

**Helping Islands Adapt Conference.
11-16th April 2010. Auckland, New Zealand.**

*'A workshop on regional action to combat invasive alien species on Islands
to preserve biodiversity and adapt to climate change'*

For further information OT and CD funded participation visit: <http://www.jncc.gov.uk/page-5432>

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'A workshop on regional action to combat invasive alien species on Islands to preserve biodiversity and adapt to climate change'

Participant

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Participant funded by

Defra/JNCC.

Workshop Overview

The workshop was held from the 11th to 16th April 2010, in Auckland, New Zealand. The Government of New Zealand were the hosts, with support received from a number of partner organisations (see below). Approximately 82 participants from 24 countries and territories and 29 national, regional and international organisations attended the workshop. The purpose of the workshop was to identify and strengthen mechanisms that enable effective and sustainable alien invasive species (IAS) management for islands. The discussions focused on four main island regions – the Caribbean, the Coral Triangle, the Indian Ocean and the Pacific.

The workshop was made possible by generous sponsorship and cooperation from the following organisations:

The Global Island Partnership (GLISPA)
The Nature Conservancy (TNC)
The Government of Italy
The Government of Australia:
Department of Water, Heritage and the Arts (DEWHA)
The Government of France
The Government of Spain
The Government of the United Kingdom
The International Union for Conservation of Nature (IUCN)
The Government of Germany
The Global Invasive Species Programme (GISP)
The Pacific Invasives Initiative (PII)

Information/point of interest gathered from group discussions

Successful campaigns or methods that are working well to gain funding and publicity for invasive species work in territories include:

Species specific methods of promoting the impacts of invasive species and the need for action. For example, choosing a 'charismatic champion'. Focusing on one species in particular to gain attention from funding bodies, politicians and local people. Starting small and increasing capacity – to include more species and larger areas.

Expressing the economic impacts of invasive species, i.e., the effects on agriculture and industries. For example, the pink hibiscus mealy bug. Locals tend to take notice when the effects are felt economically or socially. The pink hibiscus mealy bug and lion fish in the Caribbean grabbed the attention of locals and gained political will due to impacts on the economy and tourism.

Gaining stakeholder buy-in or lack of resistance. Agriculture projects gain the most interest due to economics and funding goes into research for this. Could this be tied in with invasive species work to gain support from various stakeholders. Economics are built around specific industries, which need safeguarding.

Regional collaboration among countries or territories to develop effective regional strategies. This leads to territories gaining institutional support for invasive species management.

Emphasising the high biodiversity on Islands. Using terms such as 'biodiversity hotspots' when raising awareness and support for invasive species management, in particular focusing on the loss of biodiversity and threatened resources.

There is a lot of collated information is already available, including well established methods for control/eradication and regional assessments, which are held within countries and territories.

Both within and between territories/regions a willingness to work together and contribute experiences exists. Many people face similar challenges and deal with the same issues.

Hurdles faced by countries/overseas territories when dealing with invasive species issues include:

A lack of political will and support with no legislation in place. Even if political will exists, the process for enforcement of legislation can take too long when a quick response is required. When legislation does exist often there is no system in place for enforcement.

A one-way street often exists with regards to border control and biosecurity. This is a major issue in the Caribbean and some territories in the South Atlantic, where biosecurity needs reviewing and border controls put in place. A free passage of goods is permitted

from the USA to the Caribbean, however, strict border controls exist when entering the USA from the Caribbean.

Funding is a common major issue for territories. Funding often focuses on development rather than biodiversity conservation issues. As well as insufficient funds, territories also experience problems with access to funds and funding cycles.

There is generally a lack of awareness and support for invasive species impacts and threats.

Main points of interest to the region

Networking is very important – the regions are not working alone and realise they cannot solve the problems by themselves.

Political support is essential. Trust must be gained and messages must be framed to gain attention, i.e. focus on the economic impacts of IAS. Link impacts to health/social issues and food security.

Invasive species management should be incorporated into other policies and programmes.

IAS response is often compartmentalised. The small size of islands makes collaboration essential.

Border control is essential but generally badly managed.

There is sufficient research and data available on IAS, but not enough exchange between institutions and countries/territories.

Website to explore with details of grants: <http://www.ruffordsmallgrants.org/rsg/>

Recommendations

Create a common fund for IAS work.

Create lists of IAS common to regions.

Weed inventories for regions and an identification tool kit.

Demonstration projects – successful IAS management and species restoration programmes within regions.

The capacity for early detection and rapid response systems to be put in place.

Reinforced importance of thinking about IAS in the context of other issues relating to biodiversity loss, human health. There is a need to mainstream and integrate IAS impacts into other issues such as these (biodiversity loss, for example).

Development of tools and techniques for the management of invasives.

Gain political support by framing messages to gain attention, focusing on economic impacts. Link impacts of invasives to health/social issues and food security.

Conclusions

Islands groups are regionally very diverse, however they share similar ecosystems and issues. Overseas territories (US, UK and French) are all applying to their own government agencies for funding. The islands have similar projects, however, many of these are yet to be completed often due to a lack of continues funding and bureaucracy problems.

Factors leading to successes in management of invasives on Islands:

Species-specific methods:

Successes are illustrated when a local champion has been involved. Most departments in countries are very small, so reliant on a local champion. Many NGOs located in OTs are not funding local projects and therefore these Islands are reliant on the US/UK for funding.

