



Department  
for Environment  
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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	DPLUS017
Project Title	LOWER PLANTS INVENTORY AND CONSERVATION IN THE FALKLAND ISLANDS
Territory(ies)	FALKLAND ISLANDS
Contract Holder Institution	FALKLANDS CONSERVATION
Partner Institutions	NATIONAL MUSEUM WALES, BANGOR UNIVERSITY
Grant Value	£183,958
Start/end date of project	01 <sup>st</sup> APRIL 2014 – 31 <sup>st</sup> MARCH 2016
Reporting period (e.g., Apr 2015-Mar 2016) and number (e.g., AR 1,2)	MAY 2014 – MARCH 2015
Project Leader	ANDREW STANWORTH
Project website	
Report author and date	DAFYDD EGRYN CRABTREE – APRIL 2015

## 1. Project Overview

The Falkland Island archipelago comprises two main islands (East Falkland and West Falkland)



and 703 smaller islands with a total land area of ca. 12,100 square kilometres. The archipelago is situated in the South Atlantic around 300 miles east of South America and 800 miles north of the Antarctic Peninsula.

The Falkland Islands have an extensive lower plant and lichen flora with a high diversity of mosses, liverworts and lichens. The bryophytes play an important role in the ecosystem services of the islands e.g. soil/peat formation and retention, and carbon storage. They also influence water and nutrient cycling (the recent dry spells in the Falklands have highlighted this role of lower plants in retaining moisture and preventing erosion).



This project seeks to address the 'critical knowledge gap' in lower plants and lichens that was identified in The Falkland Islands Biodiversity Strategy 2008 – 2018. The project is addressing this knowledge gap, and is providing data essential for effective conservation planning and enhancement of the 'Important Plant Areas' of the Falkland Islands. The project is applying the ecosystem approach: a combination of taxonomic/biogeographical survey with consideration of the role of lower plants

and lichens in providing ecosystem services, including cultural (tourism) and educational outputs.

## 2. Project Progress

The start date of the project was delayed by one month to the 1<sup>st</sup> of May 2014 due to logistical requirements and the recruitment process for the Project Officer. This first annual review therefore covers 11 months, during which the Project Officer spent 3 months training in the UK and 8 months on site in the Falkland Islands.

### 2.1 Progress in carrying out project activities

The progress and success of the project is measured by the Outputs documented in the proposal. Below is a detailed breakdown of the progress achieved for each Output:

### **Output 1.1:** Recruit and train a Lower Plants Project Officer.

Eleven weeks was spent training the Project Officer (Dafydd Crabtree) at the National Museum of Wales (NMW) in Cardiff, with a further week spent at the Royal Botanic Gardens, Kew.

The NMW training was conducted by Dr. Ray Tangney, Project Partner and Head of Cryptogamic Botany at the Museum, and Alan Orange, Curator of Lower Plants (lichenologist). Training included microscopy, bryophyte and lichen identification techniques for the South-Atlantic species, and the reading and copying of relevant taxonomic literature for the Falkland Islands. Training was also provided in field taxonomy and collection methods, laboratory techniques and equipment, herbarium methods and exchanges. Dissecting and compound microscopes were loaned to Falklands Conservation by Bangor University and slides, chemicals and specimen packets were also provided by NMW.

A week was spent training at Kew Gardens with former Falkland Islands Plants Officer, Dr Rebecca Upson. This included an introduction to FI Important Plant Areas, planning of fieldwork and an introduction to the FI habitat classification system, including cross-referencing with a photo-database for individual species and habitats. Training in survey skills and data collection standards was also provided, along with exposure to computer GIS software, BRAHMS and ArcPad.

Two days 4x4 training was provided by Falklands Conservation at the Minsmere RSPB site by a qualified off-road instructor, in preparation for remote locality fieldwork in the Falkland Islands.

### **Output 1.2 – Undertake 3 field expeditions**

The first of the 3 proposed field trips was undertaken between 16<sup>th</sup> of January and the 6<sup>th</sup> of February 2015. Field vehicle (Land Rover) capacity allows for four team members with full field support equipment and specimen storage space. The first expedition team comprised Project Officer Dafydd Crabtree, Dr. Ray Tangney (NMW bryologist), Alan Orange (NMW lichenologist) and Dr. Alan Fryday (Falklands expert lichenologist from the Michigan State University Herbarium in the USA (providing specialist time input to the project as a joint-funding contribution).

