



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: 30th April 2017

Darwin Plus Project Information

Project reference	DPLUS051
Project title	Water Security and Sustainable Cloud Forest Restoration on St Helena
Territory(ies)	St Helena
Contract holder institution	Saint Helena Government
Partner institutions	Connect Saint Helena, Arctium, Centre for Ecology and Hydrology
Grant value	£123,356
Start/end date of project	April 2016
Reporting period (e.g., Apr 2016-Mar 2017) and number (e.g., AR 1,2)	April 2016 – March 2017
Project leader name	Derek Henry
Project website/blog/Twitter	www.arctium.co.uk/dplus051-water-security/
Report author(s) and date	Ben Sansom, Derek Henry, Leon de Wet, Alan Gray

1. Project overview

St Helena has experienced unpredictable weather in recent years, which has led to two droughts in the past three years. The island has a very high dependency on rainfall to replenish water supplies. With the planned increase in eco-tourism, water demand is expected to rise, whilst climate change is likely to further impact on weather patterns.

The 20-Year Water Resource Masterplan outlines development and management of island water resources to provide security of supply and enable resilience to climate change. The preferred development approach is through rainwater harvesting.

Improving mist capture in the Peaks through restoring endemic cloud forest would increase available water resources and provide more cloud forest habitat for at-risk endemic plants and invertebrates.

This project will provide sub-catchment scale water balances to confirm the relationship between cloud forest, mist capture and impact of invasive species on water supply. Outcomes will support development of a cloud forest restoration plan.

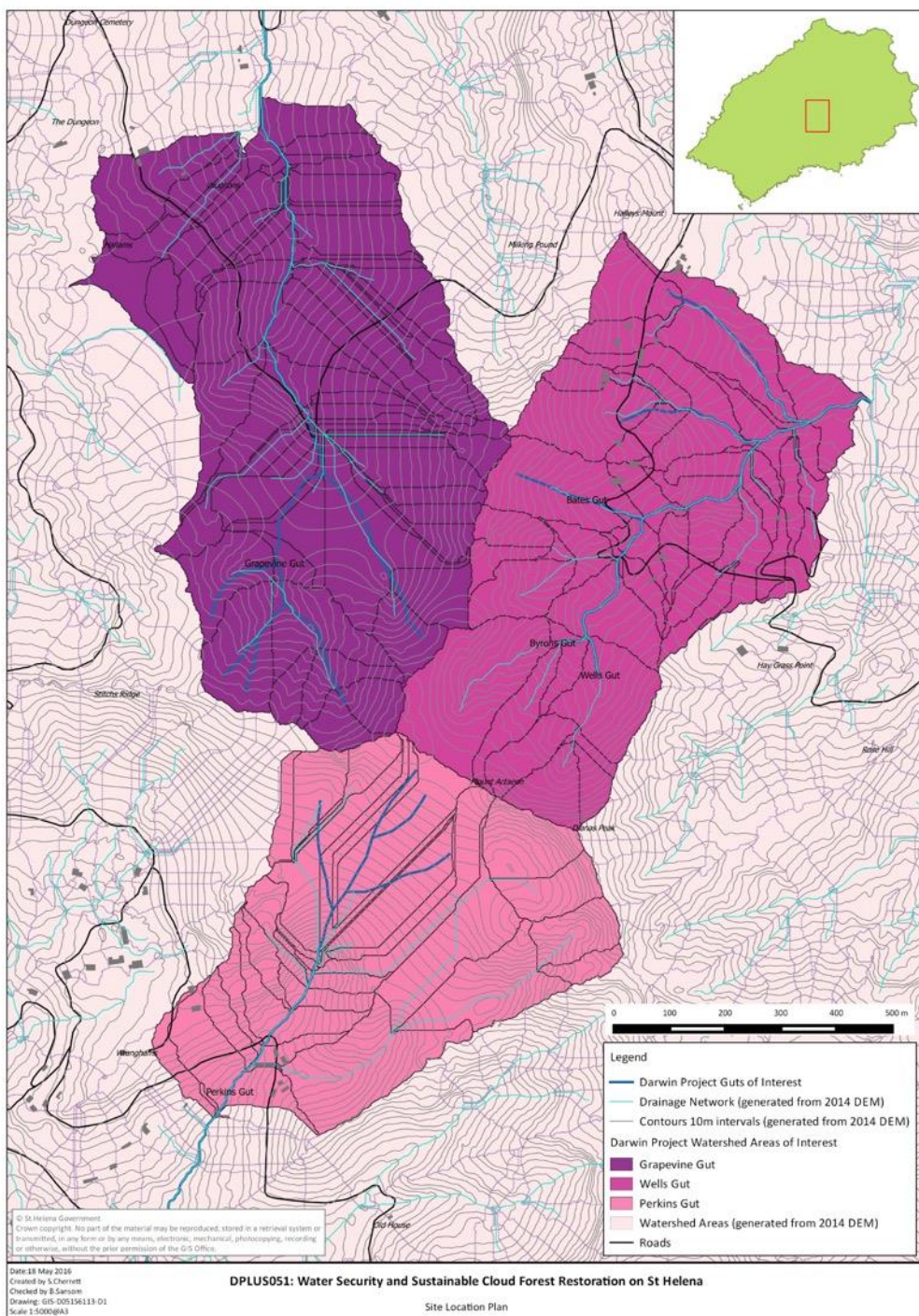
Two sub-catchments in the Peaks cloud forest, located within the centre of the island, were identified for their current habitat distribution and significance to island water supply; Grapevine Gut (exclusively invasive species) and Wells Gut (partially endemic species). A third sub-

