

Darwin Plus: Final Report

To be completed with reference to the “Project Reporting Information Note”:
(<https://darwinplus.org.uk/resources/information-notes/>).

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes.

Submission Deadline: no later than 3 months after agreed end date.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

Darwin Plus Project Information

Project reference	DPLUS104
Project title	Conserving St Helena’s endemic invertebrates through invasive invertebrate control
Territory(ies)	St Helena, Ascension and Tristan da Cunha
Lead Partner	St Helena National Trust
Project partner(s)	St Helena Government (SHG), IUCN Mid Atlantic Island Invertebrate Specialist Group (MAISG) c/o Species Recovery Trust, Centre for Agriculture and Biosciences International (CABI), Buglife
Darwin Plus Grant value	£298,965.00
Start/end date of project	June 2020 – March 2023
Project Leader name	Helena Bennett
Project website/Twitter/blog etc.	Weekly update of the project on social media, (https://www.facebook.com/SHnationaltrust) (https://www.instagram.com/sthelenabugteam/) (http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/)
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1 Project Summary

St Helena is a 47 sq mi remote UK island located in the South Atlantic Ocean. Within, it holds one-third of the Overseas British territories’ endemic species, with 1 species of last surviving endemic land bird, 45 plants and over 420 endemic terrestrial invertebrate species of which more than 120 occupying the islands cloud forest habitat.

St Helena’s natural environment has been transformed over the last few centuries by human intervention. Small, threatened fragments of native habitat remain, pushed to the utmost fringes by invasive and/or non-native species of flora and fauna. Invasive species are quickly adapting to the island’s environment causing rapid habitat changes that critically endanger the island’s native habitat and consequently the endemic invertebrate populations within it.

This project is facilitating endemic invertebrate recovery and working to re-establish their associated ecosystem functions, through vigorous testing and establishing invasive invertebrate control methods. Targeted species are: The Common wasp (*Vespula vulgaris*), Big-headed ant (*Pheidole megacephala*) and the Springbok mantis (*Miomantis caffra*).

Control methods have been researched and assessed for each of the targeted species to explore their viability; only two of the selected species were selected for active control (Common wasp and Big-headed ant), the Springbok mantis required further extensive research and trialling using bio-control techniques before being introduced into St Helena’s fragile habitat. The trialling stage ensures that environmental impacts are minimised and the selected methods are effective altering the control method to suit the islands changeable climate. Following which the control methods were rolled-out in sensitive native sites to assess the potential beneficial impact of invasive invertebrate control within our native ecosystems. These control methods will be embedded into the St Helena

Government, Environment and Natural Resources and Planning (ENRP) relevant departments to ensure continuity and monitoring beyond the life-span of the project.

The project is engaging with the local population through citizen science and educational outreach and awareness events (example, school session and bug clubs). While also building local capacity through training of, and collaboration with the local government, community and partners.

Note: Evidence of the activities are written in brackets throughout the report with the name of the document in brackets.

2 Project Partnerships

Partners and stakeholders have been central in terms of support and advising on the project, as well as ensuring the delivery of high-quality outcomes. The project has had a steering group that consists of St Helena Government (SHG), UK CABI, Species Recovery Trust (SRT)/ IUCN Mid-Atlantic Island Invertebrate Specialist Group (MAISG) and the Non-Native Species Secretariat (NNSS). The steering group has held regular meetings throughout the project with more than 20 meetings over the project's lifetime. Starting off with monthly meetings at the beginning, moving to bimonthly later in the project. The steering group and its members have provided consistent advisory support and problem solving. **(Evidence, Steering Group Minutes')**.

CABI was a formal partner on the project funded for 5% of their time. CABI has provided the project with a high level of scientific expertise, overseeing exploratory research on potential biocontrol options for the Springbok mantis *Miomantis caffra*. CABI have also analysed stomach contents for the mantis to understand food sources using complex DNA analysis. The Species Recovery Trust, which provides an organisational base for the IUCN Mid-Atlantic Islands Invertebrate Specialist Group, was a formal partner on the project, providing 20% of their time. They have provided ongoing supporting advising on the application of invasive control techniques, monitoring of invasive and endemic invertebrate recovery, reviewing project report and outputs; as well as assisting in project management and annual reporting. SRT also ran a remote training webinar on Big-headed ant control and they managed the Invertebrate Strategy process. The IUCN network also helped to identify international advisors on ant and wasp control from both New Zealand and South Africa. Not a formal partner, however NNSS provided in-kind time and gave a wider context for invasive species control while advising on the steering group; and Buglife did provide some in-kind advice on Citizen Science elements of the project. FERA has become engaged with the project due to overlap with one of their projects and Noel Tawatao ant expert, came to St Helena in early 2023 to advise on next steps for ant control, to allow integration of control methods post the end of the project (this trip was funded via another project). Additionally, Dr Richard Toft, an invasive wasp control specialist from New Zealand was contracted by the project and has provided invaluable knowledge and steering of how to tackle both wasp and ant control using New Zealand case studies.

St Helena Government (SHG) was a formal on-island project partner and provided their time in-kind and they are the key deliverer of the legacy of the project, as they will continue to apply Big Headed ant control treatment to endemic lowland sites after the end of the project, **(Evidence, 'SHG agreement document')** and **(Evidence, Final documents, 'SHG communication on project legacy')**. SHG been central to the project in terms of their involvement in training and workshops; as well as the development of the trial plans and their contribution to the update and adoption of the island's invertebrate strategy.

The project also undertook stakeholder engagement through two workshops, which were held both at the start of the trial and the roll-out phases of the project. This allowed landowner and stakeholders wider than beyond the project partners to voice questions and concerns about the project, in terms of how, where and when control methods would be applied, **(Evidence 'Workshop document')**. Additionally, the project involved the wider island community through the citizen science elements of the project to collect data and raise awareness. This was a more challenging part of the project, as the island does not have a culture of citizen science, and so initial methods of citizen-led data collection were not successful. It was therefore necessary to directly work with groups such as schools, kids clubs and focused adult events, in order to engage and gather data, **(Evidence Output 4, Activity 4.3 Citizen Science Program)**.

3 Project Achievements

3.1 Outputs

Output 1. Target invasives and control method feasibility assessed for application on vulnerable sites, through a trial phase that includes research, expert advice, public consultation and rigorous field testing.

- 1.1 By end of 2020 a series of control methods/options researched and analysed for *Vespula vulgaris*, *Miomantis caffra*, *Linepithema humile* and *Pheidole megacephala*.** – Research was completed on the ecology and control method identified for the *Vespula vulgaris*, *Miomantis caffra*, *Linepithema humile* and *Pheidole megacephala* and research plans created with the collated information. **(Evidence Output 1, Activity 1.1 & 1.2 Target species research plans)**
- 1.2 Trial methods for 2 target invasive species field tested and agreed at stakeholder workshop by late 2020 -** A stakeholder workshop was held on 12th January 2021 and it was agreed that we should trial the *Vespula vulgaris* and *Pheidole megacephala* control method. The logistics for the control (bio-control) for the *Miomantis caffra* would take longer than the timeframe of the project. The stakeholders agreed at the workshop that the control of the *Vespula vulgaris* and *Pheidole megacephala* would be using a toxin that is placed in the environment and then removed to reduce any risk to the wider fauna and flora. **(Evidence Output 1, Activity 1.3 Stakeholders workshop report)**
- 1.3 Monitoring protocols and species are defined and agreed with steering group prior to trial implementation, including assessment of impacts on target and non-target species by early 2021.** - Monitoring methods for the 2 target species were developed and agreed with the steering group and international expert's Dr Richard Toft, Dr Ben Hoffman and Prof. Michael Samways who have direct experience in controlling (*Vespula vulgaris*) and (*Pheidole megacephala*). The monitoring methods used lures to determine if the target species were present on the site, as well as assessing population size and life cycle stage.
- Directed searching for the target and non-target species (e.g. sweeping netting, bug vac) in 10 areas on the site will monitor wider invertebrate richness and diversity in different habitats (e.g. deadwood, under stones and on vegetation) and determine if the toxin has any effect on the target species and no impact on any non-target species. **(Evidence Output 1, Activity 1.4 & 1.5 targeted species trial plans, Big-headed ant trial plan & Common wasp trial plan & monitoring sheets)**
- 1.4 Nine initial trial sites identified, sites mapped, site/habitat assessment and trial implementation plan completed by early 2021** – Seven control sites and 2 non-treatment sites were identified in different non-endemic habitats, that were identified as low risk but the target species populations are active and present in high numbers. The trial sites have been mapped, GPS and a site / habitat assessment completed for the nine sites and provided in a report. **(Evidence Output 1, Activity 1.4 & 1.5 Target species trial plan, Big-headed ant trial plan & Common wasp trial plan)**
- 1.5 By late 2021, control method effectiveness tested for 2 target species on the trial sites with complementary monitoring, and results written into a report** – Due to the delay start on the project the big-headed ant trials commenced in Jan 2022 at Pipe Path, Horse Pasture, Fishers Valley, Weather Station Ridge and the non-treatment site was Peak Dale. The toxin was concealed in a bait station (to limit non-target species access) and left in the environment for 2 weeks. Monitoring of the target and non-target species took place 1 week before the deployment of the toxin, and 2nd, 4th and 8th week after the toxin had been removed. The control showed promising results and with the Big-headed ant population in these areas having declined and starting to return again after the 8th week but in very low numbers and the population started to rise but remained in low numbers after 1 year. For this reason, it is recommended to carry out the control every 6 months.
- The wasp control trials commenced in March 2022 at Sandy Bay and Thompson's Wood and Cason is the non-treatment site; again, using a bait station and the toxin was left out for 3 days. The use of the toxin for control shows favourable results however due to the lack of wasp activity only two sites were used for the trials. The monitoring of the target species took place 1 week before the deployment of the toxin and 2nd, 4th and 8th week after the toxin have been removed and the monitoring of the non-target species took place before and after the toxin were deployed. Results were analysed and a report was created and sent to stakeholders and steering group members. **(Evidence Output 1, Activity 1.11, Trial phase reports, Big-headed ant trial suppression on St Helena and common wasp trial report)**

Output 2. A high-impact invasive invertebrate successfully controlled at 6 vulnerable sites, and results reviewed and shared internationally.

2.1 Roll-out method and target species were assessed and agreed at stakeholder workshop; and implementation plan completed by 2021 – Two workshops were conducted in July / Aug 2021 and the steering group and stakeholders agreed that the roll-out of the Big-headed ant control would occur on the 6 suggested endemic habitats (Peak Dale, Barren Ground, LEMP 7.5, LEMP 9.1A, Pipe Path Scrubwood and null-treatment site LEMP Longwood Farm). These sites were chosen because Big-headed ants were present and access / terrain were good and risks to existing endemic species were low. **(Evidence Output 2, Activity 2.1, workshop report)**

2.2 Roll-out of at least 1 control method for an invasive invertebrate species using protocols and monitoring devised from trial areas, roll-out on at least 6 vulnerable sites initiated by 2022 - The roll-out on the control of the Big-headed ant took place on 22nd Oct 2022 on Barren Ground (rosemary), LEMP 7.5 (Mulberry Gut), LEMP 9.1A (Bottom woods) and the null-treatment site was LEMP (Longwood Farm). Due to low ant activity at Pipe Path and Peak Dale the Big-headed ant control couldn't take place. (**Evidence Output 2, Output 2, Activity 2.2 Maps of roll-out sites and Activity 2.3 Environmental risk assessments**)

2.3 Regular steering group reviews of progress and effectiveness of the roll-out phase every 6 months, including input from international experts between 2021-2023. – Regular updates and ad hoc discussions took place with the steering group and international experts to discuss the roll-out phase, covering results and support / overcoming obstacles when they arose. (**Evidence Output 2, Activity 2.3 Environmental risk assessments and steering group minutes**)

2.4 The Big-headed ant implementation plan was created by adapting the big-headed ant control trial plan to the endemic habitat. A 'roll-out' phase evaluation report on applicability and effectiveness of control method produced by 2023. – The Big-headed control was completed in Nov 2022 and the 8th week of monitoring completed in Jan 2023. The control has shown promising results with the ant numbers declining in the endemic habitats, however some areas they have return but in low numbers. The big success was that on some sites the ants had still not returned even during the 16th week of monitoring. However, as there is a still a risk of recolonisation it is recommended to apply the toxin control every 6 months. The roll-out report completed on the methodology and results of the roll-out. (**Evidence Output 2 Activity 2, Roll-out phase reports, Big-headed ant control roll-out on St.Helena**)

Output 3. St Helena and other UKOTs capacity and understanding increased on identification, monitoring and control invasive invertebrate species via training, integration into plans and knowledge sharing

3.1 Six conservation staff trained through a development programme as 'invasive invertebrate control experts' by end of 2022, demonstrating high levels of skills and knowledge. - A total of 13 experts were top-level trained in the control of the Common wasp and the Big-headed ant, monitoring surveys and identifying ants / Hemiptera. This means that the Trust and SHG are able to undertake the controls on their own and they are able to train other staff; which will increase the capacity of people who are able to perform these control methods in the long term. Five St Helena National Trust project staff plus 8 of SHG terrestrial conservation/pest control staff were trained, in target species ecology, monitoring methods and the use of chemical baits to control both ants and wasps, seven training workshop took place of which 2 modules took place online, 2 workshops were remote webinar with the support of the project team, 2 workshops carried out in person identifying Diptera and ants and 3 workshops carried out in deploying / using the toxin bait and implementation survey methods. Over 5 on the job training opportunities on how to use / deploy the toxin and monitoring target species. They are also registered to use the Vespex bait which is required by Merchanto regulations <https://www.mercento.com/vespex.html>. They also had training in ant and Hemiptera, Cicadellidae (leafhopper) identification which supports them to undertake the monitoring activities. Leafhoppers were used as an endemic indicator group to demonstrate the impacts of ants on endemics, as initial results in the trial phase demonstrated their sensitive to changes in ant abundance (**Evidence Output 3, Activity 3.1 Training attendance list, and Output 3 Activity 3.3 feedback forms of attendees**).