Week one was spent surveying sites on East Falkland, including Mount Kent, Two Sisters and Cape Pembroke. The team surveyed Weddell Island for 3 days, with a day in Port Stanley for specimen processing. The second week was spent in West Falkland, surveying the Hornby Mountains, Fox Bay and the surrounding area, and Port Stephens. The final week was again spent on East Falkland, with survey work in the North Arm and Lafonia. Time was also spent sorting specimens, obtaining phyto-sanitary certificates and packing bryophyte and lichen material for dispatch overseas. A total of ca.700 lichen specimens (ca. 40kg) and 354 moss specimens were collected, with duplicates distributed to project partner institutions for critical determinations.

The early results of the project have produced an invaluable collection of species to address the 'critical knowledge gap' identified by the Falkland Islands Biodiversity Strategy 2008 – 2018. This material will be important, not only for further research in the Falkland Islands, but also as a global resource for the wider taxonomy and biogeography of the high latitude southern hemisphere.

### **Output 1.7 – Publish four peer-reviewed papers and articles.**

This output is scheduled for the second year of the project. However, a review of the moss genera *Codriophorus* and *Bucklandiella* in the Falkland Islands is nearing completion (Annex. 2). The manuscript contains new records for these genera in the Falklands, including species descriptions and a key. The paper will be published with the co-authorship of Dr Ryszard Ochyra (Poland) and Ray Tangney (NMW, Cardiff). The paper is expected to be published in the journal *Cryptogamie, Bryologie* later in 2015. (Unpublished manuscript added to appendix 2.)

Preparation of further manuscripts is underway on the moss genera *Dicranoloma*, *Amblystegium* and *Sanonia*.

Several papers are envisaged as a result of the high number of new records of lichens discovered during the first Darwin project field expedition. These will include several records that are putative new species to science, and which are being more closely studied at present.

The intention is to publish revised species lists for all lichens, mosses and liverworts found in the Falkland Islands, which will in turn provide a baseline resource for popular treatments and conservation planning.

#### **Output 2.4 – Provide lower plants and lichens training and mentoring**

The training of Falklands Conservation staff has been re-scheduled for Year 2 of the project due to staff availability. The Project Officer will also be more conversant with the whole flora at this stage, and better able to deliver intensive and detailed training.

#### **Output 3.1 – Establish a reference collection in FI for bryophytes and lichens.**

The project has already added around 120 identified moss specimens of circa 100 species to the reference collection which is forming the basis of the Islands' official Herbarium. 100 lichen specimens have also been identified to species level and added to the reference collection, with duplicates lodged in the UK and USA.

#### **Output 3.2 – Establish a network for dissemination of results to peers**

An enthusiastic network of self-funded international specialists has been assembled to assist the core team members with the lichen and bryophyte studies on this Darwin Initiative project. This objective was advanced by presentations on the Darwin project at the biennial Congress of the International Association of Bryologists, held in Puerto Williams, southern Chile, in January 2015. Self-funded project partner Dr Shaun Russell (Bangor University) delivered a paper on the results of the project so far ("The Mosses of the Falkland Islands") on behalf of team member Dr Ray Tagney. Dr Russell also presented an updated listing of the Liverworts of the Falklands prepared by Prof Jeff Duckett (Natural History Museum, London), and he also presented material on lower plants and "Citizen Science". The exposure has secured the interest and involvement of several of the delegates at the Congress, who are proving particularly valuable for their help with identification of rare species, access to obscure taxonomic literature, and the dissemination of results of the project through publications worldwide. Key partners contributing from overseas at the moment are Dr. Ryszard Ochyra (Poland), Dr. Alan Fryday (Michigan) and Dr. Matt von Konrat (Chicago).

