

The St Helena Cloud Forest Project



Restoring St Helena's internationally important
cloud forest for wildlife, water security and people.

Annual Report 2022/23

 UK Government

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Front page photo: Newly planted cloud forest habitat restoration areas, Kirsten Ellis



Summary

St Helena Island is a UK Overseas Territory in the South Atlantic Ocean. This report provides an overview of the key achievements and progress during year two of the St Helena Cloud Forest Project, a highly collaborative multi-year project working to implement the Peaks Management Plan for St Helena's 'Peaks National Park'.

This globally significant area holds over one sixth of the UK's total endemic biodiversity (approximately 250 unique species) including many critically endangered plants and animals found nowhere else on earth. The cloud forest also provides the majority of the island's freshwater through mist capture and groundwater recharge, and offers a unique wilderness experience in an area that has been voted one of St Helena's 'Seven Wonders'. This project is vital for St Helena's ability to adapt to and mitigate against climate change, and through this project works are taking place within the Peaks National Park under three main pillars:

- **Biodiversity – improving, restoring and creating cloud forest habitat, conducting research into and conservation of associated species with the aim of safeguarding an internationally important wildlife hotspot from further extinctions.**
- **Water security and climate change – re-vegetating around native habitat fragments in key areas of mist capture, and monitoring and research to inform and secure the island's water security and climate change adaptation efforts.**
- **Socio-economic – supporting the sustainable development of St Helena by developing opportunities through ecotourism, education, sustainable land use, and conservation training.**

The project started in July 2021 and will continue with funding from the UK Government until March 2025. Funding of £1.9 million was committed for delivery in years one and two of the project by the UK Government's Foreign Commonwealth and Development Office (FCDO). Along with matched funding from project partners and under various Darwin Plus projects the total funding value was £2.5 million for the first two years.

The project is managed by the RSPB, and led by the St Helena Government (SHG), involving a number of departments. SHG's Environmental Management Division (EMD), Sustainable Development Division, Education Portfolio, the St Helena Research Institute (SHRI) and the Bottom Woods Met Office work with local partners the St Helena National Trust (SHNT) and Connect Saint Helena. The project is also supported by core international partners Arctium, the UK Centre for Ecology and Hydrology (CEH), the Royal Botanic Gardens Kew and the University of British Columbia (UBC). Following this initial four-year phase the partners' vision is to continue cloud forest restoration in the longer-term.

Year two has seen the project facing significant challenges in the form of plant pathogens, which are causing diseases that are killing tree species within the Peaks National Park, impacting the conservation efforts to secure St Helena's rare endemic cloud forest species. Despite this, good progress has been made and partners are working together to understand the longer-term actions necessary to continue large-scale conservation in the cloud forest.

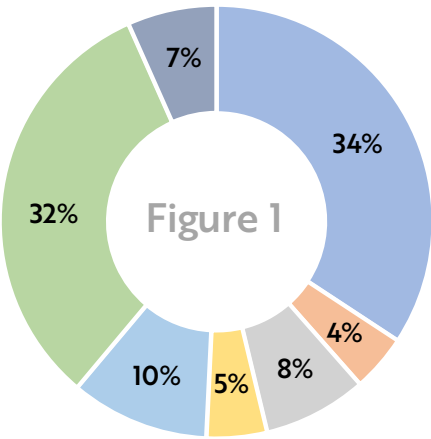
Financial accounts

Grant funding of £993,659 for year two of the Cloud Forest Project (2022/23) was committed from the UK Government’s Foreign, Commonwealth and Development Office (FCDO). Of the committed funding awarded, £867,266 was spent. An additional £175,897 was received through match funding from partners and the Darwin Initiative.

