. Awaiting ID confirmation.	Good
	Animals (terrestrial vertebrates and invertebrates): Only known introduced vertebrates were rodents and reindeer and have now been subject to eradication programme. Invertebrate monitoring in place around stations. Relatively well known and on-going research programme to detect 'cryptic' invaders. Species list but needs updating with spatial extents.	Good
	Scuba surveys for non-native marine species and programme of settlement plates for early warning system. No known introduced marine species. PhD into fungal diversity (including non-native) and past research on microbes. Data not yet available but will be on GSGSSI database once processed.	Good
Framework	Legal framework: Legislation review done in 2009. GSGSSI Wildlife and Protected Areas Ordinance (2011) provide biosecurity regulations for both intentional and unintentional introductions. This has proven adequate up to now, but a	Good

	legislative review is in process to ensure integration with visitor and fishing legislation.	
	National framework: The multisectoral Biosecurity Handbook brought together and formalised existing policies and practices and was launched in 2016 (after a year of road testing and consultation with key stake-holder groups). It will be revised and updated every year following the outcome of an annual biosecurity review.	Good

Tristan da Cunha

PREVENTION

Component	Status	Rating
Pest Risk Analysis	Done on an ad hoc basis, no formal system in place.	Basic
Non-Native Species Risk Analysis	No system in place.	None
Pathway Analysis	Legislation review done in 2009 (Shine 2009) which includes identification of the main pathways and vectors.	Basic
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risks: Simple protocols in place and being implemented.	Basic
	Animals and animal health risks: Rodent contingency plan for Nightingale and Inaccessible. This was tested in 2011 when the MS Oliva ran aground at Nightingale Island.	Basic
	Other risks: 'Introduced Species in the Marine Environment: Contingency Plans for Tristan da Cunha' was drafted by Sue Scott in 2008 and revised in March 2012 'for discussion', but has not been completed or approved.	Basic
Border Operations	According to the legislation, residents can import agricultural or horticultural plants, pets and domestic animals without a permit; dogs require a permit. A permit system has recently been put in place for plants. The Head of Conservation or Head of Agriculture carry out biosecurity checks for incoming cargo ships, including checking plants, building materials and consignments of fresh produce but there is no dedicated biosecurity facility which limits what can be done. The Veterinary Officer checks new dogs arriving on the island. There is a comprehensive biosecurity leaflet issued to all visitors (yachts, cruise ships) which requires self-auditing before passengers land. Tristan residents, however, do not receive this, and have no inspection of baggage on arrival. Different levels of biosecurity are applied to the different islands: • Main island: Licencing system in place for live animals and plant material for propagation. Import health standards for fresh produce for human consumption	Some

	are being adapted from St Helena. • Nightingale Island: there is a designated biosecurity building, but it is not yet functional. • Inaccessible Island: biosecurity protocols implemented for all visitors (boot wash, equipment checks etc). • Gough Island: a much higher level of biosecurity is applied, with strict pre-border controls including the prohibition of all fresh produce, and poultry meat with bones. Checks are made of luggage, equipment and cargo arriving on the annual takeover voyage each September. These controls will be further strengthened in the future is association with an RSPB Gough Island restoration project. There is some level of awareness on biosecurity issues on-island as a consequence of the oil-rig stranding, Oliva oil spill, introduced rodents and other alien species on Tristan and Gough, and the interception of longhorn beetles in wooden cargo pallets. Compliance is poor and inconsistent.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	The small population size and high levels of awareness make this relatively simple and effective, without the need for a formalised procedure.	Some
Surveillance	Plants and plant health risks: No formal programme in place but conservation officers keep their eyes open during their normal work programmes.	Basic
	Animals and animal health risks: No formal programme in place but the agricultural officer would quickly become aware of an animal disease outbreak. Rat hotels in place on Nightingale and Inaccessible but maintenance is sporadic.	Basic
	Other risks: Nothing in place. There is a plan to set up crawling invertebrate monitoring sites, along the lines of those used in St Helena, on the main island.	None
Monitoring	No formal programme in place.	None

Rapid Response Capacity	Plants and plant health risks: No capacity to respond. Tristan has received help from TBAG (Tristan Biodiversity Advisory Group), Fera and others for assistance with identification of new species.	Basic
	Animals and animal health risks: No capacity to respond. Tristan has received help from TBAG, Fera and others for assistance with identification of new species.	Basic
	Other risks: No capacity to respond. Tristan has received help from TBAG, Fera and others for assistance with identification of new species.	Basic