#### **Output 4.1 – Run education and training workshops for the local community**

At the end of the January-February 2015 field trip, an education workshop was advertised in the local Falkland Islands newspaper. Entitled: 'Workshop on the common lichens and mosses of the Falkland Islands', the event was held at the Falkland Islands Community School. Twenty two members of the local community took part in the workshop, including four staff of the South Atlantic Environmental Research Institute (SAERI), two teachers from the Community School and four staff of Falklands Conservation. Other participants included landowners and townspeople from Port Stanley.

The four team members delivered the workshop (Crabtree, Fryday, Orange and Tangney) and presentations included a general introduction of the Falkland Island species, and pointers to their general morphology and taxonomy. The rest of the meeting comprised a practical class on gross specimen morphology, followed by hand-lens and microscope work to show the broad range of different species of lower plants found in the Falkland Islands. Feedback was excellent, with participants' consistently expressing surprise and delight at this exposure to aspects of the Islands' biodiversity that few were previously aware of.

At the end of January 2015, a day was also spent at Fox Bay Primary School, introducing bryophytes and lichens to the pupils. This included basic introductory work in the class room through the use of a camera microscope. Simple demonstration was conducted on morphological characters such as general habit and fruiting material, with a question-and-answer session to conclude. The afternoon was spent out in the field around Fox Bay, looking for the plants in their natural habitat. Once again, response from the children and their teachers was highly positive, with many indicating that their eyes had been opened to an aspect of the Island's vegetation that had not been recognised before.

#### **Output 4.2 – Produce training materials for 40 workshop participants.**

Two PowerPoint presentations were created for the February 2015 Workshop. These included a general introduction to the morphology and taxonomy of the mosses and lichens of the Falklands, and an overview of the more common and conspicuous species of the Islands. Information sheets were produced for each species on display, including drawings, defining characters and the simple chemical reagent tests used to identify the lichen species.

#### **Output 4.4 – Produce 4 host country TV and radio press releases**

In February 2015, a 20 minute live interview was conducted with BBC Radio Wales to highlight the Darwin Falklands Lower Plants Project. The purpose of the interview was to explain the Project Officer's work in the Falkland Islands, detailing the nature of the project, its objectives and the general ecology of the archipelago. Further local and overseas media outreach activities are planned for Year 2 of the project. A further radio interview with the BBC is scheduled for May / June 2015.

#### **Output 4.5 – Produce 4 newsletter articles**

To date, two articles have been completed for the Falklands Conservation Newsletter which is distributed internationally via the Internet. The first article was produced in September 2014, announcing the arrival of the Project Officer, including details of the project such as outputs and objectives for the two year study. The second article was completed in February 2015 for publication in the next issue of the Newsletter, and covered the workshop for the local community and the role of the visiting specialists. The article also covered the implementation of the field work, the data collection and exciting news about new records and species that are expected to be new to science. There will be an article printed in the next Falklands Conservation bi-annual magazine detailing findings of the January / February field trip which is expected to be published in June 2015.

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

The Falkland Islands Government has identified lower plants as a high research priority.

- “The non-vascular flora of the Falkland Islands are poorly studied”
- “Baseline surveying and taxonomic identification of lower plants, particularly lichens and mosses, are a high research priority” (FI State of the Environment Report 2008)
- “High Biodiversity Priorities: Most Critical Knowledge Gap – Lower Plants” (Falkland Islands Biodiversity Strategy 2008-18)

This project is supporting the conservation strategies of the Falkland Islands Government (FIG) by addressing this critical gap in knowledge of lower plant diversity and providing conservation tools to improve local decision making through a programme of survey, capacity-building, outreach and conservation planning for the lower plant vegetation of the Falkland Islands. Key to the success of the project is the full-time Project Officer in the Islands. The role of the Project Officer is to coordinate and participate in field surveys, to ensure that FC field staff, volunteers, government personnel and local community members have an increased awareness of the importance of lower plants in the Falkland Islands and a grounding in lower plant identification. The Project Officer is also developing the lower plants databases and field studies facilities at Falklands Conservation.

To date the project has:

- Provided local training in lower plant identification, delivering training workshops and awareness-raising sessions for at least 20 local participants in Port Stanley and a further 7 schoolchildren and teachers at Fox Bay.
- Made significant progress on a comprehensive lower plants inventory for the Falkland Islands. Data generated by the field surveys will be added to local information systems, and

the building of a lower plants specimen reference collection at Falklands Conservation has begun. Lower Plants training has been provided for the local volunteer Herbarium Curator, with the number of specimens in the herbarium at 120 for the mosses and 100 for the lichens so far. This creates an important foundation for future research and scientific work on bryophytes and lichens on the Islands and in the far southern hemisphere.