3.2 In addition, ten conservation practitioners and land managers on St Helena with increased skills and knowledge of invasive invertebrates and their control by end of 2022 - A workshop took place on 22nd September 2022 and 4 of the 'invasive invertebrate control experts' attended, they were really interested in the control and they would like to get more familiar in the methodology as they will be taking over the controls through their work activities. Overall due to the project there is an increase of 13 experts (Indicator 3,1) who had a much increased capacity and knowledge compare to the intended 10 general practitioners who would have only know the basics, so we missed this indicator 3.2 but greatly exceed Indicator 3.1 as experts have a bigger knowledge base and impact. The workshop had a low turnout due to the lifting of all Covid-19 restrictions on island, therefore during this period a large proportion of St Helena population was infected with covid, making a lot of people timid to be inside in larger groups. Overall the information provided at the workshop was well received (**Evidence Output 3, Activity 3.2 land managers training workshop, Attendance list and Feedback forms**)

3.3 Invasive invertebrate control methods integrated into the government's Peaks Management Plan invasive work by 2023 - The ant and wasp control and monitoring will be included in SHG and St Helena National Trust workplan. Pest Control (SHG) will continue the wasp monitoring at 11 sites and the species team (SHG) will perform the ant controls at Heart-shaped waterfall and Peak Dale. The St Helena National Trust will continue to control the Big-headed ant in the LEMP sites and under the Cloud Forest Project at an estimated 10 sites. The invasive invertebrate team will adapt the wasp control methodology to cater for the Cloud Forest ecosystem, and apply this once pathogen regulations are lifted, in the interim they will monitor the wasp activity around the Cloud Forest (**Evidence Output 3, Activity 3.4 to 3.7 integration control method in SHG & Cloud Forest Workplan**). Darwin Plus Main Final Report Template 2023

3.4 The ‘St Helena Invertebrate Conservation Strategy’ by 2023 with informed revised invasive control goals and actions for the next 5 years. – the strategy completed and endorsed by environmental minister / group; this strategy will influence decision making and contribute to projects and work activity. **(Evidence Output 3, Activity 3.8 Invertebrate Conservation Strategy).**

3.5 Case study learning shared with wider UKOTs and other islands, and relevant stakeholders aware and accessing results by early 2023. - The project has increased awareness on invasive invertebrates and their controls in 2021, through the St Helena Research Institute’s ‘Discovery 2 Discovery’ conference, in March 2021 a poster was presented and a Q&A session of the project was given at UKOTCF’s online conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies.

In 2022, the Project Manager and the Project Manager Assistant presented the big-headed ant methodology and results to the management of invasive alien ant species workshop and presented case studies of the Praying mantis, Big-headed ant and the Common wasp to the Royal Entomological Society at Ento 22.

In March 2023, the project disseminated results and present case studies of the target species to the UKOTCF, Topic Terrestrial Restoration and Invasive Non-native Species in UK Overseas Territories and Crown Dependencies. Throughout the project results has been disseminated in the UK Overseas Territories conservation forum. **(Evidence Output 3, Activity 3.10 International workshops).**

Output 4. Increased public support and engagement in invasive invertebrate species control, via improved public awareness of the issue and direct involvement in monitoring

4.1 A total of 30 people (15 in 2021 and 15 in 2022) attending and engaging in two public awareness events to increase understanding and engagement in the issue of invasive invertebrates by end 2022. – By the end of the project, over 250 people had engaged with the project through pop-up stalls, with 20 stalls being held across the island. However, it was very difficult to interview the islanders as they had left the event once the presentation was finished. Therefore, a questionnaire (Activity 4.2) was developed and the results have shown that by the end of the project 75% (50:50 women and men) of surveyed islanders (50 person subset) demonstrate an awareness of invasive invertebrates and their impacts. There were also 6 school lesson, 5 school/ fun day events and 4 bug club / church brigade, took place and increased awareness reaching approx. 192 children. **(Evidence Output 4, Activity 4.2 Questionnaire report)**

4.2 Citizen science monitoring scheme tested, established and implemented for the project’s target invasive invertebrates by 2021- By June 2022, Citizen science scheme were created and published via the newspaper, social media and the radio. This can be access on the National Trust website (<http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/citizen-science/>). The primary schools will use the citizen science plan in the school curriculum so that they can relate to invasive invertebrates on St Helena and be able to carry out hands on activities which will support the children’s learning. The citizen science scheme was downloaded 24 times in 2022 and 12 times in Jan to June 2023 via the St Helena National Trust website. **(Evidence Output 4, Activity 4.3 Citizen science materials)**

4.3 Evidence of at least 30 islanders (50:50 women and men), with 10 in 2021 and 20 in 2022, actively engaged in invasive invertebrate monitoring by end of 2022 –Overall the project engaged approximately 127 people in monitoring invasive invertebrates on St Helena. In 2021 there were 6 people (ratio 2:4 women to men), in 2022 there were 10 people (ratio 6:4 women to men), in 2023 there were 56 people (ratio 32:28 women to men), and in Jan to April 2023 55 people (ratio 28:27 women to men) activity engaged in invasive monitoring or collection. After the end of the project the public continue to call in or collect ants/mantis and deliver them to the Trust. The public are very supportive in the investigation of the analysis of the mantis stomach and they are on the continue look out for the adult mantis. One of the school activities was engaged in wasp monitoring around their school, they carried out the monitoring every month and investigated the trends of the wasp in around their school.

Number of people called in / collected the target species						
	Wasp traps ¹	Wasp sightings	Mantis sighting	Mantis collected	Ants collected	Total
2020	4	2	0	0	0	6
2021	4	6	0	0	0	10
2022	45 ²	2	4	5 ³	0	56
Jan to April 2023	40 ⁴	1	0	4	10 ³	55
Total	93	11	4	9	10	127

- note:
- 1 Monitoring wasp activity in their area by using wasp traps
 - 2 This includes school lessons with 10 kids per lesson
 - 3 Started to ask the public to collect the mantis and ants
 - 4 1 School class (10 kids) carried out the activity every month

(Evidence Output 4, Activity 4.5 Record of participation and data collected)

3.2 Outcome

First signs of recovery in endemic invertebrate populations and associated ecosystem function on St Helena due to applied control interventions, increased skills and knowledge amongst conservationists and community members The initial results of leafhoppers and endemic species monitoring, where an uplift in abundance was recorded on the control sites, when compared to non-treatment sites, started to demonstrate the recovery that is possible as a result of Big-headed ant control. With 15 experts on St Helena carrying out control and monitoring for Big-headed ant and Common wasp on-island. Within the wider public there was a 73% increase in awareness.

Outcome 0.1 - 0.1 By the end of the project a 50% decrease (25% decrease by year 2 and 50% by year 3) in one target invasive species abundance/distribution (from baseline monitoring) in control areas.

The Big-headed ants were chosen as the main target species and the control method (using a toxin bait containing Hydramethylnon) achieved the target of 80% decrease in the trials, see table below of trial and roll out results with the average of 97% reduction were achieved on the sites post control application. For roll out on endemic sites 98% declines were achieved on the sites, with an average of 83% reduction post control.

After 8 weeks, the Big-headed ant had returned in low numbers (to an average of 3% of the original numbers) but some sites like Pipe Path that has favourable habitat (wild mango and open space) for the Big-headed ant. After 6 months the toxin had been deployed the ants had returned in very small numbers (estimated 1 nest). There were no Big-headed ants present in the endemic scrubwood site adjacent to the Pipe path trial site. Which means there was an 100% reduction in the surrounding areas, as the Big-headed ants would have been occupying the endemic site before the trials. Therefore, we would recommend the target sites to be treated every 6 months. The Big-headed ant population declined in the endemic target sites with an average 98% reduction post control but the ants returned after the 2nd week but in low numbers (17% average of the baseline) and only on the borders of the target sites. This was due to Big-headed ants being present in the surrounding area and allowing them to invade back into the target area. In order to suppress the number of Big-headed ants and so limit impacts we recommend to continuing using this method every 6 months and deploying the poison in a buffer zone surrounding the sites (e.g 10-20 metre, depending on feasibility) of the endemic / target sites. This will allow the Big-headed ant to be suppressed in the area and restore the habitat back to a more natural ecosystem and allowing endemic invertebrate population to thrive and limit reinvasion.

Big-headed ant survey results during the controls on the trial and roll out sites						
	Control method conduct in	Baseline	Pickup	2nd week	4th week	8th week
Big-headed ants	Average Trial sites (4 sites)	733	400	217	127	149
	(%) of decline from baseline survey		45%	70%	83%	80%
	Average Roll out sites (3 sites)	10490	123	144	713	220
	(%) of decline from baseline survey		99%	99%	93%	98%
	Average (%) of decline from baseline survey for trial sites and roll out sites		95%	97%	93%	97%

Beyond achieving the outcome for Big-headed ants, the Common wasp control method (using a toxin containing Fipronil) also showed positive results on the 2 target sites that were trialled. The wasp's population declined by 92% on the sites during the trials, however the wasp population had increased by 27% evidenced through extra wasp callouts in Thompson wood (Blue Hill) and Sandy Bay the following year. The wasp activity from Jan - March 2022 to Jan - March 2023 at Sandy Bay had increased by 9 wasp per hour going to the chicken lure. This is due to the wasp's high mobility and so the wasp will repopulate the treated area and spread in new areas rapidly and so long-term suppression is not effective, therefore it is recommended to carry out an island-wide eradication of this

species. SHG and the Trust will continue with the monitoring of the Common wasp and adapt the wasp control methodology to the Cloud Forest habitat. This data will support a future proposal for island-wide eradication and continue to increase the knowledge on the Common wasp. **(Evidence Outcome 0.1, monitoring data, results & reports)**

Outcome 0.2 - A demonstrable positive change in endemic and indigenous species richness and / or abundance from baseline data at project control sites by March 2023.

Comprehensive invertebrate surveys in the trial phase revealed that the Cicadellidae (Leafhoppers) as a group to be sensitive to changes in Big-headed ant abundance and so they were the focus for monitoring of the impact of ant control, together with some other easily recognisable endemic invertebrates such as flower beetle. Some invertebrates like the overall abundance of Cicadellidae leafhoppers (a key endemic group), as well endemic species *Sanctahelenia decelli* (Gumwood leafhopper) and *Glipostenoda mellissiana* (flower beetle) had increased after the deployment of the treatment (on 8th week). This was different to the control site where increases were not prominent, suggesting that the increases were due to Big-headed ant suppression. It is difficult to definitively determine if a positive outcome was due to the changes in ant abundances; however, it did demonstrate a positive change in abundance. **(Evidence Outcome 0.2, Monitoring data and analyse of results in Ant roll-out report)**

Outcome 0.3 - By the end of the project 6 newly trained ‘experts’ are providing information to others, plus 10 conservation practitioners and land managers on St Helena (all 50% female) evidence applying new skills and knowledge to control invasive invertebrate species.

An overall total of 13 invasive expert were trained and applying new skills, this counts as a success as we have 7 more people who are fully trained to carry out the controls and trained others – giving more impact than practitioner level. By the end of the project 6 (46% female) are trained experts within Trust (5) and SHG (8) and be able to monitor and perform the control methods and be able to train other staff on these techniques. The capacity within in the Trust invertebrate team has 3 people trained as ‘experts’ they are now carrying out surveys of invasive invertebrates, as well as identification of invertebrates including invasives, and during the project they delivered training to 8 other SHG staff. **(Evidence Outcome 0.3, trainee interview results)**

Outcome 0.4 - Protocol for the management of at least 1 invasive invertebrate species submitted to SHG and integrated into wider workplans before end of project by early 2023.

The Big-headed ant control (ongoing suppression) will be integrated into the SHG by controlling the ants using the method designed by this project on 2 endemic invertebrate sites (covering approximately 1 hectares) they maintain. Big-headed ant control will also be carried out by Trust on 3 sites (covering approximately 3 hectares) in the Cloud Forest Project in a buffer zone around the Cloud Forest to prevent future Big-headed ant invasion into this endemic-rich habitat, and an they will continue to monitor the ant fauna in the St Helena National Park (Cloud Forest). Big-headed ant control is also being applied by the Trust in Millennium Forest at 2 location another key lowland site for endemics.

The wasp control has shown a great success and there is still a possibility of eradicating the Common wasp on St Helena and the project has a lot of support in controlling the wasp, therefore SHG (the trained experts) will integrated the wasp monitoring into their workplan and continue to monitor the wasp population and ecology in 11 sites. The wasp control will be integrated into the Cloud Forest Project for further testing but adapted to Cloud Forest habitat. Ultimately looking to develop a proposal and secure funding for an island-wide eradication **(Evidence Outcome 0.4, Invasive control protocol. Legacy)**

Outcome 0.5 - By the end of the project citizen-led monitoring results in an 80% increase (with a 40% increase by year 2 and 80% by year 3) in the number of records of invasive invertebrates (from SHG baseline).