catchment on the south-east side of the Peaks was also identified for climate monitoring to compare micro-climates on opposite sides of the Peaks.

The project has been designed to benefit the population of St Helena and endemic plants and animals. The outcomes of the project will be used to support the development of a more secure and sustainable water supply through cloud forest management and restoration, which in turn will increase habitat for endangered species.

A site location plan is presented in Figure 1.

Figure 1: DPLUS051 Site Location Plan



2. Project stakeholders/partners

All stakeholders were involved in the project planning process, as the project is borne out of Connect Saint Helena's 20-Year water resource masterplan and Saint Helena Government's responsibility for leading environmental management and protection on the island. The Centre for Ecology and Hydrology (CEH) provided technical knowledge supporting the selection and location of monitoring locations and ongoing interpretation of data. Arctium provided project management support and co-ordinated, installation of monitoring equipment, training and field survey support amongst project tasks.

There has been some change in project staffing during the year, with a change in Project Lead within St Helena Government (SHG) and a change in the day-to-day key contact within Connect Saint Helena (Connect). These changes have not materially changed the delivery of the project, however some project communications between technical staff in Connect and Arctium have taken longer than anticipated.

Procuring equipment went well for most equipment, however there were problems purchasing the drone through SHG's procurement partner. A solution has now been found and a project drone is being shipped to Saint Helena; however in Year 1 a drone had to be hired at short notice so that all tasks during the 2016 baseline field assessment could be completed.

Project stakeholders are in regular contact regarding staff resources, data collection progress, trouble shooting field equipment issues and project budgets.

Connect and SHG staff have increased involvement in the project since October 2016, when the monitoring equipment was installed within the study area. The teams are in regular contact planning and completing monthly monitoring and equipment maintenance tasks.

During October 2016 SHG, Connect and Arctium held two project progress meetings on island bringing together all the island-based staff working on the project. Meetings were held on 5th October 2016 before the start of field equipment installation and on 2nd November 2016 to present progress after equipment installation. PowerPoint presentations from these meetings are provided as evidence.

An equipment calibration exercise was completed at the SHG offices in Scotland along with staff from the Saint Helena National Trust, to ensure that all environmental research automatic weather stations and climate equipment were operating correctly. Photographs from the calibration day are presented below.



A project training day took place on Friday 11th October 2016 between SHG, Connect and Arctium to go through the basics of water level and flow monitoring, the equipment being used and protocols for data collection. The training PowerPoint presentation is provided as evidence.

The project team also had a small stand at the St Helena Nature Day, held at Longwood Green on Saturday 4th March 2017 to promote the project and conservation in the Peaks. Some photographs of the stand are provided below.



3. Project Progress

Project by Numbers

1st commercial licence to fly a small unmanned aerial vehicle on St Helena;
1 radio interview;
1 presentation to St Helena Councillors;
1 flow meter (being installed by June 2017);
1 island outreach event (Nature Day);
2 training days (office based and in the field);
2 barometric data loggers installed;
3 data collection visits completed across the whole monitoring network;
3 automated weather stations installed;
4 published articles (newsletters, blog, newspaper);
4 soil moisture loggers installed;
5 mist capture data loggers installed;
6 water level loggers installed;
7 local staff attended project training;
9 local staff supported the equipment calibration;
11 aerial surveys completed;
14 temperature and humidity loggers installed.