Communities tend to be alert to issues when they are affected economically or in their ability to grow or catch food. Invasive species problems catch the attention of the public and gain political will when they have an impact on the economy and tourism.

Regional collaborations:

Islands in close proximity (such as the Caribbean), sharing the same IAS are able to pass on information as they have similar ecosystems. It was agreed that if one or more countries or territories collaborated it was deemed a regional collaboration and did not necessarily need to involve all countries/territories of the region.

Partnerships within countries/territories:

Sharing resources for the same problem, for example impacts of invasives on nature tourism is a common interest.

Richness of activity:

There are many small IAS projects taking place. There are many agencies working in OTs, therefore these projects attract different funding. Agricultural projects attract the most interest due to economics, funding therefore goes into research for this, which needs to be tied in with IAS work.

Appendices

1. Territory Background Reports

South Georgia

a. Brief background to invasives in OT

With the establishment of the commercial sealing and whaling industries on South Georgia, efforts were made to introduce numerous species in order to provide food or sport for the resident working population. The first attempt was an introduction of rabbits, followed by sheep, geese, horses, chickens and cows along with pets such as cats. None of these species were able to survive the winter in sufficient numbers to establish a long-term population. Of the deliberate introductions, only one was successful in the long term - reindeer. In addition to the deliberate introductions were the accidental ones, such as rats and mice. The inability of rats to cross glaciers has limited their range largely to the northwest of the island and northeast coast, especially in dense coastal tussac habitat and around abandoned whaling stations. Glaciers also limit the range of mice to one area on the southwest coast of the island, and the reindeer to the peninsulas where they were originally introduced. Of all the introductions those of rats and reindeer have been particularly devastating. Rats have completely excluded the endemic South Georgia pipit from affected areas, and greatly reduced the numbers of burrowing petrels able to inhabit and breed in the presence of rats. Reindeer have seriously overgrazed the areas they inhabit, reducing the key tussac habitat greatly, and excluding several native plant species, whilst aiding the spread of the introduced annual meadow grass.

b. Regional approach to invasive species management

Currently there are no management or practical linkages between South Georgia and the regional OTs with regards to invasive species. South Georgia has freely distributed its biosecurity documentation, which have been incorporated into biosecurity plans for local OTs.

Due to limited resources and capacity on South Georgia, heavy emphasis has been placed on pre-border biosecurity. The vast majority of shipping to South Georgia originates in the Falkland Islands, therefore South Georgia would benefit from improved Falklands biosecurity and from an Integrated Pest Management strategy at the port facility in Falklands.

South Georgia is less likely to benefit from regional approaches to invasives management, as it is a very different environment to any of the others. However, broad issues are the same so information sharing and lessons learned from other territories are always valuable. Any new introduction to South Georgia is likely to have originated in the Falklands, therefore it is important that information on new arrivals is shared, in addition to management strategies.

c. Island level approach to invasive species management

At present, the only active management of invasives on the island occurs at King Edward Point, the administrative base for the island and the only occupied mainland site. Rats are controlled around the base buildings through snap trapping and bait stations. The introduced wavy-leaved bittercress (*Cardamine flexuosa*) is only present in the vicinity of the base, and a control program of herbicide spraying has been ongoing for 3 years. Management of this species is currently under review as current management has not succeeded in controlling its spread.

Only 8.6% of South Georgia's total area is vegetated, and the majority of this area is affected by one of the 3 introduced mammals on the island – rats, mice and reindeer – 73% of the vegetated area is affected by rats.

The South Georgia Heritage Trust is planning an ambitious project to eradicate all introduced rodents from the whole of South Georgia. Work is scheduled to start in 2011, and will likely take four years to accomplish. In parallel, GSGSSI is exploring

management options for the reindeer. If all plans are successful, South Georgia could be entirely free of all introduced vertebrates by the middle of the decade.

A lot of work has gone into the development of biosecurity measures over the past 3 years. South Georgia has no airstrip, so all transport is by sea. Individual Biosecurity plans have been produced for all vessel types visiting the island. Specific measures have also been drawn up for all visitors, and for the annual resupplies of the bases at King Edward Point and Bird Island. Any expeditions must produce their own Biosecurity plans, in order to demonstrate awareness of the risks and to suggest methods to mitigate against them. A permit will not be awarded unless plans are approved.

Biosecurity is being incorporated into new SG legislation, which is under review.

A dedicated Biosecurity Facility has been built at South Georgia, for checking cargo and equipment that has been used on the island, but emphasis is strongly on pre-border procedures due to lack of capability and manpower on island, the idea being to stop any problem species arriving in the first place, rather than having to tackle them on the island.

Response plans and monitoring systems are under development, in order to efficiently respond to a new incursion or reinvasion. Bird Island, as a key site, already has plans in place.

The biosecurity measures in place are constantly evolving and being revised. Emphasis is placed on visitors carrying out the procedures making a real and valuable contribution to the preservation of the island. Fundamentally, education is the most important aspect of biosecurity, as the better people understand the issues, the more likely they are to carry out the procedures.

d. The role of the South Atlantic Invasive species project for OT invasives management

Three priorities were identified for the life of the SAISP:

1. To tackle bittercress (long term plan beyond life of project), and at the least to prevent further spread
2. Increase intra-island and post border biosecurity capability through the design and build of a dedicated Biosecurity Facility
3. To carry out a comprehensive baseline survey of introduced invertebrates and plants on the island

Bittercress –

Despite best efforts, bittercress continues to spread around King Edward Point, and has reached a new site across the bay. Spread is likely facilitated by movement of wildlife through affected areas – the sites are roped off for human access. Management is now under review.

