Darwin Plus:
Overseas Territories Environment and Climate Fund

Final Report

Important note *To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be a maximum of 20 pages in length, excluding annexes*

Darwin Project Information

Project Ref Number	DPLUS023
Project Title	BUILDING CAPACITY FOR HABITAT RESTORATION IN THE FALKLAND ISLANDS
Territory(ies)	FALKLAND ISLANDS
Contract Holder Institution	FALKLANDS CONSERVATION
Partner Institutions	FALKLAND ISLANDS GOVERNMENT, STANLEY NURSERIES AND GARDEN CENTRE, KEW ROYAL BOTANICAL GARDENS.
Grant Value	£174,510
Start/end date of project	14 JULY 2014 – 13 JULY 2016
Project Leader Name	ANDREW STANWORTH
Project website/Twitter/Blog etc.	TWITTER: @FI_CONSERVATION, FACEBOOK: FALKLANDS CONSERVATION, WEBSITE: http://www.falklandsconservation.com/projects/habitat-restoration
Report author(s) and date	KATHERINE ROSS – JULY 2016

1 Project Overview

The project seeks to enhance capacity to restore eroded or otherwise degraded plant habitats using low-cost but effective treatments and locally sourced native seeds. The project is based in the Falkland Islands, in the South Atlantic (Fig.1).

Burning, over-grazing, and removal of plants to reseed areas with crops or fodder has led to a loss of vegetation across the Falklands, exposing the soil to wind and rain erosion. A quick look with google earth shows the extent of the problem, with large patches of bare earth easily visible across the islands. Erosion is likely to be further exacerbated by climate change which has caused significant increases in mean summer sunshine and temperatures (see Kew TEFRA link) and increased storminess locally (Jones et al, 2015).

Loss of vegetation has been recognised as a problem for sheep and cattle farming in the Falklands for over 100 years. For example, in 1924 Munro reported that: “Very great, if not irreparable damage has already been done to the pastures of the Colony (*sic*) as a result of injudicious burning and overstocking”. He goes on to list the detrimental effects of erosion on agriculture including reductions in: carrying capacity (for sheep and cattle), lambing percentage, wool and meat production and quality (including contamination of wool with sand, peat and clay particles) and the survival of young sheep. These problems remain prevalent today, though some farms have improved the resilience of their pastures by adopting new practices such as rotational grazing.

More recently those managing land for conservation and tourism have noted problems with erosion in areas which are not now used for agriculture but have been grazed or burnt in the past. In these areas erosion reduces biodiversity including important native plant habitats (bluegrass acid grassland, bluegrass dune grassland and coastal tussac).

Tackling erosion in the Falklands can be difficult. Recolonisation of severely eroded areas is slow due to strong winds, the semi-arid climate and hard, often impoverished soil substrate. Revegetation has been achieved either through planting tussac (*Poa flabellata*) tillers or sowing non-native pastoral species (Strange *et al.* 1988, Miller *et al.* 2000). Plant establishment following both these approaches has been inconsistent with particular difficulty in restoring vegetation on some of the harshest eroded soil types, such as bare clay (Wilson *et al.* 1993).

This project sought to build local capacity to tackle erosion using sustainable, environmentally sensitive techniques pioneered by a 2012-2013 Challenge Fund project (EIDCF014). That project developed a native seed-mix from 15 plants and showed that native plant seeds could colonise bare clay if the ground was first treated with manure. The use of native plants has conservation benefits in terms of biodiversity and ecosystem integrity but should also be beneficial for agriculture as the plants are adapted to the local climate. The current project comes at a time when alternative grazing strategies (e.g. holistic management and semi-intensive rotational grazing) are gaining popularity. The project complements these changes in supporting the reestablishment of potentially resilient, diverse pastures that can fare-well under managed rotational grazing schemes (but were often eliminated by set-stocking).

The project aimed to address the problem of revegetating eroded ground with native seed by:

1) Developing revegetation techniques for a range of eroded soil types, using native seed mixtures.
2) Collecting wild native seeds from West Falklands, to increase the volume and genetic diversity of seeds for future projects (seeds were collected from East Falkland as part of 2012-2013 Challenge Fund project).
3) Select plant species for larger scale production and develop a business plan for farm-led seed production in the future.
4) Bulk up the seed stock available for local restoration and stockpile for a local landowner to take up larger-scale production.