3.1 Progress in carrying out project Activities

During the first year, the following activities were completed:

Output 1: Desk Study

Ben Sansom visited Wakehurst Place on several occasions during 2016 to meet Colin Clubbe from Kew to discuss the project, data collection and in-kind support from Kew. Colin provided mentoring support for the botanical data collection, desk space (when needed) and aerial survey support via the Royal Botanic Gardens, Kew remote sensing team. Kew also provided access to on-line academic research portals to assist with the desk study phase of the project.

Regular telephone and Skype discussions with Alan Gray from CEH indicated that the CEH archive had lost many of the reports that had been written about the Saint Helena Cloud Forest climate during the early 2000's. The project desk study unearthed hard copies of these reports in the ARND library in Scotland, St Helena. The reports were scanned by the project team and forwarded to CEH for archiving. CEH also provided the project team access to academic research portals. In light of the lack of data within the CEH archives, a trip to CEH in Scotland, UK, was not deemed necessary.

Additional documents held in the ARND library on St Helena were reviewed by the project team during October 2016 with the support of the DPLUS052 team. The documents had been identified by the DPLUS052 team when looking for soil data to support the mapping and remote sensing element of the DPLUS052 project (Mapping St Helena's Biodiversity and Natural Environment). Evidence for the desk study element of the projects is the bibliography for the desk study.

Output 2: Baseline Field Assessments

Baseline surveys for the project were planned during 2016 with the support of the DPLUS052 team and with the DPLUS029 team (Securing St Helena's Rare Cloud Forest Trees and Associated Invertebrates). Due to the work schedule of the SHG Environmental Management Division Conservation team, the baseline botanical survey will be completed between May and July 2017. This is also due to the availability of new satellite mapping data which will be available at the end of April 2017, to compliment the aerial surveys completed in October 2017. Additional aerial surveys will also be completed in November 2017 to complete the botanical field surveys.

All of the 2016 aerial surveys were completed in October and November 2016 with early field support from the DPLUS052 team. Remote sensing tasks are 60% completed at present due to changes in the DPLUS052 data collection programme where remote sensing data will be shared. This data will be available for incorporation into DPLUS051 during the 2017 to 2018 financial year in time for interpretation and final reporting. Evidence for this are remote sensing photo montages and digital terrain models for the catchments.

The Water Features Survey was completed during the baseline survey undertaken in October 2016. The water features survey report comprises a section of the main project report which is currently being drafted. Evidence for this work comprises the monitoring location data sheets which include the water features identified for monitoring within the study area.

Output 3: Environmental Monitoring

All monitoring equipment was installed between October and November 2016 in conjunction with the baseline assessment and aerial surveys. CEH provided technical support on the selection of equipment and design of the monitoring network. An additional open channel flow meter has been purchased through equipment budget efficiencies and will be installed during the first half of 2017. This equipment will supplement the monitoring equipment installed in 2016. Evidence of progress comprises the monitoring training presentation, monitoring network manual (including monitoring location data sheets) and the end of fieldwork presentation.

All the equipment started logging data in the sub-catchments during October and early November 2016. The team have collected data on several occasions in the past 6 months, with the most recent data collection completed on 25th March 2016. This task is 25% complete and is in line with the project programme. There have been some technical issues with the automatic weather stations in Wells Gut and in Perkins Gut. The Wells Gut weather station has had problems with its power source. The team are evaluating the performance of a solution implemented in early April 2017. If the solution does not succeed, then the power source from the Perkins Gut weather station will be moved to Wells Gut. If this happens, the Perkins Gut weather station will operate at reduced capacity, but will still collect rainfall, temperature, humidity and mist data.

A soil moisture logger on Diana's Peak stopped working earlier this year. A new set of batteries were shipped to island and installed; however, this logger has not responded. The team are investigating other options for repairing the equipment. It should be noted that these loggers were gifted to the project by CEH and were not in the original project plan, so any data collected is additional to the core data which the DPLUS051 project has directly funded.

Evidence of the data collection comprises Excel spreadsheets showing the first 3 months of processed data. The most recent data will update these spreadsheets in May 2017.

Output 4: Interpretation of Data

The calculation of water balances from collated water level, flow, meteorological and botanical survey data will start in late November 2017 when 12 months of data have been collected. Interpretation of the water balances will be completed when they are completed. Evaluation of the data is ongoing to identify any trends, anomalies or discrepancies in the data sets. This information is being used to characterise each sub-catchment and to see if the data provides more evidence of the wider island climate. The most recent data collected in March 2017 should include the period when the island experienced the highest recorded rainfall since 2011. This data will be helpful in understanding what proportion of precipitation was through direct rainfall or interception by vegetation.

