Darwin Initiative/Darwin Plus Projects
Half Year Report
(due 31st October 2020)

Project reference	DPLUS099
Project title	Fragmented cloud forest habitat rehabilitation through innovative invasive plant management
Country(ies)/territory(ies)	St. Helena, South Atlantic Ocean
Lead organisation	Environment Natural Resources & Planning Directorate, St. Helena Government
Partner(s)	
Project leader	Darren Duncan
Report date and number (e.g. HYR3)	HYR2
Project website/blog/social media	No dedicated website

1. Outline progress over the last 6 months (April – Sept) against the agreed project implementation timetable (if your project has started less than 6 months ago, please report on the period since start up to end September).

1. Strengthened local capacity to better protect priority habitat fragments against invasive plants

   Activity 1.2 Recruitment of suitably experienced project personal

   The Project was set back during this reporting period following the resignations of the Restoration Specialist in June 2020 and the Terrestrial Conservation Officer and DPLUS099 Project Manager in July 2020. This is the second project manager to resign from the project. The Restoration Specialist had built up considerable knowledge and experience of the restoration ecology and nursery production having worked on the previous DPLUS029. He was appreciated by the project team for his mentorship in the time that he had with them under the project. The Project Manager left without seeing out their resignation period and there was no hand-over, despite this having been an identified problem with the departure of the first Project Manager. Consequently a considerable amount of time has been given to the new project team to get up to speed with the project and Project Leader Darren Duncan provided support his capacity.

   After serious consideration of different options available to ENRP for project management, Director ENRP and Project Lead, Darren Duncan approached EMD Nursery Officer Vanessa Thomas-Williams to take on the role of project management (Date). As Nursery Officer, Vanessa is responsible for all nursery production and responsible for species recovery work across all the EMD conservation sites. With over 25 years of experience of conservation in EMD and management (including OTEP Bastard Gumwood Restoration Project), she is uniquely qualified to extend her management role to this project. Since the resignation of the TCO she has been responsible for the management of all EMD staff. This is anticipated to be a temporary arrangement during a period of change management within SHG and ENRP as Directorate structures are under review and there are plans for changes to staffing within EMD. These changes are not likely to take effect before 1st April 2021. Vanessa will be responsible for managing this project until its completion to provide continuity and avoid further disruption.

   She is being supported in this by Dr Rebecca Cairns-Wicks, the Coordinator of the St Helena Research Institute who is working under a Service Level Agreement to provide practical management and technical support through direct assistance in reviewing and planning project activities and developing approaches to team and invasive plant and project site management.

   Rebecca leads on the research programme for the Peaks Implementation Plan. In her role as Head of Operations St Helena National Trust (2015-2017) she managed the Trust's terrestrial environmental (Wirebird, Invertebrate, Community and Millennium Forests) and heritage conservation programmes. Coordinated and facilitated international workshops and strategy development: Spiky Yellow Woodlouse: A Strategy for its Conservation 2016 – 2021 (Havery et al., 2016) & St Helena Invertebrate Conservation Strategy 2016 to 2021, (Cairns-Wicks et al, 2016). Project managed (final project year) Creating Community Forests to Enhance Biodiversity and Provide Educational Activities (20-005) (£[redacted]). As the former Conservation Officer, she has direct experience of managing the Peaks and whilst working for the St Helena National Trust led the Peaks Protected Area Plan project.

   Both Vanessa and Rebecca are members of the Project Development Group (PDG) for the Peaks Implementation Plan. The PDG was established to implement and deliver the ambitions set out in the Peaks National Park Conservation Management Plan 2019-2024'and comprises specialists from the key partners: St Helena Government, the island water utility company 'Connect St Helena', St Helena Research Institute, St Helena National Trust, St Helena Tourism, St Helena Education department and RSPB. They have both been part of the PDG since its inception, directly involved in identifying the activities under the core management pillars (Biodiversity; Water Security & Climate Change Resilience; Socio-economics and Management) to achieve the Peaks Implementation Plan. A successful outcome for the DPLUS099 will provide valuable foundations to this multi-million pound project. The ecological approaches and techniques used, experience and skill sets developed under DPLUS099 will inform the

practise adopted under the Peaks Implementation Plan. In their roles, Vanessa and Rebecca can work to ensure continuity, project integration and that future works builds on the lessons learnt.