- Assessment has begun of the lower plant conservation status of the Important Plant Areas (currently only based on vascular plants). Management guidelines for the existing ten protected areas and IPAs are being re-evaluated in the light of the lower plants survey data.
- Dissemination of results and increasing knowledge of the Falklands moss flora. One paper is nearing completion based on results of the project, and is to be submitted in May 2015. Several more are in preparation. The keys and species descriptions in the papers will aid further work in the Falkland Islands by creating a foundation of scientific literature for future study.
- In preparation for the production of the 'flip book' guide to the common Bryophytes and Lichens of the Falkland Islands, lists of common and important species have been developed for lichens and mosses and a list is being prepared for liverworts. This accessible introduction to the common species of the three taxonomic groups will increase public interest in the plants of the Islands among the residents of the Falklands and visitors.

By providing baseline data, enhancing in-country resources and increasing local expertise and awareness of the biodiversity and conservation of lower plants, this project is making significant progress in supporting FIG conservation strategies.

This Darwin project is allowing for more extensive and intensive studies of lower plants on the Falkland Islands than have ever been undertaken before. Specimen label data as well as habitat field notes are permitting a picture to be built up of the status of populations of bryophytes and lichens that will form an invaluable baseline for future studies of climate change impacts on the vegetation of the Islands. This work will be added-to in Year 2 of the project, by further collecting expeditions and the work of the ecosystem services team (Professor Ed Maltby and Dr Shaun Russell). In addition, a follow-up survey will be made of the vegetation (including lower plants) at the climate change impacts monitoring site at Saladero Farm in East Falkland. With the inclusion in Year 2 of studies on the Hepatic (Liverwort) flora of the Falklands, this will permit recommendations to be made for the conservation of unusual and valuable lower plant communities. It is already clear from early work in the project, that there are several areas of rich and rare lower plant diversity in the Falkland Islands that do not correspond with the "Important Plant Areas" for higher (vascular) plants.

### **2.3 Progress towards project outputs**

Currently the project outputs are on track to be completed and in some cases exceeded by the end of the project:

Main progress summary:

- Output 1 - Major advance in knowledge of Falkland Islands lower plants and lichen diversity and biogeography, through fieldwork, collecting and outreach. Many new species and genera have already been added to the Falkland Islands flora. Progress in this output is better than expected with a high number of new discoveries and additions to the lichen flora.
- Output 2 (specialised training) – scheduled for delivery in Year 2
- Output 3 – The capacity for future biodiversity study has improved through a fully functional lower plants laboratory space, herbarium and reference collection. A local reference library of literature on species from other areas of the South Atlantic i.e. the sub-Antarctic islands, New Zealand and South Africa, has also been established. This will not only aid visiting scientists and consultants working on environmental impacts of development projects, but also members of

the local community with an interest in the island's biodiversity, habitats and land management. These outputs are all on track for completion by the end of the project.

- Output 4 – One workshop for the local community has been held in the Falklands to date. Publicity has been increased in the Falklands and the UK through newsletters, newspaper articles and a radio interview in the UK. Two articles have been written for the Falklands Conservation Newsletter, with at least two more scheduled for this year. As results continue to come through, there will be significantly more material to report on and publish during the coming year. Additional presentations have also been scheduled by contributors to highlight the Darwin Initiative project overseas, e.g. at the Pacific Northwest Bryophyte Workshop in Oregon in 2015).

## **2.4 Progress towards the project outcome.**

Good progress has been made towards achievement of the project Outcomes as presented in the original proposal. Through local field work carried out by the Project Officer and the first of three scheduled field trips with external specialists, many new taxa have been added to the species lists for the Falklands, and potentially new species to science are currently being studied. This has been an excellent start to the project, particularly regarding the poorly-known lichen component of the Falklands flora.