Output 5. Reporting

The collation of desk based and field data is an ongoing task and will be completed when a minimum of 12 months monitoring data has been collected. The main review and interpretation of data will start in November 2017.

3.2 Progress towards project Outputs

Due to the delay of the St Helena airport opening, the monitoring programme was delayed by 3 months because it was originally planned that project staff would fly to St Helena from the UK instead of travelling by ship. As a consequence Darwin Plus agreed that the project programme could be extended by 3 months to the end of June 2018. The progress reported below is based on a project completion date of 30th June 2018. The project programme has been amended to address this change in programme, which provides sufficient time for the team to interpret a minimum of 12 months monitoring data.

Output 1: Desk Study

All desk study data has been collected and is now being evaluated and reported. The desk study report is still being written and is 50% complete. This is against an original project programme showing completion during month 6 of the first year. The delay was principally due to the postponement of the baseline data collection on St Helena, due to problems with the airport opening being postponed and uncertainty of a shipping service to St Helena during the first half of 2016 and an ambitious programme deadline. The desk study will now be completed by the end of July 2017. Evidence provided as per Section 3.1. The indicator is still valid for the output.

Output 2: Baseline Field Assessments

The delay in completing the botanical surveys will not affect the project delivery as the outputs will be completed by July 2017. The outputs of the survey will be incorporated into the interpretation of the climate data and water balance which will start in November 2017. The indicator is still valid for the output.

The remote sensing / aerial survey indicators are still valid. This task was completed as per the revised programme. As discussed in Section 3.1, 60% of this task is complete, with the remaining surveys completed by the end of November 2017.

The water features survey was completed in October 2016. This task was completed as per the revised programme. The water features survey report comprises a section of the main project report which is currently being drafted. The indicator is still valid for the output. Evidence has been presented in Section 3.1.

Output 3: Environmental Monitoring

All monitoring equipment was installed between October and November 2016 in conjunction with the baseline assessment and aerial surveys. This task was completed as per the revised programme.

Data collection is ongoing and is being completed as per the revised programme.

The indicators for this output are still valid.

Output 4: Interpretation of Data

The calculation of water balances from collated water level, flow, meteorological and botanical survey data will start in late November 2017 when 12 months of data have been collected. The indicators for this output are still valid.

Output 5. Reporting

The collation of desk based and field data is an ongoing task and will be completed when a minimum of 12 months monitoring data has been collected. The main review and interpretation of data will start in November 2017. The indicators for this output are still valid.

3.3 Progress towards the project Outcome

Project Outcome: Demonstrate that restoring the cloud forest will increase harvested rainfall and meet the islands water demand, whilst improving climate change resiliency and significantly increase habitats for endemic plants and invertebrates.

Sections 3.1 and 3.2 have provided an update on project progress against the indicators with evidence of progress. The climate data collection has had some issues with equipment reliability, however at this time the project team believe that the data being collected will be sufficient to indicate the variations in micro-climate within the study area and to calculate a water balance. This information will be sufficient to assess the proportion of mist and rain captured by endemics and invasive plants in the study area. The results will then be used to evaluate the potential for cloud forest restoration to increase potable water supply on St Helena.

3.4 Project support to environmental and/or climate outcomes in the UKOTs

The project has installed a cloud forest micro-climate monitoring network in the Peaks National Conservation Area. For the first time, a record of micro-climate is being collected to support the understanding of the islands water resources. The monitoring network was installed in October 2016. The data collected will be used to support the implementation of the islands 20-year Water Management Plan and the selection of options to increase rainfall harvesting on the island.

The securing of endemic habitat in the cloud forest is a goal of the project, using data collected to support the option for habitat restoration to increase water harvesting for potable water supply.

Since the project inception, 7 local staff from Connect and the Environmental Management Division of SHG attended project training and have supported the baseline data collection and monitoring in the study area.

During the baseline data collection in October and November 2016, the project team met with Environment and Natural Resource Committee councillors to introduce the project and explain the project programme and outcomes. The team also provided an outline of the project to the general public through local radio and newspapers.

The project has yet to improve capacity in other UKOTs, however the team were contacted by Yolanda Chavez, Project Manager at Fundación Tangaré, about supporting a similar project in the Amazonian rainforest. The DPLUS051 project manager has had several discussions about project design with Yolanda and it is hopeful that the knowledge gained through planning and running DPLUS051 will benefit another cloud forest water security project.