Of the funding not spent, £115,572 identified as potential underspend was returned at the request of FCDO as part of their October budget review process to address other funding priorities. Of the revised budget, 99% was spent with a final underspend of £10,821. Although the full original budget spend was not achieved within the financial year, the majority of key milestones and Peaks National Park (PNP)

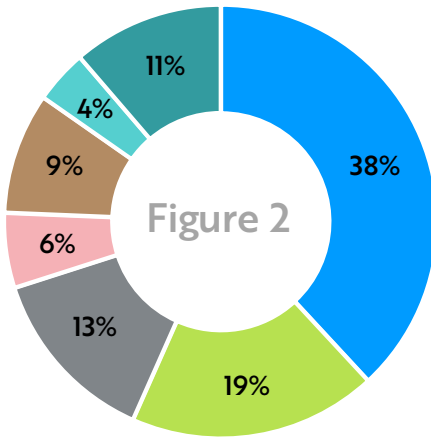
Implementation plan actions were achieved or good progress towards completion was made. Reduced spend was primarily within the staffing category due to vacancies on the island.

The proportion of UK Government grant funding (£867,266) allocated to core partners is outlined in Figure 1 below and categories for total budget spend, including match funding (£1,043,164), are illustrated in Figure 2. Figure 3 shows grant spend across the three project pillars and project management.



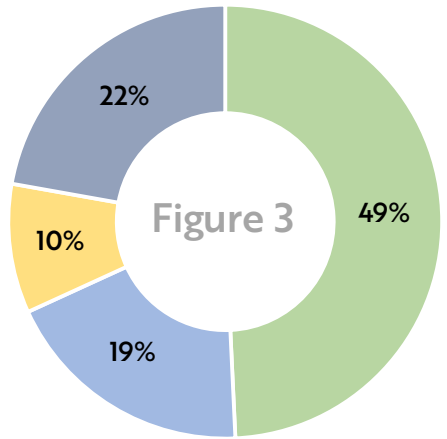
Percentage of grant funding allocated to core Cloud Forest Project partners in year two, April 2022 to March 2023.

- RSPB*
- Arctium
- Connect
- CEH
- KEW
- SHG
- SHNT



Percentage of project spend (grant and match funding) across budget categories in year two, April 2022 to March 2023.

- Staff
- Consultancy
- Travel
- Equipment
- Materials and consumables
- Other
- Overheads



Percentage of project spend (grant and match funding) across work pillars in year two, April 2022 to March 2023.

- Output 1: Biodiversity
- Output 2: Water
- Output 3: Socio-economic
- Output 4: Project Management

NB: Funding allocated to the RSPB included spend of approximately £70,000 on equipment and consumables procured for partners and infrastructure on island.



The Peaks team planting endemics, Capricorn Studios

1.5ha 

Clearance of invasive species has been undertaken across five main sites and approximately 1.5ha in this financial year, with approximately **1,300m² of new habitat planted.**

Pillars: Success stories and challenges

Biodiversity

Restoration works undertaken by the SHG's core team and cloud forest project team members, including invasive clearance and new planting, have taken place across five main sites and approximately 1.5ha (14,569m²) of land. This includes areas of maintenance in and around existing cloud forest habitat where we are encouraging natural regeneration (2,748m²) and areas where we have cleared invasives to stop spread into cloud forest areas (8,128m²). It also includes areas cleared for follow-up planting at two sites, Taylors and Cabbage Tree Road (3,693m²). In total 17,114 plants have been planted out into gene banks and wild sites covering an area of approximately 1,300m².

Plant production targets for 2022/23 were 33,000 plants, representing a further 25% percent increase in production across both the Peaks and EMD Scotland nurseries from our baseline. The impact of plant pathogens, identified as present in year one of the project, meant that production of tree species was halted in July 2022 when we moved to a focus on understory propagation. In quarter four we further reduced production in ground cover species until we can ensure we are able to produce clean and healthy plants. This, along with poor germination rates, meant that in this year of the project 20,281 plants were propagated, which is well below our target. However, over the first two years of the project we have met our combined two-year target of 60,500 plants; actually producing 63,054 plants.

