

Final report on Defra funded invasive aliens and climate change work in the UK's South Atlantic Overseas Territories

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INTRODUCTION

In 2010, Defra provided £250,000 to the Joint Nature Conservation Committee (JNCC) to address priority alien invasive species and climate change needs in the UK Overseas Territories. These funds were provided as a contribution towards the International Year of Biodiversity. JNCC used the opportunity to initiate a focal point mechanism for regional conservation work in the South Atlantic Overseas Territories (SAOTs)¹, and this was used to develop, with representatives from each of the SAOTs, a list of priority activities to be supported by the funds. A total of £99,900 of these funds was made available through the focal point mechanism for activities in the SAOTs. Part of this mechanism involved setting up a vehicle for the funds to be transferred from JNCC to the Falkland Islands Government (FIG), and then allocated to project proponents according to a formal agreement.

In February 2010, JNCC and FIG signed a Memorandum of Agreement (MoA) outlining the principles and obligations of both Parties in relation to the use of these funds (JNCC REF NO. A09 – 0181 - 0280). The Agreement included an indicative list of projects to be funded in each of the SAOTs and likely timings of the project work (see Schedule 2 of the MoA, and Appendix 1 of this report). This final report provides an overview of the project work that was supported by the funds, and follows two previous reports, one in July 2010, and the other in November 2010.

PROVISION OF FUNDS AND FUNDING MECHANISM

A total of £99,865 was successfully transferred from JNCC to FIG on 11 March 2010. The difference of £35 between the original amount transferred from JNCC (£99,900) and that received by FIG was presumably used for transaction costs. By July 2010, a total of £63,551.77 had been allocated for project work, and by November 2010, £87,611.77. By June 2011, £99,109.95 of the funds had been spent, with £755 remaining. The £755 unspent funds was due to savings in a number of project activities in the Falkland Islands. This saving has been earmarked as a contribution towards planned marine and/or terrestrial alien species management work that will take place from July to August 2011 in the Falkland Islands. The allocation will be finalised at the Environmental Committee meeting of FIG, which takes place in late June 2011.

It was agreed that the best way to allocate the funds was to split it equally between the five SAOTs. For Ascension, St Helena and Tristan da Cunha, it was decided that it would be most efficient to transfer the funds in one go, rather than in a piecemeal manner. This is primarily because each transfer from the Falkland Islands incurs transaction costs, but also because it makes it easier to plan and schedule the work in these distant OTs. The recipients of the funds were responsible for ensuring the funds were spent in the manner

¹ Falkland Islands, South Georgia, Tristan da Cunha, St Helena, Ascension.

originally agreed, to maintain satisfactory records of all expenditure, and notify the JNCC representative if there was a need or request to change the allocation of funds for any reason.

ST HELENA

Management of Pheasant Tail Fern

Pheasant Tail Fern *Nephrolepis exaltata* and possibly *N. cordifolia*, has been identified as a persistent invasive alien species at the higher altitudes (above 600m) of St Helena. Its impact is of particular concern within Diana's Peak National Park and other pockets of endemic flora along the central ridge of the island. Consequently, the control of Pheasant Tail Fern was identified as a priority conservation action on St Helena. A full survey of Diana's Peak National Park was undertaken in 2010 by Dr Phil Lambdon with support from the Environmental Planning and Development Section (with local funding). As part of this process, a replicable survey methodology was developed. The survey identified 54 patches of Pheasant Tail Fern overall. A total of 15 patches were in the National Park, 17 patches on the footpaths leading into the Park, with the remaining 22 on the perimeter road outside of the Park boundaries. The size and distribution of each patch was recorded and mapped using GIS software. The survey identified priority areas for control. Informed by the outcomes of the survey, a total of £13,314 of the Defra funding was allocated as a contribution towards a programme to clear the Pheasant Tail Fern from the biodiversity rich mountain peaks of St Helena, especially within Diana's Peak National Park.

A stakeholder meeting was held to discuss the selection of control methods. It was decided that non-chemical methods would be implemented initially, due to concerns about possible impacts of chemical methods on the water supply. Hand clearance, followed by in situ disposal (cut fern material spread out for drying) was deemed to be the most effective method of control. Root stock was chopped with a machete to reduce regeneration. Tubers (about the size of a grape) were also dug up and split to prevent regeneration. Monitoring revealed that there was some re-growth of the cut material (as expected), which necessitated returning to the stacks to turn over and chop the cut material, where necessary. By April 2011, all of the patches of Pheasant Tail Fern in the National Park had been cleared. Repeat visits were also made to each site to monitor the rate of regeneration and to clear any re-growth. Originally visits were carried out at four-week intervals. However the timing of repeat visits was adjusted to once every 8-10 weeks as it was found that there was minimal re-growth before this time. A full survey of Pheasant Tail Fern in Diana's Peak National Park has recently (May-June 2011) been conducted. The post-control survey was delayed due to the exceptionally wet weather in February and March 2011. The results of the survey will be compared with the original baseline survey carried out in 2010, and enable a full evaluation of the impact of the project on reducing the presence of Pheasant Tail Fern in Diana's Peak National Park.