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	A number of projects are on-going or planned; there is no formal prioritisation process but the small nature of the Islands makes understanding priorities relatively straightforward. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for Tristan da Cunha. Key invasive alien vertebrate species are black rats, mice, cattle and sheep. BEST project 2016 – 2018 includes local eradication of invasive *Rumex obtusifolius* and *Cotula australis* on Nightingale Island. Some invasive plant control taking place on Nightingale (New Zealand Flax, Australian Brass Buttons) and Inaccessible (New Zealand Flax, *Sporobolus*, and others). On Tristan there have been periodic efforts to control New Zealand Christmas Tree and *Rubus*, but they are not followed through. House mouse and *Sagina* eradication is due to take place at Gough in 2019.	Some
Baseline	Plants: surveys completed for the main island, Gough and Nightingale and database exists.	Good
	Animals (terrestrial vertebrates and invertebrates): knowledge of invertebrates is poor.	Basic
	Other: marine survey done by Sue Scott, a database exists.	Good
Framework	Legal framework: Legislation review undertaken in 2009 (Shine 2009). TDC applies St Helena and English law where it is not inconsistent with specific TDC legislation. There is no	Basic

	specific biosecurity or Customs legislation. Biosecurity is covered under the Conservation Ordinance 2006 which is currently being revised. Import restrictions are limited to vaccination of dogs, and prohibition of live birds. The Import Permit for a 'live animal or plants' requires that the bird has a veterinary certificate that it is free from avian diseases and Bird Flu and that the plant has a phytosanitary certificate.	
	National framework: A biosecurity policy "Biosecurity Tristan da Cunha" was agreed by the Tristan Island Council in 2016. The policy adopts a white-list approach and includes an implementation plan, based on Biosecurity St Helena. It requires the involvement of other government departments apart from Conservation (Agriculture, Fisheries, Police, Tourism, and Education) but has not been widely adopted and embraced on the island by the wider community.	Some

Turks and Caicos

PREVENTION

Component	Status	Rating
Pest Risk Analysis	Plants and plant health risks: Importation of regulated articles is done only for Agriculture controlled commodities and requires an application process that enables the authorities to access the phytosanitary risks the article and or country (area) where the article is exported from. Supporting information, including pest free areas and details of the in-country phytosanitary program is requested as well. Regulated articles listed in the application are checked against an official restricted and invasive plant species list to verify that the articles pose no or minimal risk to the Turks and Caicos Islands. Animals and animal health risks: Depending on the animal or animal product, the country of import amongst other things, there is a process that follows an import risk analysis, qualitative for the most part. The hazard analysis is binary: does a hazard exist or not. This is followed by risk assessment: entry assessment, exposure assessment, consequence assessment and risk estimation. Then through risk management the Appropriate Level Of Protection is determined. This is codified in our protocol called the Foreign Country Evaluation Programme and all imports must go through this programme.	Some
Non-Native Species Risk Analysis	No system in place.	None
Pathway Analysis	No system in place.	None
Horizon Scanning	Not done.	None
Contingency Planning	Plants and plant health risks: no contingency plans have been developed as yet.	None
	Animals and animal health risks: No contingency plans for animal diseases presently exist but if an outbreak occurs international recommendations are followed.	None
	Other risks: no contingency plans have been developed as yet.	None
Border Operations	Plants and plant health: There are 2 officers in Agriculture, a chief Plant Health Officer and a Plant Health Officer, who issue/certify importation and exportation permits and inspect	Some

	Plant related products. There are no dedicated biosecurity facilities. Importation of regulated articles requires an application process and Import Permit. An inspection of the articles is conducted at the point of arrival in the country. Animals and animal health: There is A Chief Vet, an Animal Health Officer and an Animal Health Assistant, who issue/certify permits, and do inspections of live animals, animal establishments etc. Presently the Department is going through a restructuring exercise where there would be the post "Quarantine Officers" who will be posted at the airport and sea port. All of these programmes are legally underpinned by the Animal Health Ordinance. In the Ordinance, it is a requirement that before an import permit is granted a risk analysis must be carried out and the sanitary requirements put in place. There is good public awareness of phytosanitary and zoosanitary import requirements. Compliance is estimated at 85% for phytosanitary risk goods and 95% for zoosanitary. Very good public awareness. For deliberate introductions, residents know that they require an import permit to import animals and animal products etc.	

EARLY WARNING AND RAPID RESPONSE

Component	Status	Rating
Alert System in Place	No formal structure.	None
Surveillance	Plants and plant health risks: surveillance is done for all species on the established List of Restricted and Invasive Species, in the Plant Health legislation. Lists were compiled on known and potential invasive species of plants and animals proposed as barred for import on the appendices of the Biodiversity and Wildlife Protection Bill. Unfortunately, this bill was shelved as low priority during the UK Direct Rule 2009-2012 and has not yet been brought back up for completion.	Some
	Animals and animal health risks: surveillance is done for new diseases of animals.	Some
	Other risks: No programme in place.	None
Monitoring	The Department of Environment & Coastal Resources (DECR) collects information from dive operators regarding the invasive Lionfish (*Pterois volitans*) which can be found in	Basic