The project saw wasp call-outs increase with 35 calls in 2019 (baseline pre-project), 29 calls in 2020, 20 calls in 2021, 48 calls in 2022 and 44 calls from Jan to May 2023 of the common wasp by the public.

Additionally, one hundred and twenty-seven new records, were collected of ants/mantis, wasp/ mantis sightings and set up wasp traps (2020 – 6 people, 2021 – 10 people, 2022 – 56 people, Jan to April 2023 – 55 people). This is great achievement as the public engagement with the project has increased from year 1 to year 3 and they have actively collected or called in sighting of the target species. This included the island’s first-time ant survey which involved the public and 10 people collected and delivered ants to the Trust to be id which helped towards the ant species distribution. 12 people collected mantis for the stomach analysis. 12 people and 2 school groups took part in the wasp monitoring in their area. The project also set up a bug club which supports 8 kids to become young entomologists, they carry out surveys and monitor wasp and invasive invertebrates around their homes.

There was a 197% increase in the number of invasive invertebrate records from a baseline of 35 in 2019 (pre-project) to 104 (calls 48 and via citizen science 56) in 2022. Which was a great achievement that showed people

have genuine interest and curiosity and were supportive for controlling these targeted invasive invertebrate species. On St Helena there is not a big ‘volunteer’ culture which can be attributed to a number of reasons in particular the cost of living; and so, it was a very difficult part of the project.

(Evidence Outcome 0.5, SHG annual invasive records and SHNT citizen science records)

Outcome 0.6 - By the end of the project 75% (50:50 women and men) of surveyed islanders (50 person subset) demonstrate an awareness of invasive invertebrates, their impacts and how they can help (from a pre activities baseline).

There has been an ongoing series of outreach activities by the project, including presentations, posters and leaflets, newspaper articles, social media, primary school engagement and bug club. In order to get the wider community involved especially adults, there were also radio shows and quizzes and pop-up stalls in all districts. It was observed that people like more visual picture-based information rather than articles or questionnaires.

In year 1 and 2 the questionnaire was to get what the public are aware of invertebrates on the island and understand their knowledge, whereas in year 3, it was more focused on the impact of the project regarding invasive invertebrates, specifically the projects targeted species. Also, it was to get a greater understanding of how the project had changed knowledge and understanding, which the previous questions were not picking up. St Helena being a remote isolated island, the culture and mindset is different to elsewhere in the world hence why the public mindset is different and are receiving the information but not taking part.

The final questionnaire results have shown an increase community knowledge of invasive species with 73% of islanders with an increased awareness of invasive species and how to control them and specifically the target species (Big-headed ant, Common wasp and Springbok mantis). People are also more aware of the actions they can take to control invasive invertebrates, 95% knew what control was and 82% were controlling invasive ants in and around their own properties. The team continues to promote, disseminate findings and involve the community with citizen science.

The outreach work on the Common wasp and the Big-headed ant were successful in terms of understanding, although citizen science numbers remained low. However, one question showed that the Springbok mantis control would need a cultural shift in opinion if it was to be controlled in the future.

(Evidence Outcome 0.6, Public knowledge questionnaire reports)

3.3 Monitoring of assumptions

The project used a risk register, **(Evidence Final documents)**, this was used by both the Project Manager and the Steering Group to monitor the assumptions/risks throughout the project at both the Outcome and Output level. It was reviewed monthly by the Project Manager and biannually at steering group meetings, checking whether risks and assumptions had changed or if new risks/assumption needed adding. **Two risk registers** have been provided as evidence an initial and final to demonstrate how the risks changed throughout the lifetime of the project.

There were changes in assumptions regarding the timing of access to funding and also access to materials. This was due to an initial delay in receiving funds delaying the timetable of the project, plus a toxin being lost in the post from New Zealand. The addition of these assumptions resulted in more forward planning, in the form of advance purchasing to ensure if materials were lost or delayed it didn't affect the project delivery, also adaptability in project timetabling to allow for delays. Other assumptions were fairly similar to what was originally predicted and management of these can be seen in the final risk register, these included managing issues around citizen science engagement. It did end up being more difficult to engage the public in citizen science than envisaged, and so new approaches were applied to facilitate engagement, **(Evidence Final documents, insect week radio show quiz)**. Assumptions around weather and how it affected the life cycle of the Social wasp, were also challenging as a certain level of wasp abundance was needed to be able to apply the control and so this led to the Big-headed ants being a more effective ‘focus’ species for the timescales of the project.

4 Contribution to Darwin Plus Programme Objectives

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

The project investigated two control methods to managed two aggressive generalist predatory invasive invertebrate species (the Common wasp and the Big-headed ant), both of which are known to damage endemic habitats and feed on endemic invertebrates. This project has helped to safeguard the endemic invertebrate diversity especially in sensitive endemic habitats like the cloud forest for future generations. This has contributed towards actions / goals in the ‘Island 10-year plan 2017 -2027 National Goal’, ‘National Environmental Management Plan 2012-2022’, ‘Invertebrate Conservation Strategy (2016-2021)’ and ‘Environmental Protection Ordinance (2016)’. This project

will contribute to the ‘UK Government’s 25-year plan: A Greener Future – No UKOTs Species Extinctions’ by facilitating endemic invertebrate recovery and re-establishing their associated ecosystem functions.

The project undertakes citizen science and builds on the public and education programs to promote and improve on conservation biological diversity which supports ‘The Convention Biological Diversity – Article 13 (a and b) and with the co-operation from Prof. Helena Roy (Ecologist, UK Centre for Ecology & Hydrology), Andrew Whitehouse (Buglife) and Prof. Adam Hart (Science Communication in the School of Natural and Social Science).

4.2 Gender equality and social inclusion

Has encouraged a good gender balance, throughout recruitment and during event engagement. The invasive invertebrate team that delivered the project is an equal gender balance of 50:50 over a team for 4, with the Project Manager and the Project Leader both female; and as outlined below the Project Board is predominantly female. A wide range of events, particularly pop up, were organised giving easy access to a range of genders and social backgrounds. The events on the project in terms of gender balance achieved is 60:40 (men to woman), this is due to the majority of the farmers are men orientated and the men on St Helena are more interacting with the environment than women. We can try to overcome this by tailoring the activities to women’s interest, for example health and wellbeing. However, during training 12 SHG conservation and Trust staff attended training and are ‘experts’ in St Helena appropriate invasive invertebrate control methods of which 50% were female.

Please quantify the proportion of women on the Project Board ¹ .	The Project board is 60% women orientated.
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women ² .	<p>ENRP (SHG) is <50% women orientated.</p> <p>CABI - the invasive species management group in the UK is led by a woman and the group itself has >50% women in the group. CABI’s global director for invasive species is also a woman.</p> <p>SHNT project board is 100% women orientated with the Director and Senior Managers are all women.</p>

5 Monitoring and evaluation

The monitoring of the project was led by the Trust, with the Project Manager responsible for the ensuring ongoing M&E of the project and overseen by the project co-leader, through regular one-to-one progress meetings. Evaluation is via the project steering group, which has 10 core members including all project partners. Steering group met monthly at start of the project due to the delayed start of the project, affected by Covid-19 in early 2020 and so an increased level of support was needed. (**Evidence, Steering group meeting**). This then went to bimonthly nearer the end of the project as less support was required. The steering group closely evaluated all elements of the project, problem solving and providing expert advice. The steering group was the most helpful M&E element, using expert advice and review to overcome problems and drive the work forward.

The Project Manager also used a monitoring spreadsheet ‘Invasive Invertebrates Project Tracker’ (**Evidence, Final documents, Invasive inverts project tracker**). The tracker contained an outline of outcomes, output indicators and activities, providing a visual summary of progress and colour codes indicating whether outputs are on track, delayed or seriously delayed. The tracker helped to flag progress and highlight areas of concern. Any arising problems are discussed and resolved during the steering group meetings. The tracker was most helpful to the Project Manager to keep them on track with project and was used less frequently by the steering group.

A change was made to one of the outcome indicators in the logframe, this was originally looking to achieve a 10% increase in an endemic indicator in abundance/distribution in 3 years from control baseline. Once the project started and after discussions with invasive control specialist it became apparent that this very specific target, as it is very difficult to monitor the beneficial impacts of control. Therefore, it was changed to ‘a demonstrable positive change in endemic and indigenous species richness and/ or abundance from baseline data at project control sites by March

¹ A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

² Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

2023'. This was still ambitious but was achieved by the project, as leafhopper abundance increased post Big-headed ant control.

The Project did have a final workshop to present results and get feedback, this was a good opportunity to get on-island feedback on the project and what it achieved.

6 Actions taken in response to Annual Report reviews

There were four key comments from the feedback from the last annual report, these are outlined below, together with how they were addressed:

1. Provide more information on the various informal partnerships mentioned (NNSS, FERA, Species Recovery Trust, UKCEH) (How funded? Role played?). As a result of this feedback we have significantly extended section 2 of this final report on the partnerships to include detailed information on the role of all the different partners.
2. Please provide minutes of Project Steering Group meetings. A document entitled '**Project Steering Group minutes**' is now provided in the evidence section of this report.
3. Please append the Project Indicator Tracker spreadsheet with the next Annual Report. The '**Project Indicator Tracker**' document that was used during the lifetime of the project is now provided in the evidence section in the final documents of this report.
4. Ensure that narrative reporting of Indicator achievements addresses the metrics used in the Indicator statement. We have altered our approach to section 3 of this report and now provide detailed information on the achievement of the indicator metrics, please see section 3 for more information.

7 Lessons learnt

Due to the delay in starting the project it reduces the time for purchasing the items and some items required extensive research before procuring i.e. poison baits. Procuring large / heavy goods or liquid items outside of St Helena is very difficult, you must plan your purchasing at least three months ahead, as goods arriving via ship (MV Helena) normally take three months. The flight allows goods coming to St Helena quicker but due to covid-19 restrictions have impacted on importing products via air freight. The flight schedule had reduced dramatically from four flights a month to one flight every 6-8 weeks and the items must undergo one-week quarantine. As well the items might get bumped off the flight due to other goods being high priority or they could get left behind. COVID-19 also cause the project to postpone activities like international visits and staff being off ill. If the project was repeated it would be allowing a lot flexibility in the project for a massive and unexpected issue, such as COVID-19.

Wasp baits was purchased from New Zealand, due to the isolated location of St Helena the only option available was DHL postal service. DHL had lost one consignment of baits (five syringes and 100 bait stations) that were purchased. DHL had forgotten to scan the package when it had arrived to the UK, at this moment in time they cannot locate the package. This has made a big impact on the project where we could miss the timeframe for trialling the bait, fortunately we didn't as in the end wasp's numbers weren't high enough in 2021 to allow the trial to take place and so this was shifted to 2022. This was an unforeseen circumstance, but next time we would allow more time for difficulties with shipping, as well as use a more reliable shipping agency.

Whilst writing up the log frame we assume that the Common wasp activity would be the same as the previous year and so high, but the wasp activity was much lower, which caused a delay in trialling the wasp baits. Unfortunately, this was out of our control and if we were to conduct the project again, we should have included more time to carry out the assessments and trials – as invertebrate populations can fluctuate a lot. However, during this project we have ended up lowering the wasp activity threshold that was recommended by the Vespex supplier, as numbers on St Helena are not as high as they experience in New Zealand.

The landrover used on the project is an old landrover that was part of the Trust's existing fleet from a previous project. There have been numerous times that it has broken down and parts have had to be sourced from off island, meaning the landrover was out of order for long periods of time and the team had to share vehicles with other projects or postpone work activities. Again, at the time this was out of our control but the Trust as an organisation has learnt from this project that regular maintenance, procuring spares and good care is essential for longer lasting and more efficient vehicles, as well as having a standard fleet for which a part can fit any of the landrover. St Helena is a remote island, with limited access and expertise and high costs associated with importing goods, thus we have to be resourceful.

The above incidents were unforeseen circumstances, but the project had good support from specialist, members of the steering group and SHG staff which support the team to completed activities within the timeframe of the project and resolved obstacles in a timely manner.

8 Risk Management

The project established a risk register (**Evidence, Final documents, Risk register final**), which allows the steering group to regularly monitor the assumptions/risks for the project and is updated at every other steering group meeting (bimonthly). The original risk and assumptions were included within this spreadsheet, plus new risks are added as they arise. The spreadsheet includes the following information on each risk: Type, Description, Probability, Impact, Mitigation, Status, Notes, Owner and Action by. It is reviewed monthly by the Co-Project Leader and Project Manager and bimonthly by the project steering group.

All the original risks are still valid, new risks have been identified this includes: COVID-19 altering the delivery of the project – this resulted in a reduced focus on international travel particularly in the first two years of the project, the transportation of chemical baits to the island – resulted in much more contingency time for delivery due to risks of loss, and whether wasp/ant activity will be high enough to facilitate the trial control or final control – resulted in adaptability in sites for control to allow for the risk of sites being unsuitable.

9 Sustainability and Legacy

The Trust is committed to the protection, conservation and restoration of native habitats /species and will continue to work on improving St Helena's invertebrate conservation. Control of invasive species is a hot topic in the UK Overseas Territories and this project is looking into methods to control some of the key invasive invertebrate species that are threaten St Helena's biodiversity but also of other Territories, as there is limited focus on invasive invertebrates. The project is being promoted on the Trust website and within the Territories through a number of different channels, including: presenting at the UKOTCF Southern Oceans Working Group (SOWG), the MAIISG newsletter (engages individuals on Ascension and Tristan da Cunha), the Darwin Initiative newsletter and an online conference. Promotion has already resulted in the Big-headed ant control methods developed by St Helena being adopted and trailed on Ascension Island, providing an indication of the wider legacy of the project.