<http://www.fundaciontangare.org/>

3.5 Monitoring of assumptions

The assumptions made regarding the project objectives have not changed and some of them were realised during the first year.

Travel to St Helena. A change request submitted in October 2016 identified that the opening of St Helena airport has been delayed due to technical problems. Consequently, there is no commercial passenger air service to Saint Helena. Due to continued delays with airport operation, Saint Helena Government (SHG) announced on 12th July 2016 that the schedule for the Royal Mail Ship (RMS) Saint Helena would be extended until 1st July 2017 and the ship will be used for all passenger and freight services (<http://www.sainthelena.gov.sh/maintaining-access-to-st-helena-ascension-2/>). As air freight for equipment was no longer an option, all equipment needed to be shipped to the island via the RMS St Helena. This delayed the

timeframe for installing the project's environmental monitoring network (originally scheduled for June 2016). These transportation issues also delayed the shipment of monitoring equipment. A copy of the change management request is provided as evidence.

Equipment procurement. The SHG procurement department had problems with a supplier procuring the DJI phantom 4 drone which came to light 1 week before the baseline monitoring was going to start. The drone was to be used to create a digital map of the study area, to determine the percent coverage of each candidate catchment with endemic and invasive plant species. An identical drone was hired with the permission of Darwin Plus so that the work could be completed in time. A project drone has since been procured and will be on island in time for the November 2017 field work.

Equipment reliability. The automatic weather stations have not worked as reliably as anticipated, with power problems in the Wells Gut weather station and issues with sensors and the logger at the Perkins Gut weather station. A soil moisture logger has also been a problem in Grapevine Gut. The project team have identified solutions and are working through them. There is sufficient redundancy in the monitoring network that the failure of some sensors will not cause a problem to the overall project progress and outcome.

4. Monitoring and evaluation

This has been covered in earlier sections.

5. Lessons learnt

The overall objectives of the project are being delivered within the revised timescale, despite the significant impact of the delayed airport opening. The time allocated to complete the desk study report was ambitious given the work that needed to be done to complete the monitoring network procurement phase and manage changes in the overall programme and transport issues. In future projects this task would be given a longer time to complete.

The availability of staff to complete certain activities has proved demanding to Connect and SHG due to the drought that occurred between September 2016 and March 2017. A significant amount of Connect's staff resources were diverted to ensure that the islands population could access a reliable potable water supply during this national emergency. A full diary of SHG press releases regarding the drought has been collated for use in the project and provided as evidence.

The aerial survey imagery taken in 2016 is suitable for a digital elevation model, but is not suitable for detailed vegetation analysis due to the angle that the camera was set during flights. The next set of surveys in November 2017 will correct for this error and the data will support on-going ecology surveys.

Additional preparation will be made to ensure that rat-proofing equipment takes place at the time of equipment installation, rather than completed a few weeks later. The regular clearance of vegetation around equipment also needs to take place as one site in Grapevine Gut was inaccessible after only 2 months. This has now been rectified.

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

N/A

7. Other comments on progress not covered elsewhere

Additional equipment has been procured or given in kind to the project to enhance the original monitoring network. CEH have been exceptionally generous and provided 4 soil moisture loggers and surplus mist capture equipment for the project. An open channel flow meter has also been procured with funds made available through savings in VAT on equipment purchases.

8. Sustainability and legacy

The monitoring network will remain in-situ after the project so that data collection can continue. Connect will incorporate the equipment into a wider water monitoring network and SHG will incorporate some of the climate monitoring locations into the islands baseline environmental monitoring network. Staff trained during the project will continue to monitor climate and water resource locations within the study area.

9. Darwin identity

The islands population and Elected Members are familiar with the Darwin identity as several Darwin Plus funded projects are operating on the island and have previously been completed on St Helena. Since April 2016 the project is being promoted on:

- The project website (www.arctium.co.uk/dplus051-water-security)
- Darwin Newsletter;
- 5gigabyte diet blog (www.the5gigabytediet.com);
- Environment Finance. Water: Risk, Opportunity and Sustainability conference, 5th April 2017. Discussion with delegates during the conference about the project and its proposed outcomes;
- Longwood Nature Day;
- Fundación Tangaré (<http://www.fundaciontangare.org/>);
- SAMS radio and the Sentinel newspaper, St Helena.

10. Project Expenditure

Please expand and complete Table 1.

