

Tackling Invasive Non-Native Species in the UK Overseas Territories

Annual Report, 2017 - 2018



UK Conflict Stability
& Security Fund



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Rodent detector dog checking Kidney Island for the presence of rodents, Falkland Islands



Biosecurity signage at arrivals, Falkland Islands

Executive summary

- Project activities focus on the main gaps identified in the gap analysis: horizon scanning, pathway analysis, legislative support and technical capacity.
- Project oversight is given by a steering group of five members: NNSS, Defra International, IUCN, RSPB and UKOTA.
- Pathway analyses have been carried out for 15 Overseas Territories (OTs) as input to the horizon scanning exercise (the 16th, the Cyprus Sovereign Base Areas, have already received horizon scanning as part of a Darwin Plus project.)
- A programme of horizon scanning is planned for 15 OTs over the 2018 / 2019 financial year, starting with the cluster of six Caribbean OTs in May 2018. The Centre for Ecology and Hydrology has been commissioned to lead this work, with support from NNSS.
- Pathway action plans will subsequently be developed by each OT with support from NNSS, to reduce the risk of introduction of the species identified in the horizon scanning exercise.
- Development of model biosecurity legislation has been commissioned from Public Administration International to provide legislative support to the OTs. It will be adapted for the Falklands in the first instance.
- Technical support by the NNSS has been given to three OTs: British Virgin Islands, South Georgia and the Falkland Islands.
- Regional support has been given through attendance by two Caribbean OTs (Bermuda and Turks & Caicos Islands) at a Convention of Biological Diversity workshop on achieving Aichi Target 9.
- An e-learning module has been commissioned with Leo Learning on basic biosecurity.
- Activities have involved three other UK government agencies: Fera Science Ltd, Public Health England and the Centre for Environment, Fisheries and Aquaculture Science (Cefas).

Background

Invasive non-native species are probably the greatest environmental threat to the 16 UK Overseas Territories (OTs). However, most of them have limited capacity to act and need urgent support to develop measures to reduce the risk of future invasions as well as to manage existing ones.

In 2016 the NNSS secured funding over four years (2016-2020) under the FCO's Conflict, Stability and Security Fund (CSSF) to develop comprehensive biosecurity for the OTs by providing them with access to UK expertise on risk analysis, pathway management, pest identification, horizon scanning, contingency planning, rapid response capability and species management.

A gap analysis of biosecurity capacity and practices in the OTs carried out in early 2017 found that the main gaps occurred in the area 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 need. 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. Project activities are concentrated in these areas.



Chris Malumphy, Fera Science Ltd, meeting Botanic Gardens staff, BVI



Mature trees imported post-hurricane, BVI

Project oversight

The project is managed by the NNSS, and a Steering Group was established in June 2017, comprising RSPB, IUCN, Defra International and UKOTA. The steering group had five teleconferences and one face to face meeting during the year.

The steering group's overall aim is to ensure that the project achieves its aims within budget and on time. Specifically it is tasked to:

- Review and comment on reports and proposals;
- Agree priorities for ongoing and future work;
- Help identify invasive non-native species biosecurity gaps and needs in the UKOTs;
- Ensure the project is aware of and interacts with wider initiatives on invasive non-native species;
- Help identify relevant UK Government and Agency expertise that can assist the OTs.

Composition of the steering group is as follows:

NNSS (Chair)	Niall Moore
	Jill Key
Defra International Biodiversity Policy	Holly Kelley-Weil
	Anna Fohrbeck, Mamataj Begum
IUCN	Kevin Smith
RSPB	Jonathan Hall
UKOTA	Kedell Worboys

Indicators

A set of indicators has been established as follows:

- Number of components scored as 'none' and 'good' respectively in the area of Prevention as measured by a desk-based gap analysis completed during the first year of the project and repeated at the end. Total number of components = 128, scored 'none', 'some', 'basic', and 'good'.
- Number of OTs using the e-learning module, measured based on consultations with local biosecurity and customs staff
- Number of OTs that have adapted the model legislation



Non-native invasive green iguana, BVI © C Malumphy

Pathway analysis

A pathway analysis was carried out by the NNSS to provide input to the horizon scanning exercises. 'Pathways' is defined as the routes and mechanisms of the introduction and spread of invasive alien species (Regulations (EU) no. 1143/2014, Art. 3). The analysis was a desk study with the aim of identifying:

1. Connectivity of the OT: volume, frequency and origin of sea and air transport networks
2. Pathways of introduction of existing non-native species

As escape from confinement has been found to have the highest number of introductions globally and in Europe, this is also identified:

3. Exotic animal and plant ownership

For each OT a checklist of existing non-native species was put together from available sources. Parameters for inclusion are:

- Records from 1980 onwards to exclude historic pathways.
- All non-native species, not just invasive.
- Confirmed identification to the species level.
- Terrestrial species.