There is an increasing demand in invertebrate identification and surveying on St Helena and Ascension Islands that requires the expertise and skills from the project team. The capacity within the invertebrate team and the Trust has increased by 3 new staff of which 2 will be sustained post the end of the project, this has increased the capacity to 4 people (3:1 women to men ratio) in the Trust invertebrate team. The team has upskilled 8 SHG staff on invertebrate identification and how to control the Common wasp and the Big-headed ant. Three of the Trusts invertebrate specialists from the Project have been transferred to the Cloud Forest Project and will continue to work on invertebrate, and the other staff is working on another Darwin Plus project and be able to utilise his invertebrate skills on this project.

Through the project skills on invasive invertebrates control have become embedded on island with eight SHG and five Trust staff with new expertise on the ecology and chemical control of the two target species.

The government have been engaged from the start of the project to ensure a legacy post the project 'SHG involvement' document (**Evidence, SHG agreement document, Agreements, SHG Involvement**). As a result, SHG will implemented the Big-headed ant control on two endemic lowland sites and the Common wasp monitoring into ENRP work plan on endemic lowland sites and continue with long-term delivery of controlling the Big-headed ant on two sites and the Common wasp control and monitoring on 11 sites. The control of Big-headed ants is also being integrated into the pre-existing Cloud Forest project a SHG and SHNT collaboration, with SHNT leading on control on a series of 3 large sites to prevent Big-headed ant invasion into the invertebrate endemic-rich Cloud Forest. SHNT is also applying Big-headed any control in the Millennium Forest, where a number of endemic invertebrates are at risk from Big-headed ant impacts. The SHG and the Trust will continue to investigate an island-wide Common Wasp eradication project in the long-term. (**Evidence Output 3, Activity 3.4 to 3.7, integration control method in SHG & Cloud Forest work plan, SHG communication on project legacy & SHG protocol meeting minutes**).

The Trust has contracted CABI to analysis the stomach content of the mantis, this will improve our knowledge in this species by investigating the types of insects they prey on and this will support future project in controlling (biocontrol) these species.

The public are more engaged with the invasive invertebrate project though radio interviews, social media, articles and pop-up stalls. They have more understanding on the target species and other invasive invertebrates which will support future conservation work and controlling of invasive invertebrates. To keep the public engaged with invasive species the Trust will organise an invasive ant survey each year that the public can survey around their homes.

The project had started a Bug club for kids (age group 6 to 10) to inspired the youth to become young entomologists, the club will continue within the Trust with the support from SHG.

10 Darwin Plus Identity

The project has publicised the Darwin Plus consistently throughout the lifespan and activities of the project, promoting the Darwin Plus identity wherever possible. The Darwin logo is present on all posters / leaflets, promotion materials (e.g. key rings, pens, bags and t-shirts), research plans, trial plans, survey sheets, social media, radio interviews, press releases, newsletter articles, presentations and citizen science materials. Darwin Plus support was also verbally acknowledged in presentations in training and workshops.

There are a number of other Darwin Plus projects currently being undertaken on St Helena, in addition to the legacy from previous projects (Darwin logo on vehicles and t-shirts). This means that there is high presence of the logo on St Helena and good understanding of Darwin's role in supporting conservation projects. There is a dedicated page on the Trust website (<http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/>) promoting the project and displaying the Darwin logo. In terms of social media the Trust (<https://www.facebook.com/SHnationaltrust> and <https://www.instagram.com/sthelenabugteam/>) always tags in the Darwin Plus social media accounts when publicising the project (**Evidence, Activity 4.4 Public awareness events, Social media posts and promotional material and Final documents, Project pictures**).

11 Safeguarding

The Trust has a safeguarding policy, whistle-blowing policy and code of conduct. All staff and volunteers must agree to these policies before they start work and any partners / specialists arriving to the island will read and agree to the policies before they begin work. The Trust staff are regularly given training in safeguarding to stay up to date. The safeguarding policy have been updated but not approved by Trust council.

There have been no safeguarding issues raised; however, one of the field assistants is under 18 years of age, so procedures have been taken so that the individual can work in a safe and protected environment.

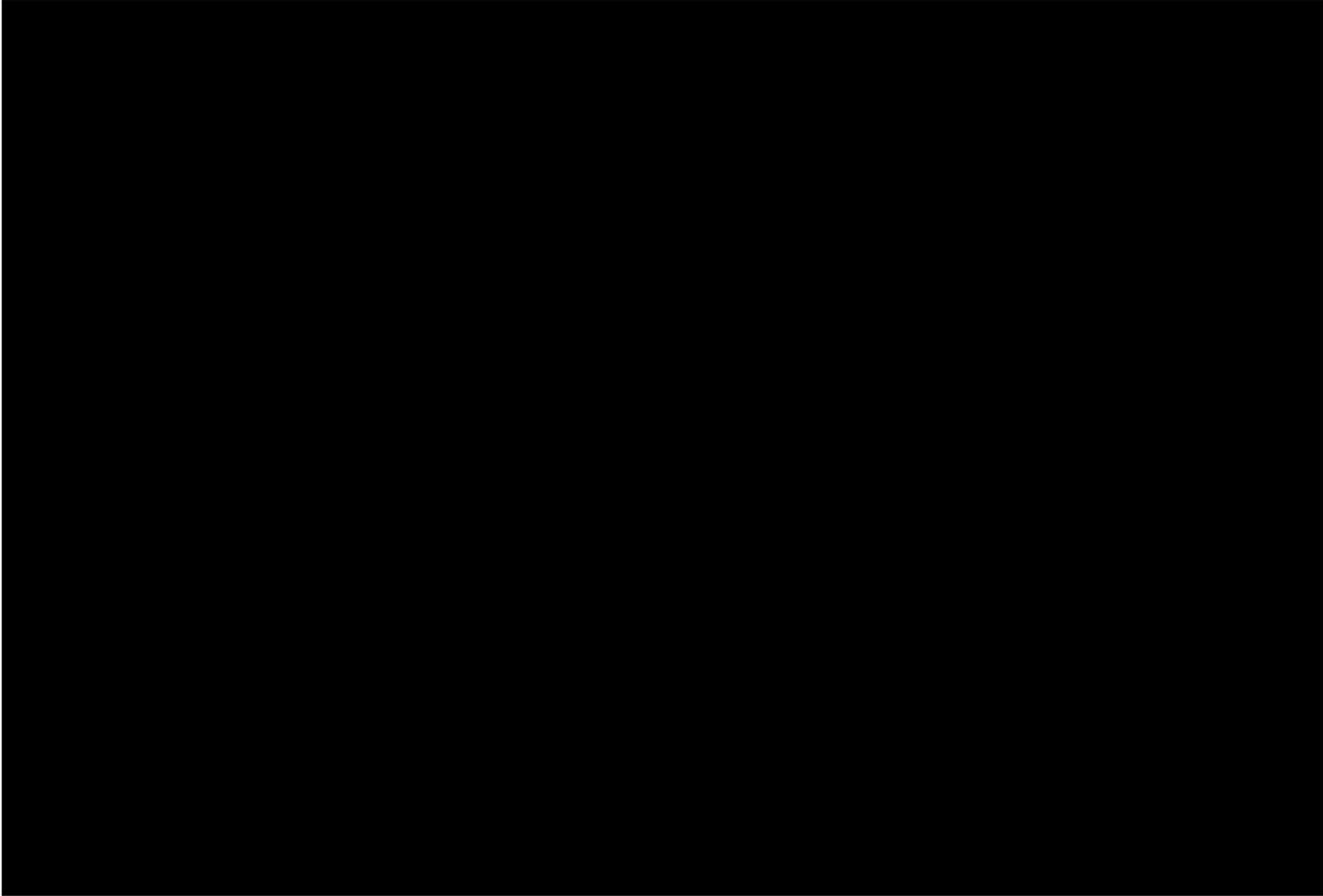
Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been investigated in the past 12 months	No
Does your project have a Safeguarding focal point?	Yes Helena Bennett, St Helena National Trust Director, [REDACTED]
Has the focal point attended any formal training in the last 12 months?	No
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 100% [4] Planned: 100% [4]
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. No.	

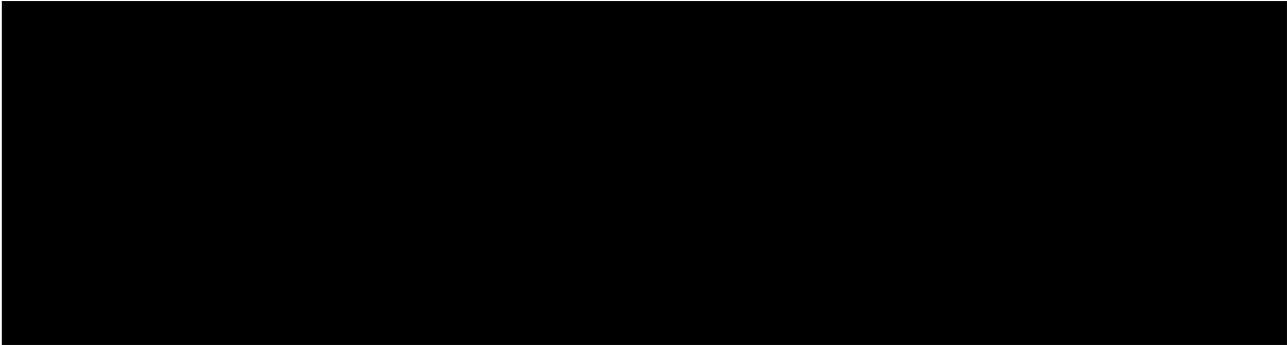
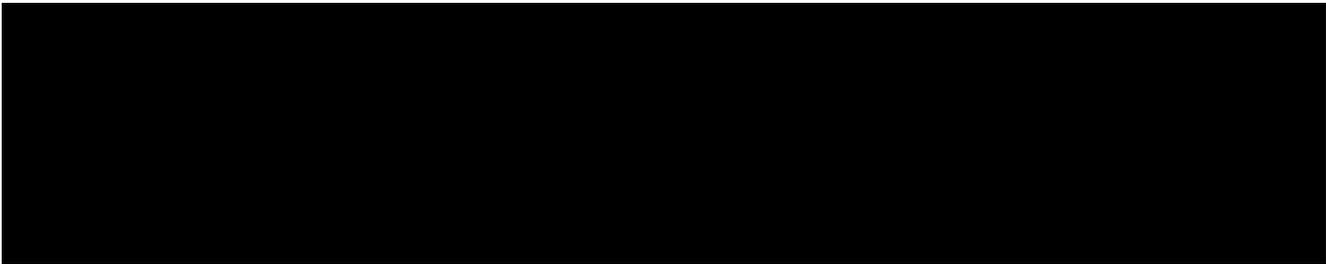
12 Finance and administration

12.1 Project expenditure

Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Consultancy costs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Overhead Costs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Travel and subsistence	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

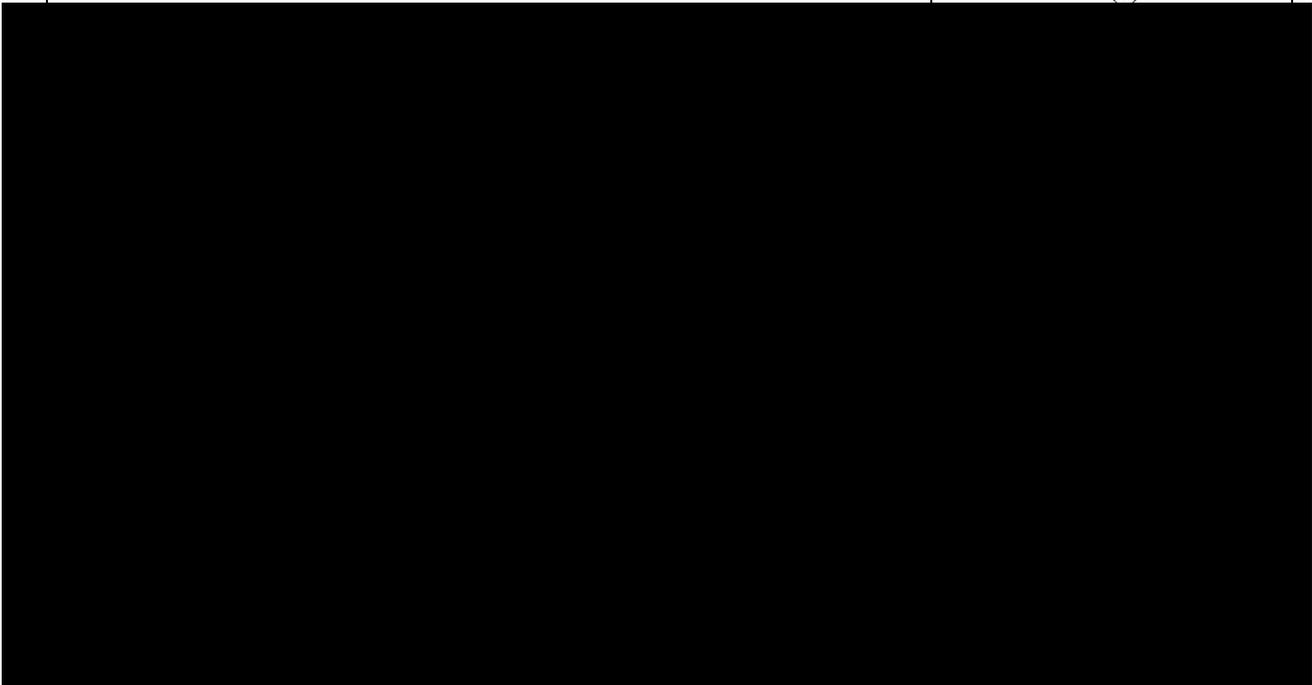
Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Operating Costs				
Capital items				
Others				
Partner costs				
TOTAL	£130,682	£124,229.76		





12.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
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12.3 Value for Money

The Trust has experience of managing numerous projects ensuring the costs are realistic and careful budgeting in risk areas (e.g travel, overheads). The Trust purchased equipment / materials on island before purchasing items off-island to support on-island merchants. Using remote communication is a value-for-money tool where training and workshop are carried out though webinar and zoom, this allow knowledge to be share and activities discussed at ad-hoc. Allow steering group members and invertebrate specialists to input in St Helena’s invertebrate strategy due to the Covid-19 restrictions and limited funding.