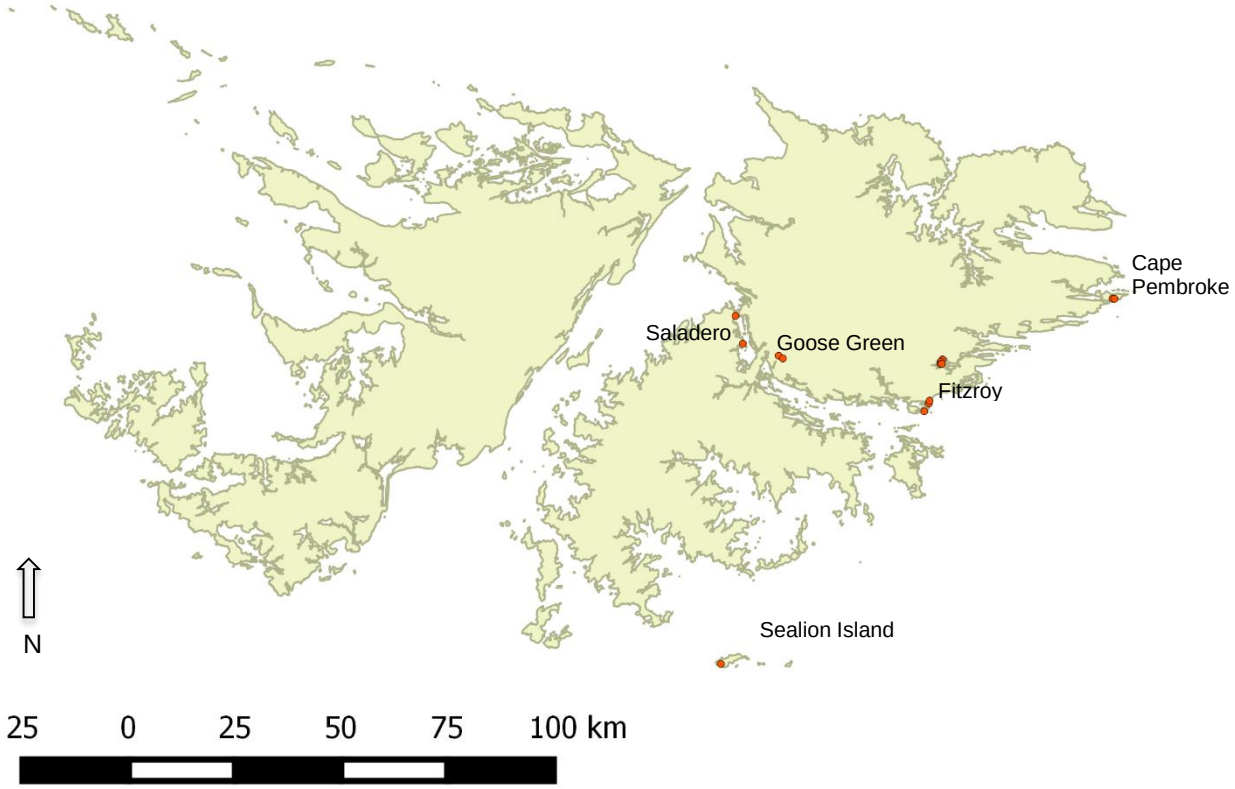

Fig 1. The Falkland Islands with farm boundaries outlined. Circular symbols represent locations of 16 habitat restoration trial sites on East Falklands and an additional site on Sea Lion Island.

References

Jones PD, Harpham C, Lister D. 2015. Long-term trends in gale days and storminess for the Falkland Islands. International Journal of Climatology. 36:1413-1427.

Miller S, Parsons D, Reid B, and Thompson R. 2000. Establishing improved pastures in the Falklands. Falkland Islands Department of Agriculture.

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Strange I J, Parry C J, Parry M C, Woods R W. 1998. Tussac grass in the Falklands. Falkland Islands foundation project report.

Wilson P, Clark R, McAdam J H, and Cooper E A. 1993. Soil erosion in the Falkland Islands: an assessment. *Applied geography* 13:329-352.

2 Project Achievements

2.1 Outcome

Specific outcome indicators were not included in our application, instead we included a Project Outcome Statement. The project was successful in delivering this outcome as set out below.

Project outcome statement:	Capacity to restore eroded or otherwise degraded habitats in the Falklands using locally sourced native seeds will be increased. The current knowledge gap in restoration techniques will be addressed through the production of revegetation protocols based on in-country research. Large scale seed production in the Falklands will be made viable.		
Problem addressed (from section 26 in application form)	Baseline	Change by 2016	Source of evidence
1. Limited knowledge of appropriate techniques	Capacity to restore eroded or degraded habitats limited to planting tillers as set out in Section 1.	Island-wide trials have identified ground preparation techniques and native plant species that can successfully revegetate eroded clay, sand and peat soils. Widespread dissemination of appropriate techniques amongst those managing land for conservation, agriculture and horticulture, including through written material, presentations, and site visits. This project has generated significant interest in the use of native plants amongst farmers and gardeners with a number inspired to try new techniques.	Leaflet describing restoration methods and a full statistical report available here: Habitat Restoration Library FC website. Dissemination events as detailed in Section 2.3. Farmers at Dunbar farm have collected cinnamon grass seed for planting in an eroded area, farmers at Port Stephens farm have planted sword grass in an eroded clay patch. The Ministry of Defence has plans to restore their eroded harbour side with native plants, including a native plant garden area. Following education events a number of homeowners have also planted native plants as an alternative to non-natives, now recognising their resilience, ecological and aesthetic value (see Evidence Document).

