



Department
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Development



Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

Important note *To be completed with reference to the Reporting Guidance Notes for Project Leaders:
it is expected that this report will be about 10 pages in length, excluding annexes*

Submission Deadline: 30 April

Darwin Plus Project Information

Project Ref Number	DPLUS015
Project Title	Strategic management of invasive alien plants on South Georgia
Territory(ies)	South Georgia
Contract Holder Institution	Government of South Georgia and the South Sandwich Islands
Partner Institutions	Royal Botanic Gardens Kew
Grant Value	£92,200
Start/end date of project	September 2014 – September 2016
Reporting period (e.g., Apr 2015-Mar 2016) and number (e.g., AR 1,2)	April 2015 – March 2016
Project Leader Name	Jennifer Lee
Project website/Twitter/Blog etc	@GovSGSSI
Report author(s) and date	Jennifer Lee, April 2016

1. Project Overview

South Georgia is a globally important area for wildlife but one that is affected by invasive species. In recent years, great progress has been made in eradication of invasive mammals and this project provides the basis to control and eradicate some of the species of non-native plant species that are currently on the island. Non-native plant species have the potential to change ecosystems and impact the character of the landscape so taking action to control populations and prevent further spread is vital.

The first stage of this project focused on gathering spatially explicit distribution data for the non-native plant species. Some of these data had been gathered by a team from the Royal Botanic Gardens Kew (RBG Kew) in 2009 but there were some gaps remaining which needed to be filled, especially around the sites of old whaling stations that were inaccessible at that time. Once species distribution data was gathered, it was analysed and a non-native plant management plan finalised. Herbicide control now being used to target priority species.

In parallel with survey and non-native plant control activities, biosecurity protocols are being reviewed and an early detection, rapid response strategy produced. Revised biosecurity protocols will be used by all visitors to South Georgia including personnel based at King Edward Point (KEP) which, as the logistic hub for the island, is a high risk for being both a source and recipient of non-native plants.

Undertaking strategic non-native plant management on South Georgia will protect the Territory's native biodiversity, benefiting all who visit the island. The database and non-native plant management strategy are now available online and so will create a valuable resource for other Overseas Territories undertaking control of non-native plants.

2. Project Progress

2.1 Progress in carrying out project activities

The focus for the second year of the project was to consolidate the distribution data collected in year one and develop the non-native plant management strategy. Outside of the field season, the project team were all based in different countries and therefore much of the work on development of the non-native plant management strategy was undertaken through e-mail and phone meetings. Because nobody on the team was employed full time on the project outside of the field season, it took longer than anticipated to develop, peer review and finalise the document. Nevertheless, a completed draft was available in time for the 2015/2016 field season and the final published document was released in March 2016 (see annex 1).

Fieldwork took place between January and March 2016 and involved herbicide control on target species and surveys to look for species that may have been more visible as they recover from the reindeer grazing. The key objectives of the non-native plant management strategy were met and low incidence species were maintained at zero population density and the populations of more wide-spread species were reduced.

A key activity for this second year of the project was to enhance biosecurity and develop an early detection rapid-response strategy. The non-native plant guide was ready in draft format at the start of 2016 and provided a good base for teaching KEP residents plant identification skills and for raising awareness about biosecurity. The guide should be finalized in mid-2016 when it will be distributed to all user groups including cruise-ship visitors, scientists and yachts.

2.2 Project support to environmental and/or climate outcomes in the UKOT's

In March 2015, GSGSSI requested the UK extend its ratification of the Convention of Biological Diversity to South Georgia and the South Sandwich Islands. GSGSSI is fully committed to working towards the CBD's Aichi Targets and this project makes an important contribution to Target 9 which states "by 2020, invasive alien species and pathways are identified, prioritized and controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

In December 2015 GSGSSI launched its five-year strategy for 2016-2020. This strategy built upon the previous 5-year plan and laid out the Territory's principal aims under five key areas. Under the environment heading of the strategy, Objective 2.6 is to "*effectively manage invasive alien species along and work along the entire biosecurity continuum to implement best practice biosecurity protocols, post border monitoring and emergency response measures*". This project directly contributes to this objective by providing a framework and building capacity so that the extent and impact of non-native plants on South Georgia can be reduced both during the project timeframe and beyond. This is particularly important now reindeer have been eradicated as there is no longer any grazing pressure to limit the growth of many species.