Three cycles of micro-propagation training, utilising the brand new facility completed in year one, have now been delivered on-island by the team from Kew, who are also providing on-going online support. Successful fern propagation trials have taken place, but overall numbers are lower than anticipated due to an issue with a faulty laminar flow bench (purchased under an earlier project) and some early teething issues in establishing the best conditions in the growth room. The laminar flow bench has now been replaced with Cloud Forest Project funding and fern propagation will continue in year three. The micro-propagation facility is key to producing large quantities of ferns which are pathogen free.

Further research into plant and invertebrate ecology and genetics, soil biodiversity and pathogens has been undertaken in year two. This is vital to inform future conservation practice which will ensure a healthy, functioning cloud forest ecosystem able to deliver increased water availability and water security. Teams from the Centre for Agriculture and Biosciences International (CABI) and the Birmingham Institute of Forestry Research (BIFoR) continue to investigate plant disease and pathogens present through a Darwin Initiative project, and are supporting Cloud Forest Project work on the ground to identify actions to enable the continuation of conservation work on the Peaks. A key part of the work will include understanding how we can produce clean and healthy pathogen-free plants and the identification of 'clean sites' for wild restoration and the creation of additional field gene banks. The latter part of this year has seen a heightened focus on seed collection and seed banking practice to ensure genetic material from these incredibly important endemics is safeguarded for the future.



Seedlings of St Helena's endemic Lobelia at the Peaks nursery, Shayla Ellick



In year one **18,816 plants** and in year two **17,114 plants** from 17 different Peaks' species were planted into wild restoration sites and living gene banks.



Across years one and two of the project **63,054 plants** were propagated from Peaks species in both nurseries (target was 60,500 plants).

Biodiversity continued

Annual monitoring for priority cloud forest invertebrates was completed in year one of the project and from this a baseline report was produced in year two. Our second round of annual monitoring started in January 2023, but poor weather and the requirements of the Peaks access request process, which was implemented to reduce the spread of the plant pathogen, meant finishing the survey was delayed until early in year three. Monthly monitoring of two priority species, a moth species associated with Diana’s Peak Grass and a leafhopper only found on the rare False Gumwood has also been carried out. This and the annual monitoring are starting to produce some interesting results which will inform future conservation practice, such as the endemic cloud forest plants most important for endemic invertebrates. Invertebrate surveys found that restoration sites are richer in endemic species than some original forest sites, highlighting the importance of this restoration work and indicating the degraded nature of some of the original cloud forest areas.

Genetic analysis and taxonomic work carried out by partner entomologists and the Natural History Museum will also support future conservation and monitoring of these important endemics and has

led to the description of new endemic species. Genetic work confirmed that a newly found cloud forest spiky woodlouse is genetically distinct from the Spiky Yellow Woodlouse and therefore new to science and that a new Ghost Leafhopper also found in the cloud forest is a new UK species of leafhopper. The taxonomic work on the spiders has been a great success, clarifying the picture on a number of existing spider families and describing two new cloud forest species, new to science. Papers will be published on these in year three. The work has also facilitated training on spider identification and development of identification keys.

During year two we began to look at the recommendations and emerging outcomes of the DPLUS104 project ‘Conserving St Helena’s endemic invertebrates through invasive invertebrate control’, particularly Big-headed Ant and Common Wasp control, to plan the continuation of this important work. This has been built into the cloud forest project to mitigate risks to cloud forest endemics from invasive invertebrate species. This work will develop further over years three and four of the project.



Research has identified a potential four **new invertebrate species** new to science and endemic to the St Helena Cloud Forest. These are currently being confirmed through peer review.



72 endemic invertebrate species were genome skimmed and **added to the global DNA database ‘BOLD’**.



Water security and climate change

Water security and climate change work in year two of the project has built on year one and begun to further develop our knowledge of the hydrogeology of St Helena. Our aim is to be able to map the journey of a raindrop from falling on the Peaks, through St Helena’s geology to streams and groundwater, and finally to our taps. This information will influence restoration of areas of cloud forest on St Helena to increase water availability and inform decisions around how our water is managed.