Table 1: Project expenditure during the reporting period (1 April 2016 – 31 March 2017)

Project spend (indicative) in this financial year	2016/17 D+ Grant (£)	2016/17 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs			0%	
Consultancy costs			17%	Greater than anticipated GIS support from cross-over with DPLUS052 GIS activities resulted in a larger than anticipated variance in Q4.
Overhead Costs		TBC		Awaiting finalized accounts from Saint Helena Government.
Travel and subsistence			9%	
Operating Costs				
Capital items			0%	
Others (Please specify)	0			Bank charges
TOTAL			3%	There was an overall project underspend of £1,912.90 for the year.

The original budget was amended to a 3 year budget based upon information provided in the October 2016 change request, which was approved by Darwin Plus. Overall project consultancy costs were reduced due to a revised GIS consultancy workload and an increase in travel costs resulting from the delay in airport opening in Year 1. Despite this change in budget, there was still a 17% variance in GIS budget spend by the end of Year 1 due to cost efficiencies in GIS support from DPLUS052.

For the 2017 to 2018 financial year, Darwin Finance have agreed that the GIS Consultancy budget can be used to support the employment of a Monitoring Network Officer in EMD to support the monthly collection of field data and maintenance of equipment. It has been agreed with the Project Director that Mike Jervois, who is providing support from EMD, will take this role and his contract with EMD will be extended for 12 months so he can complete this task. Mike's employment on island will maintain project continuity and knowledge within the team trained on island. Mike will also be able to provide continued botanical survey support to the project.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2016-2017

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
<p>Impact</p> <p>Climate change and increasing population are managed effectively to enable a sustainable water supply and restoration of the fragile cloud forest habitat.</p>			
<p>Outcome</p> <p>Demonstrate that restoring the cloud forest will increase harvested rainfall and meet the islands water demand, whilst improving climate change resiliency and significantly increase habitats for endemic plants and invertebrates.</p>	<p>0.1 Desk study.</p> <p>0.2 Collection of micro-climate data.</p> <p>0.3 Botanical survey of each sub-catchment.</p> <p>0.4 Water balance.</p> <p>0.5 Reporting and outline cloud forest restoration plan.</p>	<ul style="list-style-type: none"> • Collection of micro-climate data; • Aerial surveys; • Desk study data collection; • Installation of monitoring network; • Staff training. 	<ul style="list-style-type: none"> • Monthly and quarterly monitoring of climate and water levels; • Additional aerial surveys; • Botanical surveys; • Desk study reporting; • Interpretation of data, water balance and reporting.
<p>Output 1. Desk Study</p>	<p>1.1 Visit Kew and CEH in the UK to collate desk based data.</p> <p>1.2 Desk based assessment of ANRD archive in the Scotland library on St Helena.</p> <p>1.3 Desk study report.</p>	<p>Desk study data collection is complete. The report is now being written, now that the additional data sources from St Helena have been reviewed.</p> <p>The verification indicators are still valid. Circulation of the draft desk study report will provide evidence of Output 1 completion.</p>	
<p>Activity 1.1 Visit Kew and CEH in the UK to collate desk based data.</p>		<p>Complete. The project desk study unearthed reports that were lost from the CEH archive. Copies were found in the ANRD library in Scotland, St Helena. They were scanned and forwarded to CEH for archiving. Meetings with Colin Clubbe at Kew during 2016 highlighted the limited data resources that Kew have in their archive regarding the water demand of plants. Access to national and international academic papers via academic portal was provided by Kew and CEH.</p>	

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
Activity 1.2 Desk based assessment of ANRD archive in the Scotland library on Saint Helena.		Complete. Documents held by SHG in the Essex House and Scotland archives were reviewed and copies scanned for the project. This task was partly supported by DPLUS052 as there were some common reference documents which included soil and geology data alongside hydrological data for the island.	
Activity 1.3 Desk study report.		The report is still being written as a final draft and is 50% complete. This is against an original project programme showing completion during month 6 of the first year. The delay was principally due to the postponement of the baseline data collection on St Helena, due to problems with the airport opening being postponed and uncertainty of a shipping service to St Helena during the first half of 2016 and an ambitious programme deadline. The desk study will now be completed by the end of July 2017.	
Output 2. Baseline Field Assessment	2.1 Completion of botanical surveys. 2.2 Completion of remote sensing/aerial surveys. 2.3 Water features survey.	All of the Output 2 tasks have been completed in Year 1. Some tasks were delayed against the original programme due to delays in starting the baseline surveys due to the documented problems with public transport to St Helena. The means of verification are valid.	
Activity 2.1. Completion of botanical surveys.		Baseline surveys for the project were planned during 2016 with the support of the DPLUS052 team and with the DPLUS029 team (Securing St Helena's Rare Cloud Forest Trees and Associated Invertebrates). Due to the work schedule of the SHG Environmental Management Division Conservation team, the baseline botanical survey will be completed between May and July 2017.	
Activity 2.2. Completion of remote sensing/aerial surveys.		All 2016 aerial surveys were completed in October and November 2016. Additional surveys will be completed in late 2017. Remote sensing tasks are 60% at present due to changes in the DPLUS052 data collection programme where remote sensing data will be shared. This data will be available for incorporation into DPLUS051 during the 2017 to 2018 financial year in time for interpretation and final reporting.	
Activity 2.3. Water features survey.		Complete. This task was completed during the baseline survey undertaken in October 2016. The water features survey report comprises a section of the main project report which is currently being drafted.	
Output 3. Environmental Monitoring	3.1 Installation of hydrology and hydrogeology monitoring locations.	All monitoring equipment identified in the project grant application has been installed in the field during October and November 2016. Regular monitoring of climate and water data started in January 2017 and will continue until the end of	