By working with non-native plant management experts from New Zealand (Kelvin Floyd, project's environmental consultant; Bradley Myer, project officer), local staff on the project have had the opportunity to learn about different types of herbicides and their application and how to go about assessing the feasibility of eradication or control on a local and landscape scale. This has increased capacity in South Georgia, and through outreach activities and public talks (see annex 2) project staff have also provided conservation workers with a roadmap to develop non-native plant control strategies in other OT's.

2.3 Progress towards project outputs

Output	Baseline	Change by 2016	Source of evidence
Output: 1	Weed survey completed		
	Completed in Y1 – see previous annual report		
Output: 2	Weed management strategy published		
2.1 Analyse survey data and produce species list to fill information gaps	Completed in Y1 – see previous annual report		
2.2. Prioritise and classify weed species and finalise strategy	Information gaps in the numbers of species present and distribution meant it was impossible to develop an overarching management strategy	All known non-native plant species classified and incorporated in to a peer reviewed strategy Key performance indicators have been developed that can be used to monitor progress and assess success	See annex 1 for a copy of the strategy
2.3 Make strategy available online to enable information sharing	No formalised management strategy. Limited information available to public	Strategy published on GSGSSI website in March 2016	See www.gov.gs
Output: 3	On going reduction in size and number of priority species identified in strategy		
3.1 Control undertaken as per strategy	Control of selected species being undertaken around King Edward Point and Grytviken	Systematic and control programme in place for 37 out of 41 non-native plant species on South Georgia In 2016 4.39 ha was treated with herbicide 33 species are now being managed to zero population density	See annex 3 for season report including trends of species
3.2 All data recorded into the weed database to provide measures of success	Basic database in place which was used by plant specialists only.	All data is now recorded in a non-native plant database and field workers are trained in its use. Database has been developed to include site led information and visits. The ability to import and export GPS waypoints of surveys has also been included in the on-island database.	http://apex.nercbas.ac.uk/f?p=153:1:1981447894134217
3.3. Data analysed regularly and reported annually with strategy	<i>Ad hoc</i> review of data but no formal process of performance indicators	Annual review enshrined in management strategy. NOTE: although target areas for site led control will be identified on an annual basis, the strategy	See annex 3 for season report

adapted based on results		will reviewed every 5-years rather than annually to allow a better assessment of trends and account for inter annual variation	
Output: 4	Early detection, rapid response strategy produced		
4.1 Partnership process agreed with Kew	Completed in Y1		
4.1 Weed guide produced	Good biosecurity but poor local knowledge on plant ID.	A draft non-native plant guide has been produced	Final guide to be submitted with final report
4.3 Incursion exercise undertaken and workshop held	No clear process on what to do in the event a new species was detected.	Procedure for establishing ID and management strategy for new species established in weed plan. Decision making framework developed. A plant ID workshop was held with KEP residents. Workshop covered what to do in event of incursion.	See annex 4 for framework
Output: 5	Weed Database made available online		
5.1 Develop process for export from SG weed database to online database	Completed in Y1		
5.2 Online database available for information sharing	Database available offline and not to the public	Database now available online through the GSGSSI environmental data portal	http://apex.nercbas.ac.uk/f?p=153:1:1981447894134217
5.3 regular updates from island to online database	Updates made but procedure not formalised	Existing bandwidth not sufficient for live updates. Annual update procedure initiated.	http://apex.nercbas.ac.uk/f?p=153:1:1981447894134217

2.4 Progress towards the project outcome

The expected outputs and progress towards them is as follows

Outcome	Progress	Likely to achieve expected outcome?
South Georgia should have fewer non-native plants and any remaining populations will be reduced	All low incidence species are treated on an annual basis. Overtime the seedbank will be depleted and species will be considered eradicated. More wide-spread species have been prioritised and work to control populations at high priority sites has commenced. Key performance indicators have been developed to	All low incidence species are showing a declining population trend (see annex 3 for season report). At the current rate of progress, it is likely that key performance indicators will be met. It is difficult to assess the feasibility of long term management of more widespread species as the extent is still being discovered