2. Limited knowledge of large scale native seed production	Information on growth of native plants from seeds limited to preliminary data acquired through the Challenge Fund project (EIDCF014).	Growth of 15 plants from seed documented from island-wide field trials. Additional phenological (growth and environment) data collected from the Native Seed Hub in Stanley. Information disseminated to stakeholders through workshops.	Trials documented as above. Phenological data (Annex 5) disseminated at education events (see Section 2.3 and Evidence Document), and used to inform Business Plan for bulk-up project (Annex 4).
3. Start-up quantity of seed is not available	Native plant seeds unavailable to those wishing to try new restoration techniques, little capacity for native seed production.	Native seed available for land-owner wishing to "bulk-up" seed production. Interested farmers identified and Farm-led "bulk-up" project planned for 2016. Twenty one residents trained in seed collection, processing and storage enabling them to carry out their own restoration trials or seed hub projects. Falklands Conservation have secured core funding for a Habitats Officer to support these initiatives. Training literature available on-line. Buy-in from the Department of Agriculture, Environmental Planning Department, Falkland Islands Development Corporation, and Member of the Legislative Assembly for the Environment.	Native seed collection data (Annex 6). Business Plan (Annex 4), including support from the public and private sector - detailed therein. Dissemination events as detailed in section 2.3. Falklands Conservation, Restoration Officer job advertisement (see Evidence document). Buy-in from agricultural sector, Government departments and private sector evidenced by attendance at dissemination events (Section 2.3), funding from the Environmental Planning Department and embedding of our Habitat Restoration initiatives in an on-going work plan with Falkland Islands Development Corporation. Public (Falkland Islands Development Corporation) and private sectors (Stanley Nurseries) highlighted their work with Falklands Conservation on Habitat Restoration when presenting work at a "Farmer's Week" forum held in Stanley in July by the Rural Business Association.

2.2 Long-term strategic outcome(s)

1. Use of native plant seed is now a proven technique for habitat restoration. The technique is recognised by public and private sectors and likely to receive both political and technical support in the future (for example through Farm Improvement funding streams).

2. These techniques make it possible to restore eroded areas for which there were previously no techniques (e.g. severely eroded clay sites). The benefits are for soil conservation, biodiversity, and sustainable agriculture. There are also potential benefits for ecosystem resilience in the light of climate change.

3. Appreciation of the value of native plants for conservation and agriculture has been significantly boosted across the Falklands including amongst educators.

4. Showcasing the Falkland's unique terrestrial environment through social media, conferences and site visits has raised the environmental profile of the territory internationally with potential value added for sustainable export and tourist industries. For example woollen textile manufacturers and tourist industry providers have used our content in their social media campaigns, while site visits were enjoyed by restoration experts from New Zealand and Washington post journalists.

More specifically the project has addressed three high to medium biodiversity priorities from the Government's biodiversity strategy (2009-2018) namely aspects of:

- *Lack of information (on biodiversity) (high priority),*

  The project has provided new information on distribution and life histories of 15 types of native plant.

- *Invasive species (high priority),*

  Provision of native seed as an alternative to non-native species and reduction in bare ground (often colonised by non-native pioneer species) address this priority. Given this link the Habitat Restoration officer has contributed to a draft Weed Management Plan for the islands and will continue to work synergistically with public and private sectors to raise awareness about non-native species and to combat the introduction and spread of weeds. They will also work with the Government of South Georgia & the South Sandwich Islands and the Falkland Islands Government to encourage improved biosecurity at transport hubs, including identifying potentially invasive non-native species and reducing areas of disturbed ground.

- *Unsustainable deliberate extraction, in this case grazing (medium).*

  This project highlights the problems of unsustainable land-management (over-grazing, burning, inappropriate planting) and works with land-managers towards remediation and sustainable alternatives (revegetating with native species, managed grazing and minimising soil disturbance). This has been recognised by the Falkland Islands Development Corporation as part of their Rural Development Strategy and they will now fund the Habitat Restoration Officer to carry out their agricultural environmental awareness programme which will showcase examples of good environmental stewardship and share lessons learnt.

The project directly facilitates restoration of 3 out of 5 locally threatened plant habitats: bluegrass acid grassland, bluegrass dune grassland and mainland tussac (as identified in the document: Important Plant Areas of the Falkland Islands, Upson 2012 – Important Plant Areas Document).

The project has provided excellent value for money in that it utilised Falklands Conservation's excellent local volunteer and member network (representing around 5% of the Falklands Island's population) and securing funding for additional, work from the Falkland Islands Development Corporation, the Environmental Studies Budget and the Shackleton Scholarship Fund.

2.3 Outputs

Output 1:	**First protocols for habitat restoration, based on in-country research, distributed to FIG Departments of Agriculture and Environmental Planning, as well as directly to landowners in the form of a practical leaflet.**			
	Baseline	**Change recorded by 2016**	**Source of evidence**	**Comments (if necessary)**
Indicator 1.1 Revegetation field trials established on a range of substrates and monitored over two growing seasons	Permission to work at three sites granted from necessary stakeholders. Experimental design provisionally drawn up awaiting input from results of pilot study.	16 trial sites across five farms and three soil types successfully established and monitored for two growing seasons. Results shared with stakeholders including Kew and the Department of Agriculture).	Trial and pilot data held electronically at FC and available to stakeholders as appropriate. Habitat Restoration Field Trial Statistical Report describes successful field trials. Leaflet: Using native seed to restore eroded ground in the Falklands (Leaflet and report available from: Habitat restoration using native seed.) Snap-shot analysis of out-reach and volunteer work records for November 2015 - May 2016 (spreadsheet can be provided on request) List of attendees at main training events (Evidence Document) and photographs of farmers week events (Evidence Document).	
Indicator 1.2 Continued monitoring of plots established for pilot study to produce two further seasons of data	First season's monitoring data will be collected from pilot study in April 2014 prior to start of the planned project and used to inform design of large scale trials.	Plant cover in pilot studies recorded for two growing seasons and data underpinned successful field trials.		
Indicator 1.3 Data from pilot and large scale field trials analysed and habitat restoration protocols produced for restoring bare clay, peat, sand and cleared land.	No guidelines for habitat restoration using native seeds currently exist and research into the use of seed for this purpose is limited to a single substrate with no experimental treatments applied.	Trial data from all soil types robustly analysed and distilled into a practical leaflet for land managers.		
Indicator 1.4 Habitat restoration dissemination days based around the practical leaflets attended by 30 farmers on East and West Falkland.	Under the Challenge Fund and ESB projects farmers have attended workshops informing them about the project. This has generated interest in the farming community many of whom are keen to hear the results.	Trial data disseminated through mail shots, at training events on East and West Falkland (attended by 21), though site visits or field activities (attended by over 58 individuals) and using a dedicated Habitat Restoration display area and social event during Farmer's Week. Training events well attended and stimulated stakeholder-led initiatives.		Re numbers attending farmer's week events the organiser state that "We have around 75 members and we had a maximum of around 45 at the busiest sessions." We also ran nine events (class room or field trips) for children from four different schools).