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
	<p>3.2 Installation of meteorological monitoring equipment and relative humidity loggers in both sub-catchments.</p> <p>3.3 Collection of meteorology data in the sub-catchments and a control catchment.</p> <p>3.4 Monthly and quarterly monitoring of surface water and groundwater levels and flows and meteorological/micro-climate data.</p>	the project in June 2018.	
Activity 3.1. Installation of hydrology and hydrogeology monitoring locations.		Complete. All monitoring equipment was installed between October and November 2016. An additional open channel flow meter has been purchased through equipment budget efficiencies and will be installed during the first half of 2017. This equipment will supplement the monitoring equipment installed in 2016.	
Activity 3.2. Installation of meteorological monitoring equipment and relative humidity loggers in both sub-catchments.		Complete. All meteorological monitoring equipment was installed between October and November 2016.	
Activity 3.3. Collection of meteorology data in the sub-catchments and a control catchment.		This task is 25% complete and is in line with the project programme.	
Activity 3.4. Monthly and quarterly monitoring of surface water and groundwater levels and flows and meteorological/micro-climate data.		This task is 25% complete and is in line with the project programme.	
Output 4. Interpretation of Data	<p>4.1 Calculation of water balances from collated water level, flow, meteorological and botanical survey data.</p> <p>4.2 Interpretation of water balances – identify trends and/or relationships between micro-climate, vegetative cover and ground conditions.</p>	<p>Monitoring data is currently being collated and graphed as and when monitoring data is collected in the field. Interpretation of data will start when 12 months of data have been collected.</p> <p>The means of verification are still valid.</p>	
Activity 4.1. Calculation of water balances from collated water level, flow, meteorological and botanical survey data.		This task will start in late November 2017 when 12 months of data have been collected.	

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
Activity 4.2. Interpretation of water balances – identify trends and/or relationships between micro-climate, vegetative cover and ground conditions.		This task will start in late November 2017 when 12 months of data have been collected.	
Output 5. Reporting	5.1 Collation of all desk based and field data. 5.2 Interpretation of data and desk based data and reporting of an outline cloud forest restoration plan.	This task is on-going as sections of the report are already being written and field data is being collated for interpretation. Interpretation of data will start in November 2017 when 12 months of data have been collected. The means of verification are still valid.	
Activity 5.1. Collation of all desk based and field data.		This task will start in late November 2017 when 12 months of data have been collected.	
Activity 5.2. Interpretation of data and desk based data and reporting of an outline cloud forest restoration plan.		This task will start in late November 2017 when 12 months of data have been collected.	