Pathways were inferred for non-native species using the pathway classification adopted by the Convention on Biological Diversity SBSTTA 18, distinguishing intentional and unintentional introductions at the category and subcategory level. Note that historic pathways of introduction can almost never be known, only inferred, and in the relatively short time available for this desk-study a number of assumptions had to be made.

Results

Overall, pathway analysis was carried out for a total of 2,629 introductions across 15 UK OTs; it was not done for the Cyprus Sovereign Base Areas as horizon scanning was done in April 2017 as part of a Darwin Plus project. The greatest number of introductions was of plants (1,515 introductions, 58%) then invertebrates (1,030 introductions, 39%) and finally vertebrates 984 introductions, 3%).

Overall:

- 71% of non-native plant species result from intentional introductions, primarily introduced through the horticulture trade as garden plants.
- 97% of non-native invertebrate species result from unintentional introductions, with 77% of these as transport contaminants and 23% as transport stowaways. The commonest transport contaminant pathway was of live plant material.
- 58% of non-native vertebrate species result from intentional introductions (release in nature plus escape from confinement), primarily through the pet trade.

In terms of the geographic origin of non-native species, the commonest was "widespread" with 66% of records.

Interception data was available for eight of the 15 Territories but is of varying quality as it is formally only collected by one. Available data confirms the association of certain species with fresh produce.

In conclusion, the most risky pathway for introducing new species of non-native plant and invertebrate species is the intentional importation of live plants, from the point of view of the plant itself as a potential weed, and as a vector for contaminants such as invertebrates. Associated material such as soil and plant pots with imported garden plants increase the risk of the horticulture pathway. For vertebrates, the pet trade stands out as the most risky pathway of introduction.

Not included in the analysis is the confidence level with which any one species was assigned to a pathway. A measure of the impact (invasiveness) of introduced non-native species was also not included in the analysis. It is therefore not possible to determine if some pathways are more likely to introduce more harmful species.

Conclusions drawn at the higher category level are more robust than those at the lower subcategory level.



Reviewing post-border monitoring for invasive rodents, South Georgia

Horizon scanning

A programme of horizon scanning has been commissioned to be completed by April 2019. This is being led by Centre for Ecology and Hydrology (CEH) with NNSS providing oversight/QA, logistical support, and technical input in the form of pathway analyses. NNSS staff will also begin the process of developing pathway action plans with local stakeholders at the horizon scanning workshops, using the outputs from the workshops.

The horizon scanning process

The aim of horizon scanning is to predict which new non-native species are likely to arrive and establish (and impact environmentally or socio-economically) in the next 10 years. This prediction on species (and their associated pathways) will resources to be targeted most cost-effectively at those pathways posing most risk and for which risk management is most feasible.

Each horizon scanning exercise will consist of expert groups (plants; marine; vertebrates; invertebrates) using semi-quantitative approaches to compile a list of species likely to invade and cause problems. For each exercise there will be a workshop to undertake the consensus component to present the preliminary results and risk rankings to the regional experts, and facilitate discussion to refine the rankings based on their expert judgements. The result will be an agreed list of species likely to arrive and impact on each OT in the next 10 years.

The leads for the expert groupings are as follows:

- Oliver Pescott, CEH: terrestrial plants
- Tim Adriaens, Research Institute For Nature & Forest (INBO), Belgium: terrestrial vertebrates
- Wolfgang Rabitsch, Environment Agency, Austria: terrestrial invertebrates
- Elizabeth Cottier-Cook, Scottish Association for Marine Science (SAMS): marine flora and fauna (all taxa)

Following the consensus workshop NNSS will assist local stakeholders to develop pathway action plans for the priority pathways to minimise the risk of the arrival/establishment of the horizon scanned species. Linking the development of pathway action plans with the horizon scanning exercise is highly cost effective, particularly as most of the relevant local experts will already be present.