Through increased publicity about the project via media outlets in the Falklands, there has been a raised awareness regarding the importance of lower plants to the island's biodiversity, and increased understanding in relation to these plants' roles in the "economy of nature" (soil water retention and the slowing of erosion, both of which are factors of great importance for land management in the Falklands).

Progress towards the permanent legacy of the project is well underway. There is now a fully functioning lower plants and lichens study area set up at the Falklands Conservation HQ, including equipment and consumable materials to aid in the collection and identification of non-flowering plants. This will biological support status and trend studies, as well as environmental education and engagement of the local community in the future.

The project is well on course to achieve all of its outputs and outcomes by the end of funding.

## **2.5 Monitoring of risks**

There is a risk that overseas partners who are volunteering their time, e.g. by identifying collections, may become unavailable due to unforeseen commitments over the lifetime of the project. Knowledgeable scientists with familiarity and experience of the South Atlantic lichen and bryophyte floras are scarce. However, contingency plans have been drawn up to minimise this risk, including networking with as many different international institutions and scientists as possible, while highlighting the importance and short time-frame of the project. It is expected that, as word of the project spreads, more international specialists will join the support team to deal with the larger than expected numbers of new records that are accruing.

Similarly, because of the increasing number of specimens being collected, and the probability that several species new to science will be found, there will be time and resource constraints associated with laboratory work (DNA sequencing) that will need to be carried out to explore these new scientific "leads". The field trips planned for Year 2 of the project are likely to add to the "embarrassment of riches" that is accruing to this project. The team is addressing this risk by involving a wide group of voluntary international experts, and by searching for additional funding to allow more lab studies to be undertaken. Coupled with the planned project training for the Curator of the Herbarium in the Falkland Islands, this should allow for a comprehensive and representative herbarium collection to be based in the Falklands by project end, with only a handful of specimens still needing molecular study for final diagnosis.

Table 1. Risks identified in the application for the project (1) and risks identified during the project (2) and (3).

Description of the risk	Likelihood the event will happen (H/M/L)	Impact of the event on the project (H/M/L)	Steps the project has taken to reduce or manage the risk
(1) Key Staff Unavailable.	L	H	To network with a wide range of institutions and scientists so to minimise any halts in progress due to other work commitments of key staff.
(2) The continuation of work on collections after project end date.	H	L	To create a capacity for further work on specimens collected, by training Falklands Conservation Herbarium manager to sort specimens once project is over, and to clarify with the institutions responsible for identifying collections after project end date.
(3) Field equipment and vehicle availability for the 3 large field trips planned	L	M	Booking out vehicles and equipment early. Synchronising the visitation of international specialists.

### 3. Project Stakeholders

#### Falkland Island stakeholders and project staff

All Falkland island stakeholders and project partners have shown strong support for the project. Project leader Andrew Stanworth (FC - Conservation Officer) has given advice on planning field work in remote areas and relationships with landowners. Monthly meetings have been held with FC Watch Group Leader and Community Engagement Manager, Elizabeth Milston, on educational linkages relating to workshop planning and school visits. There will be further Watch Group days for the local schools in Year 2. There have been two meetings with the Falkland Islands Government (FIG) Environmental Planning Officer, Nick Rendell, regarding the relationship of the work to the Review of the Falkland Islands Biodiversity Strategy. There will be an increased number of meetings with Nick Rendell as data from the field trips accrues, and as the biogeographical picture for important bryophyte and lichen species becomes clearer.

#### International stakeholders and project staff.

During training in May and June 2014, the Project Officer met with collaborators at the Royal Botanic Gardens Kew and Professor Jeff Duckett at the Natural History Museum. Dr. Rebecca Upson (Kew Gardens) has given continued support and advice over the past 10 months through email contact and her visit to the island in March 2015 as part of the EU-BEST climate change project. This included advice on database upkeep, GIS software and relationships to vascular plant data and the FC herbarium. Professor Jeff Duckett has allocated time for the sorting and postage of duplicates of hepatic specimens for the herbarium that were collected during the 2011 reconnaissance expedition, while continually giving advice on the South Atlantic hepatic flora. Throughout the project there has been close collaboration with project partner Dr. Ray Tangney (National Museum of Wales) on project processes, the coordination of expert contributions and the publication of results from the field work. Project Partner Dr Shaun Russell (Bangor University) has been invaluable through his advice and guidance on Darwin



Initiative structure and expectations since the beginning of the project, and by publicising the work at meetings and conferences overseas.