	monitor progress (see non-native plant management strategy)	as populations become more visible in the absence of reindeer grazing
Measures will be in place to prevent further invasion	<p>Improved awareness of the risks of non-native plants through workshops with local stakeholders</p> <p>A consolidated biosecurity handbook (covering all elements of biosecurity, not just plants) has been developed and distributed to stakeholders.</p> <p>Draft non-native plant guide produced</p>	<p>This outcome is highly likely to be met.</p> <p>General awareness about non-native plants has improved among BAS station personnel and is now part of the station culture. However, personnel are only resident for 12-24 months so capacity building work will need to be repeated each year.</p> <p>Biosecurity is now embedded into government operations and is managed by GSGSSI by procedures set out in a biosecurity handbook.</p> <p>Awareness amongst other visitors (cruise ship visitors, yachts, non-BAS and non-GSGSSI staff) has been raised through briefings and will further improved through distribution of the non-native plant guide and biosecurity handbook</p>
Implementation of a targeted weed management programme will serve as an inspiration and will be transferable to OT's facing similar problems	<p>Talks given in Gibraltar, Ascension Island, and New Zealand (see annex 2)</p> <p>Outreach is now embedded into GSGSSI strategy (2.2 <i>Increase SGSSI's environmental global reach through collaboration and knowledge sharing with our stake-holders including the UK and other UKOT governments and non-governmental organisations'</i></p>	<p>Outcome has been largely achieved in terms of awareness raising, building a contacts network, making resources available to other OT governments undertaking non-native plant control programmes</p> <p>To keep up momentum, GSGSSI will continue to update other OTs on its non-native plant control programme and share lessons learned. This will be embedded into an outreach strategy</p>

Overall, progress towards project outcomes is consistent with the time scales in the project application. The main outstanding output which is required in order to fully achieve the project outcomes is publication of the non-native plant guide which is expected in mid-2016

2.5 Monitoring of risks

The following risks were identified at the start of the project:

Risk	Steps to manage and success
Existing non-native plants spread as a result of the work	Project workers are briefed on good biosecurity procedures when working in areas containing high densities of non-native plants. The GSGSSI Environment Officer undertook site visit to confirm procedures were being adhered to. There is no evidence of human-assisted spread of existing non-native plants in areas where project staff are working.
New non-native plants are introduced	A single new non-native plant species was identified in early 2016 but this was in an area away from human traffic and the population size indicated it had been established for sometime and therefore was likely to be a historic introduction (likely with livestock during the whaling era) rather than with field workers. No new non-native plants have been identified elsewhere indicating this risk is being managed successfully.
Damage to non-target species	Small scale damage to non-target species as a result of herbicide application is somewhat inevitable. This is minimised by using selective herbicides and targeted spraying. An Environmental Impact Assessment accompanied the management plan and outlined measures to mitigate and monitor this risk.

During the course of the project additional risks have been identified and steps taken to manage them as follows:

Risk	Steps to manage and success
Extent of existing populations of non-native plants larger than expected.	<p>A key initial step in the project was to complete non-native plant surveys so the extent of non-native plant populations could be established. The timing of this was opportune as it followed the removal of reindeer and therefore populations were more visible. In this second year of the project, new populations of some existing non-native species are being discovered. Although sometimes demoralising, this is easily managed as any populations which are discovered are mapped and treated as per the non-native plant management plan.</p> <p>Long-term this is unlikely to affect the overall success of the project although for some species, it may mean that the downward population trend is not as rapid as initial hoped.</p>
Loss of member of field staff due to injury or illness resulting in inability to meet control targets.	A member of field staff became injured at the start of the season highlighting the importance of increasing the pool of trained field workers who would be able to step in. In this case the GSGSSI Environment Officer was available to assist and project goals were still met. To reduce exposure to this risk in the future, activity 6.3.6 in the GSGSSI national biodiversity action plan is to “build capacity to ensure that a group of trained and experienced workers with the appropriate skill base is available to the project in the future”

3. Project Stakeholders/Partners

Although there is no native population on South Georgia, engagement with stake-holders is a key objective for GSGSSI. The stake-holders for this project can be divided into those who are directly involved or affected by on-the ground operations and those who have a more general interest in South Georgia and its conservation.