The clearance of Pheasant Tail Fern from the paths leading into the Park is to be commenced shortly. Discussions are taking place with the government department responsible for road verge clearance to see if these areas can be cleared as part of routine road maintenance.

Because the future use of chemical herbicides to control Pheasant Tail Fern in priority areas of St Helena cannot be ruled out, the project partners decided to trial three different herbicides to evaluate their effectiveness and possible non-target effects. A number of small scale trial sites were identified in October 2010. The sites chosen were not ecologically sensitive, reasonably clear of trees and shrubs, large enough to mark out a number of comparable plots, and included typical slope characteristics found in Diana's Peak National Park. Plot spraying took place on 13 April 2011. Spraying was delayed by the extremely wet period from January-March 2011. Trial plots were monitored at 2 and 4 weeks after spraying, and will continue quarterly for a year. Initial foliage kill may occur relatively quickly but success will be determined by the control gained in prevention of regeneration over the longer term. Data collection protocols, including target monitoring dates, and templates have been developed for the post-spraying monitoring.

A press release about the project work was issued in November 2010, and received coverage in the Independent and the St Helena Herald. The project was also publicised on the 'Environment Matters' programme on Saint FM and Radio St Helena. A further press release will be issued on completion of the final Pheasant Tail Fern survey in June 2011.

The Defra funds were used as a contribution towards this project work, the other funding came from local (St Helena) contributions. The £13,314 Defra contribution allocated to the project had been spent by April 2011. The broader project work continues to be implemented. Detailed project reports have been submitted to, and are available from the JNCC officer.

Bastard Gumwood Recovery project

The Bastard Gumwood *Commidendrum rotundifolium* is one of the four remaining species in the genus *Commidendrum*, which is endemic to St Helena. The Bastard Gumwood is formally listed as Extinct in the wild (EX). A single remaining wild tree, discovered in 1982 by Stedson Stroud, died in 1986. Progeny from this source was raised by conservation efforts on the island and planted at Pouncey's arboretum. Through a combination of weather, disease and neglect, the remaining stock dwindled until in 2007 following a gale only one mature cultivated tree remained. This had also been damaged by wind and its survival was uncertain.

Recent experience has demonstrated that certain combinations of *Commidendrum* species can hybridise, including the Bastard Gumwood and False Gumwood *Commidendrum spurium* (Critically Endangered). Consequently, the presence of the False Gumwood at the Pouncey's arboretum unfortunately makes suspect, all Bastard Gumwood germplasm collected and plants grown from earlier efforts.

Conservation efforts to save the Bastard Gumwood from extinction intensified from 2008. Early work took place under the OTEP Critical Species Recovery Project (2008-9) but it soon became apparent that a dedicated officer or team was required to monitor every aspect of the recovery programme if it was to succeed. The Defra funding (£6,100), provided through JNCC, was used as a contribution (in addition to local funding) to establish the Bastard Gumwood recovery officer post and to support the formalisation of the recovery project.

A Bastard Gumwood recovery officer was appointed at the outset of the project to plan and coordinate all the project activities in collaboration with the Environmental Conservation Section (ECS) of the St Helena Government. Key activities undertaken during the project include:

- The identification and clearing of an initial site (Drummonds Point) for planting Bastard Gumwood plants back into the wild.
- Procurement and construction of an insect-proof cage over the remaining tree during the flowering season to prevent unwanted pollinations with false gumwood. This was repeated during flowering season in second year.
- Installation of an irrigation system and mulching at the tree site to provide nutrients and suppress weed growth.
- Daily visits to the tree during the flowering season to hand pollinate flowers.
- Testing of a combination of chemical and physical methods to improve success of pollination given that the species is known to have a self incompatibility mechanism.
- Daily visits to the tree during flowering season to collect ripe seed, monitor for pests and remove any fallen leaves from within cage.
- Regular visits to the tree outside the flowering season to monitor condition for health, pests and diseases.
- Cleaning, drying and refrigerated storage of all batches of collected seed and maintaining database of collection provenance and treatments.
- The nursery staff of ECS conducted germination trials of collected seed and nursery propagation of seedlings raised to develop best practice techniques. Training was provided on storage of seed and associated protocols.
- Clearance of new recovery site geographically remote from other commidendrums, and establishment of supporting endemic ground cover plantings at the recovery site. Following the preparation of the site, there has been regular planting of hardened off saplings.
- A rigorous maintenance schedule has been ongoing at the Bastard Gumwood planting out sites to increase seedling survival rates. This includes weekly checks and control of pests on planted Bastard Gumwoods at the recovery site, and management of weeds and continued plantings of ground cover.
- Regular measurement of growth rates of every Bastard Gumwood planted.
- Dr Alan Gray (CEH) on a project scoping visit checked all known Bastard Gumwoods, hybrid False x Bastard Gumwoods, and marker specimens from other commidendrums to collect samples for genetic analysis in the UK. It is hoped that this analysis will clarify which of the plants are pure and which are hybrids. Dr Gray also delivered two karyotype training sessions for staff from the ECS.
- Bastard Gumwood seeds have been lodged with the Millennium Seed Bank in UK.
- From the first planting on 7 May 2010 to end March 2011 a total of 217 bastard gumwood saplings have been planted at Drummond's Point by ECS staff and volunteers from the St Helena Conservation Group, with training provided on best practice planting techniques. Of the seedlings planted, 34 have not survived. The details of the losses are provided in the project report submitted to the JNCC officer.