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed) - – if appropriate

N.B. if your application's logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact Darwin-Projects@ltsi.co.uk if you have any questions regarding this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact:			
Climate change and increasing population are managed effectively to enable a sustainable water supply and restoration of the fragile cloud forest habitat.			
Outcome: Demonstrate that restoring the cloud forest will increase harvested rainfall and meet the islands water demand, whilst improving climate change resiliency and significantly increase habitats for endemic plants and invertebrates.	0.1 Desk study. 0.2 Collection of microclimate data. 0.3 Botanical survey of each sub-catchment. 0.4 Water balance. 0.5 Reporting and outline cloud forest restoration plan.	0.1 Completion of desk study and reporting of outcomes. 0.2 Field collection and interpretation of meteorological data. 0.3 Field data collection and interpretation of botanical data. 0.4 Field data collection and interpretation of hydrology, hydrogeology, meteorological and botanical data to calculate balances. 0.5 Reporting of restoration plan in final project report.	Access is made available to literature archives and data sources. Topography is accessible. Equipment can be shipped to island in good time to allow a minimum 12 months data collection. Equipment performs reliably to collect remote datasets. Procurement process enable the timely purchase of project equipment.
Outputs: 1. Desk Study - to collate archive data.	1.4 Visit Kew and CEH in the UK to collate desk based data. 1.5 Desk based assessment of ANRD archive in the Scotland library on Saint Helena. 1.6 Desk study report.	1.1 Collated reports and data sets from Kew and CEH. 1.2 Collated reports data sets from ARND library. 1.3 Completion of desk study report.	Reports and data sets are available to assess a baseline and determine key mechanisms for cloud forest rainfall harvesting.
2. Baseline Field Assessment	2.1 Completion of botanical surveys. 2.2 Completion of remote sensing/aerial surveys. 2.3 Water features survey	2.1 Drafting of maps, GIS layers, reporting of field activities. 2.2 Drafting of maps, video and photos of aerial surveys.	Topography allows access by foot into each sub-catchment to verify aerial survey data. Drone performs well and does not suffer technical problems.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
		2.3 Water features survey report.	Remote sensing data is available from SHG and other identified open source data providers (NASA, SMAP).
3. Environmental Monitoring	<p>3.1 Installation of hydrology and hydrogeology monitoring locations.</p> <p>3.2 Installation of meteorological monitoring equipment and relative humidity loggers in both sub-catchments.</p> <p>3.3 Collection of meteorology data in the sub-catchments and a control catchment.</p> <p>3.4 Monthly and quarterly monitoring of surface water and groundwater levels and flows and meteorological/micro-climate data.</p>	<p>3.1 and 3.2 Monitoring location maps and data sheets.</p> <p>3.3 and 3.4 Maps, spreadsheets and associated charts showing data collected.</p>	<p>Topography allows access to monitoring locations by foot.</p> <p>Equipment is procured and shipped to Saint Helena in time to meet project programme.</p> <p>All equipment performs well and does not suffer technical problems.</p> <p>Remote monitoring equipment does not suffer power loss (trickle charge batteries via solar PV).</p> <p>Pressure transducer calibration does not drift.</p>
4. Interpretation of Data	<p>4.1 Calculation of water balances from collated water level, flow, meteorological and botanical survey data.</p> <p>4.2 Interpretation of water balances – identify trends and/or relationships between micro-climate, vegetative cover and ground conditions.</p>	<p>4.1 Reporting of sub-catchment hydrology, hydrogeology, meteorology and botanical survey data.</p> <p>4.2 Reporting of sub-catchment water balances and interpretation of the relationships/trends.</p>	<p>Sufficient data can be collected to calculate a water balance.</p> <p>Meteorological data and vegetation survey are of sufficient resolution to differentiate between sub-catchments.</p>
5. Reporting	<p>5.1 Collation of all desk based and field data.</p> <p>5.2 Interpretation of data and desk based data and reporting of an outline cloud forest restoration plan.</p>	<p>5.1 Draft final report.</p> <p>5.2 Final section of draft final report. Outline cloud forest restoration plan to support water supply and terrestrial conservation objectives.</p>	<p>All data and reporting is completed within the 24 month project programme.</p> <p>Sufficient data and identification of trends/relationships to draft an outline restoration plan.</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)			
<p>1.1, 1.2 and 1.3 contribute to Output 1. Output 1 is required to evaluate existing information and data associated with cloud forest rainfall harvesting on Saint Helena.</p> <p>2.1, 2.2 and 2.3 contribute to Output 2. Output 2 is required to confirm the coverage of endemic and invasive species in each sub-catchment, define each sub-catchment through mapping and the digital terrain model and complete a survey of the sub-catchments hydrological and hydrogeological features.</p> <p>3.1, 3.2, 3.3 and 3.4 contribute to Output 3. Output 3 is required for the collection of micro-climate and water resource data sets.</p> <p>4.1 and 4.2 contribute to Output 4. Output 4 is required to quantify each water balance and determine differences between each sub-catchment quantify any differences in micro-climate between the sub-catchments and interpret the trends/relationships.</p> <p>5.1 and 5.2 contributes to Output 5. Output 5 is the main project report and provides an outline restoration plan for the cloud forest to support water supply and terrestrial conservation objectives.</p>			

Annex 3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Supplementary material is located on the project Drop Box folder. The material can be located at:

<https://www.dropbox.com/sh/7d5qu975qy8j6vw/AAAidCebty2yyS15zqLQpK1za?dl=0>

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	No
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	