The first group were engaged by regular communication and updates on project progress. Outside of the field season the project management group mainly kept in touch by e-mail and conference call and evidence of the success of this engagement was the delivery of the non-native plant management strategy. The Project Officer, Bradley Myer, was able to visit the UK and work at Kew Gardens in the development of the non-native plant guide between 4th and 21st January 2016 which was an excellent opportunity for more focused engagement and capacity building. During the field season, residents who live and work on South Georgia were engaged through regular updates at the weekly base meeting as well as an evening lecture and plant identification workshop. One of the station members was able to accompany the field team during survey trips to Cape Saunders and Koppen Point and so further build capacity.

The second group were engaged through presentations and feedback sessions on the project. A complete list of presentations can be found in annex 2. These public talks engaged a wide range of audiences and had a high impact. For example the a talk on the projects was given at the UK Overseas Territory Conservation Forum conference in Gibraltar to 100 delegates from UKOT's and NGO's UK overseas territory conservation forum conference in Gibraltar. An overview of the talk was published in the conference proceedings (annex 6). Social media was used to showcase the project to an even wider audience with more than 7,600 people seeing a tweet made about the project thought the year.

More generally stake-holders were engaged in formal consultation on the overarching GSGSSI 2016-2020 strategy and the National Biodiversity Action plan where plans for non-native plant management work were outlined. Although the concepts of non-native species management were endorsed, as plant management is a relatively technical field, little detailed feedback was received but to ensure appropriate expert engagement, reviews on the draft strategy were solicited from Kerry Brown, Peter Williams and Collin Clubbe.

4. Monitoring and evaluation

As in previous years, the main tool for monitoring and evaluation throughout the field season was the weekly report (see annex 5). These formed the basis for progress discussions and prioritisation of work tasks. Regular face-to-face and over the phone meetings were held between the project team and the Environment Officer throughout the season to ensure that the project objectives were on track to be delivered within the agreed time frame.

As part of the published non-native plan management strategy, performance indicators have been identified that will form a more critical basis against which to measure progress in the future. The information needed to assess these key performance indicators can be extracted from the database in which information about surveys and all control work is entered.

As in previous years, project workers were given the opportunity to reflect on their achievements over the season and provide feedback. Some of the feedback under the accomplishments section included:

“I cannot point to any single accomplishment, overall I feel I have continued to learn and improve my skills and confidence in weed survey and control methods. Brad Myer and Kelvin Floyd were again extremely generous with sharing their knowledge and expertise”

“Learning to work in a team of three on a grid pattern searching for bittercress”

Some of the feedback under the lessons learned section included:

“Always prepare for the worst when visiting remote weed sites – i.e. take 2 operators, plenty of equipment and always assume that weed coverage will be greater than previous surveys indicate”

“I learnt that logistics and labour required for site-led control of class 2 weed species at remote sites (e.g. Shackleton Valley, Luisa Bay, Koppen Point) is huge, due to the long-term commitment needed for follow-up.”

5. Lessons learnt

As in year one, once again, one element of the project which worked particularly well was having a blend of field staff that had in depth knowledge of South Georgia with experts in non-native plant control and herbicide use. This was important to ensure that operations reflect current best global practice.

Due to the injury of a team member, it was necessary for field workers to rotate between sites to ensure that operational goals were met. This provided the opportunity for additional training and site orientation, and resulted in all field workers becoming familiar with all sites with more flexibility to rotate field teams. It also provided an opportunity to compare methods and ensure that measuring and data recording methods were standardised across teams.

Logistics remain challenging when working in such a remote environment and the availability of berths remains one of the largest constraints in planning the season field work. Although bids for berths are put in at an early stage, sometimes operational priorities mean that they are not always available at the required time. It is therefore important to retain enough flexibility in the budget and staff availability to allow for early entry or late exit as needed.