During the project the Trust have made a lot of value for money decisions by creating the ant bait stations out of used irrigation pipe that were used in passed projects and recycle plastic bottles and lids. International invertebrates’ specialists (Roger Key independent invertebrate specialist and a member on the steering group and Noel Tawatao ant specialist (FERA)) have arrived to St Helena on a different project and has supported the DPLUS104 by training the Trust staff on invertebrate identification (ant and Hemiptera), different survey methods and provided support on the Common wasp and Big-headed ant controls.

Nobert (Cabi) project partner and member of the steering group travelled to St Helena funded by another project where able to provide support on the controls / training for the DPLUS104 during his stay on the island. The project had funds available for this but the trust was able to save these funds and used it elsewhere.

It is very expensive to travel to and from St Helena therefore the Project manager and the Project manager assistant visited other organisations to promote the project / case study and increase their knowledge of conservation restoration methods / efforts during their trip to UK. This has increase they invertebrate connections and methods of control / surveying invertebrates.

13 OPTIONAL: Outstanding achievements of your project (300-400 words maximum). This section may be used for publicity purposes.

I agree for the Biodiversity Challenge Funds Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

St Helena is a sub-tropical island that is home to over 400 endemic invertebrates. Many native and iconic predatory invertebrate species, Giant earwig and ground beetle, are now extinct on St Helena and these have been replaced by invasive predatory species with very effective hunting strategies but the island's endemic invertebrate species have not involved to cope with these. DPLUS104 the St Helena Invasive Invertebrate Project has open up a gateway in understanding and controlling invasive invertebrate species to help maintain and restore endemic invertebrate populations. The project researched and trialed the Big-Headed ant *Pheidole megacephala* and the Common wasp *Vespula vulgaris* controls; while building on-island capacity and engaging the wider public These two species are recognized in the top 100 worst invasive species globally.

This successful project has achieved great results with the Big-headed ant control reducing Big-headed ant numbers on endemic sites by 98% in the target area. With an uplift in endemic species abundance on control sites when compared with non-treatment sites. As a direct result this control method will continue to be applied after the end of the project by the St Helena Government and Saint Helena National Trust on 14 endemic sites across the island. This will reduce the impacts the Big-headed ant species has on the endemic invertebrates but also wider fauna and flora.

The Common wasp is mostly found in the endemic Cloud Forest which is homed to over 120 endemic invertebrates. This was where the Common wasp was observed predated on the endemic Loveridge's hoverfly *Spharophoria beattiei*. The Common wasp control has shown successful results by reducing the wasp activity / population in the target area this has launched an investigation by St Helena Government and the St Helena National Trust to look at completely eradicating the Common wasp island-wide on St Helena.

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
MP4	St Helena National Trust – DPLUS104 Wasp control on St Helen	St Helena, directed by Luke Bennett		Yes
JPG File	The Common wasp predated on the endemic Loveridge's hoverfly	St Helena, credit by Liza Fowler		Yes
JPG File	Invasive invertebrate team deploying Common wasp toxins	St Helena, credit by Natasha Stevens		Yes
JPG File	Invertebrate team carrying out non-target invertebrate monitoring	St Helena, credit by Natasha Stevens		Yes
JPG File	Training local government staff in ant surveying method,	credit Natasha Stevens		Yes

Annex 1 Project’s full current logframe as presented in the application form (unless changes have been agreed)

Please insert your project’s logframe (if your project has a logframe), including indicators, means of verification and assumptions. 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 BCF-Reports@niras.com if you have any questions regarding this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: Recovery and enhanced sustainability of St Helena’s globally important endemic terrestrial invertebrates, associated ecosystem function and social benefits, through reduced invasive invertebrate impacts due to island-wide and stakeholder-inclusive control efforts.</p>			
<p>Outcome: First signs of recovery in endemic Invertebrate populations and associated ecosystem function on St Helena due to applied control interventions, increased skills and knowledge amongst conservationists and community members.</p>	<p>0.1 By the end of the project a 50% decrease (25% decrease by year 2 and 50% by year 3) in one target invasive species abundance/distribution (from baseline monitoring) in control areas.</p> <p>0.2 A demonstrable positive change in endemic and indigenous species richness and/ or abundance from baseline data at project control sites by March 2023.</p> <p>0.3 By the end of the project 6 newly trained ‘experts’ are providing information to others, plus 10 conservation practitioners and land managers on St Helena (all 50% female) evidence applying new skills and knowledge to control invasive invertebrate species.</p> <p>0.4 Protocol for the management of at least 1 invasive invertebrate species submitted to SHG and integrated into wider workplans before end of project by early 2023.</p> <p>0.5 By the end of the project citizen-led monitoring results in an 80% increase (with a 40% increase by year 2 and 80% by year 3) in the number of records of invasive invertebrates (from SHG baseline).</p>	<p>0.1 Monitoring data, analysis results and report on target invasive invertebrate species.</p> <p>0.2 Monitoring data, analysis results and report on endemic indicator invertebrates.</p> <p>0.3 Trainee interviews demonstrate evidence of application of new control skills and knowledge and ‘new experts’ demonstrate knowledge transfer.</p> <p>0.4 Final control protocol completed and integrated into invasive control system at SHG for at least one species</p> <p>0.5. SHG annual invasive records and SHNT citizen science records analysed to assess contribution increases.</p>	<p>That native species will recover rather than other non-native species fill the gap (high-impact invasive species are chosen, that will not easily be replaced by other similar invasive).</p> <p>The speed at which endemic species react positively to a decline in invasive species, maybe longer than the project (Indicator species will be chosen that are most likely to react to invasive changes and SHNT/SHG will continue to monitor beyond the end of the project).</p> <p>Weather conditions allow consistent survey methods to be applied (contingency timings built into project design).</p> <p>Government policy and staff continues to prioritise invasive and proactively engages with the project (invasive control is a top environmental priority for the government and their strong engagement as a partner in the project will also support this).</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>0.6 By the end of the project 75% (50:50 women and men) of surveyed islanders (50 person subset) demonstrate an awareness of invasive invertebrates, their impacts and how they can help (from a pre activities baseline).</p>	<p>0.6 Feedback from members of the public to assess their awareness and understanding of invasive invertebrates pre and post the project activities.</p>	<p>Public and media willingness to engage with the project (the Trust has strong community and media relationships to facilitate wide engagement).</p>
<p>Outputs:</p> <p>1. Target invasives and control method feasibility assessed for application on vulnerable sites, through a trial phase that includes research, expert advice, public consultation and rigorous field testing.</p>	<p>1.1 By end of 2020 a series of control methods/options researched and analysed for <i>Vespula vulgaris</i>, <i>Miomantis caffra</i> and <i>Pheidole megacephala</i>.</p> <p>1.2 Trial methods for 2 target invasive species to be field tested are assessed and agreed at stakeholder workshop by late 2020</p> <p>1.3 Monitoring protocols and species are defined and agreed with steering group prior to trial implementation, including assessment of impacts on target and non-target species by early 2021.</p> <p>1.4 Nine initial trial sites identified, sites mapped, site/habitat assessment and trail implementation plan completed by early 2021.</p> <p>1.5 By late 2021, control method effectiveness tested for at least 2 target species on trial sites with complementary monitoring, and results written into a full review and feasibility assessment from trial sites.</p>	<p>1.1 Summary document of control options plus full feasibility assessment completed and sent to workshop attendees.</p> <p>1.2 Workshop report disseminated to project stakeholders detailing attendees, as well as workshop results and justification of criteria, assessments, trial sites chosen, plus methods and target species/s.</p> <p>1.3 Monitoring protocols and species, site assessments/risk analysis are signed off by partners and experts, and finalised documents are available online.</p> <p>1.4 Trial site maps, site/habitat assessment report and implementation plan completed and circulated to stakeholders.</p> <p>1.5 Document recording and reviewing of the ‘trial phase’ including: control methods, photos, monitoring results, feasibility assessment; and draft implementation protocol for trialed methods completed and sent to workshop attendees.</p>	<p>Stakeholders are willing to engage in the criteria and selection process; and can agree on trial methods and sites (SHNT with good pre-existing relationships and MAISGs experience of high-quality facilitation techniques will be applied at workshops).</p> <p>Landowners and managers are willing to cooperate and allow their sites to have trial control methods applied (strong pre-existing landowner relationships and alternatives e.g. SHG land).</p> <p>Appropriate control methods can be identified, and expert advice provided to tailor to St Helena’s needs (strong existing partner knowledge on global invasive invertebrates will underpin this).</p> <p>Expert agreement on protocols to be utilised (extensive expert knowledge on techniques plus strong facilitation techniques to manage disagreements, will help to define protocols).</p> <p>Control method used that have no significant impacts on native fauna and flora (the project is being phased with comprehensive monitoring methods to allow adaptation and highlight issues).</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>2. A high-impact invasive invertebrate successfully controlled at 6 vulnerable sites, and results reviewed and shared internationally.</p>	<p>2.1 Roll-out method and target species are assessed and agreed at stakeholder workshop; and implementation plan completed by late 2021</p> <p>2.2 Roll-out of at least 1 control method for an invasive invertebrate species using protocols and monitoring devised from trial areas, roll-out on at least 6 vulnerable sites initiated by 2022</p> <p>2.3 Regular steering group reviews of progress and effectiveness of the roll-out phase every 6 months, including input from international experts between 2021-2023.</p> <p>2.4 A ‘roll-out’ phase evaluation report on applicability and effectiveness of control method produced by 2023.</p>	<p>2.1 Workshop report detailing attendees, as well as results and justification of criteria, assessments, trial sites chosen, methods and target species/s; and implementation plan completed</p> <p>2.2 Records of 'roll-out' of control methods and completed implementation records, photographic evidence, field notes and monitoring reports.</p> <p>2.3 Minutes of review meetings recording the steering group’s assessments of progress.</p> <p>2.4 Final report on control methods complete including feedback from steering group and stakeholders, accessible on Trust website.</p>	<p>A suitable roll-out control method can be found that can be adapted to St Helena (international expertise on methods plus careful assessment of target invasives means that the most likely to be successful invasives have been chosen).</p> <p>Environmental and social conditions allow roll-out to be initiated and applied (strong communication strategies, consultation workshops and contingency plans will ensure stakeholder buy-in plus flexibility).</p> <p>Weather conditions allow the work to be undertaken (contingency dates will be scheduled).</p> <p>Sufficient data can be gathered to assess the control methods (scientific experts in partner organisations will be used to define the most effective data gathering methods and techniques).</p>
<p>3. St Helena and other UKOTs capacity and understanding increased on identification, monitoring and control invasive invertebrate species via training, integration into plans and knowledge sharing</p>	<p>3.1 Six conservation staff trained through a development programme as ‘invasive invertebrate control experts’ by end of 2022, demonstrating high levels of skills and knowledge.</p> <p>3.2 In addition, ten conservation practitioners and land managers on St Helena with increased skills and knowledge of invasive invertebrates and their control by end of 2022.</p>	<p>3.1 Development programme attendance list, attendee before and after surveys; with evidence of new ‘experts’ providing advice to others.</p> <p>3.2 Training materials, feedback forms and interviews with participants on application of skills.</p>	<p>Stakeholder interest, political will and capacity to embed invasive invertebrate control findings into existing work programmes (invasive control is a government and NGO priority, and close collaboration with on-island partners in project delivery and development will support adoption).</p> <p>Conservation staff commitment and capacity maintained for engaging with training (this project has been developed</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>3.3 Invasive invertebrate control methods integrated into the government’s Peaks Management Plan invasives work by 2023</p> <p>3.4 The ‘St Helena Invertebrate Conservation Strategy’ by 2023 with informed revised invasive control goals and actions for the next 5 years.</p> <p>3.5 Case study learning shared with wider UKOTs and other islands, and relevant stakeholders aware and accessing results by early 2023.</p>	<p>3.3. Revised site management plans with amended implementation plan that includes invasive invertebrate control actions to be implemented</p> <p>3.4 The revised invertebrate conservation strategy available on SHNT’s and MAISG’s websites.</p> <p>3.5 Case studies written and embedded in newsletters, and data and information integrated into regional and international databases, and presented at a conference</p>	<p>with St Helena’s government and they will help shape the design of training session).</p> <p>Sufficient results to make concrete recommendations for changes to strategies and plans (scientific skills within project partners will support building a robust evidence base).</p> <p>Ability to make changes to plans within the timescale of the project (key partners, particularly SHG, are full engaged and will work closely with project staff to facilitate this).</p>
<p>4. Increased public support and engagement in invasive invertebrate species control, via improved public awareness of the issue and direct involvement in monitoring</p>	<p>4.1 A total of 30 people (15 in 2021 and 15 in 2022) attending and engaging in two public awareness events to increase understanding and engagement in the issue of invasive invertebrates by end 2022.</p> <p>4.2 Citizen science monitoring scheme tested, established and implemented for the project’s target invasive invertebrates by 2021</p> <p>4.3 Evidence of at least 30 islanders (50:50 women and men), with 10 in 2021 and 20 in 2022, actively engaged in invasive invertebrate monitoring by end of 2022</p>	<p>4.1 Event attendee feedback results, photo evidence of events and records of attendance.</p> <p>4.2 Citizen science materials accessible on SHNT website and project promotion articles and social media/web analytics.</p> <p>4.3 Record of individual participation citizen science scheme and evidence of directly contributing data to schemes monitoring.</p>	<p>Public are willing to attend the events (previous invertebrate focused events have been well attended, and publicity and consultations will support this).</p> <p>Appropriate citizen survey techniques can be identified (partners with strong citizen-science experience will support scheme development).</p> <p>Public interest and uptake in the citizen science programme (nature and its protection are a significant part of St Helena’s cultural heritage and initial consultation demonstrated a keen interest in this issue).</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)			
Output 1: Target invasives and control method feasibility assessed for application on vulnerable sites through a trial phase, including: research, expert advice, public consultation and rigorous field testing.			
<ul style="list-style-type: none"> 1.1 Identify and assess knowledge on the distribution, behaviour and ecology of target invasive invertebrate species 1.2 Compile control methods / options on target invasives from other countries; and define the feasibility of control on St Helena and circulate to ‘trial’ workshop attendees 1.3 Hold an on-island workshop with stakeholders to assess and agree target species, methods, monitoring and identify trial sites; write up workshop and send to stakeholders 1.4 Agree, test and write up robust monitoring protocols for trial sites, including target, non-target species and environmental attributes; and make them available online 1.5 Select control methods for 2 invasive invertebrate species for trials on St Helena and write an implementation plan for the ‘trial phase’; and distribute to stakeholders 1.6 Map 9 trial sites incorporating range of island conditions but avoiding areas with sensitive endemics (specialist habitats) 1.7 Undertake habitat and environmental risk assessments and baseline surveys of trial sites and send to steering group 1.8 Project staff trained on control methods and equipment secured, plus other trial preparations readied for the control methods to be applied 1.9 Trial control methods implemented and tested at chosen sites 1.10 Monitoring fieldwork applied during and post trial phase utilising pre-agreed protocol, and fieldwork results recorded 1.11 Report written up fully reviewing results from trial phases integrating monitoring and presenting feasibility assessment for the roll-out phase and report disseminated to ‘roll-out’ workshop attendees 			
Output 2: A high-impact invasive invertebrate successfully controlled at 6 vulnerable sites and lessons reviewed and shared internationally.			
<ul style="list-style-type: none"> 2.1 Workshop conducted to review feasibility assessment and trial results with stakeholders; and a target species, control method and roll-out sites selected, and workshop report disseminated. 2.2 Mapping of roll-out sites that were selected during workshop, showing habitats and vulnerability factors 2.3 Undertake habitat and environmental risk assessments of roll-out sites and send to steering group 2.4 Roll-out implementation plan written, based on outcomes of workshop, mapping and risk assessment results, and sent out to stakeholders 2.5 Complete an invertebrate (target and endemics indicator species) and environmental attribute survey, as a baseline, prior to implementation of control methods on target species 2.6 Prepare control areas, equipment and project staff, and undertake any training needed in readiness for implementation 2.7 Implement control method on selected roll-out sites 2.8 Monitor roll-out sites on a regular cycle, dependent on methods and species, utilising the monitoring protocol and record results 2.9 Use monitoring data to evaluate the impacts of control on invasive (particularly target) endemic indicators and other environmental attributes, and record into progress reports 2.10 Biannual ‘control review’ steering group meetings together with independent international experts, regularly reviews progress, results and effectiveness of the control method(s) 2.11 Produce report and case studies on the effectiveness of the control method/s and roll out phase, distributed to stakeholders and make available online 			
Output 3: St Helena and other UKOTs capacity and understanding increased identification, monitoring and control of invasive invertebrate species via training, integration into plans and knowledge sharing			
<ul style="list-style-type: none"> 3.1 Expert consultant intensively trains a total of 6 SHNT and SHG staff to be ‘experts’ in St Helena appropriate invasive invertebrate control methods 3.2 Training workshop for 10 wider conservation practitioners and land managers on invasive invertebrates control methods 3.3 Feedback assessments conducted for participants of training to understanding skill improvements 3.4 Produce control guidelines and activities to be integrated into site management plans and work programmes 3.5 Integration of guidance into St Helena’s plans and programmes (government and wider) in preparation for implementation in 2023/24 			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>3.6 SHG invasive invertebrate protocol defined and written up</p> <p>3.7 Meetings and process to adopt protocol into SHG system for invasive control and integrated into workplans</p> <p>3.8 Review Invertebrate Conservation Strategy and update invasive conservation goals and actions</p> <p>3.9 Wider dissemination of results and engagement with UKOTs, using case studies to promote findings within the territories</p> <p>3.10 International conference/workshop attended to disseminate results; and to gain wider understanding and increase network of invasive invertebrate control experience</p> <p>Output 4: Increased public support and engagement in control, via improved public awareness on invasive invertebrate species and direct involvement in monitoring</p> <p>4.1 Produce feedback questionnaires and interview templates to be used during events and workshops</p> <p>4.2 A subset of 30 islanders are interviewed to gather baseline on island understanding of and awareness of invasive invertebrates, and to inform outreach work</p> <p>4.2 Design citizen science programme utilising target invasive invertebrate species and tailored to allow broad inclusivity across island</p> <p>4.3 Undertake two public awareness events incorporating identification of invasive invertebrates, their impact and why take action; also gathering event records and feedback</p> <p>4.4 Implementation of citizen science scheme with publicity and release of scheme materials (online and hard copies); engaging a range of audiences, including children and wider community members</p> <p>4.5 Analyse citizen science data and disseminate results via newspaper/social media, and to government for embedding in invasive databases as well as informing targeting of future control</p> <p>4.6 Collect feedback during events and undertake post activities interviews with 50 islanders to assess awareness changes, collate and evaluate results to feed into reporting</p>			