Output 2:	**Using methodology developed during the Challenge Fund, seed collected from target species on West Falkland and stored for bulk up.**			
	Baseline	**Change recorded by 2016**	**Source of evidence**	**Comments (if necessary)**
Indicator 2.1 Sizeable collections of seed cleaned at Kew's MSB and safely stored until planting. **Indicator 2.2** West Falkland target species available for farm-led bulk up project.	Seed collection methodology well established during Challenge Fund including site selection and training volunteer workforce.	37 West Falkland collections (focused on most promising species) cleaned at Kew and in Stanley (following seed training events) and stored for bulk up project. Accurate data on seed processing times enabled us to formulate realistic bulk-up plans (see below).	Seed collection summary (Annex 6) Photographs of seed drying room and collecting trips (Evidence document).	This output was modified from the original when a change request was approved (22/1/16), enabling us to focus on collections of the most promising species and to retain them for bulk-up at a farm site (see Annex 7).
Output 3:	**Species suitable for large scale production selected based on study of cultivation, harvest and productivity at the Native Seed Hub; business plan developed for the production of seed from selected species.**			
Indicator 3.1 Two years of data on ease of cultivation, harvest and seed productivity collected from Native Seed Hub.	Only 5 of the target species grown in cultivation and none for the purpose of seed production, no formal assessment of suitability for large scale production.	2 years of monitoring data from the Native Seed Hub stored electronically at FC (including offsite backup). Information disseminated to stakeholders including Department of Agriculture. Information used to shape business plan including choice of plants. Seed Hub used as demonstration site for interested farmers and education site for school visits.	Summary of seed hub data (Annex 5). Photographs of seed hub and training events (Evidence document).	Plant phenology (life-cycle and environment) information from the Seed Hub was also very useful background for training events and to inform habitat restoration protocols.
Indicator 3.2 Data analysed and business plan produced for large-scale production of selected species.	A positive initial consultation made with Falkland Islands Development Company (FIDC) and their Rural Development Strategy coordinator.	Business plan produced with assistance from FIDC. Farmer now able to undertake seed production for on-farm restoration projects, small conservation projects, and to start-up similar farm-led projects across the islands.	Business Plan for farm-led seed production (Annex 4).	This project highlighted the time taken to process seeds using current methods and the need to trial more efficient methods. The business plan is therefore for a viable partnership project to develop these new techniques.

Output 4:	**Initial collections of seed bulked up over two growing seasons in the Native Seed Hub; landowner wishing to take on large scale production identified and provided with start-up quantity of seed.**			
	Baseline	**Change recorded by 2016**	**Source of evidence**	**Comments (if necessary)**
Indicator 4.1 Large quantities of seed collected from the Native Seed Hub.	At the start of the project plants will have been in the Native Seed Hub for 1 growing season. This will allow two years of seed production within the project period.	Seed collections from 14 plants at native seed hub in storage for future work.	Seeds safely stored at Falklands Conservation for future use (photographs in Evidence Document). Attendance sheets – Habitat Restoration and Seed training events (Evidence Document). Photographs of training events and volunteer seed processing (Evidence Document). Leaflet: Collecting and storing seeds in the Falklands.	Production in first year low; good output for most species in second year. Some concerns about non-native species in vicinity of seed hub so that these collections will be used with care. West Falkland Collections will be used for initial bulk up project. DoA no longer has storage facilities: drying drums and freezer installed at Falklands Conservation and providing safe storage (following expert on-site advice from RBG Kew MSB). Once trained volunteers gave over 33 hours to help with processing seed collections and have indicated that they will be happy to help with the bulk-up project as required.
Indicator 4.2 At least 2 Department of Agriculture (DoA) and 1 Stanley Nurseries staff members trained in post-collection handling techniques by Millennium Seedbank (MSB) staff.	Currently there is no in country capacity to process large quantities of harvested seed.	RBG Kew MSB staff member visited Falklands to provide training on seed collection and bulk-up techniques. Training sessions held on East and West Falkland, additional awareness raising through sessions with senior school Environmental Science class and on the local radio. Twenty one people including DoA and Stanley Nurseries staff attended main training sessions on seed processing.		
Indicator 4.3 Two seasons of seed collections cleaned and stored at DoA, ready for planting.		Seed collections have undergone preliminary processing and are stored at Falklands Conservation ready for planting.		
Indicator 4.4 Suitable landowner identified and provided with business plan, start up materials (seed) and support to take on large scale production.	Consultation with landowners and the DoA during the Challenge Fund revealed a number of potential farmers willing to take on production if provided with the necessary knowledge and seed.	Farm manger engaged to begin bulk-up and experimenting with labour saving techniques as set out in the Business Plan, seed available to start his project. At least two other farmers interested in carrying out bulk up projects for their own land once seed is available.	Business Plan (Annex 4)	Training events mean that there is volunteer help available to help fledgling bulk-up projects collect, clean and process seed. Seed processing times were longer that anticipated (see indicator 3.2), and the business plan was adapted to reflect this – so that it is a viable farm-led bulk up plan, initially operating on a non-for-profit basis.