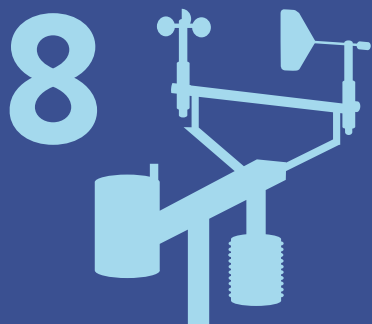
In year two, phase one field work to develop the hydrogeology conceptual model and recharge model has been completed. The draft models have been developed through geophysics surveys of the underlying geology in key water catchments and interpretation of the annual monitoring data from stream, spring, groundwater and climate monitoring locations. This has been achieved using data gathered through this project and the work completed under the DPLUS103 project ‘St Helena Climate Change and Drought Warning Network’.

Sites to support climate monitoring and water monitoring identified during year one of the project have been in place for over a year, giving our first full year of data across this comprehensive monitoring network. Alongside this, extensive fieldwork to complete geophysics surveys took place over four

weeks in October 2022. During year one a borehole camera was purchased as part of the project. This arrived on St Helena early in year two and the Water Resource Monitoring Technician employed through DPLUS103 has been using this, working alongside international experts, to investigate the condition of, and water availability in, the boreholes on the island. A Terrameter was also purchased in year two for future geophysics surveys.

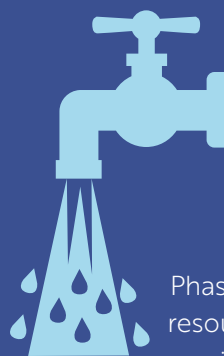
In addition, data has been gathered from canopy drip and trunk flow monitoring equipment which was installed in February 2022 and existing soil information has been collated. Soil samples taken in year one to look at soil chemistry and physical properties have been added to in year two, and analysis will take place in year three.

All of this data has been brought together and analysed by on-island and international experts to draft a report which will inform the phase one hydrogeology conceptual model and recharge model. This report is expected early in year three. A more comprehensive conceptual model and climate change assessment is planned for the end of year three using longer monitoring data. The conceptual model will also be informed from the results of additional geophysics and water resource data collected during fieldwork planned for October 2023 and January 2024.



Eight automatic weather stations

and four pairs of mist and rain data loggers are now operational, alongside a water resource monitoring network of 35 surface water and groundwater monitoring locations.



Phase one fieldwork and annual water resource data collection and climate monitoring have **enabled water pillar teams** to draft the hydrogeology conceptual model and recharge model **to inform water resource management**. This work will be expanded and developed in year three.



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Community tree planting event for the Queen's Platinum Jubilee, Kimberley Peters



PhD studentship established between the St Helena Research Institute and Imperial College London and the Natural History Museum to support research into bryophytes within the cloud forest.



450

In this financial year we have engaged positively with more than **450 people through 15 sessions** which include school groups, talks and community events, including a Jubilee Tree Planting.

Socio-economic

Across this financial year the project has engaged positively with more than 450 people on the island through a range of school sessions, public talks and community events. In June, this included a tree planting day held at the Ginger Patch to commemorate the Queen's Platinum Jubilee and Green Canopy initiative. The EMD's team prepared and facilitated the day which was attended by a multitude of generations on St Helena from newborn babies to the eldest resident on the island who was 103. On the day more than 120 people attended, planting 122 She Cabbage trees.

Eight school sessions with 234 children were held as part of the project in year two and in addition to this a number of community events were held or attended. Four public talks were delivered by visiting researchers and field work teams: 'Journey of a raindrop from cloud forest to ocean' in October, 'Invertebrate research and fieldwork update' in November, 'Securing the future of the St Helena Cloud Forest' in February, and 'Putting microbiomes on the map' in March. Members of the legislative council for St Helena Government visited the Peaks National Park to find out more about the Cloud Forest Project in April and site visits with project partners were also hosted for officers from our funders FCDO in January and February 2023.