The detailed project report, available from the JNCC officer, includes all relevant data collected during the course of the project, as well as a number of suggestions to take

forward in the further implementation of the project. A bid was made to OTEP in late 2010 for funding to expand the project over the next three years. This would principally establish a second recovery site, determine the genetics of known trees and allow existing gains to be consolidated, with the hope of successful flowering of the recovery plants by project end. The OTEP funding application was successful, and this funding will support the continuation of activities initiated with the Defra funding, towards the restoration of a functioning Bastard Gumwood population on St Helena.

CONCLUSIONS

The ca. £100,000 provided by Defra to address invasive species and climate change work in the SAOTs supported a wide range of priority activities in these OTs. The funding mechanism set up for the project, through a MoA between JNCC and FIG, was effective, and has since been used to disseminate further funding. Some of this subsequent funding is being used to support work that follows on directly from activities reported in this document.

In many cases, the Defra funds were used to continue or extend work that had previously been initiated. In so doing, the funds ensured that existing mechanisms were optimally used, and that previous work was further progressed, either by responding to recommendations of previous studies or initiatives, or by continuing ongoing efforts. In the context of invasive species management, it is crucial to maintain control and/or eradication efforts. The control of invasive Spear Thistle in the Falkland Islands, Loganberry, New Zealand Christmas Tree, and Australian Brass Button in the Tristan Islands are a case in point. Had efforts to control these species not continued, and without the funding they may not have, previous control efforts would have been undermined due to the replenishment of the soil seedbank.

Similarly, the funded actions have in many cases provided a baseline from which to continue further work. The marine invasive species monitoring projects in the Falkland Islands and South Georgia, the Thistle Strategy in the Falkland Islands, the construction of a track to the South Eastern coast of Ascension Island, and the Bastard Gumwood project on St Helena for which OTEP funding has recently been approved, are all good examples.

The funds also contributed directly, in the case of Kirsty Green from Tristan, and indirectly to capacity building within the Overseas Territories. The indirect contribution towards capacity building is a result of funds being made available to employ locals of the Overseas Territories to continue the implementation of invasive species management actions, thus enhancing their experience and expertise. Developing a well capacitated team of people within the Overseas Territories is particularly important for invasive species management, which requires a long-term approach, and will involve ongoing work for many years to come.

The project work highlighted a number of other issues which are important to bear in mind when considering conservation work in the SAOTs. First, all of the SAOTs are remote islands, and this presents logistical challenges, which has an impact on project planning – ordering of equipment and supplies has to be done well in advance – and costs. Second, but related, the SAOTs differ in terms of the capacity available to implement work and the logistical challenges and costs associated with project activities. For example, the cost of implementing a marine invasive species monitoring project at South Georgia may be five times more costly than implementing the same project work in the Falkland Islands. This is

due to the costs of transporting personnel to South Georgia, and basing them there for the duration of the project work.

The capacity available to implement conservation projects is limited in all SAOTs. Conservation or Environment Departments and associated organisations often comprise only one person, who is responsible for a wide range of work. Consequently, work and project schedules are developed well in advance, and it may be difficult to respond to 'ad hoc' funding opportunities that require rapid expenditure of funds. However, given the focus of work on invasive species in SAOTs in recent years, including the work supported by the Defra funds, a broad programme of work is developing. One of the aims of the SAOT focal point mechanism is to help progress this programme of work, and thus facilitate a strategic and effective approach to conservation work in the SAOTs.

APPENDIX 1: Provisional list of activities to be funded
(from Schedule 2 of JNCC-FIG Memorandum of Agreement)

St Helena

- The implementation of a project to recover the Bastard Gumwood and restore native habitats thus preventing the ongoing spread of invasive alien plant species. Work on this project will take place from April 2010 until March 2011, with a provisional budget, excluding a contribution from the St Helena Government, of £6,100 (30% of which will be allocated for the period April to September 2010, and the remaining 70% from October 2010 to March 2011).
- The implementation of a programme to clear the highly invasive Pheasant Tail Fern from identified priority areas within the biodiversity rich mountain peaks of St Helena. Work will take place from April 2010 until March 2011, with a provisional budget, excluding a contribution from the St Helena Government, of £13,500 (40% of which will be allocated for the period April to September 2010, and the remaining 60% from October 2010 to March 2011).