2.4 Sustainability and Legacy

The longevity of all the strategic outcomes identified in section 2.2 is safeguarded because:

- The success of this Darwin project, including public and private sector support, has stimulated Falklands Conservation to seek funding for, and employ a Habitats Officer in 2016-17. The officer will support practical restoration projects using the techniques developed in this project and will work with the public sector to encourage policy support (for example recognising the techniques developed here for carbon or biodiversity off-setting schemes, and Farm Improvement grants).
- A three year business plan for seed production has been produced and is being progressed with a farm manager.
- The benefits of Habitat Restoration work have been recognised by the Falkland Islands Development Corporation who, as part of their Rural Development Strategy, will provide on-going funding for Falklands Conservation to carry out their environmental awareness programme which will showcase local good-practice for agriculture and terrestrial conservation through a series of case-studies. This case-study approach is supported by farmers.
- Habitat restoration techniques were widely disseminated to permanent members of the Falklands community and a written legacy of self-explanatory training leaflets and more in-depth reports is hosted on the Falklands Conservation website, in addition to articles in peer-reviewed journals and magazines (Annex 2). The Habitat Restoration area of the website will be improved and updated as part of the ongoing Habitat Restoration initiative.
- Interest in Native Plants is growing across the Falklands (as evidenced by local interest in: training events, social media posts on the subject, a Native Plant themed Annual Charity Ball, and positive publicity for land manager-led initiatives), providing considerable impetus for future restoration work.
- Falklands Conservation provides annual grants for practical conservation projects, following the success of this project it was decided that there would be a Habitat Restoration theme in 2016 with applicants encouraged to consider using native plants to restore eroded areas (http://www.falklandsconservation.com/projects/falklands-conservation-small-grant-scheme). The grants have yet to be awarded but a number of land-managers have approached Falklands Conservation for more information on projects involving native plants.

3 Project Stakeholders/Partners

The main stakeholders in this project were:

Public sector

- Department of Agriculture
- Environmental Planning Department
- Falklands Land Holdings
- Kew Royal Botanical Gardens and Millennium Seedbank Partnership
- Falkland Islands Development Corporation
- Educators (infant, junior and senior schools across the islands)

Private sector

- Farmers and other landowners (including the Rural Business Association) – these are the most important group to engage if the Habitat Restoration work is to expand
- The tourist industry
- Stanley Nurseries
- Island LandCare

Other

- Those interested in gardening and horticulture
- Keen amateur naturalists

(Our volunteer network frequently includes people with these interests.)

In addition to local buy-in there was considerable international interest in the restoration techniques via social media (Falklands Conservation has 5k followers on Facebook and Twitter combined) and following presentation of this work at restoration focused conferences in Santa Fe, USA and Manchester, UK.

Technical stakeholders were represented on the project steering group (which comprised members from: the Department of Agriculture, Stanley Nurseries, the Environmental Planning Department and Kew MSB / Science) and provided useful advice as the project progressed. Island LandCare are involved in tackling non-native species and provided key information on biosecurity. The Falkland Islands Development Corporation provided helpful guidance on business planning. Educators were keen to engage and did so through six site visit and four classroom presentations.

Other local outreach included radio interviews and articles in agricultural magazines and newspapers. These were helpful in reinforcing messages, however face-to-face discussion and site visits proved the most effective way of stimulating a practical interest in new Habitat Restoration techniques amongst land managers – with notable affects in terms of spin-off trials and sustained engagement. Land-managers were the most important group to engage, and bring significant expertise, their direction was sought when planning training events, trials and in shaping the business plan. For example we arranged training events at a location and time which did not clash with busy agricultural periods (e.g. shearing time) and developed a business model which potentially incorporated the direct use of livestock to fertilize the seed hub area (following farmer's observations about plant growth in lambing paddocks).

Falklands Conservation' volunteers including people with professional and personal interests in wildlife and conservation. This group enabled seed collection and processing to be carried out within the project timeframes and helped with the setting up of trial sites. Their engagement was thus economically valuable (and vital for successful completion of the project), but it also promoted community buy-in and facilitated first-hand transfer of information amongst the public and policy makers. Social media was a useful way to acknowledge the help of these volunteers and sustain their interest as local Facebook groups (e.g. the Falkland Islands Community Board) are very popular across the islands, particularly in the rural communities.