St Helena's primary level education pack has been updated by the St Helena National Trust incorporating cloud forest information. This will be printed and launched early in year three of the project. The National Trust's education team, working with St Helena Government's education department and secondary school are starting to draw together resources for secondary school level. Given the current access restrictions to the Peaks

and potential pathogen impacts year three will focus on development of resources and innovative activities that enable the local community, schools and the wider public to engage with the cloud forest remotely.

As part of the programme of capacity building on St Helena, this year eight members of staff from the project's three key on-island partners – St Helena Government, St Helena National Trust and Connect Saint Helena – took part in training and knowledge sharing visits to the UK and South Africa. This included learning more about conservation projects in the UK, working with the Met Office and attending a Climate Change Conference. Visits from international partner organisations also contributed to on-island training for approximately 70 staff from these three partners. Training included financial and budget management, invertebrate monitoring and identification, micropropagation techniques, ecosystem integrity and soil sampling. Staff also had the opportunity to work alongside experts, building capacity in the water and climate monitoring aspects of the project and plant and invertebrate monitoring.

The St Helena Research Institute issued two research bursaries to support research into the pathogens causing disease across endemic tree species within the cloud forest and pollen dispersal modelling. A PhD studentship has also been established between the St Helena Research Institute and Imperial College London and the Natural History Museum to support research into bryophytes within the cloud forest.

The project in the media

- An article about the St Helena Cloud Forest Project was published in *The European Climate Change* Review (pg 4) in July 2022.
- RSPB blog *Fight to save the UK's only naturally occurring cloud forest receives new funding* was published on 10 August 2022.
- The project was promoted at Island Innovation's *Virtual Island Summit* on 1 October; and via a webinar for CIEEM's Overseas Territories Special Interest Group on 30 November.
- A print article was published in *BBC Wildlife Travel Guide* on 17 November.
- Four articles were written for South African magazine Getaway, these were published in print and online:
 - *St Helena Cloud Forest Project*
 - *Women in conservation*
 - *Biodiversity*
 - *Nature-based solutions*
- A joint article with a cloud forest project in Kenya was published in the *Darwin Newsletter* for World Water Day.
- Our invertebrate specialist Liza Fowler was featured on an RSPB blog *celebrating UKOT women in conservation*.
- The project was featured in the RSPB's *Saving Nature 2022* report.
- Peaks National Park Twitter page *@StHelenaPeaksNP* was launched to complement the *Facebook* and *webpages*.
- Local film production company Capricorn Studios (What the Saints Did Next) continued to support the project with filming and will be producing further films about the project in year three. Introductory film clips about the project are available on YouTube: *What The Saints Did Next - YouTube*.



Vulturine Leafhopper, Liza Fowler

More than 100 responses to our baseline engagement survey were received in March 2023 (equalling the number from the previous year).



15.5 full time equivalent posts have been funded to support the Cloud Forest Project in year two, of which 14.5 posts were locally based St Helenians, or Saints.



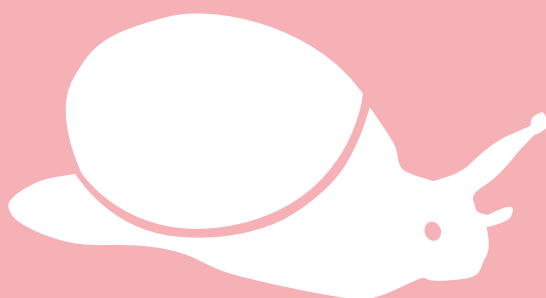
Looking ahead: Priorities for 2023/24 and beyond

Year one of the Cloud Forest Project set the foundation of the project by building capacity through establishing the majority of the staff, equipment and infrastructure needed to scale up habitat restoration. In addition, it established the monitoring network and baseline information needed to better understand the water cycle and climate on St Helena, to inform restoration plans and measure success. Year two began to build on year one by utilising that capacity to achieve a step change in the scale of habitat restoration and to ensure that habitat restoration is underpinned by good conservation practice. It also saw huge strides in developing our knowledge of the water balance and hydrogeology of St Helena to enable improved management of water resources on the island. However, significant challenges have also been encountered this year that have impacted the rate of scaling up of habitat restoration and which have serious implications for future delivery of the project and conservation of the Peaks.