A programme of work has been drawn up for the horizon scanning workshops as shown in Table 1.



*Meeting with Mrs Arona Fahie-Forbes DoA, Permanent Secretary MNRL Mr Ronald Berkeley-Smith, Deputy Premier Dr the Hon. Kedrick Pickering, BVI.
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Table 1. Programme of horizon scanning exercises.

Workshop	OTs involved	Dates	Location
Caribbean cluster	Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Montserrat, Turks and Caicos Islands	21 – 25 May 2018	Cayman Islands.
British Indian Ocean Territory (BIOT)	BIOT	1 – 7 August 2018	Diego Garcia, BIOT
South Atlantic cluster	British Antarctic Territory, South Georgia, Falkland Islands	22 – 25 October 2018	Cambridge, UK
Mid-Atlantic cluster	St Helena, Ascension, Tristan da Cunha	12 – 16 November 2018	St Helena
Gibraltar	Gibraltar	21 – 25 January 2019	Gibraltar
Pitcairn	Pitcairn	26 – 29 March 2019	Auckland, New Zealand



Discussing the design of the new biosecurity facility, Bird Island, South Georgia

Pathway action plans

Each OT will use the information from the pathway analysis and the results of the horizon scanning exercise to develop action plans for the pathways identified. The aim of the action plans is to reduce the risk of introduction of the identified non-native species.

A template has been developed to guide the pathway action plan work which will start immediately following each horizon scanning exercise.



Advising on import inspections for post-hurricane relief, BVI

Legislative support

Improved biosecurity legislation was identified as a priority by the three Territories in the biosecurity gap analysis. In addition, as part of a recent FCO consultation on priority areas of legislative reform, the Ascension Governor's Office also identified biosecurity as a priority.

A request was made to Public Administration International (PAI) for the development of model biosecurity legislation, together with assistance with legal drafting to adapt the model to each Territory for endorsement. Comprehensive model legislation will provide the full complement of regulations required for effective biosecurity, including components for phytosanitary and zoosanitary risks, border actions, post-border surveillance and emergency response, compliance, enforcement and sanctions. Once the model is complete, each of the three Territories will access drafting support to analyse existing legislation and adapt the model to fill in the gaps in a manner appropriate to their specific needs. By this means biosecurity legislation will be harmonised across the UKOTs to international standards.

Model biosecurity legislation will be of interest to most of the Territories as existing legislation is generally weak, as evidenced the gap analysis carried out for all Territories as part of this project, and a review of biosecurity legislation in the Caribbean Territories carried out by the RSPB. The exceptions are Gibraltar (covered by EU legislation), and BAT and South Georgia (both covered by Antarctic Treaty legislation).

In anticipation of the request being approved, a checklist was developed by the NNSS to provide a comprehensive list of elements which together comprise effective biosecurity legislation. In addition, relevant existing biosecurity legislation was sourced, to provide examples of appropriate models.

Technical and regional support

Technical support is provided to the OTs on request and to date has been given to three OTs:

- BVI, 19 – 23 February 2018 for advice on biosecurity in the context of post-hurricane restoration activities. The trip report is available at: <http://www.nonnativespecies.org/downloadDocument.cfm?id=1646>
- South Georgia, 2 – 16 March 2018 for advice on biosecurity post-rat eradication. The trip report is available at: <http://www.nonnativespecies.org/downloadDocument.cfm?id=1661>
- Falkland Islands, 19 – 23 March 2018 for a general review of biosecurity procedures. The trip report is available at: <http://www.nonnativespecies.org/downloadDocument.cfm?id=1647>

Regional support was delivered in the form of attendance by the NNSS at the CBD-Secretariat “Capacity-building workshop for Caribbean Small Island Developing States towards achieving Aichi Biodiversity Target 9”, Jamaica 18 - 22 September 2017. The project funded two OT participants, from Bermuda and the Turks & Caicos Islands.



Boot cleaning on arrival in South Georgia

Training

Leo Learning has been commissioned to develop an e-learning module on basic biosecurity, based on the format used in the NNSS e-learning biosecurity module which supports the Check, Clean, Dry campaign.

An alpha version is intended to be produced in time to share with the six Caribbean OTs at the horizon scanning workshop in May 2018.