4 Lessons learned

a. To communicate early with the Darwin secretariat about any changes to the project. Projects evolve slightly as they progress and to maximise the benefits of the project it may be necessary to alter the detail of some outputs while retaining the strategic objectives.

b. That face-to-face discussions and demonstration projects (ideally farm-led) are the most effective way to engage Falklands Farmers in practical conservation projects. That farmers are busy and engagement opportunities must be arranged to suit them.

c. That project proposals should include flexibility and avoid pre-empting interim findings (in this instance it was assumed that seed production would be economically viable though seed production and processing techniques had not been fully developed).

d. The project officer changed during this project which led to some loss of continuity in a relatively short project. Future projects might consider methods of retaining staff for the duration of the project, for example by employing core staff, securing funding for a short period of post project work (during which the employee can look for other employment or grant funding) or paying a portion of the salary on successful completion of the project.

e. This project highlighted the value of goodwill and a dedicated volunteer network, who kindly helped with tasks that would otherwise have been prohibitively expensive to man. This support cannot be taken for granted and the organisation endeavours to give-back through training events, fun activities and by publicising the positive environmental outcomes of our work with volunteers.

4.1 Monitoring and evaluation

Section 2.3 and Annex 7 detail small changes to the project that were agreed by the Darwin secretariat.

Darwin reviews provided useful feedback as detailed in section 4.2. In addition the project officer communicated regularly with their steering group, including project partners (see section 3), who provided useful guidance in their areas of expertise. Stakeholders provided feedback on training events and early drafts of training material which was useful in honing those products to their audience.

4.2 Actions taken in response to annual report reviews

Rreviewers requested responses to the following comments:

1) Is bluegrass variable in form across different habitats such as lowland sand dunes and inland peat soils, and if so, are seeds from these habitats being bulked and propagated separately to ensure that seeds sown in the restoration plots/sites are best adapted to a given site?

From the outset we recognised two ecotypes of blue grass: a sand (lowland sand dunes), and peat (inland peat) form. These ecotypes have been collected and propagated separately. Rearing and monitoring of these ecotypes has been separate throughout the project and they will be treated in future work as separate ecotypes and used for to restore their appropriate habitats. The distinction has been made clear in training sessions and literature.

2) The involvement of project partners in the Falkland Islands is reported to have been problematic – it is not clear whether this will improve over the coming year. An update in the next six-monthly report might be appreciated by Darwin.

Unfortunately, in the early stages of the project the Department of Agriculture had turnover and staffing issues that resulted in limited engagement in the project. In 2016 the Department of Agriculture recruited new staff members who had time to engage with this project and have provided useful input regarding technical aspects and roll-out schemes.

3) More supportive material could be included with the next Annual Report, such as: information on natural grassland communities from where the seed has been collected, such as natural species present, frequency; photographs of the natural communities and the restoration plots; it would be helpful to include the species make-up of the seed mixes and the percentage of each species by weight.

In response to this advice seed-mix species have been identified in training materials and their natural habitat has been outlined, with links to more detailed habitat descriptions that are publically available on the Falklands Conservation website. The total weights of seed-mix species used has also been included in this literature and interested stakeholders have been repeatedly encouraged to contact Falklands Conservation for additional information (which could include seed weights for individual species). As outlined in section 2.2 we now plan to upgrade the Habitat Restoration area of our website and make pertinent or sought-after information available there as the bulk-up project progresses.

5 Darwin Identity

This project has been widely publicised as a Darwin Initiative including:

- Social Media. Twenty two project posts have included links to the Darwin Initiative Facebook and Twitter accounts (e.g. see Evidence Document). Falklands Conservation have a good local and international following, habitat restoration posts are often by over 5k people (Facebook and Twitter combined).
- Falklands Conservation website Habitat Restoration page.
- Posters and presentations. Twelve Habitat Restoration presentations (talks or posters) have promoted the Darwin Initiative including using the logo on slides (e.g. see Evidence Document). These include nine sessions for school children, two presentations at international conferences, three public talks and training events.
- Static Displays. The Darwin Logo or explanatory text has been included on posters that are on permanent display in: the London Aquarium, Falklands Conservation Shop and Blue Beach Museum (Port San Carlos).
- Training materials. Leaflets on Seed Collection Techniques and Habitat Restoration methods carry the Darwin Logo.
- Seven publications, including in agricultural magazines and conservation newsletters.
- Interviews on Falkland Islands Television and Radio (e.g. see Evidence Document).

The project has contributed to a good understanding of the Darwin Initiative amongst public and private agencies that deal with conservation or sustainable resource use (e.g. Falkland Islands Government, Stanley Nurseries, and the Falkland Islands Development Corporation). Amongst the public there is increased recognition of the Darwin Initiative as a public, UK based supporter of practical conservation projects.