#### **4. Monitoring and evaluation**

Since the start of the project, regular communication has taken place with the project partners and the network of international specialists. During the reporting period, Dr Ray Tangney at the National Museum of Wales has received regular communication on the progress of the project, mainly focussing on the advancement of the field work, specimen collecting and identification. There have been a high number of specimen exchanges between Falklands Conservation and NMW; including reference specimens from NMW for the Falklands Herbarium, and newly collected specimens from the Falklands for critical determination in the UK and elsewhere.

Due to distance of separation, Steering Group meetings between Falklands Conservation and Falkland Islands Government staff, and the project partners in the United Kingdom, have taken place whenever the opportunity arises, such as when the first expedition team was in the Islands.

Former Falklands Plants Officer, Dr Rebecca Upson (Kew Gardens, London) visited the Islands in March 2015 as part of the EU-BEST climate change project. A two-and-a-half hour meeting was conducted to discuss Darwin project progress, the BRAHMS taxonomic mapping database, data entry protocols and GIS aspects of the project.

#### **5. Lessons learnt**

The first fieldwork trip was a great success with 50+ lichen taxa added to the Falkland Islands flora and 10+ new records for mosses. This includes a suspected 6-10 lichen species new to science. This preliminary data confirms the knowledge gap for these taxonomic groups and the importance of the present project. The results of the field investigations take time to process and to be confirmed by collaborating institutions overseas. However, a more complete picture is emerging as critical specimens are determined in the current phase of study. By undertaking further local field work throughout the summer of 2014-15, the Project Officer has been identifying areas of the Falklands that are proving to be high in species diversity. It has become apparent that the 'Important Plant Areas' designated for vascular plants do not correspond with bryophyte richness and diversity. Fieldwork has therefore commenced to map important areas for bryophytes and lichens.

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

#### **7. Other comments on progress not covered elsewhere**

#### **8. Sustainability**

Awareness of the work that the Darwin Project is undertaking has been raised with the community locally and through activities abroad. In January 2015, UK project partner Dr Shaun Russell attended the International Association of Bryologists biennial Congress in Puerto Williams, Chile, where he gave a presentation entitled: "The 'Mosses of the Falkland Islands'". As a result, further specialist contacts have been made for the identification of collections and contributions to the remainder of the project during 2015/16.

The Media has been used to raise awareness of lower plants and lichens in the Falklands, in order to fuel interest in continuing botanical study in the Islands after this project has ended. Articles have been written for the Falklands Conservation Newsletter, detailing highlights and outputs of the project. The good turnout for the first workshop also demonstrated interest among the local Falklands community to know more about the nature, ecology and biogeography of the Islands. As results from the January field trip filter through, a Penguin News (local newspaper) article has been prepared and is ready for publication.

The January 2015 nature study day on mosses and lichens at Fox Bay School has also helped to embed an awareness and appreciation of non-flowering plants among the younger generation in the Falklands.

A major legacy of the Darwin Plus Project will be the fully functional lower plants laboratory space and comprehensive herbarium and reference collection with library of relevant literature. The knowledge of Falklands Conservation staff and the local community will have been enhanced and these resources will create a foundation for future taxonomic and ecological research and educational work in the Falklands for generations to come.

## 9. Darwin Identity

The Darwin Initiative logo has been presented on all publications and project documentation in the Falklands, and at public events. This includes the Falklands Science Week poster, the community training workshop, and in Falklands Conservation Newsletter articles. Overseas, the Darwin Initiative has been highlighted on a national UK radio station, and at the International Association of Bryologists biennial Congress which was inaugurated by the President of Chile. The logo and work of the Darwin Initiative will also be presented by the Project Officer at a 4-day bryophyte workshop in Oregon State, USA in May 2015.

Awareness of the Darwin Initiative is high among Falklands Conservation staff, the Government Departments of Agriculture and Fisheries and research organisations such as the South Atlantic Environmental Research Institute, due to prior DI activity and the three current DI projects in the Islands.