	all marine ecosystems throughout the TCI, and this information includes observations on other marine taxa, including non-native species. These reports include numbers, size and location of lionfish on dive sites. Efforts are being made to control and eradicate this species through initiatives including the Annual Lionfish Derby and Festival.	
Rapid Response Capacity	Plants and plant health risks: Very Limited or no resources to deal with such a situation. Other sectors involved are Department of Environment & Coastal Resources, Turks and Caicos National Trust, and Customs Department. The Ordinance gives authority to address the incursion of invasive species. However, there is grossly inadequate staffing, limited material resources, and lack of funding.	Basic
	Animals and animal health risks: There are some resources and capacity to tackle new animal diseases.	Some
	Other risks: No resources available.	None

MANAGEMENT, PRIORITISATION AND FRAMEWORKS

Component	Status	Rating
Prioritisation	Not done for plants or invertebrates. RSPB's study Eradication of invasive alien vertebrates in the UK Overseas Territories reported the number of confirmed or suspected invasive alien vertebrate species for Turks and Caicos. Key invasive alien vertebrate species are black rat, mice, cat, feral chicken, dog, cattle, goat, donkeys, horses and Cuban treefrog. Also established on Providenciales are northern curlytail lizard *Leiocephallus carinatus*, Cuban knight anole *Anolis equestris*, and possible establishment of marine toad *Rhinella marina*, giant African land snail *Achatina fulica*, and Brahminy blind snake *Indotyphlops braminus*. Grand Turk has established breeding population of corn snake *Pantherophis guttatis*. Research through DECR, Turks and Caicos National Trust, and Royal Botanic Gardens, Kew (UK) and Imperial College London have also produced analyses of several invasive plant species including spread risk maps and models and impact on endemic species, namely for *Casuarina equisetifolia, Leucaena leucocephala*, and *Scaevola taccada*. Multi-agency efforts are being made to control/eradicate the	Some

	lionfish invasion in the TCI. Some monitoring is conducted by the DECR but this has much room for improvement. Recent efforts have been made to increase awareness of the lionfish, reduce stigma, and try to introduce a market (and therefore a consistent fishery) for lionfish. This was done through collaboration between the DECR, Department of Culture, and the Turks and Caicos Reef Fund (TCRF) to host the first annual Lionfish Derby and Festival in 2016, on Providenciales and Grand Turk. With amendments to the Fisheries Protection Oridnance, a Lionfishing license will be introduced, permitting bearers of the license to hunt lionfish within National Park boundaries.	
Baseline	Plants: There is a database of native plants, but it is (and will not soon be) complete due to continual discoveries of previously unknown native species and constantly changing taxonomy. There is no database of introduced plants, but it would be a useful project to carry out.	Basic
	Animals (terrestrial vertebrates and invertebrates): Native invertebrate fauna remains poorly understood with only a few very focused studies carried out in certain taxa (spiders: Sarah Crews, UCLA & University of Vermont; beetles: Dr Roger Booth, British Museum; butterflies, moths, and dragonflies: Dr Oliver Cheeseman, CABI Bioscience International; tiger beetles: Carnegie Museum of Natural History; bat-flies, Dr Tony Hutson, Bat Conservation Trust), many of which have never been completed. Preliminary findings suggest high numbers of endemic species. Former United Kingdom Government department (now privatised) Fera (Food & Environment Research Agency) through Dr Chris Malumphy has compiled a list of introduced known pest species of insects in TCI. Descriptions of some of these pests are available from DECR as PDF files and complete lists can be found within the Caicos Pine Recovery Project's National Tree Restoration Strategy Scientific Data & Results document.	Basic
	Other: DECR don't believe there is a specific database of marine species as such, beyond field guides etc. that are used in monitoring and identification of marine species on coral reefs, seagrass beds, and in mangrove ecosystems.	Basic
Framework	Legal framework: Legislation is considered adequate through the Plant Health Ordinance 2012, Animal Health Ordinance 2012 and Customs Ordinance 2009. Powers exist with relation to the prevent of the spread of	Some

	diseases for animals and plants (powers of inspection, entry, search, restriction of movement, seizure and destruction). Vessels must come in to a recognised port. De-ratting requirements for vessels exist in regulations. Legislation exists as it pertains to diseases and infections of animals. To a lesser extent, this also covers control of non-native animals: assessment of importation of non-native considers not only for their health but also their risk as an alien species. Other sectors are involved to some degree. Legislation specifically refers to all islands. New draft legislation includes provision for a permit system based on risk assessment, with powers to enter, survey, assess extent of invasive species and remove, contain, destroy if serious threat. Provision for early detection system for animals and plant disease to be designed.	
	National framework: there is no national biosecurity policy.	None