6. Actions taken in response to previous reviews (if applicable)

Comment	Action
Include a consideration of the continued validity of original assumptions	<p>Main assumptions made when initiating the project were:</p> <p><i>1) An appropriate control method could be found to manage the majority of non-native plant species found on South Georgia.</i></p> <p>This has proven to be a valid assumption as use of selective herbicides seems to be effective and has minimal environmental impact</p> <p><i>2) Species could be controlled faster than their rate of spread</i></p> <p>For the majority of species, this appears to remain valid and control targets are being met (see annex 3 for season report).</p> <p><i>3) Non-native plant species will be re-introduced or new species introduced to the island</i></p> <p>Although two new species have been identified these are likely to be historic introductions associated with livestock brought from the Falklands. Good biosecurity is in place and there is no evidence of new introductions inciting this assumption remains valid</p>
Include a summary of project worker's feedback as an annex to the next report	Selected comments are included in section 4
Greater consideration of the sustainability of the project in next report	See section 8

7. Other comments on progress not covered elsewhere

None

8. Sustainability

The long-term nature of control of non-native plants means that sustainability is vitally important. This has been addressed in two ways.

- 1) The non-native plant management strategy included a resource estimation for how many staff days would be required in order to meet the strategy goal. This Darwin funded project has served to highlight how important and achievable non-native plant control work is in South Georgia and raised its profile within GSGSSI and amongst its stakeholders. A long term commitment to the non-native plant management demonstrated at the launch of the strategy where GSGSSI committed a minimum of £200,000 over the next 5-years to cover staff costs and logistic support. This funding provides financial security for the project and will allow important follow up.
- 2) Trained and appropriately skilled field workers are integral to delivering the long-term goals of the project. Building a pool of field workers who can engage in non-native plant control work is identified as an activity in the national biodiversity action plan. GSGSSI are currently identifying the best route through which to achieve this.

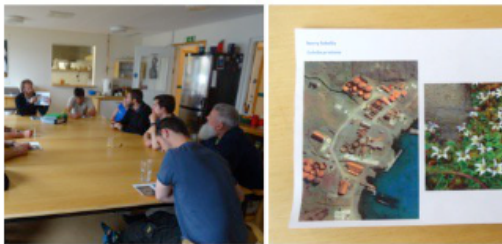
In addition to the above, as identified in the Y1 annual report a repository of technical project data (including herbicide use guides, site maps etc) is available at King Edward Point and through the non-native plant database so new field workers can be trained effectively.

9. Darwin Identity

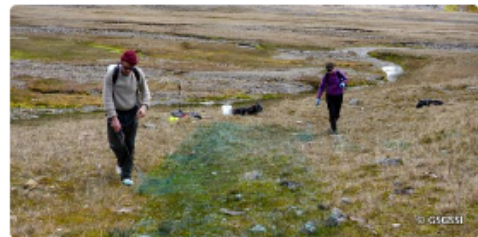
As in Y1 the Darwin identity was promoted through Twitter posts that related to the work of the team carried out throughout the season and to the launch of the strategy.



GSGSSI @GovSGSSI 29/01/2016
Know your weeds! The @Darwin_Defra team help build local capacity at #invasive #plant ID training session



GSGSSI @GovSGSSI 08/02/2016
Painting the town blue! The @Darwin_Defra weed team work to #eradicate #invasive berry lobelia on #SouthGeorgia



GSGSSI @GovSGSSI 24/01/2016
Tackling #weeds in hard to reach places! The @Darwin_Defra team search out #invasive sneezewort on #SouthGeorgia



GSGSSI @GovSGSSI 04/03/2016
#Invasive sheep sorrel...soon to be a rare sight on #SouthGeorgia thanks to the @Darwin_Defra weed team!





GSGSSI @GovSGSSI 21/03/2016
 Thanks to @Darwin_DEFRA for their support in producing our new non-native #plant management strategy ow.ly/ZLjxh



GSGSSI @GovSGSSI 21/03/2016
 #SouthGeorgia non-native #plant management strategy launched today! ow.ly/ZLjdZ



The Darwin identity was also promoted at a series of talks given by project team members (see annex 2)

10. Project Expenditure

Table 1 Project expenditure during the reporting period (1 April 2015 – 31 March 2016)

Project spend (indicative) in this financial year	2015/16 D+ Grant (£)	2015/16 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs			+11%	Kew staff costs transferred to 2015/16 financial year because of maternity leave. Extra staff time on South Georgia because of lack of availability of berths.
Consultancy costs			0%	-
Overhead Costs	-	-	-	-
Travel and subsistence			-2%	
Operating Costs	-	-	-	-
Capital items	-	-	-	-
Others (Please specify)	-	-	-	-
TOTAL			+6%	GSGSSI will cover the overspend from central funds