During this reporting period RSPB continued to support Richard Henry through a contractual arrangement with ENRP. As Cloud Forest Nursery Officer, Richard works in the Peaks Nursery alongside the Peaks Production Manager to continually improve cloud forest production output in support of the Peaks Management Team and DPLUS099 project. He brings significant nursery production skills to the project having been previously employed as the Millennium Forest nursery officer.

Activity 1.3 St Helena staff trained in survey techniques, applied ecology and new clearance protocols

The project management team (PMT) (VTW & RCW) have held on site and office based meetings with the Project leader Darren Duncan, senior cloud forest technician and senior nursery technician to be brought up to speed on project activity and progress and also held meetings with all the staff employed on the Peaks (11) to inform them of management changes and approaches. These meetings have brought together both the Project Team and the long-term St Helena Government ECS staff who are permanently based at the Peaks to better align the working practises of both teams, to give everyone an opportunity to express their opinions and give everyone the same messages about how the project will be achieved.

The PMT have confirmed what the project staff and peaks staff knew and understood about the project; understanding of expected outcomes and activities; skills employed in delivering the project, and identify skill and knowledge gaps and training needs to be addressed.

The revised Clearance Protocol for 14 invasive plants species was discussed in depth and at length with all 11 field and nursery staff to ensure that everyone was fully acquainted with it and to reinforce and build confidence that the techniques being used are best practise. Staff were able to add refinements from their experience to the techniques and identified and described 10* (see below) additional species which they would like to see added to the protocol. This illustrates that staff are using their experience and observations (continued learning) to correctly identifying non-native invasive species, make an assessment that a species has an impact and want to be assured that they are using the best methods for their control. The revision of the Clearance Protocol will be done as a group exercise so that it forms part of their continued learning and professional development.

In full support of the original intention, the Clearance Protocol will continue to be kept as a live document to be added to and revised regularly and forms an essential part of the ecological toolkit for new and existing staff to refer to.

The progress achieved by the project staff in the reporting period (described as an appendix to this report below) provides good evidence that staff have a robust understanding of their work programme and apply the ecological techniques developed through the previous project (DPLUS029) and the current project. It is acknowledged that staff enjoyed working alongside and gained much from the mentorship of Andrew Darlow prior to his departure from the project.

*Thatching grass (*Pennisetum macrourum*), cow grass (*Paspalum scrobiculatum*), tallow vine (*Commelina diffusa*), soft rush (*Juncus effusus*), *running sedge (Kyllinga bevifolia), blue weed (Ageratum conyzoides), smooth sow-thistle (*Sonchus oleraceus*),* diddledight (*Solanum nigrum*), furze (*Ulex europeaus*) *and feather moss (Pseudoscleropodium purum)*

The following training needs have been identified with staff to support activities 1.3 & 1.4:

1. Botanical site & corridor surveys

   The methodology for corridor assessment has been developed but no further progress in conducting surveys has been achieved in this reporting period. The senior restoration technician (SRT) confirmed that he had not had enough

experience of surveying to feel confident of continuing the programme without additional training. The PMT will work with the SRT and the project team to deliver training in the survey form and work with the team to conduct the surveys. Survey work was not practical during this year's very wet winter.

2. Habitat assessments (invertebrate surveys)

   It was the intention of this project to apply the methodology for habitat assessments from the DPLUS029 i.e. invertebrate niches and tree surveys will be utilised from the DPLUS029 to monitor progress against the DPLUS029 from which baseline data. No one on the current project have experience of the methodology. The PMT have confirmed that all staff would benefit from training in invertebrate identification, an introduction to invertebrate ecology and invertebrate ecological conservation techniques and survey methods. Invertebrate support for the project was expected to be delivered by the St Helena National Trust (SHNT) however they are fully employed on other projects. David Pryce, an invertebrate specialist based on the Island and who has the most extensive local knowledge of invertebrate diversity, ecology and conservation, will be contracted to deliver the training. David worked under DPLUS040 and DPLUS029 to conduct the invertebrate survey and the data collected will form the baseline upon which to monitor progress since 2016. To provide comparative data the survey will take place between October and November 2021, which will provide a time period of 5 years to monitor change.