## 10. Project Expenditure

**Table 1 Project expenditure during the reporting period (1 April 2014 – 31 March 2015)**

Project spend (indicative) in this financial year	2014/15 Grant (£)	2014/15 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				NMW under-claimed on the overheads
Travel and subsistence				One less field trip in Y1. Mainly due to logistics of synchronising visiting specialists.
Operating Costs				Conference not yet completed. May 2015
Capital items				Camping equipment not purchased due to adequate accommodation for the first year field work.
Others (Please specify)				Project partners underspending on training and travel.
<b>TOTAL</b>	<b>103629</b>	<b>90596</b>	<b>-12.577</b>	

Highlight any agreed changes to the budget and **fully** explain any variation in expenditure where this is +/- 10% of the budget. Have these changes been discussed with and approved by Darwin?

**11. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes**

As these are preliminary results which still need to be confirmed, the project personnel would like to keep the following information confidential until publication date (expected 2015).

Among the species added to the lichen biota of the islands were *Candelariella flava* - previously an Antarctic endemic - and the bipolar species *Collema coccophorum* and *Massalongia carnososa*, both genera new to the islands. Other genera discovered that have not previously been reported from the islands include species of *Arthonia*, *Bacidina*, and *Hymenelia*. Although it is not yet been possible to identify these to the species level, at least one, the *Arthonia*, which is a lichenicolous lichen growing on a *Buellia* sp., appears to be new to science.

Two species not seen on the islands for over 100 years: *Carbonea phaeostoma* and *Peltigera didactyla* were also rediscovered, along with a second locality for *Bartettiella fragilis*, which has otherwise been reported only from North Island, New Zealand.

Other interesting species so far discovered include an alpine, bryicolous species of *Caloplaca*, saxicolous species of *Cliostomum* and *Tasmidella*, and a *Trapeliopsis* species with apothecia containing anthraquinones. All probably represent as yet undescribed species. Material was also collected of some apparently undescribed taxa (e.g., *Acarospora* sp., *Coccotrema* sp., *Lecidea* sp. *Ochrolechia* sp.) as well as some described taxa of uncertain systematic position (*Lithographa graphidioides*, *Rimularia andreaeicola*, *R. subpsephota*) that will be used for DNA sequencing to elucidate their correct systematic position.

Before this visit, approximately 300 lichen taxa were known from the islands, of which c. 15 appeared to be endemic. Although work on the collections has hardly begun, it is already clear that the lichen biota of the islands is very far from being completely known. Collections from this visit have already added substantially to these totals with an estimated 50 taxa being added to the overall list and a further 8-10 undescribed species being collected.

Regarding the bryophytes, the field expedition in January, contributed 354 specimens of mosses to the project. A number of species have been discovered as new to the Falkland Islands, as well as an undescribed species of the moss family Grimmiaceae.

The most recent list of mosses for the Falkland Islands (Matteri, 1986) recorded 141 species and a number of varieties. A review of state of knowledge of the Falklands moss flora since 1986 shows that the reassessment of some taxa has resulted in a reduction in the number of species known from the Falklands, and subsequent specimen study and new collections have added species to the list. Currently ten species have either been added to the list or confirmed by the recent field expedition. Most of these are from montane areas that are relatively rarely visited. Species include *Conostomum magellanicum*, *Rhacocarpus purpurascens*, *Cordiophorus laevigatus* and *Bucklandiella didyma*.

References

MATTERI C.M., 1986 – Los Musci (Bryophyta) de las Islas Malvinas, su habitat y distribución. *Nova Hedwigia* 43: 159-189 (in Spanish with English summary).

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	Y
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	Y
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Y
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	N
Have you involved your partners in preparation of the report and named the main contributors	Y
Have you completed the Project Expenditure table fully?	Y
Do not include claim forms or other communications with this report.	

### Annex 1.Outreach Pictures

Fig. 1. Educational Workshop at Falkland Islands Community School.



Fig 2. Educational Workshop at Falkland Islands Community School.



Fig 3. Bryophyte and lichen day at Fox Bay School



Fig 3. Reference collection at Falkland Conservation (Kew UKOTs Twitter Feed)