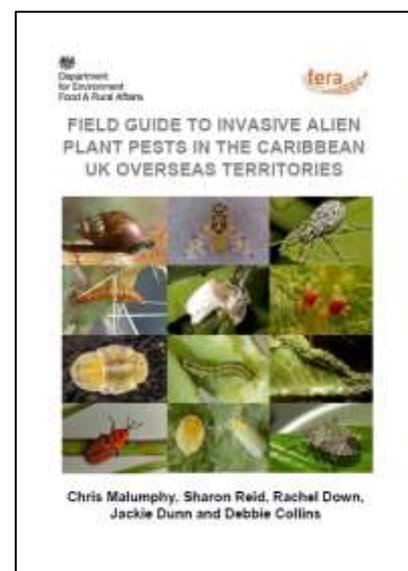
Involvement of other UK government agencies

Fera Science Ltd

Chris Malumphy accompanied Jill Key on the BVI technical support visit to provide advice on plant pests.

Chris Malumphy is also involved as a taxonomic expert on invertebrate plant pests in the horizon scanning exercises, listing priority species in anticipation of the workshops and, in the case of the Caribbean cluster, attending the workshop itself.

Fera completed a Field Guide to Invasive Alien Plant Pests in the Caribbean UK Overseas Territories. This has been shared with the six OTs present at the horizon scanning workshop in May 2018.



Public Health England

Alex Vaux is involved as a taxonomic expert on public health pests in the horizon scanning exercises, listing priority species in anticipation of the workshops. He will also participate in at least one workshop itself, that for the six Caribbean OTs.

Centre for Environment, Fisheries and Aquaculture Science (Cefas)

Following the formal recognition of the ballast water pathway at the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, the International Maritime Organisation (IMO) drafted the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWMC) with the express aim of reducing the number of non-native species and pathogens being translocated by the global shipping fleet. The Convention, which entered into force in September 2017, requires all applicable ships to manage their ballast and associated sediment in a manner conducive to the aims of the Convention.

Cefas was commissioned to carry out a review of the requirements of the BWMC in the OTs. Summaries of progress made to date have been made with the aim to identify gaps in the process and how Cefas (and wider Defra network) could assist with the effective protection of marine habitats and compliance with the Convention. The report can be found at <http://www.nonnativespecies.org/downloadDocument.cfm?id=1650>



Observing inspection procedures of imported fresh produce in the Falklands

Summary of progress

A series of priorities were agreed at the first meeting of the project steering group in August 2017. These are shown in Table 2 together with progress. Status is recorded as:

Red - not started or serious problems encountered

Amber – about to start or underway

Green – completed or well under way



Observing on-board rodent monitoring, MV Pharos SG.



Rodent detector dogs, Falkland Islands



Workshop participants, BVI technical support visit

Table 2. Project activities and progress

Priority	Lead	Location	Progress	Status
1. Pathway analysis & project management	NNSS: terrestrial pathway analysis	Sand Hutton	Completed for 15 OTs – Cyprus SBA excluded as horizon scanning has been completed.	Green
2. Horizon Scanning	Commissioned work: 3 expert consensus workshops	Workshops delivered in the OTs as far as possible	Commissioned with CEH. Work will start with species listing for Caribbean and BIOT	Amber
3. Biosecurity e-learning	NNSS: development of e-learning module	Sand Hutton	Commissioning with Leo Learning.	Amber
4. Fera input	Fera: input into horizon scanning	Various	Preparatory work in anticipation of expert consensus workshops.	Amber
	Fera: Development of a Field Guide to INNS in the Caribbean	Sand Hutton	Completed by end March 2018.	Green
5. Legislative support	PAI: Development of model legislation	PAI	Request submitted.	Red
6. Regional support	CBD / Caricom workshop for Aichi target 9	Jamaica	Completed.	Green
7. Technical support	NNSS	<ul style="list-style-type: none"> • BVI • Falkland Islands • South Georgia 	<ul style="list-style-type: none"> • Completed 19 to 23 February 201 • Completed 17 March to 9 April 2018 • Completed 9 to 16 April 2018 	Green
8. Ballast water convention review	CEFAS staff: Marine and aquatic pathway analysis	CEFAS	Report completed.	Green

Figure 1. Flow chart of the project activities.