3. Plant conservation genetics

   The discovery of potentially different sub-species of Peak grass, *Carex dianae,* being purposefully planted in across project sites highlighted the importance of both a working knowledge of the principals of conservation practise as described in the EMD protocols and guidelines and most importantly an understanding of practises adopted are and why they are important. The mixed planting has had a serious impact on the project: with the loss of nursery stock (time and resources dedicated to its production), loss of time due to production lead in and lack of ground cover to keep pace with planting. It will also have had as yet undescribed ecological impacts due to hybridisation. It was gratifying to learn from the project team that they had identified the physical difference between the Barn Peak grass and the Diana's Peak grass. They were given no explanation by the former project managers. The PMT have discussed the peak grass problem with all peaks staff and are working with them to deliver the action that was agreed with all stakeholders, including the SHNT. Further technical training and continued reinforcement of learning of concepts and practise for all aspects of the teams work will continue through the project and this will be supported by both Vanessa and Rebecca.

4. Use of GPS and mapping

   The restoration technician confirmed that whilst they had a GPS, he was still not completely confident in its use and in the downloading of data. The GIS Manager has agreed to provide training and this will take place in Q4.

5. Use of drone and photographic grid surveying and analysis

   Mario Coleman was contracted to provide some training to staff on flying the drone. They have practised since, but still feel that they need to reinforce their current knowledge and to be able to implement drone based surveying. This will take place in Q4.

6. Nursery propagation and scheduling

   To be conducted on an on-going basis with the senior nursery technician and RSPB cloud forest nursery officer, reinforcing learning to improve process and techniques.

7. Seed collection techniques and processing

   All staff have had exposure to seed collection protocols. Ongoing training and support will be given to responsible staff (senior nursery technician, RSPB cloud forest nursery officer, senior restoration technician and Peaks charge hand). All

processing will now be carried out at the Scotland Nursery so that the collections can be properly processed, catalogued and where needed stored in the EMD seed bank.

8. Biosecurity

It has been evident from discussing with staff and site visits to the nursery and in the field that biosecurity measures are not being used. The PMT will work with Biosecurity Officer Julie Balchin to give an introduction to all staff about biosecurity and why it is important and the methods all should be implementing. Learning will be reinforced through the project practise and reviewed and developed as experience grows through the remaining lifetime of the project.

9. Safe working practises – working on ropes

The staff on the peaks work in steep sites, including cliff sites with loose rocks and unstable ground. In wet weather the ground can become very slippery. For health and safety, it is considered necessary to ensure that all staff have at least basic working with rope skills and that some (3) have more advanced skills, so that they are competent to work on the high-altitude cliff sites. The training will be delivered by the SHG Fire and Rescue Service and appropriate equipment to work safely on ropes on the peaks will be purchased.

10. Spatial data management and analysis

The former project (DPLUS029) has and this project is producing valuable spatial data sets that we need to store securely, manage and analyse. The PMT have some experience of working with QGIS and spatial data manipulation but don't feel proficient enough or have the time available to them and seek to have refresher and additional support to sort, archive, and analyse the data sets. Technical assistance will be needed to make sure that at the least, the PMT and senior restoration technician are properly storing and managing the data sets and that they are accessible and can produce mapping outputs to illustrate activity and to answer project questions.

11. Database – Habitat survey data base

The habitat survey database was set up and populated under DPLUS029. The PMT and senior restoration technician need support to become familiar with the database, inputting data and data analysis linked to 10 above.

12. Safe use of pesticides

Three staff currently have had training in the safe use of pesticides: both nursery staff and the Peaks charge hand. It is planned to extend the training and also to provide a refresher, to all staff, so that when chemical use is required that it is not delayed because of limited staff competency. This will be particularly valuable for the project team for the use, in line with the Clearance Protocols, with woody species which require chemicals applied to the cut stump. Training will be given by James Fantom, in Q4, who received train the trainer training in safe use of pesticides under DPLUS059.