Biostore –

This was a bespoke design for South Georgia, with eventual design limited by funding. It is intended as a multi-purpose facility, to provide a dedicated area for inspecting, cleaning and storing field and scientific equipment, and imported cargo up to a pallet in size. It has an external wash area for plant machinery and large cargo.

Baseline Survey -

A baseline survey of introduced plants and invertebrates was commissioned in order to establish future and current risk. Kew Gardens and Buglife International carried out a

survey between Dec 08 - Jan 09. 15 sites visited and surveyed with 177 sampling locations for invertebrates producing 655 samples containing 100,000 specimens.

The SAISP project has provided a baseline in terms of knowledge and capability to plan for and react to future events. Having a project with dedicated funds and resources working to specific priorities allowed the Government to work on other parallel projects, meaning that the end output from the project was considerably more than identified in the project priorities alone.

e.- Lessons learnt from invasive species management on island (what does and doesn't work and why?)

Prompt and aggressive action is required once a new establishment is identified. When bittercress was discovered in 2001 in a very small site, no ownership of the problem was taken. As a result, no strategic action was undertaken until 2007, once the plant was firmly established and had spread considerably. In the interim, volunteers on site had taken the initiative to carry out control work, but received no support. Due to lack of capacity on the island, control still falls to voluntary (though now co-ordinated and supported) effort. However, the task has proven to be too big for the capacity on site, and control work is heavily weather dependant, hence a review of management options. There is a real risk however that eradication or indeed successful control is no longer an option.

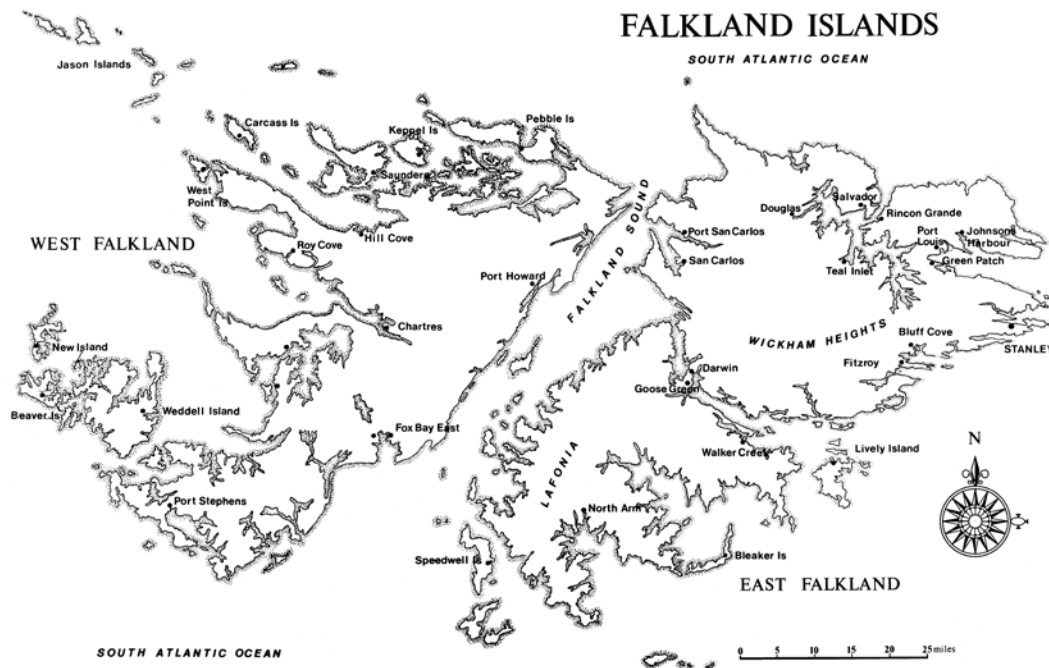
In terms of biosecurity policies, it is important that what can be achieved should be, rather than waiting for an all-encompassing policy to be developed which could take years. South Georgia went from no biosecurity, to the introduction of visitor biosecurity policies in a few months. Policies are still being refined and improved 2 years on, during which time less has got to the island than otherwise would have. Whilst modeling policy on other locations is a starting point for ideas, it is important to innovate and tailor to fit the unique requirements of the individual territory, or site within it.

Invasive Species in the Falkland Islands

Nick Rendell – Environmental Officer, Environmental Planning Officer, Falkland Islands Government. 17th March 2010.

A. Background

The Falkland Islands cover an area of 12,173km² and comprise two main islands, East and West Falkland and around 780 offshore islands and islets. The islands support 2,955 people (2006) with 85% based in the capital Stanley. The remaining 363 people are scattered across 70 settlements. Over 90% of land in the Falkland Islands is privately owned.



Sheep farming, nature-based tourism and recreational outdoor activities are among the main land uses in the Falkland Islands.

Fisheries, tourism and agriculture are dominant contributors to the economy – all are based on the continued health of the natural resources found in the Islands.

The Falklands Islands are an overseas territory of the United Kingdom, but are financially independent of the UK.

Annual GDP per capita is high at £28,000 and total GDP was estimated at £72.3 million (2006).

Biodiversity

Plants

Nineteen different land habitat types are recognised as being present in the Falkland Islands. The vascular flora consists of 171 native species and 13 endemic species.