Annex 2 Report of progress and achievements against final project logframe for the life of the project (if your project has a logframe)

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
<p>Impact:</p> <p>Recovery and enhanced sustainability of St Helena’s globally important endemic terrestrial invertebrates, associated ecosystem function and social benefits, through reduced invasive invertebrate impacts due to island-wide and stakeholder-inclusive control efforts.</p>		<p>The project has clearly demonstrated how the control of target invasive species will improve St Helena biodiversity by recovering and re-establishing endemic invertebrates.</p> <p>The project has also increased staff capacity within the invertebrate team allowing increased invasive invertebrate control as well an increase demand in invertebrate identification/ surveying and they are engaged in the legacy of the project as it is integrated into wider work.</p>
<p>Outcome First signs of recovery in endemic invertebrate populations and associated ecosystem function on St Helena due to applied control interventions, increased skills and knowledge amongst conservationists and community members.</p>	<p>0.1 By the end of the project a 50% decrease (25% decrease by year 2 and 50% by year 3) in one target invasive species abundance/distribution (from baseline monitoring) in control areas.</p> <p>0.2 A demonstrable positive change in endemic and indigenous species richness and/ or abundance from baseline data at project control sites by March 2023.</p> <p>0.3 By the end of the project 6 newly trained ‘experts’ are providing information to others, plus 10 conservation practitioners and land managers on St Helena (all 50% female) evidence applying new skills and knowledge to control invasive invertebrate species.</p> <p>0.4 Protocol for the management of at least 1 invasive invertebrate species submitted to SHG and integrated into wider workplans before end of project by early 2023.</p> <p>0.5 By the end of the project citizen-led monitoring results in an 80% increase (with</p>	<p>0.1 Common wasp and the Big-headed ant control have shown great success; over 50% of invasive target species had decline after deploying the poison in the trial sites (93% for Big-headed ants). The roll-out of the Big-headed ant control in the endemic sites has shown positive results and the population decline. This is a successful control but the treatment must be repeated every 6 months. (Evidence Outcome 0.1, monitoring data, results and report)</p> <p>0.2 Cicadellidae plus a few endemic species had increased from the baseline data consistently on the control sites when compared with the non-treatment site, however this was a subtle change and could be influenced by a number of factors (i.e. rich vegetation). Therefore, we hope that the endemic and indigenous invertebrate populations will grow, once the predatory invasive species that compete for the food supply or destroy habitats are reduced in number. (Evidence Outcome 0.2, Monitoring data and analyse of results in Ant roll-out report)</p> <p>0.3 Thirteen members of staff from St Helena National Trust (Trust) and St Helena Government (SHG) are trained in ant and wasp controls and monitoring, general invertebrate identification and ant and Diptera identification. (Outcome 0.3, trainee interview results)</p> <p>0.4 SHG and Trust are integrating the wasp and ant control plus associated monitoring into their ongoing work plans</p> <p>SHG carrying out wasp activity around the island using wasp traps and lures in 11 sites. Also, the ant control will continue in 2 endemic sites, where the big-headed ant is presented.</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	<p>a 40% increase by year 2 and 80% by year 3) in the number of records of invasive invertebrates (from SHG baseline).</p> <p>0.6 By the end of the project 75% (50:50 women and men) of surveyed islanders (50 person subset) demonstrate an awareness of invasive invertebrates, their impacts and how they can help (from a pre activities baseline).</p>	<p>The Trust is also carrying out the ant control in some of the LEMP sites and Millennium Forest. The invasive team will carry out ant suppression on 3 sites in a buffer zone around the Cloud Forest, as well as continuing to adapt and trial the wasp control in Diana's Peak (St Helena's National Park) and monitoring, as well as develop an island-wide wasp eradication proposal.</p> <p>(Evidence Outcome 0.4, Outcome 0.4, invasive control protocol, legacy)</p> <p>0.5 In terms of Common wasp reports there were 35 calls in 2019 (baseline), 29 calls in 2020, 20 calls in 2021, 48 calls in 2022 and 24 phone calls from Jan to March 2023 of the common wasp by the public. In terms of other data collected by the end of the project 38 people were involved in the monitoring of the target invasive invertebrates (2020/21-16 people, 2021-10 people, 2022-20 people, Jan to March 2023- 2 people). This demonstrated an increase towards the end of the project, between 2021 (year 1) and 2022 (year 2) there was over a 94% increase from a baseline of 35 in 2019 (pre-project) to 68 (calls and citizen science) in 2022(Evidence Outcome 0.5, SHG annual invasive records and SHNT citizen science records)</p> <p>0.6 Three questionnaires completed to evaluate the islands awareness of invasive invertebrates and their impacts. From the results the public knowledge has increase by 73% on invasive invertebrates.</p> <p>(Evidence Outcome 0.6, Public knowledge questionnaire reports)</p>
<p>Output 1. Target invasives and control method feasibility assessed for application on vulnerable sites, through a trial phase that includes research, expert advice, public consultation and rigorous field testing.</p>	<p>1.1 By end of 2020 a series of control methods/options researched and analysed for <i>Vespula vulgaris</i>, <i>Miomantis caffra</i> and <i>Pheidole megacephala</i>.</p> <p>1.2 Trial methods for 2 target invasive species to be field tested are assessed and agreed at stakeholder workshop by late 2020</p> <p>1.3 Monitoring protocols and species are defined and agreed with steering group prior to trial implementation, including</p>	<p>1.1 Four research plans were created with control methods and ecology for <i>Vespula vulgaris</i>, <i>Miomantis caffra</i>, <i>Linepithema humile</i> and <i>Pheidole megacephala</i> (Evidence Output 1, Activity 1.1 & 1.2 targeted species research plans)</p> <p>CABI contracted to analysis the <i>Miomantis caffra</i> stomach content, which will improve our knowledge in these species by identifying their prey and if they are making a big impact on the endemic population, these results are due in January 2024. (Evidence SHG agreement document, Partnership Agreement_Final-CABI_Mantis)</p> <p>1.2 Trialled control methods for two target invasive species were agreed at stakeholder workshop and steering group. (Evidence Output 1, Activity 1.3 targeted species workshop)</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	<p>assessment of impacts on target and non-target species by early 2021.</p> <p>1.4 Nine initial trial sites identified, sites mapped, site/habitat assessment and trail implementation plan completed by early 2021.</p> <p>1.5 By late 2021, control method effectiveness tested for at least 2 target species on trial sites with complementary monitoring, and results written into a full review and feasibility assessment from trial sites.</p>	<p>1.3 Monitoring protocols for the target and non-target species have been created and agreed by the steering group. (Evidence Output 1, Activity 1.4 & 1.5 Targeted species trial plans)</p> <p>1.4 Ten sites have been identified, mapped and site/habitat assessment completed. (Evidence Output 1, Activity 1.6 Map of trial sites and Output 1, Activity 1.7 Environmental risk assessments)</p> <p>1.5 Two control methods were trialled by 2022. The ant trial was tested in 5 non-endemic sites plus a non-treatment, and the wasp trials were tested in 3 non-endemic sites. Due to the low wasp activity only 3 sites were selected for the wasp trials. The data from the monitoring have been written up into a report on each species. (Evidence Output 1, Activity 1.11 Trial phase reports)</p>
<p>Activity 1.1 Identify and assess knowledge on the distribution, behaviour and ecology of target invasive invertebrate species</p>		<p>St. Helena has 16 species of ants that are all non-native. We were unable to develop a research plan for all the ant species as the research / control methods were limited or non-existent. Due to their more significant impacts on the environment and knowledge of control methods, the Big-headed ant (<i>Pheidole megacephala</i>) and Argentine ant (<i>Linepithema humile</i>) were chosen.</p>
<p>Activity 1.2 Compile control methods / options on target invasives from other countries; and define the feasibility of control on St Helena and circulate to ‘trial’ workshop attendees</p>		<p>Four research plans were created for the target species Common wasp (<i>Vespula vulgaris</i>), Springbok mantis (<i>Miomantis caffra</i>), Argentine ant (<i>Linepithema humile</i>) and Big-headed ant (<i>Pheidole megacephala</i>). The plans describe short/long term goals, the species ecology and distribution, a compiled list of control methods including pros/cons of those control methods. This research indicated that the Argentine ant would not be suitable for control due to the extreme difficulties of applying the control methods. The research plans produced were used in the project stakeholder’s workshop and helped with discussions on how to develop the trial plans. (Evidence Output 1, Activity 1.1 & 1.2 targeted species research plans)</p> <p>CABI contracted to analysis the <i>Miomantis caffra</i> stomach content, which will improve our knowledge in these species, these results are due in January 2024. (Evidence SHG agreement document, Partnership Agreement Final-CABI Mantis)</p>
<p>Activity 1.3 Hold an on-island workshop with stakeholders to assess and agree target species, methods, monitoring and identify trial sites; write up workshop and send to stakeholders</p>		<p>An on-island workshop took place on 12th January 2021 (Evidence Output 1, Activity 1.3 targeted species workshop) with 18 attendees to consult with landowners, SHG, beekeepers, and farmer perspectives on the control of the targeted species. The workshop concluded that attendees were keen to control the Common wasp and the Big-headed ant, as these pose a recognisable threat to the environment, human health, and are also a general nuisance. However, there were mixed emotions regarding the control of the Springbok</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
		<p>mantis, as this species is labelled as a ‘farmers friend’ helping to reduce invertebrate food pests e.g. aphids. Workshop results were disseminated to the stakeholders. Results from the stakeholders meeting, advice from steering group members and the recommendations from wasp/ant specialists, it was decided that trialling controls for the Common wasp and Big-headed ant via chemical baits would be most feasible for the project and significantly benefit endemic invertebrate populations and habitats – based on experience from New Zealand and the Seychelles.</p>