6 Finance and administration

6.1 Project expenditure

Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs			-3	
Consultancy costs			15	Final costs slightly higher than budgeted for.
Overhead Costs			0	
Travel and subsistence			-3	
Operating Costs			3	
Capital items			0	
Others			0	
TOTAL	58044	56642		

Staff employed (Name and position)	Cost (£)
S Smith, K.Ross, Habitat Restoration Officer, Falklands Conservation	
R Upson, Project Partner RBG Kew	
Millennium Seed Bank Staff, RBG Kew	
E Bertram, CEO, Falklands Conservation	
F Peck, Office Manager, Falklands Conservation	
D Spivak, UK Director, Falklands Conservation	
TOTAL	**36,613**

Consultancy – description of breakdown of costs	Other items – cost (£)
B. Bond, Statistical Analysis S. Smith, Soil Chemistry Analysis	
TOTAL	2,487

Capital items – description	Capital items – cost (£)
TOTAL	0

Other items – description	Other items – cost (£)
Audit	
TOTAL	1,500

6.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Environmental Studies Budget (Falkland Islands Government)	
Shackleton scholarship for collaborative spin-off work (see section 6.3	
Volunteer man power: estimated 3 days per month @ 100 per day	
Department of Agriculture – agronomist and technician	
Laboratory Space at DoA	
Brian Bond – statistical advice	
Stanley Nurseries	
Rebecca Upson	
Millennium Seed Bank	
TOTAL	**53,549**

Source of funding for additional work after project lifetime	Total (£)
Environmental Studies Budget (Falkland Islands Government) bridging salary until Habitats Officer post begins, funding for small capital items and project overheads.	
Falkland Islands Development Corporation Environmental Awareness Funding (excluding amounts for staff time)	
Falklands Conservation Funds (cost of Habitats Officer post to organisation 2016-2017)	
Cape Dolphin Farm (to grow tussac plug plants for planting out - see sectio 6.3)	
Seed Hub Cape Dolphin Farm (approx. value of in-kind land-owner contribution per annum)	
TOTAL	**47,837**

This does not include £2,550 for Erica Bernsten time (as set out in the original budget) because she was unable to assist significantly due to staff shortages at the Department of Agriculture. Volunteer man-power was instead secured to assist with monitoring tasks.

FIDC business research and development grant (£5,000) is not included here as it may be unnecessary at the beginning of the bulk-up project (see business plan).

6.3 Value for Money

This project has provided new tools for habitat restoration across the Falklands and expert training in their application, empowering residents to conserve their natural environment for conservation and sustainable agriculture. The project has drawn on Falklands Conservation's existing stakeholder network to provide excellent value for money by minimising costs and maximising outputs including:

- Collaboration with land owners to use areas for trials and the Seed Hub at no-cost.
- Farmers and other landowners often provided food and accommodation at no cost to the project (around ten nights in total).
- Use of volunteer manpower to assist with setting up and monitoring trials and cleaning seeds (estimated at a minimum of three volunteer days per month for the duration of the project).
- The project enabled us to leverage funding from the Environmental Studies Budget (Falkland Islands Government) and Falkland Islands Development Corporation for additional Habitat Restoration project work and publicity (e.g. producing a report which highlights how good land-care can benefit native plants and a tussac planting trip to Sealion Island).
- Falklands Conservation's existing outreach and PR network (e.g. membership mailing lists, local television and radio contacts, social media and print outlets) has enabled educational material and other publicity to be disseminated efficiently at no cost (see section 5).
- Falklands Conservations' credentials for positive environmental and community work has enabled the project to secure and benefit from high calibre statistical advisors and well-qualified project officers at minimal cost because they have bought-in to the project (for example both project officers were qualified to PhD level and the statistical consultant provided tens of hours of consultancy free of charge). Similarly steering group members provided technical advice without charge.
- Significant additional work has now been funded, based on the success of this project. The total value of funding secured for (including in-kind contributions) is around £101, 386 (see section 6.2)
- A number of relevant spin-off projects were stimulated, adding value to the current initiative. The most significant of these projects are:

  1) Growing and planting 1,000 tussac plug plants from seed for planting in an eroded area at Cape Dolphin Farm (the farm will contribute around £1,000 for plants, planting will be carried out by volunteers);

  2) A Shackleton scholarship (£3,040): "*Taking stock of restored soil carbon across the Falkland Islands*". This project provided important data on soil Carbon storage following habitat restoration (tussac planting), it has been written up in the Falklands Conservation magazine and has been accepted for publication in a peer-review journal.

  3) Using native plants to restore an area of eroded ground at Mare Harbour (Ministry of Defence (MoD) Land). Falklands Conservation are currently working with the MoD on a plan to tackle invasive species in this area and to use native plants to revegetate the area, acting as a pilot for other disturbed coastal areas on MoD and agricultural land.

Annex 1 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
1	Number of (i) students from the UKOTs; and (ii) other students to receive training (including PhD, masters and other training and receiving a qualification or certificate)	0
2	Number of (i) people in UKOTs; and (ii) other people receiving other forms of long-term (>1yr) training not leading to formal qualification	0
3a	Number of (i) people in UKOTs; and (ii) other people receiving other forms of short-term education/training (i.e. not categories 1-5 above)	0 See dissemination measures in section 14 below – two training days combined training on seed processing techniques with disseminating the findings of Habitat Restoration Trials.
3b	Number of training weeks (i) in UKOTs; (ii) outside UKOTs not leading to formal qualification	1 The Project Officer received a week of training on relevant botanical techniques at Kew Botanical Gardens. He was a male UK resident.
4	Number of types of training materials produced. Were these materials made available for use by UKOTs?	2 leaflets publically available via our website, hard copies distributed at Farmers Week.
5	Number of UKOT citizens who have increased capacity to manage natural resources as a result of the project	A minimum of 50. (The relevant / training and dissemination events are described in section 14) 21 UKOT residents attended training days to learn about habitat restoration techniques including methods of collecting and processing native plant seeds. More than 30 additional UKOT residents (adults) took part in field visits, site visits or seed processing events, or attended Farmer's week discussions through which their understanding of the new techniques and ability to restore eroded ground using native plants was enhanced.
Research Measures		
9	Number of species/habitat management plans/ strategies (or action plans) produced for/by Governments, public authorities or other implementing agencies in the UKOTs	0
10	Number of formal documents produced to assist work in UKOTs related to species identification, classification and recording.	0
11a	Number of papers published or accepted for publication in peer reviewed journals written by (i) UKOT authors; and (ii) other authors	1 accepted with revisions (other author) (a second is in preparation)