Invertebrates

Twelve species of earthworm, 43 species of spider and nearly 200 species of insect have been identified to date. Thirteen terrestrial invertebrates are currently recognised as endemic. Tussac grass, scrub and montane habitats are considered the most critical habitats for invertebrates.

Birds

The Falkland Islands is home to 21 resident land bird species, 18 resident water birds 22 breeding seabirds species, 18 annual non-breeding migrants and more than 143 species recorded as occasional visitors. Two endemic species and 14 endemic sub-species are present in the Falklands.

Globally significant numbers of several breeding species are held in the Falkland Islands. IUCN globally threatened species present:

Black-browed albatross (<i>Thalassarche melanophrys</i>)	Endangered
Cobb's wren (<i>Troglodytes cobbi</i>)	Vulnerable
Macaroni penguin (<i>Eudyptes chrysolophus</i>)	Vulnerable
Rockhopper penguin (<i>Eudyptes chrysocome</i>)	Vulnerable
White-chinned petrel (<i>Procellaria aequinoctialis</i>)	Vulnerable
Gentoo penguin (<i>Pygoscelis papua</i>)	Near Threatened
Magellanic penguin (<i>Spheniscus magellanicus</i>)	Near Threatened
Sooty shearwater (<i>Puffinus grisueus</i>)	Near Threatened
Striated caracara (<i>Phalco boenus australis</i>)	Near Threatened

Freshwater and estuarine fish

Two native species of fish, Zebra trout (*Aplochiton zebra*) and Falklands minnow (*Galaxias maculatus*) are present.

Intertidal and shallow marine environment

Limited information is available in this area, but recent baseline surveys, habitat mapping and taxonomic identification has revealed a large array of native and endemic marine species in the shallow marine environment of the Falklands.

Cetaceans and pinnipeds

A variety of whale, dolphin, seal and sea lion species are present, including at least eleven species of cetaceans listed by the IUCN as being of global conservation concern.

Reptiles and amphibians

No native reptile or amphibian species are present in the Falkland Islands.

Invasives present

More than 225 non-natives are recorded in the Falklands. These comprise:

- 14 vertebrate species (3 birds, 1 fish, 11 mammals)
- 167 plant species
- 10 invertebrate species
- 29 fungi
- 2 marine invasives (initial estimate)

B. Regional approach to invasive species management

The South Atlantic Invasive Species Strategy has been drafted by the SAOTs and UK institutions involved. This document has been finalised and will go to the Falkland Islands Executive Council for approval in April 2010. When approved the document will be the policy document supporting the basis of regional and national approaches to controlling invasive species. Particular cross-territory relevance is noted between Ascension Island, the Falkland Islands and South Georgia – as regular shipping and air routes operate between the three island groups.

C. Island level approach to invasive species management

Biodiversity Strategy

The Falkland Islands Biodiversity Strategy (2008-18) was adopted by FIG in 2008. The strategy highlights threats to biodiversity and prioritises research and management strategies to mitigate these threats. Invasive species are listed as the 4th highest threat to the biodiversity of the Falkland Islands. A basic action plan is in place to strategise the mitigation of impacts from invasive species.

Invasive species risk assessment (Whitehead 2008)

A risk assessment of invasive alien species in the Falkland Islands was conducted in 2008 by Joanne Whitehead. The RA identified 22 plants as being a threat to native biodiversity. Nineteen introduced animals were identified as invasive in the Falkland Islands. The top five have all been subject of eradication attempts in the Islands:

Black Rat (*Rattus rattus*)

Norway rat (*Rattus norvegicus*)

House Mouse (*Mus musculus*)

Patagonian fox (*Lycalopex griseus*)

Cat (*Felis catus*)

Eradication programmes

Rats

The eradication of Norway rats, by far the most prevalent of the two invasive rat species in the Falklands, have been undertaken to remove rats from over 40 small islands in the Falklands archipelago since 2000. 20 of these attempts have been confirmed as

successful, with the remainder pending confirmation. This has been a very successful mitigation measure which has been successful in restoring island ecosystems around the archipelago.

Patagonian Foxes

Patagonian foxes were deliberately introduced to several islands in the 1920s for their fur. They have successfully been eradicated from two islands, most recently from Tea Island in 2008.

Inter-island management plans; Sea Lion Island, Carcass Island.

Two rodent-free inhabited island groups in the Falkland Islands have invasive species management plans, put in place by the SAISP and now implemented by FIG. It is intended to put more of these plans in place to improve biosecurity and protect the other large rodent-free islands in the Falklands.

Invasive plant species management strategies.

Invasive plant strategies have been produced by SAISP for two of the highest threat alien plant species – gorse (*Ulex europaeus*) and calafate (*Berberis buxifolia*). A strategy has recently been commissioned to cover a third damaging invasive plant, spear thistle (*Cirsium vulgare*). These strategies are being partially implemented annually in an attempt to control their spread. It is hoped that further external funds can be sought to fully implement these strategies – particularly in order to control the spread of Calafate.

D. The role of the South Atlantic Invasive species project for invasives management

In the Falkland Islands, key project activities have included:

- Training and provision of equipment for border and biosecurity staff;
- Control of invasive plants such as thistles, ragwort, calafate and gorse;
- Support to island surveys to establish whether rats are present; and funds to support the eradication of rats and foxes from islands;
- Development of educational materials on invasive species for use in schools;
- Raising awareness of invasive species generally

E. Lessons learnt from invasive species management on island (what does and doesn't work and why?)

Legislative constraints are an issue. It is a difficult and very slow process to get legislation in place to control invasive species. It is much easier to encourage voluntary measures – but harder to enforce.