In addition, to support continued professional development, two staff will now take on the formal and internationally recognised qualification, a City and Guilds level 2 diploma in work based conservation (QCF) 0070. Rebecca and Vanessa are both NVQ Assessors and will assess one member of staff each.

Activity 1.4 St Helena staff trained in nursery scheduling and managing production work flow

The nursery staff (senior nursery technician & RSPB cloud forest nursery officer) have worked with the project manager to improve cultural conditions in the nursery and manage production. Areas of specific focus have been on:

1) Implementation of standardised procedures - ensuring genetic conservation through propagation – reinforcement of principles and protocols with all peaks staff and worked through with the removal of Diana's peak grass seedlings from the nursery (due to uncertainty of provenance/potential hybridisation) and decision to re-start collection of

vegetative cuttings from wild plants of known provenance to establish a new field gene bank for Diana's peak grass and lack of seed for sowing (seed would need to be collected when wild plants of known provenance are seeding – December).

2) Implementation of standardised procedures - ensuring genetic conservation through seed collecting protocols – reinforced by discussing at team meetings and through practical action and ensuring all staff across EMD use the same protocols. There is a standard seed collecting form which is now in use for all collecting.

3) Implementation of standardised procedures – seed processing and storage

   All seed processing is now being done at the EMD Scotland Nursery.

4) Pest control - A significant outbreak of red spider that was found to be infecting all species and plants in the nursery. Identification of mite infestation is not easy – the mites are so tiny that it is impossible to see with the naked eye and it is difficult to identify the source of the symptoms – curled leaves and distorted apical meristems. Control methods in use in the nursery were not effective. After reviewing plant status it was agreed that some plants would be destroyed (dogwood, due to their poor health and age) and that the ANRD spray team would be brought in to treat all plants with appropriate pesticide. The nursery team had to systematically work through the whole nursery, including benches, fixtures and fittings and plantings within and close to the nursery (notably banks of large bellflower, false gumwood) to treat and eradicate the mites. This has impacted nursery production and planting in this reporting period.

   After investigation it was found that infected large bellflowers had been reintroduced to wild sites. No planting of nursery grown stock was permitted until treatment of the infestation had been carried out and plants were clean. The nursery team are now more confident about identification and treatment.

5) Nursery scheduling - Project management team are also concerned that dogwoods, whitewoods and he-cabbages were exhibiting symptoms of pathogenic infection. Pests & pathogens are more likely to affect stressed plants and possible causes for stress in the nursery arise from plants staying too long in the nursery and exhausting nutrient supplies and drought or waterlogging. It is likely that in this case the plants had been left too long in the nursery before planting and this may have contributed. The project manager has brought in new nursery scheduling procedures, which are used in the Scotland nursery but have not been implemented at the peaks before now, and has been working with the senior nursery and restoration technicians to start implementing the new process.

6) Range of species being grown in the nursery was reviewed

   False gumwoods are particularly prone to mites and the senior nursery & cloud forest technicians confirmed that they don't grow on the Peaks – they have slow growth and are quickly outcompeted by other species. It was agreed that all false gumwoods and redwoods will no longer be produced at the Peaks nursery and were removed to the Scotland nursery. Planting of false gumwood and redwood will focus in other restoration and project sites on the Peaks where they are growing well (Cason's and Mt Vesey)

   Some of the large bellfowers were also removed to Scotland nursery and these will be grown on and planted at other peaks sites (Cason's)

   Activity 1.5 St Helena staff gain experience in conducting surveys, undertaking new clearance techniques and managing better nursery work flow

   Project staff have practised the drone use skills that they learnt from their training with Mario Coleman but have identified that they are still not completely confident and would like further training support. This will take place in early 2021.

   No further survey work has been conducted in this reporting period. Senior restoration technician has confirmed that he is not confident from the limited exposure to surveying that he has had under the project and further support is needed.

Staff are implementing new clearance techniques and good progress has been achieved across the year 1 & year 2 project work sites. See Table under 2.4.

Corridor and habitat site assessments were expected to be undertaken every six months. These have not been completed to date, and have been delayed as a consequence of staff changes. The corridor work is a key element of project as through them we aim to assess the level of input required to achieve corridor creation and the time it takes to successfully convert invasive dominated vegetation to novel native dominated vegetation corridors. Four corridors have been identified, created and surveyed so far. A corridor data base has been set up and 2 of the site data sets has been added, the other two now need to be added to the database.