Following the confirmation of at least four plant pathogens on the Peaks, including one known tree killer, the St Helena Government prohibited public access to critical areas of the Peaks National Park including the cloud forest from 11 April until December 2023 to help to prevent the further spread of the pathogens. A process is in place for

authorising access for essential conservation work, work that will increase understanding of the plant diseases and for work that is essential for infrastructure, safety or other critical service delivery. This access restriction allows time to learn more about the pathogens and their impacts and how this can be managed going forward.

The Cloud Forest Project partners fully support the decision by the SHG to restrict access and are working to better understand the longer-term impact of access restrictions and the presence of pathogens on the project. In the short-term the project's focus is on contingency actions during this restricted phase. These will allow vital aspects of the project to continue to ensure we are ready and able to scale up again once restrictions are lifted, and develop our understanding of the plant pathogens present. In many cases work will continue outside of restricted areas, and where access is required for priority actions partners have requested and received authorisation from the SHG and are following strict biosecurity procedures. We are adapting our ways of working to limit footfall on the Peaks unless completely necessary and to avoid any work on the Peaks in wet weather which increases the risk of spread.



Invertebrate surveys have found endemic invertebrates using restored sites, **proving the success** of habitat restoration work.



Key outputs planned for year three

- Deep clean of EMD endemic nurseries and development of processes and protocols to ensure production of clean plants for restoration. Plant production targets of 20,000, focusing on ferns.
- Maintain existing cloud forest habitat and restore an additional 0.5ha; establish actions needed to resume scaling up of habitat restoration.
- Develop a clearer understanding of the impact of plant pathogens on the conservation of Peaks species and produce an action plan for management over the next two years of the project.
- Further development of seed bank capacity and understanding of seed storage; enhancement of existing gene banks and development of two new 'clean site' gene banks for all Peaks species.
- IUCN assessments completed for priority endemic invertebrates.
- Invertebrate surveys and research will further clarify endemic invertebrate communities and establish management protocols for invertebrates in the cloud forest.
- Programmes for control of two key invasive invertebrates in place in the fringes of the Peaks National Park.
- Stage two of the geological and geophysical survey fieldwork completed and data collected to finalise the hydrogeology conceptual model and recharge model for St Helena.
- Water and climate monitoring information being used to inform water management decisions.
- Secondary school resources relating to the cloud forest developed and innovative ways to engage the public with St Helena's cloud forest remotely investigated.

On the island approximately **70 staff from the three partner organisations** have been involved in a range of training courses including financial and budget management, invertebrate monitoring and identification, ecosystem integrity and soil sampling.



Eight St Helena staff members from three core partners (SHNT, SHG and Connect) have been on **UK exposure visits** for training and capacity building as part of the project.



Thank you to funders and partners

Thank you to our funders and partners who make this work possible:

Funding organisations

Funding for the St Helena Cloud Forest Project is provided through the UK Government's Foreign, Commonwealth and Development Office (FCDO).



Match funding is provided through several Darwin Initiatives and through core partner organisations.



Associated partners

- Species Recovery Trust (associated with the IUCN Mid-Atlantic Islands Invertebrate Specialist Group)
- UK Met Office
- Natural History Museum
- Centre for Agriculture and Bioscience International (CABI)
- Birmingham Institute of Forestry Research (BIFoR)

Website: [St Helena's Cloud Forest Project \(sthelenatourism.com\)](https://sthelenatourism.com)

Facebook: [St Helena Peaks National Park](#)

Twitter: [StHelenaPeaksNP](#)

Core partners



St Helena
Government



St Helena Island
A breath of fresh air



UK Centre for
Ecology & Hydrology