Volunteer efforts to remove invasive plants are beginning to work well and raising the awareness of locals, and military personnel based for short periods in the Falklands.

Rat eradications have been very successful. The production of island pre-eradication plans is key to improving the chance of success. Paid eradication teams are more

effective than volunteers – especially on larger islands where a prolonged concentrated effort is required.

The control of invasive plants is much more difficult than animal species – due to the nature of controlling plant species, seed banking etc. Examples in the Falkland Islands prove the need to react quickly and not put eradications of plant species off any longer than necessary. Invasive calafate now covers large areas of East Falkland and a clear lag time between introduction and population explosion is evident. The largest area of calafate which covers an area over 250hectares – came from 2 bushes in the 1950s.

F. Lessons learnt from regional approach to invasive species management (what does and doesn't work and why?)

It is still very early in terms of developing a regional approach to the control of invasive species. There is huge benefit in working regionally to prevent invasives spreading over borders. This is particularly notable between Ascension Island – Falklands – South Georgia.

The great distances between the South Atlantic Overseas Territories make links less tenable. There is a need to strengthen links regionally on other general areas besides invasive species and environment to make links more notable and to have increased public appreciation.

Conference Canarias 2010: Biodiversity and Climate Change in Islands: New Developments

Report from St Helena

What have been the most significant recent methodological developments or achievements in the conservation of marine and terrestrial biodiversity?

1. The South Atlantic Invasive Species Project: A Solid Foundation

This regional project was funded by the European Union and ran from 2006 to 2009. The project encompassed a large geographic region, to include the five island groups in the South Atlantic Ocean: St Helena, Ascension, Tristan da Cunha, South Georgia and the Falkland Islands. The overall objective of the project was to reduce the threat that invasive species pose to native biodiversity of the South Atlantic UK Overseas Territories and therefore enhance economic prosperity and quality of life for people living on these islands. The project aspired to develop regional capacity in order to control the spread and proliferation of invasive species, establishing, amongst other outcomes, an effective management structure for a regional coordinated invasive species programme.

Locally on St Helena, the project provided a foundation for developing the capacity to reduce the threat of invasive species on St Helena's native biodiversity. The project addressed the problems caused by both invasive flora and fauna and encompassed a range of activities which has provided the tools for future practical control and eradication of these species. This included a report providing a preliminary assessment of Myna bird numbers, their distribution and prototype control methods; Research into rodent ecology and control and an assessment of the Island's rabbit population. The purpose of these invasive fauna surveys is linked to establishing potential control measures and improving the prospects for native biodiversity. These assessments identified a number of conservation needs, providing a basis for the proposals recently submitted to the Overseas Territories Environment Programme for funding.

Also under the scope of the project, an island wide botanical survey on higher plant species and ferns was implemented, producing a comprehensive botanical electronic database. Data from this will be used to produce a field guide that is being funded by the Overseas Territories Environment Programme. This comprehensive flora guide will provide a full colour guide on the Island's lichens, mosses and higher plants and will enable those working in the conservation sector to identify flora more confidently and accurately. The guide will also be of interest to the wider general public.

At a regional level the project provided a significant contribution to the development of a regional invasive species strategy, assisting with guiding priorities for future work and establishing a more integrated UKOT South Atlantic approach to invasive species management. This strategy is intended to present regional priorities in relation to future invasive species work in the South Atlantic UKOTs and to provide a set of objectives against which progress can be measured. It is important, however, to stress that fulfilling these objectives is reliant on external funding and appropriate human capacity being secured.

2. St Helena Environment Information System (Geographic Information System)

The St Helena Environment Information System is a newly developed and potentially very valuable tool in terms of collating, presenting, processing and using environment and conservation data. To date, a total of 157 datasets are included on the system, of which 27 are databases, including a cetacean sightings database, a seabird monitoring database, a Bryophyte database, unusual bird sightings database and a Peaks (an area of high endemism) database.

3. The Critical Species Recovery and Horticultural Needs Programme

This two year project, funded by the Overseas Territories Environment Programme has established a seed collection programme, upgraded the Island's endemic nursery, provided on-the-job training in

plant propagation, produced thousands of endemic plants and achieved important steps in habitat restoration. A significant methodological development of the project is a revision of ecological restoration techniques, moving away from planting endemics in a linear arrangement to a more sustainable approach of planting in denser, non-uniform clusters. A habitat oriented approach has been developed in favour of the species led focus. This approach aims to develop sustainable communities of species as opposed to monoculture and the project has given training to National Trust staff, progressing towards the restoration of a historic endemic woodland at the Millennium Forest.

Under the programme, a Plant Reintroductions Policy is being produced, identifying planting zones for St Helena's native species. The St Helena Environment Information System mentioned above should provide a tool for mapping areas for endemic restoration where hybridisation (a threat to some endemic flora and to biodiversity) can be avoided.