After proficiency training for the use of the drone and the establishment of the drone photogrid of project sites, this survey technique will be used every six months to assess progress.

However, it is considered by the current PMT that biannual assessments are too frequent; it is considered too short a time to track change and every time a site is accessed there is impact from footfall, nor is it considered practical within the remaining time of the project, in part because of the training needs identified above and time taken to conduct and analyse which is not practical in wet weather. Instead, we propose to make a change to have an annual assessment and in Yr 2 Q4 we will add baselines for any new prioritised corridors.

Annual habitat surveys for project sites (botanical and invertebrate) are also considered too frequent and because progress on this activity has not been achieved instead, we propose to use the datasets produced under DPLUS029 to provide the baseline for assessing habitat change (invertebrate and botanical) across the project work sites. Whilst the botanical data sets were analysed within the DPLUS029 and are therefore available the habitat (invertebrates) datasets were collected but not analysed. We therefore propose that the datasets will be analysed to provide the baseline assessment. Year 2 of this project marks 5 years since the data was collected (Oct & Dec 2016) and this is considered to be a reasonable length of time to repeat the study (because it does involve destructive methods) to assess changes. The new project sites to be added in Year 3 will be surveyed in Year 3 and assessed against their baseline survey under DPLUS029.

2. Improved knowledge of applied ecology of vegetation succession enabling better scheduling of invasive alien plant control

   Activity 2.1 Collate existing knowledge and data and priorities and map habitat fragments and corridors accordingly

   The PMT in this reporting period have worked to identify all the current and former project (DPLUS029) data sets and outputs (i.e. reports, databases) that are in physical form or stored electronically, conducted site visits and discussed the project at length with staff to become fully acquainted with the project and staff knowledge.

   The team as a whole has good individual and collective experience and knowledge and are able to describe and observe changing status of habitat fragments and corridors on the ground, prioritise work programmes and implement work.

   All Yr 1 fragments and corridors are mapped.

   Activity 2.2 Set fixed survey plots across selected priority fragments and corridors (project sites)

   No progress has been achieved on this activity in the reporting period. Possible location will be reviewed in Q4.

   Activity 2.3 Conduct surveys and establish baseline database including drone photogrid of project sites

   No further progress achieved in this reporting period as described in 1.5 above.

Activity 2.4 Undertake clearance across selected priority fragments and corridors (project sites)

The project team have made progress, despite poor weather conditions this winter in carrying out clearance across the priority Yr & Yr 2 fragments and the three corridors.