<p>Activity 1.4 Agree, test and write up robust monitoring protocols for trial sites, including target, non-target species and environmental attributes; and make them available online</p>		<p>As a result of activity 1.3, trial plans were developed for the Common wasp and the Big-headed ant. This document contains methods for monitoring of target invasive species and non-target invertebrate’s assessment, environmental attributes, as well as the implementation of trial control methods. The monitoring protocols will be made available on the trust website (http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/) however due to website problems it is not available at this time.</p>
<p>Activity 1.5 Select control methods for 2 invasive invertebrate species for trials on St Helena and write an implementation plan for the ‘trial phase’; and distribute to stakeholders</p>		<p>(Evidence Output 1, Activity 1.4 & 1.5 Targeted species trial plans)</p>
<p>Activity 1.6 Map 9 trial sites incorporating range of island conditions but avoiding areas with sensitive endemics (specialist habitats)</p>		<p>Ten trial sites were selected at different altitudes and areas of the island (five for wasps and five for BH ants), of which eight sites were selected for the trials and two sites were selected for the null treatment sites.</p>
<p>Activity 1.7 Undertake habitat and environmental risk assessments and baseline surveys of trial sites and send to steering group.</p>		<p>Four wasp sites (plus the non-treatment site) were mapped, marked and an environmental risk assessment conducted and ready to carry out the common wasp control, baseline survey of the non-target species at each common wasp site collected. However due to the low wasp activity at three of the sites we were unable to deploy the toxin in this area. One of the sites were changed to Sandy Bay as the wasp activity were high in this area. For this reason, we trialled the wasp control at 2 sites and 1 null-treatment site.</p> <p>Four ant sites (plus non-treatment site) were mapped, marked and an environmental risk assessment conducted and ready to carry out the BH ant control, baseline survey of the non-target species at each BH ant site collected.</p> <p>(Evidence Output 1, Activity 1.6 Map of trial sites and Output 1, Activity 1.7 Environmental risk assessments)</p>
<p>Activity 1.8 Project staff trained on control methods and equipment secured, plus other trial preparations readied for the control methods to be applied</p>		<p>This is reported on below in Output 3, Activity 3.1, as there is overlap between the training for the two activities. Equipment was secured including – bait traps and toxin for wasps which were sent from New Zealand, using methods they had previously deployed. Ant bait stations were based on a design from the Seychelles and used blocked plastic pipes with holes drilled in then to allow ant access but limiting everything else. Toxin was an off-the-shelf toxin that was proven effective on Big-headed ant and available to buy in St Helena</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 1.9 Trial control methods implemented and tested at chosen sites		Four common wasp sites were selected to carry out the trials (Scotland, Fairyland, Woody Ridge and Thompson’s Wood) and Cason was the null-treatment site. The wasp activity was low at Scotland, Fairyland and Woody Ridge during the wasp activity survey; for this reason, we only trial the toxin in Sandy Bay and Thompson’s Wood because the wasp activity was higher.
Activity 1.10 Monitoring fieldwork applied during and post trail phase utilising pre-agreed protocol, and fieldwork results recorded		<p>The wasp trials took place in March 2022 at 2 sites Sandy Bay and Thompson’s wood and Cason was the null-treatment site. Control method results for the wasp and ant trials have been written up and distributed to the steering group. From the results / trials it was determined that the wasp life cycle is different to other countries and varies in the different areas on St Helena; the wasps continue to be active during the winter months. Therefore, we would need to continue to monitor the wasp life cycle further to be able to provide recommendations for the best time of the year to deploy the toxin. Wasp trials shows promising result were the wasp population had decline by 92% and the nests we monitored were affected by the toxin. (Evidence Output 1, Activity 1.8 Staff trained on control methods and Output 1, Activity 1.10 Trial fieldwork results)</p>
Activity 1.11 Report written up fully reviewing results from trial phases integrating monitoring and presenting feasibility assessment for the roll-out phase and report disseminated to ‘roll-out’ workshop attendees		The Big-headed ant and the Common wasp control have shown promising results were the population had significantly declined on the target sites and endemic invertebrates had appeared to increase in some areas.
Output 2. A high-impact invasive invertebrate successfully controlled at 6 vulnerable sites, and results reviewed and shared internationally.	<p>2.1 Roll-out method and target species are assessed and agreed at stakeholder workshop; and implementation plan completed by late 2021</p> <p>2.2 Roll-out of at least 1 control method for an invasive invertebrate species using protocols and monitoring devised from trial areas, roll-out on at least 6 vulnerable sites initiated by 2022</p> <p>2.3 Regular steering group reviews of progress and effectiveness of the roll-out phase every 6 months, including input from international experts between 2021-2023.</p>	<p>2.1 A roll-out implementation plan developed for the Big-headed ant was agreed by stakeholders at a workshop with 13 attendees on July and August 2022 and steering group members. (Evidence Output 2, Activity 2.1, workshop report)</p> <p>2.2 Six endemic sites were mapped and prepared to carry out the ant roll-out implementation plan using the same methodology as used in the trial phase but due to the low ant activity at the time of the control, only 4 endemic sites were selected. The non-target invertebrates/endemics and the Big-headed ant were monitored throughout the assessment at the 4 sites. (Evidence Output 2, Activity 2.2 Maps of roll-out sites and Activity 2.3 Environmental risk assessments)</p> <p>2.3 Regular updates at least once every two months to the steering group and ad hoc meetings with the steering group / international experts on the controls and monitoring methods were facilitated to ensure no / minimum risk to the endemic flora and fauna, and high-quality methods. (Evidence Output 2, Activity 2.3 Environmental risk assessments and steering group minutes)</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	2.4 A 'roll-out' phase evaluation report on applicability and effectiveness of control method produced by 2023.	2.4 All results and the effectiveness of the roll-out were assembled into a reported that were disseminated to the steering group, stakeholders and the wider UKOTs. (Evidence Output 2 Activity 2.11 Roll-out phase reports)
Activity 2.1 Workshop conducted to review feasibility assessment and trial results with stakeholders; and a target species, control method and roll-out sites selected, and workshop report disseminated.		A workshop was conducted on 21 st July and 2 nd Aug 2022 at the museum to review the ant and wasp trial results and discuss survey methods and roll-out sites for the Big-headed ant. The workshop was open to the public and stakeholder; a total of 13 people attended of which 3 were St Helena ministers and the environmental minister attended one of the workshop. They were very supportive of the control of the target species. (Evidence Output 2, Activity 2.1, workshop report)
Activity 2.2 Mapping of roll-out sites that were selected during workshop, showing habitats and vulnerability factors		Six endemic sites were mapped and habitat/environmental risk assessment were completed. One of the sites is a null treatment sites and 5 sites were mapped for the Big-headed control. The assessments and maps were disseminated and agreed by the steering group.
Activity 2.3 Undertake habitat and environmental risk assessments of roll-out sites and send to steering group		(Evidence Output 2 Activity 2.2 Maps of roll-out sites and Output 2 Activity 2.3 Environmental risk assessments and steering group minutes)
Activity 2.4. Roll-out implementation plan written, based on outcomes of workshop, mapping and risk assessment results, and sent out to stakeholders		Ant roll-out implementation plan was created for the endemic sites, based on the original trial plan. This document was finalised by the steering group and was used to carry out control on 4 sites (Barren Ground, LEMP 7.5 (Mulberry gut), LEMP 9.1A (Bottom woods), LEMP Longwood Farm. As two the original six sites had very low / no ant activity, for this reason we were unable to perform the roll-out on these sites and so used 4 sites for control. (Evidence Output 2 Activity 2.4 Roll-out implementation plan)
Activity 2.5 Complete an invertebrate (target and endemics indicator species) and environmental attribute survey, as a baseline, prior to implementation of control methods on target species		Baseline survey of the target and non-target/endemic invertebrate survey completed at the roll-out endemic sites one week before deploying the poison. (Evidence Output 2 Activity 2.3 Environmental risk assessments and steering group minutes and Output 2 Activity 2.5 Invert baseline survey)
Activity 2.6 Prepare control areas, equipment and project staff, and undertake any training needed in readiness for implementation		Control sites have been prepared and staff have undergone the ant control and Hemiptera / Cicadellidae identification training to undergo the controls and monitor the non-target invertebrates in the endemic sites.
Activity 2.7 Implement control method on selected roll-out sites		Control method were implemented on 4 sites, Barren Ground, LEMP 7.5 (Mulberry gut), LEMP 9.1A (Bottom woods), and LEMP Longwood Farm was the null-treatment site. (Evidence Output 2 Activity 2.6 & 2.7 Prepare and implement control methods)
Activity 2.8 Monitor roll-out sites on a regular cycle, dependent on methods and species, utilising the monitoring protocol and record results		Under the roll-out plan the endemic sites were monitored for the Hemiptera / Cicadellidae and the Big-headed ant, 1 week before the toxin were deployed and on the 2 nd , 4 th and 8 th week after the toxin were collected. (Evidence Output 2 Activity 2.8 Roll-out fieldwork results)
Activity 2.9 Use monitoring data to evaluate the impacts of control on invasive (particularly target) endemic indicators and other environmental attributes, and record into progress reports		Monitoring indicators were established and agreed by the steering group that the indicators should be Hemiptera / Cicadellidae (Evidence Output 2, Activity 2.9 Impacts on endemics)