4. Conservation and Research on the Wirebird (*Charadrius sanctaehelena*)

Conservation of the Island's sole remaining endemic bird continues under a number of schemes, with the overall aim of removing this species from the Critically Endangered Species List. The Wirebird, a small plover endemic to St Helena and a close relative of the Kittlitz's plover suffered a serious decline in numbers in the 1990s, although, due to sustained conservation action has since recovered to a population of almost 400 adult birds. The Wirebird is currently the topic of a doctorate degree, addressing Wirebird mortality and predator problems; Monitoring, surveying and habitat improvement continues under a Wirebird Mitigation Project; and a Wirebird Species Action plan is also being implemented. Complementing these initiatives the Agriculture and Natural Resources Department also runs an improvement scheme for pasture land and grazing systems, recovering the condition of the Wirebird's preferred habitat of grazed grassland.

5. Monitoring - Marine and Coastal Surveys

The Island's Fisheries Section routinely implements a number of marine related monitoring programmes, recording cetacean sightings, monitoring our seabird species, conducting underwater fish surveys, monitoring fish lengths, implementing beach surveys and undertaking limpet and Grouper monitoring. Despite this ongoing surveillance, the Section readily acknowledges that more research, particularly the collation and analysis of baseline data is needed on marine fauna and flora and no information currently exists on potential marine invasives. At the moment, understaffing of the Section prevents the implementation of marine based conservation projects.

6. Advances in Environmental Legislation and Development Plans

The Island's revised Land Planning and Development Control Ordinance 2008 has made provision for new development proposals to include where necessary an Environmental Impact Assessment report. Previously projects only had to be screened for environmental impacts if the funding came from a donor who required this. For example, the Department for International Development stipulates that Environmental Screening Notes be produced for projects over £1 million and encourage this also for smaller development projects.

In 2001, St Helena (along with the all other UKOTs) signed up to an Environment Charter in partnership with the UK Government. In 2005 an Environment Charter Strategy for action was produced to aid implementation and hence meet the commitments of our Environment Charter.

A number of Ordinances relating to the conservation of flora and fauna and the protection of the environment are in place, a list of which can be supplied.

The St Helena Sustainable Development Plan 2007/8-2009/10 also recognises that the Island's natural environment, particularly its biodiversity, is a key asset.

7. National Protected Areas

Diana's Peak, an area rich in endemic life, has been designated a National Park by a special proclamation. A Peaks Protected Areas Management Plan has also been developed and is being implemented.

Fourteen areas (although still to be legally designated) have been included as proposed protected areas under the Land Development Control Plan 2006.

What have been the most significant recent methodological developments or achievements in the adaptation of island biodiversity to climate change?

No work has been done, as of yet, in this area. However, there is an increasing recognition of the need for research in the field of biodiversity and climate change, as reflected by the Island's research priorities put forward for the Global Biodiversity Sub-committee paper in 2007. Five nature conservation and natural resource management priorities were identified as a collective response from key stakeholders on the island and one of these was: *Assessment of the biological and ecological implications of climate change on native biota and ecosystems*. The actions identified as needed to address this were: Monitor terrestrial plants to examine environmental change; Investigate the potential impact on invasive species due to climate change; and Monitor marine changes to assess impacts of climate change.

At present, the extent to which St Helena's natural environment will be affected by climate change is uncertain. This is an area of concern, considering the uniqueness of the Island's endemic ecosystems and their potential reliance on particular climatic conditions. It is not only appreciated that rates of climate change may exceed the ability of native species to adapt but may also provide conditions that exacerbate the growth of highly adaptable invasives and cause changes in pest and disease dynamics. Predictive modelling could therefore be a very useful tool to implement.

Which methodological challenges remain that are important barriers to improving the prospect for island biodiversity?

As mentioned above five nature conservation and natural resource priorities were identified in 2007, these related to the key areas that are particularly challenging in our aim to improve the prospect of island biodiversity. They were (in no particular order of priority): Survey and research to establish baseline data, set up monitoring programmes and formulate management plans for key species; Invasive species research including investigating control methods and actual physical removal; Habitat and species restoration; Public Education and awareness; and (as mentioned above) Assessment of the biological and ecological implications of climate change on native biota and ecosystems.

Research is particularly lacking in the field of entomology, where there is both a lack of awareness of the importance of invertebrates and a lack of resources/ expertise to address this. Baseline marine and invertebrate surveys and comprehensive botanisation of St Helena's cliffs/ bare areas are a primary research need.

Invasive species management is a major problem for the island's native biodiversity. Techniques need to be developed to ensure long term clearance of invasives and allow for the re-establishment of native flora. A large proportion of the Island's forest land and conservation areas are infested with invasive weeds and the normal method of clearing is through manual removal, which commands a large proportion of both financial and human resources.

A general lack of understanding at all levels of the importance of conserving native biodiversity also needs to be addressed. There is a perception that protecting biodiversity (and the environment more generally) is a barrier to development. Awareness that biodiversity is the cornerstone to economic progress through, for example, the development of eco-tourism, agriculture, and a clean water supply has not yet been fully accepted.

The infrastructure characteristics of St Helena itself can also be a hindrance to improving the island's biodiversity prospects. The limited financial and human resources can lead to a fragmented approach to conservation and the island's isolation, without air access, makes external assistance difficult to obtain/workshops difficult to attend. The fact that the environment sector within St Helena Government is spread across different departments with different roles and responsibilities is not ideal for a cohesive approach to improving Island biodiversity. It is also an issue that objectives do not remain consistent, with priorities changing as staff leave/take up new positions. For example, invasive species management is a current priority, but the level of importance afforded to this may vary over time. Staff retention is also an issue, with employees on low wages leaving to seek better paid employment off island. This can mean that training invested in people is subsequently lost.

What would your government or institution consider of particular relevance and make you participate in this meeting?