Site (year)	Site description	Activity in reporting period (May-October 2020)
Jockies (Yr 2)	Corridor site 105	The path to gain access to Jockey's area was cleaned of invasive - the damp banks along the path are important because they are rare habitats that support the rare endemic lesser kidney fern (*Dryopteris napoleonis*). This is a good site for the collection of mature sporophytes which can grow in the nursery. 146 mixed endemic species planted this included whitewood *Petrobium arboreum*, dogwood *Nesohedyotis arborea* he cabbage *Pladaroxylon leucodendron*, lobelia *Trimeris scaevolifolia* and redwood *Trochetiopsis erythroxylon*.
Cuckolds (Yr 2)	Bellflower Ridge Corridor Site	Small amount of regeneration of invasive species removed from this site included whiteweed *Austroeupatorium inulifolium*, New Zealand flax *Phormium tenax* and thatching grass *Pennisetum macrourum*. The site was planted with 800 mixed endemic species which included whitewood, dogwood, black scale ferns *Diplazium filamentosum*, large bellflowers *Wahlenbergia linifolia*, brownscale fern *Pseudophegopteris dianae* and he cabbage.
Warrens (Yr 2)	Warrens:	Removal of Whiteweed regeneration and planting of 23 whitewood.
Byrons (Yr 1)	Byron's to Taylor's corridors	Removal of invasives and cleaning around old and young He cabbage trees. 1,894 mixed endemic species plants and ferns were transplanted, which included lobelia, black cabbage *Melanodendron integrifolium*, she cabbage *Lachanodes arborea*, black scale fern, dwarf jellico *Berula burchellii*, brown scale fern, dogwood, whitewood, he cabbage, false gumwood *Commidendrum spurium*, and redwood
Wells (Yr 1)	Wells - 4 fragments	Invasive clearance around old Dogwood trees. Planting of mixed endemic species to established new corridors. 1,133 mixed endemic plants and ferns were transplanted. This included the following endemic species: lobelia; dogwood; whitewood; redwood; she cabbage; brown scale fern; black scale fern and false gumwood.
	Living Gene bank and Nursery area	Extension of the living gene bank near the nursery that was cleared of pine trees, New Zealand flax, cow grass *Paspalum scrobiculatum*, tallow vine *Commelina diffusa* and soft rush *Juncus effusus*. The area was planted with 696 mix endemic ferns and plants which included redwood *Trochetiopsis erythroxylon*, black scale ferns, brown scale fern and large bellflowers. During wet weather the team have worked in the living gene bank and its extension because it was too wet to work at other sites.
Cuckolds (Yr 1 & 2)	Lower Cuckolds corridors to site 111 - 1 fragment	Clearance of whiteweed and removal of fuchsias (*Fuchsia coccinea*) growing in large tree ferns *Dicksonia arborescens.* Small invasive grass species were also removed. 150 mixed endemic species planted to connect corridors which included redwood; black scale fern; brown scale fern; he cabbage; dogwood and whitewood.
High Ridge (Yr 2)	High Ridge – focal tree he cabbage	This area was cleared of blackberry *Rubus pinnatus* and wild bilberry *Solanum mauritianum* from around all old he cabbage trees, there were many he cabbage seedling germinating. This area is developing into a niche of endemic habitat with large black scale fern spreading as ground cover.
High Peak (Yr 1)	High Peak	216 mixed endemic plants and ferns were planted in the Dell areas to support old black cabbage woodland and the

		habitat for one of St Helena's endemic invertebrate the spiky yellow woodlouse.
Diana's (Yr 2)	Diana's 4	This area was cleared of New Zealand flax and 1,178 mixed endemic plants and ferns were planted to covered the cleared area. The species planted were: lays-back fern *Pteris paleacea*, sticky fern *Hypolepis villoso-viscida*, brown scale fern, redwood, whitewood, black scale fern, dogwood, lobelia, tree ferns and she cabbage.

Activity 2.5 Analyse survey data and photo comparison

3. Knowledge and awareness of invasive plant management strategies and alternative approaches amongst stakeholders, demonstrating sustainability through better management of protected areas with decreasing intervention over time, lowering the cost and effort to manage in the long run.

   Activity 3.1 Plan, arrange and host workshops

   Lessons learnt to be shared with stakeholders – agriculture and forestry – to advise on landscape wide approach. Workshop at the end of the project. Consult SHNT and ANRD on methods, see comments above and M&E plan which confirms iterative learning and adaptive management will achieved through the project by working closely with other invasive plant managers and policy of open communication. Suggest communication plan needed and added to the project work plan and timetable and contributes to M&E plan.

   Activity 3.2 Present & disseminate project information through newspaper articles, press releases, presentations, radio interviews

   During this reporting period there has been no new news to share with the public on project activities.

   Activity 3.3. Collaborate with Ascension Island Conservation and St Helena conservation to arrange an exchange visit between staff members from both organisations

   Exchange visits have not been possible during this year due to covid-19. Arrangements will be made to facilitate an exchange of staff in 2021.

2a. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months (for Covid-19 specific delays/problems, please use 2b). Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Lessons learnt:

<u>Poor weather, significantly affected project team schedule of work on the Peaks.</u>

A prolonged period of winter rain prevented the project team from working at project sites. Work output focused on the more accessible and less sensitive gene bank and nursery during the winter. However, this wet winter has caused the PMT to review whether staff could work full time on the peaks during prolonged periods of wet weather and that in future years, alternative arrangements will have to be made to keep the team productive including bringing them into the Scotland nursery and working on alternative sites. All EMD can be redirected to project sites where there is a need if work effort falls back.