Code	Description	Totals (plus additional detail as required)
11b	Number of papers published or accepted for publication elsewhere written by (i) UKOT authors; and (ii) other authors	i. 6 (including two from collaborative spin-off projects). ii. 0
12b	Number of computer-based databases enhanced (containing species/genetic information). Were these databases made available for use by UKOTs?	2 BRAHMS – Collection records have been added to the plant database for the Falkland Islands (available through Falklands Conservation) Metadata for trials has been submitted to the South Atlantic Environmental Research Institute IMS-GIS Data Centre and will be available to the general public.
13a	Number of species reference collections established. Were these collections handed over to UKOTs?	0
13b	Number of species reference collections enhanced. Were these collections handed over to UKOTs?	1 – Additional genetic material (seeds) held at the Millennium Seed Bank, Kew
Dissemination Measures		
14a	Number of conferences/seminars/workshops/stakeholder meetings organised to present/disseminate findings from UKOT's Darwin project work	Four main events disseminated the trial results. 1) East Falkland Habitat Restoration day including presentation of the trial results and advice on collecting and storing native plant seeds. 2) As above on West Falkland. 3) Display, field trip, and discussion forum held at Farmers Week 2016 to disseminate outcomes of the habitat restoration trials and launch accompanying leaflet. 4) Meeting with the Manager of Falkland Land Holdings (the biggest landowner in the Falklands). A minimum 14 additional field visits were held for interested stakeholders.
14b	Number of conferences/seminars/ workshops/stakeholder meetings attended at which findings from the Darwin Plus project work will be presented/ disseminated	Four significant events: 1) Presentation: Farmer's week 2015. 2) Presentation: National Native Seed Conference, Santa Fe, USA. 3) Presentation: 6th World Conference on Ecological Restoration, Manchester, UK. 4) The outcomes of the Restoration Trial were included in the June 2016 meeting of the Falkland Islands Government Environmental Committee where the statistical report was circulated publically.

Code	Description	Totals (plus additional detail as required)
Physical Measures		
20	Estimated value (£s) of physical assets handed over to UKOT(s)	£8,000
21	Number of permanent educational/training/research facilities or organisation established in UKOTs	0
22	Number of permanent field plots established in UKOTs	0
23	Value of resources raised from other sources (e.g., in addition to Darwin funding) for project work	£101,386

Annex 2 Publications

Type * (e.g. journals, manual,)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. weblink, contact address, annex etc)
Leaflet	Habitat Restoration using native seed. K Ross, 2016	British	Falkland Islands	Female	Falklands Conservation, Stanley	http://www.falklandsconservation.com/component/jdownloads/viewcategory/89?Itemid=458
Leaflet	Seed Collection in the Falkland Islands. K Ross, C Cockel, 2016	British	Falkland Islands	Female	Falklands Conservation, Stanley	http://www.falklandsconservation.com/component/jdownloads/viewcategory/89?Itemid=458
Report	Habitat Restoration Field Trial 2015-2016. B Bond	British	British	Male	Falklands Conservation, Stanley.	http://www.falklandsconservation.com/component/jdownloads/viewcategory/89?Itemid=458
Magazine	Mapping soils: the Falkland Islands. S, Smith 2015. (spin-off collaborative project)	British	Falkland Islands	Male	The Auger, UK	http://soils.org.uk/auger - members only
Magazine	Sowing seeds to revegetate eroding soil across the Falklands. S, Smith 2014.	British	Falkland Islands	Male	The Falkland Islands Department of Agriculture, Stanley.	http://www.fig.gov.fk/agriculture/index.php/publications/summary/17-2014/143-august-september-2014 *Annex 8
Newsletters	Various articles and snippets in these editions: September 2014, December 2014, January 2016, August 2016.	British	Falkland Islands	Female	Falklands Conservation, Stanley	http://www.falklandsconservation.com/ *Examples in evidence document
Magazine	Plant tussac grass – and store the carbon equivalent of a tree. S, Smith 2016. (spin-off collaborative project)	British	Falkland Islands	Male	Falklands Conservation, Stanley	http://www.falklandsconservation.com/
Magazine	Get growing! Sheep poop and native plant seeds prove a successful recipe for Habitat Restoration. K, Ross. 2016	British	Falkland Islands	Female	Falklands Conservation, Stanley	http://www.falklandsconservation.com/ This magazine is currently in prep. And will be published in October 2016.
Journal	High stocks, but slow recovery, of ecosystem carbon in southern oceanic tussock grasslands, SW Smith, Karlsson S (in revision)	British	Falkland Islands	Male	Polar Biology, USA	

Annex 3 Darwin Contacts

Ref No	DPLUS023
Project Title	BUILDING CAPACITY FOR HABITAT RESTORATION IN THE FALKLAND ISLANDS
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