1. The effect of climate change on biodiversity: research needs

It would be highly beneficial for St Helena to assess the biological and ecological implications of climate change on native biota and ecosystems. Guidance (extrapolated from case studies elsewhere) could be provided on issues such as:

- Monitoring terrestrial plants to examine environmental changes.
- Investigating the potential impacts of climate change on invasive species.
- Variations in insect breeding cycles and migration patterns of birds with regards to climate change.
- Looking at the oceanographic consequences of climate change, such as changes in coral and inshore fish populations and assessing the impact of rising ocean temperature on migratory patterns of commercial fish stock.
- Looking at the potential stress of climate change on endemic ecosystems and assessing the impact of climate change on agriculture, considering the local economy and the potential emergence of new pests and diseases.

2. Control techniques for invasive species

A session on control and eradication measures of those species most threatening island biodiversity would be very valuable. A discussion on their interaction with other key species and their impact on ground water and erosion could be addressed, as well as considering invasive species from a commercial perspective (e.g. bio-diesel from Flax). The fact that many Overseas Territories and Small Islands share common invasive species, would allow for the pooling of ideas/ information exchange. A discussion on the approaches (chemical and mechanical) for tackling invasives in specific situations (e.g. removal of invasives from in and around water catchment areas; adjacent to existing water ways and on steep, dangerous and sometimes inaccessible terrain) would be beneficial. There is also a strong need to identify marine invasives, perhaps with regard to possible hull fouling/ ballast emptying.

3. Restoration protocols and continued focus on critical species recovery

A discussion on tried and tested restoration protocols for endemic flora ecosystems (e.g. techniques for establishing succession and providing a competitive advantage for native species) would be valuable. Guidance on methods used to restore and protect mainland seabird breeding colonies would also be relevant.

4. Renewable energy

From an economic and environmental perspective, guidance on assessing the feasibility of adopting non-fossil fuel energy sources on the Island, such as harnessing solar (panelling and photo-voltaics) and wind power would be advantageous. The ability to knowledge share between Islands with similar climates would be beneficial.

5. Climate change on the Island population

Building capacity for climate change research would provide an understanding of the implications of climate change specific to St Helena (small islands) and allow for the identification of adaptation and mitigation measures. A discussion on soft engineering and climate friendly building (for example, using lime instead of cement) could also be useful.

6. Additional Sources of Funding

Identification of additional funding to increase the capacity for conservation of biodiversity and implement climate change research and the resulting necessary mitigation and adaptation measures on the Island would be useful.

*Information collated by the: Environment Planning and Development Section,
Development and Economic Planning Department
St Helena Government
February 2010*

Report from St Helena for the Southern Oceans Working Group Meeting to be held on 16th March 2010

Staffing

Environment Planning and Development Section

The Environment Planning and Development Section of the Development and Economic Planning Department is now fully staffed following two resignations in August / September last year. The Environmental Assistant (Research and Monitoring) post was filled in November last year by Miss Sophy Thorpe who holds a BSc in Veterinary Health Studies; and the Environmental Assistant post has been filled by Miss Annalea Beard who holds a BSc in Animal Science and a MSc in Wildlife Management and Conservation. Annalea joined the Section earlier this month. Both Sophy and Annalea are settling in well.

National Trust

Mr Jamie Roberts is now well established and settled in his busy post as Director of the St Helena National Trust.

Successful Bid for Darwin Funding

The St Helena National Trust has been awarded £300,000 by the Darwin Initiative for a new 3 year project that will help to protect St Helena's internationally important biodiversity. The project will help St Helena to increase its capacity to conserve the natural environment, through developing expertise and training local conservation staff and school leavers through a conservation apprenticeship programme.

St Helena has a unique range of plants and invertebrates that occur nowhere else in the world. These endemics are under increasing threat from invasives and the loss of habitat, with a number of species including the Bastard Gumwood and the Boxwood on the brink of extinction.

The project will focus its practical activities on two important sites for biodiversity, the moist cloud forest of High Peak, and Blue Point Ridge, a dry land habitat. Both are proposed Protected Areas and the project will work towards restoration of these key habitats, including planting large numbers of native species. It will then ensure that the sites are properly managed in future.

National Trust Director Jamie Roberts says 'This funding is a real boost for St Helena's natural environment. It recognises the island's importance to global biodiversity, and will ensure that the successes of recent conservation initiatives such as the invasive species project and the Critical Species Recovery project are built upon.'

The National Trust will work principally in partnership with the Agriculture and Natural Resources Department. Chief Agricultural and Natural Resources Officer Darren Duncan

says: 'The natural environment is critical to the future of St Helena, underpinning economic activities such as agriculture and tourism. This exciting new project will help us to increase the island's ability to look after it.

The Royal Botanic Gardens, Kew is the main UK partner, continuing a long and successful involvement in conserving St Helena's rare plants. The RSPB will also provide support in developing site management and eco-tourism activities.

The Darwin Initiative is funded by Defra, and commemorates the achievements of the pre-eminent naturalist Charles Darwin. Darwin visited the island in 1836, when he discovered several new endemic insects. Fittingly, the new project could help to secure vital habitat for some of these species which are in urgent need of help. The project will use Darwin's visit to promote the island as a tourist destination to overseas visitors. The natural environment is one of the island's most valuable assets in attracting visitors to St Helena, and this project will work with the Tourism Office to improve access and interpretation at the sites.