The Project Managers are impressed by the team management and team work and progress being made by the project team across the project work sites despite the disruption caused by loss of the Restoration Specialist (June) and Project Manager (July) and period of time without substantive project management. The winter weather brought prolonged wet weather and as a

result access to restoration sites was limited. Progress is being made on fragments covering work areas (Yr 1) and (Yr 2). The first-year report highlighted that it was unlikely that 60% which represented 69 of the 120 fragments would be worked on during the life of the project. The project team have identified from their experience that work falls back in areas where they are not able to get back to work at sites timeously and that it is better not to over extend in terms of the numbers of sites across which the team need to work.

We will review with the team the progress made and planned target to plan a programme of works that we consider is realistic, taking into account delays due to weather. Variations in work plan may for example consider ensuring that there is no decline in the quality of fragments across 69 sites and give priority focus to sites where evidenced progress is practicable. By engaging all staff employed under EMD in project deliverables it is anticipated that the project can still broadly achieve its intended outputs. This will be covered in a change request.

<u>EMD best conservation practise has not been consistently applied</u>

As noted in the first-year report, a problem was identified that required the propagation of one of the main ground cover species Diana's Peak grass (*Carex dianae*) to be temporarily stopped until the issue could be resolved. The identification of potential hybridisation was a significant knock back that occurred because the three known and considered different populations of Diana's Peak grass *Carex dianae*, from the Peaks, High Peak and the Barn had been propagated at the Peaks and planted in mixed plantings. The differences between the Peak grasses has been recorded as far back as the 1800s, but is more recently explored by QCB Cronk (2002) and P Lambbon (2012), who described the two Peaks species *Carex dianae var. aequabilis* and *Carex dianae var dianae*. However, it is clear that more detailed study is needed to describe the variations and how they should be taxonomically identified. Mixing of different varieties and potential sub-species is not accepted practise

Since discovering mixed planting has been carried out and that this practise was initiated under the previous project (DPLUS029), the Nursery Officer has collected leaf sample for DNA analysis from sites that field staff know are mixed planting sites, as well as from wild plants and these were sent to Cronk's Lab in the University of British Columbia (at no charge to the project). The initial results confirmed that the peak grass from the Barn is significantly different from the two Peaks varieties. This reaffirms that management decision to immediately halt all production and destroy all stock growing in the nursery from seed because provenance could not be certain. The loss of planting stock has had a significant impact on the production cycle and planting and also required staff time to remove all Barn Peak grass plantings within restoration sites and reduce future risks of hybridisation. It is possible to remove first generation Barn Peak grass because the differences between the plants can be distinguished by eye, the plants a very different. Removal started from Bell flower ridge and High Peak sites. Differentiating potential High Peak grass is not as easy, both at the phenotypic and so far genetic level and further investigation of this is needed.

<u>Loss of wider focus on the Peaks</u>

Management has focused heavily on the prioritised habitat fragments over the last 5 years and resources have been directed to the ecological restoration approaches developed around them. The human resource prioritisation required to achieve projects has also had an impact on the wider conservation management work across the Peaks National Park, reducing the amount of time dedicated to managing the wider work of the permanent peaks staff. Site visits by the project management team have identified two species that have suffered a noticeable reduction in population number and habitat quality at key sites where they were known to grow: St Helena sphagnum moss, *Sphagnum helenicum* and lesser kidney fern, *Dryopteris napoleonis*. There are also concerns for the status of the tongue ferns (Elaphoglossum nervosum and E. dimorphum) in some areas. Populations of these species grew beside or on peaks paths where clearance and management has not taken place for years (c. 4). St Helena sphagnum is only known to grow at two locations on St Helena. A search by the PMT at the other known site, the Depot, also revealed it had declined by half. The Depot has not been managed as a fragment work site through either DPLUS029 or the current project, however it contains valuable biodiversity (large bellflower, dwarf jellico, sphagnum, lesser kidney fern and toothed tongue fern as well as old black cabbage trees). The site has not been under active management for

over 4 years and the PMT believe that this site should now be reassessed for its biodiversity and habitat status.