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 2.10 Biannual ‘control review’ steering group meetings together with independent international experts, regularly reviews progress, results and effectiveness of the control method(s)		The steering group met at two monthly gaps and reviewed progress at these meetings. The group also engaged Dr Richard Toft from New Zealand for 3 meetings where methods and results were more intensively reviewed,
Activity 2.11 Produce report and case studies on the effectiveness of the control method/s and roll out phase, distributed to stakeholders and make available online		Roll-out report completed and reporting on the results and the effectiveness of the control method. The report has been emailed to the steering group, stakeholders and wider UKOTs. (Evidence Output 2 Activity 2.11 Roll-out phase reports)
Output 3. St Helena and other UKOTs capacity and understanding increased on identification, monitoring and control invasive invertebrate species via training, integration into plans and knowledge sharing	<p>3.1 Six conservation staff trained through a development programme as ‘invasive invertebrate control experts’ by end of 2022, demonstrating high levels of skills and knowledge.</p> <p>3.2 In addition, ten conservation practitioners and land managers on St Helena with increased skills and knowledge of invasive invertebrates and their control by end of 2022.</p> <p>3.3 Invasive invertebrate control methods integrated into the government’s Peaks Management Plan invasives work by 2023</p> <p>3.4 The ‘St Helena Invertebrate Conservation Strategy’ by 2023 with informed revised invasive control goals and actions for the next 5 years.</p> <p>3.5 Case study learning shared with wider UKOTs and other islands, and relevant stakeholders aware and accessing results by early 2023.</p>	<p>3.1 Thirteen conservation staff (SHG and Trust) were trained in ant and wasp monitoring and control methods, as well as monitoring of non-target invertebrates and they had ant and true bug identification training from external specialists. (Evidence Output 3, Activity 3.1 Training attendance list, and Output 3, Activity 3.3 feedback forms of attendees)</p> <p>3.2 A workshop took place 22nd September 2022 and four of the ‘invasive invertebrate control experts’ took part to support the skills they have learnt through the project and they become more comfortable in the controls. (Evidence Output 3, Activity 3.2 Land managers training workshop)</p> <p>3.3 The Big-headed ant and Common wasp control and monitoring integrated into the Peaks Management Plan by continuing with the control and activity in and around the Peaks National Park. The Big-headed ant and the Common wasp monitoring and controls have been integrated into SHG and Trust work activities. Evidence Output 3, Activity 3.4 to 3.7 integration control method in SHG and Cloud Forest workplan).</p> <p>3.4 The ‘St Helena Invertebrate Conservation Strategy’ has been revised and endorsed by St Helena Government. Evidence Output 3, Activity 3.8 Invertebrate conservation strategy).</p> <p>3.5 Four webinars and in-person presentations took place from 2021 to 2023 on the project and its control methods, providing information on the target species and raising awareness of threats these species cause on St Helena. These resulted in a number of interactions and sharing data with other UKOTs. (Evidence Output 3, Activity 3.10 International workshops).</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 3.1 Expert consultant intensively trains a total of 6 SHNT and SHG staff to be ‘experts’ in St Helena appropriate invasive invertebrate control methods		<p>This activity (also covering activity 1.8) completed with 4 project staff and 8 of SHG terrestrial conservation/pest control staff were trained in target species ecology, monitoring methods and the use of chemical baits to control ants and wasps. They are also registered to use the Vespex bait which is required by Merchanto regulations https://www.merchanto.com/vespex.html.</p> <p>Project consultant, David Clements arrived on island to support the team by carrying out the risk assessment and advise the best approach in implementing the roll-out on the endemic sites to ensure little / minimal impact to the endemic flora and fauna. He also carried out training on ant identification. (Evidence Output 3, Activity 3.1 Training attendance list)</p>
Activity 3.2 Training workshop for 10 wider conservation practitioners and land managers on invasive invertebrates control methods		<p>Four expert consultants (from above) attended the invasive invertebrates control methods workshop. Land managers and conservation practitioners were invited, but due to Covid-19 only 4 conservation practitioners attended the workshop. (Evidence Output 3 Activity 3.2 Land managers training workshop)</p>
Activity 3.3 Feedback assessments conducted for participants of training to understanding skill improvements		<p>The feedback assessment forms from the training indicated that the participants found that the training was well presented and easy to understand. Having experts / trainers presenting via zoom was a success as they were able to answer any questions that went beyond the scope/knowledge of the project team. Participants felt that more fieldwork was needed to allow them to put what they have learnt into practice. (Evidence Output 3, Activity 3.3 Feedback forms of attendees).</p>
Activity 3.4 Produce control guidelines and activities to be integrated into site management plans and work programmes		<p>A meeting took place with SHG to discuss how SHG can integrate the control / monitoring methods in their workplan. Due to their workload they were able to monitor the common wasp in 11 sites and control the Big-headed ant in 2 sites. Two of DPLUS 104 staff will become part of an existing project and continue to work on invasive invertebrate control adapting the Common wasp and Big-headed ant monitoring and control within the Peaks National Park through the Cloud Forest Project. They will also continue to investigate an island-wide Common wasp eradication proposal. The Trust staff will also apply ant controls in the LEMP sites (stated above) and in Millennium Forest. (Evidence Output 3, Activity 3.4 to 3.7 integration control method in SHG and Cloud Forest workplan).</p>
Activity 3.5 Integration of guidance into St Helena’s plans and programmes (government and wider) in preparation for implementation in 2023/24		
Activity 3.6 SHG invasive invertebrate protocol defined and written up		
Activity 3.7 Meetings and process to adopt protocol into SHG system for invasive control and integrated into workplans		
Activity 3.8 Review Invertebrate Conservation Strategy and update invasive conservation goals and actions		<p>St Helena Invertebrate Conservation Strategy has been completed, this was achieved through a workshop involving 43 people both in St Helena (29) and international experts (14) plus a consultation process and it has been approved by SHG. This document will influence and guide invertebrate work on St Helena. (Evidence Output 3, Activity 3.8 Invertebrate conservation strategy).</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 3.9 Wider dissemination of results and engagement with UKOTs, using case studies to promote findings within the territories		4.1 The project has increase awareness on invasive invertebrates and their controls, in 2021 this was through the St Helena Research Institute’s ‘Discovery 2 Discovery’ conference, also in 2021 a poster was submitted and a Q&A session of the project was presented at UKOTCF’s online conference on ‘Conservation and Sustainability in UK Overseas Territories, Crown Dependencies’. Results have also been disseminated in the UK Overseas Territories Conservation Forum, South Oceans Working Group meetings.
Activity 3.10 International conference/workshop attended to disseminate results; and to gain wider understanding and increase network of invasive invertebrate control experience		<p>In 2022, the Project Manager and the Project Manager Assistant presented the Big-headed ant methodology and results to the Management of Invasive Alien Ant Species workshop organised by the IUCN and also presented a case studies of the Big-headed ant, Common wasp and praying mantis to the Royal Entomological Society at ‘Ento 22’. Finally, in 2023, the project disseminated results and present case studies of the target species to the UKOTCF, ‘Terrestrial Restoration and Invasive Non-native Species in UK Overseas Territories and Crown Dependencies’ and to the ‘UKOT / CD Environment Ministers’ Council’. So, the results of project have reached many stakeholders in the UKOTs and beyond. (Evidence Output 3, Activity 3.9 Engagement with UKOTs and Output 3, Activity 3.10 International conference workshops).</p> <p>As result of this awareness raising many direct queries have been answered. Additionally, Ascension Island is trialling the Big-headed ant control method with the support from our Invasive invertebrate team (Trust)</p>
Output 4 Increased public support and engagement in invasive invertebrate species control, via improved public awareness of the issue and direct involvement in monitoring	<p>4.1 A total of 30 people (15 in 2021 and 15 in 2022) attending and engaging in two public awareness events to increase understanding and engagement in the issue of invasive invertebrates by end 2022.</p> <p>4.2 Citizen science monitoring scheme tested, established and implemented for the project’s target invasive invertebrates by 2021</p> <p>4.3 Evidence of at least 30 islanders (50:50 women and men), with 10 in 2021 and 20 in 2022, actively engaged in invasive invertebrate monitoring by end of 2022</p>	<p>4.1 Over 150 people engaged through 20 pop-up stalls and 6 workshop/ presentations.</p> <p>4.2 A citizen science plan completed and published on the St Helena National Trust website. (http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/citizen-science/). (Evidence Output 4, Activity 4.3 Citizen science program).</p> <p>4.3 Overall the project engaged approximately 127 people in monitoring invasive invertebrates on St Helena. In 2021 there were 6 people (ratio 2:4 women to men), in 2022 there were 10 people (ratio 6:4 women to men), in 2023 there were 56 people (ratio 32:28 women to men), and in Jan to April 2023 55 people (ratio 28:27 women to men) activity engaged in invasive monitoring or collection. (Evidence, Output 4, Activity 4.2 Questionnaire Report)</p>
Activity 4.1 Produce feedback questionnaires and interview templates to be used during events and workshops		Feedback questionnaires were created (Evidence, Output 4, Activity 4.1 Questionnaire templates)

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 4.2 A subset of 30 islanders are interviewed to gather baseline on island understanding of and awareness of invasive invertebrates, and to inform outreach work		Three questionnaires completed for Yr. 1,2 and 3 to gauge the public understanding and awareness of invasive invertebrates. (Evidence, Output 4, Activity 4.2 Questionnaire Report)
Activity 4.3 Design citizen science programme utilising target invasive invertebrate species and tailored to allow broad inclusivity across island		Citizen Science Plan was created by the Trust Outreach Manager and trialled in one of the primary schools. (Evidence Output 4, Activity 4.3 Citizen science program).
Activity 4.4 Undertake two public awareness events incorporating identification of invasive invertebrates, their impact and why take action; also gathering event records and feedback		By the end of the project 20 pop-up stalls took place in 4 different locations and over 150 people were understanding and engaged with the project. In addition, 6 school lesson, 5 school/ fun day events and 4 bug club / church brigade took place to increased awareness within the youth. From the pop-ups and going into the schools there were some interest from the kids to learn more about invasive invertebrates and invertebrates in general, therefore a bug club were created to encourage the youth to learn more about invertebrates. We have presented and communicated information on the invasives and the project to the public via the radio, social media and articles in the newspapers. (Evidence Output 4, Activity 4.4 Public awareness events)
Activity 4.5 Implementation of citizen science scheme with publicity and release of scheme materials (online and hard copies); engaging a range of audiences, including children and wider community members		The citizen science plan has been uploaded to the Trust’s website (http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/citizen-science/) and so can be used in school groups, lessons or after school activities. Citizen science plan was also advertised via the newspaper and the radio. (Evidence Output 4, Activity 4.3 Citizen science program).
Activity 4.6 Analyse citizen science data and disseminate results via newspaper/social media, and to government for embedding in invasive databases as well as informing targeting of future control		The data was collated and presented through maps to inform the public of distribution via newspaper articles, radio interviews and pop-up stalls. Records are uploaded to the St Helena iRecords which will improve the species distribution list which will support / inform government long-term goals and will this data will be used by future projects. (Evidence Output 4, Activity 4.4 Public awareness events, Articles, Article 2 – the common wasp and Output 4, Activity Public awareness events, Wasp trap monitoring data)
Activity 4.7 Collect feedback during events and undertake post activities interviews with 50 islanders to assess awareness changes, collate and evaluate results to feed into reporting		There were a lot of interest during the pop-up stalls and events and everyone who attended were very supportive in the project and their understanding of invasive has improved. However, it was very difficult to interview the islanders as they had left the event once the presentation was finished. Therefore, a questionnaire was developed and the results have shown that by the end of the project 75% (50:50 women and men) of surveyed islanders (50 person subset) demonstrate an awareness of invasive invertebrates and their impacts.

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
		(Evidence, Output 4, Activity 4.2 Questionnaire Report)

Annex 3 Standard Indicators

Table 1 Project Standard Indicators

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS-A01	Number of people from key national and local stakeholders completing structured and relevant training.	Number of officials from St Helena Trust and St Helena Government who attending on control methods and invertebrate identification	People	Men and Women	6;6	7;5	7;5	13	13
DPLUS-A03	Number of local/ national organisations with improved capability and capacity as a result of project.	Local organisation improved capacity as a result of project	Number of organisations	St Helena National	2	1		3	2
DPLUS – A05	Number of trainers trained reporting to have delivered further training by the end of the project	Number of trainers trained reporting to have delivered further training by the end of the project	People; Number trained	Men and women	2; 10	3; 9	4;8	5; 8	4; 14
DPLUS-B10	Number of policies developed or formally contributed to by project and being implemented by appropriate authorities	Update invertebrate Strategy to support / improve habitat and species management made available and endorsed	Number	Invertebrate conservation Strategy			1	1	1
DPLUS-C10	Number of case studies published	Number of case studies published	Number	Reports		2	1	3	3
DPLUS-C12	Social Media presence	Social Media presence	Number					>2000	
DPLUS-C13	Number of webinar attendees	Number of workshop attendees	Number			14		14	
DPLUS-C14	Number of decision-makers attending briefing events	Number of government official attending meeting on project legacy	Number				7	7	0
DPLUS – C15	Number of media related activities	Number of articles published in local newspaper and international media	Number		4	6	4	14	6

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS-C16	Number of records added to accessible databases	Number of invertebrate records added to St Helena iRecords database	Number		0	0	174	174	174
DPLUS-C19	Number of other publications produced	Number of leaflets, posters, book markers, produced	Number		5	6	5	6	5

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Big-headed ant control roll-out on St Helena	Report	Christy Jo Scipio-O'Dean, Gavin Ellick, Daryl Joshua and Natasha Stevens, year 2022	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/
Big-headed ant trial suppression on St Helena	Report	Christy Jo Scipio-O'Dean, Gavin Ellick, Daryl Joshua and Natasha Stevens, year 2021	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/
Common wasp trial control on St Helena	Report	Christy Jo Scipio-O'Dean, Gavin Ellick, Daryl Joshua and Natasha Stevens, year 2021	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/
Invasive invert citizen science plan	Program	Sheena Benjamin, Christy Jo Scipio-O'Dean, Vicky Wilkins, 2022	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/
Citizen science program	Program	Sheena Benjamin, Christy Jo Scipio-O'Dean, Natasha	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
		Stevens, Vicky Wilkins, 2022				programmes/natural-heritage/invertebrates/
Citizen Science material (1) invasives and wasp	Program	Sheena Benjamin, Christy Jo Scipio-O'Dean, Natasha Stevens, Vicky Wilkins, 2022	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/citizen-science/
Citizen Science material (2) answers for activities	Program	Sheena Benjamin, Christy Jo Scipio-O'Dean, Natasha Stevens, Vicky Wilkins, 2022	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/citizen-science/
Citizen Science material (3) general information	Program	Sheena Benjamin, Christy Jo Scipio-O'Dean, Natasha Stevens, Vicky Wilkins, 2022	Female	British	St Helena, Jamestown	http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/citizen-science/

Annex 5 Supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 10)?	
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
Do you have hard copies of material you need 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. However, we would expect that most material will now be electronic.	
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 13)?	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	