Update on Current OTEP projects

St Helena Field Guides Project

Dr. Phil Lambdon of the St. Helena Nature Conservation Group is on Island busily constructing our first complete guide to the Island's flora. This major, full colour book on our higher plants, mosses and lichens will be available from mid 2011 and is being written in language accessible to non-specialists so that everybody can understand and enjoy the island's unique wildlife. The guide will also be a vital tool for conservation and invasive species management and provide a collectable item for persons around the world interested in St. Helena.

The project is progressing well, with 55 of the 400 species accounts that need to be written, now complete.

Critical Species Recovery Project

The 'Critical Species Recovery Project', led on the ground by Horticultural Support Officer, Lourens Malan, continues to build the capacity of the Island's Environmental Conservation Section in looking after St Helena's threatened native flora.

Most of St Helena's endemic plant populations are small, fragmented and in serious decline. Our native biota, although no longer ravaged by goats, continues to face an abundance of other threats including hybridization; caterpillar, Mealy bug and Aphid damage and the ongoing encroachment of invasive species.

However, despite the desperate situation, the conservation team is working hard towards securing a future for our unique flora. Under a habitat orientated approach, exciting progress is being made in restoring the impressive number of endemics grown at the ANRD nursery into the wild. The project has upgraded the Island's endemic

nursery, provided on the job training in plant propagation, produced thousands of endemic plants and achieved important steps in habitat restoration.

Wirebird Update

The Wirebird is listed as 'Critically Endangered' internationally – making it one of the world's rarest birds. It gained this status in 2007 when the Wirebird population had declined to fewer than 250 adults and was considered to be in real danger of extinction. Although for the past three years the population count has exceeded 250 adults, the Wirebird is likely to remain listed as Critically Endangered until the threats to its survival have been addressed. Those threats include habitat degradation, development and predation from rats, feral cats and myna birds.

Results of 2010 Census

The 2010 Wirebird census count undertaken by the National Trust has shown a welcome increase in Wirebird numbers by almost a quarter compared to last year. The fieldwork was carried out last month by Wirebird Conservation Officer Eddie Duff and a small team of dedicated volunteers. Wirebirds were counted at all of the major sites around the island.

The complete Wirebird count for 2010 was 397 adults, 6 juveniles, 30 chicks and 20 nests. This represents an increase of 77 adults (23%) compared with the 2009 census total of 322 adults.

The increase is thought to be due to a number of factors, including the pasture improvement work that is being funded by DFID and ANRD. This project (see below) is helping to fence important Wirebird habitats and remove invasive species such as furze and prickly pear. Weather patterns could also be having an influence on Wirebird survival rates.

Wirebird Mitigation Project

The DFID funded Wirebird Mitigation Project continues to work towards ensuring a sufficient area of pasture land is restored and managed to compensate for Wirebird habitat that will be unavoidably lost to the development of the potential airport and its supporting infrastructure.

Led by Agricultural Officer, Mr Paul Duncan, the project has a number of management plans in place tailored to the successful restoration of identified Wirebird habitats, such as Netley Gut and Woody Ridge. The plans include, for example, invasive flora clearance, improved grazing practices and fencing.

Dr Tony Prater of the RSPB visited the Island earlier this year and was impressed with the progress being made. 'The ongoing clearance of pastures is clearly having a positive benefit, not just for Wirebirds but also for those who farm the land. It's good to see that this conservation work is supporting the livelihoods of local people.'

Doctorate Degree in Wirebird Ecology, Behaviour and Demography

Fiona Burns, a PhD student from Bath University is researching the ecology, behaviour and demography of the Wirebird. She was on Island earlier this year on her third and final field work visit. The research of this student will make a significant contribution to the current knowledge of the species and will strengthen conservation actions to stabilise the population in the long term.

Update on Endemic Bastard Gumwood

The Bastard Gumwood (*Commidendrum rotundifolium*) is listed under IUCN as extinct in the wild and is now restricted to a single known pure individual planted in 1983. This last remaining tree is showing signs of old age and might not survive many more flowering seasons. The Island's conservation team is working hard to try and ensure the future of this ancient species, which may once have covered the lower slopes of the island.

After successful pollination of the flowers on the Bastard Gumwood at Pounceys, the conservation team have been collecting seed from the plant for several weeks now. Some success has been had propagating the seed and seedlings are starting to germinate. Although viability is extremely low, the numbers of seedlings germinating is encouraging. This is thanks to the collaborative and focused efforts over the past three months from a team made up of conservation staff and volunteers.

The Bastard Gumwood is in its second flowering flush which is an extra bonus as we could get more good seed this season. Plans have already been made by the conservation management to further improve the health of the plant. This will start as soon as the seeding has finished and the cage can be taken down to give the plant more air.

The personal 'health improvement scheme' for the Bastard Gumwood will include a layer of mulch to retain moisture around the roots and suppress weeds from growing. There are also plans for watering the plant to encourage growth even through the dry times. Organic feed will be added to the water as a tonic to provide extra nutrients. Detrimental insect activity will also be monitored and dealt with swiftly to prevent 'Sooty mould' from taking a hold on the surface of the leaves. If these plans are effectively put into action, the plant should be much stronger and able to carry even more flowers next year, thus providing a chance to double-up the amount of seed collected from it. In the mean time, the new seedlings will be looked after and protected like the 'crown jewels' to make sure no harm comes to them and they can develop into healthy mature plants.

*Information collated by the Environment Planning and Development Section
15th March 2010*