The intended outcome of this project is to extend the learning and approaches to ecological restoration developed under DPLUS029 and expanded under DPLUS099 to the working practises of the permanent peaks team and beyond (sharing experience and knowledge within the agriculture & forestry sector). The PMT have moved quickly to bring both project and permanent peaks teams together (11 staff in total) so that everyone is treated equally and exposed to the same learning opportunities so that we engage the permanent staff in support of the project and work to deliver the outcome that all work being undertaken on the peaks is conducted under a unified approach and protocols.

Handover, communications & team dynamics

Whilst the change in project management has been disruptive to the project and resulted in the loss of valuable ecological experience, some important lessons have been learnt, about ensuring effective handovers; ensuring project data is secured and accessible and the importance of communication with the EMD as a whole.

The sudden departure of the Project Manager without a hand-over meant that it took the new PMT time to become acquainted with the project and search out project documentation. The senior restoration technician provided valuable insight, along with all staff, to get up to speed and progress management. Consequently, constructive changes have been brought about by the new PMT most importantly a much more integrated team-based approach has been adopted. All staff employed on the peaks, whether permanent EMD staff (5) or project staff (5 & 1 (RSPB) are now managed as one team, kept informed and brought together as a group to actively participate in discussions and contribute to decision making on the project activities and ensuring that the best practise techniques adopted are universally understood and applied.

This has realised benefits from improving staff relationships and team morale and is facilitating more open exchange of knowledge.

Right plant right place

Plant production will be carried out at the Scotland nursery in support of the project in addition to the Peaks nursery. This is because not all the plants growing at the Peaks nursery and for the project are suited to the growing conditions found there. Redwood and false gumwood are no longer produced at the Peaks nursery and will be produced at Scotland. The false gumwood in particular has struggled to thrive in the conditions where it has been growing and planted. It has done better in the field gene bank, but even here it is suffering from mite infestation. Both species will be grown at more appropriate planting sites across the peaks.

2b. Please outline any specific issues which your project has encountered as a result of Covid-19. Where you have adapted your project activities in response to the pandemic, please briefly outline how you have done so here. Explain what residual impact there may be on your project and whether the changes will affect the budget and timetable of project activities.

Work experience exchanges between two members of staff from St Helena and Ascension have not taken place due to covid-19 and the Island's emergency responses to it. After discussions with Ascension it has become clear that it is not practical to attempt any exchange. Construction work on the airport at Ascension Island has created further challenges and barriers to exchange. There is no available accommodation and uncertainty about future flight movements as work progresses.

Two workshops were planned to take place in year 2 of the project, one on Ascension and one on St Helena. It will not be possible to organise these to take place in Yr 2 of the project. Movement between the two Island's for non-essential travel is not practical due to covid. Instead, we would like to organise an online workshop that can not only include Ascension Island conservation but open up to a wider international audience, including Tristan and the Falkland Islands. It would be most appropriate to have this in mid Yr 3. When project datasets and progress can be shared and there's time to mobilise contributions from Ascension and other organisations with an interest in ecological restoration of cloud forests, peatland and high-

altitude water catchments. This will need to be discussed with LTS international to determine if changes can be made to the project agreement. In this year we will host one on-Island workshop that will seek to bring together the different sectors engaged in conservation and ecological restoration, forestry, agriculture and biosecurity to discuss techniques, lessons learnt and experience in areas of common interest and the Ascension Conservation team can engage with us online.

The project team attended the EMD Scotland nursery open day (November 2020), where their project work was displayed and they were on hand to answer questions from the public. The Peaks Nursery open day will take place in 2021.

2c. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?	
Discussed with LTS:	Yes/No NO
Formal change request submitted: 2021	Yes/No NO request to be prepared Jan
Received confirmation of change acceptance	Yes/No NO

3a. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this year?

Yes x☐ **No** ☐ Estimated underspend: £[redacted]

3b. If yes, then you need to consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a rebudget Change Request as soon as possible. There is no guarantee that Defra will agree a rebudget so please ensure you have enough time to make appropriate changes if necessary. Please DO NOT send these in the same email as your report.

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but should also be raised with LTS International through a Change Request. Please DO NOT send these in the same email.

Please send your **completed report by email** to Darwin-Projects@ltsi.co.uk. The report should be between 2-3 pages maximum. **Please state your project reference number in the header of your email message e.g. Subject: 25-001 Darwin Half Year Report**