Darwin Plus:
Overseas Territories Environment and Climate Fund
Annual Report

To be completed with reference to the "Writing a Darwin Report" guidance: (http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Submission Deadline: 30th April 2020

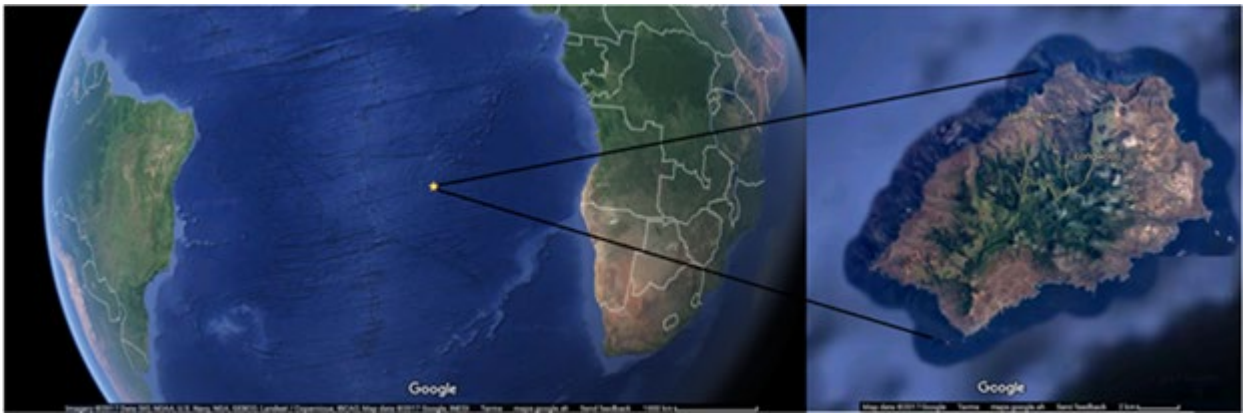
Darwin Plus Project Information

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 organisation	St Helena National Trust
Partner institutions	St Helena Government (SHG), IUCN Mid Atlantic Island Invertebrate Specialist Group (MAIISG) c/o Species Recovery Trust, Centre for Agriculture and Biosciences International (CABI), Buglife
Grant value	£298,965.00
Start/end dates of project	June 2020 – March 2023
Reporting period (e.g. Apr 2019-Mar 2020) and number (e.g. Annual Report 1, 2)	June 2020 – March 2021
Project Leader name	Mike Jervois
Project website/blog/social media	Weekly update of the project on social media, (https://www.facebook.com/Buglifes) *(https://www.facebook.com/SHnationaltrust)* *https://www.facebook.com/communityforests* (https://www.instagram.com/sthelenabugteam/) Updates on the St Helena National trust website. (http://www.trust.org.sh/shnt-conservation-programmes/natural-heritage/invertebrates/)
Report author(s) and date	Natasha Stevens, Martina Peters and Vicky Wilkins

1. Project summary

St Helena is a remote overseas territory in the South Atlantic Ocean with a land mass of 47sqm. St Helena has more endemic invertebrate species than the UK and rest of its overseas territories combined; with over 420 endemic terrestrial invertebrate species of which more than 100 are found in the cloud forest.

Map 1. St Helena's location in the South Atlantic



St Helena's natural environment has been transformed over the last few centuries by human intervention. Only small fragments of native habitat remain, pushed to the utmost fringes of their native habitat by invasive and/or non-native species of flora and fauna. Invasive species are rapidly adapting to islands environment causing habitat changes/destruction continually endangering the island's endemic invertebrate populations. St Helena has over 420 endemic terrestrial invertebrate species and many are threatened by invasive invertebrate species.

The project will facilitate endemic invertebrate recovery and re-establish their associated ecosystem functions, by testing and establishing invasive invertebrate control methods. Focusing on the common wasp (*Vespula vulgaris*), key ant species (e.g. *Pheidole megacephala*) and the Springbok mantis (*Miomantis caffra*). The control of these targeted invasive invertebrates in critical habitats (like Diana's Peak cloud forest) will be undermined, i.e. ants impede decay of deadwood by predating on endemic weevils and altering soil function; and the mantis and wasp cause mass invertebrate prey removal compromising wider ecosystem functionality.

Control methods have been assessed for each of the targeted species to explore their viability, only two of the selected species will be controlled; this is the common wasp and big-headed ant (*Pheidole megacephala*), the Springbok mantis requires more extensive research and trailing using bio-control techniques, before being introduced to St Helena's fragile habitat. The trialing stage ensures that environmental impacts are minimised and methods are effective. Control methods will be rolled-out in sensitive sites to assess the potential beneficial impact of invasive control on endemic ecosystems. These control methods will be embedded into the St Helena Government relevant departments to continue and monitoring beyond the life-span of this project.

The project is engaging with the local population through citizen science, educational outreach and awareness events i.e. information stalls. While also building local capacity, embedding results and collaboration with government, local community and partners.

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

2. Project stakeholders/partners

This project has benefitted greatly from the engagement of partner organisations and individuals experienced in invertebrate conservation on St Helena and further afield; the project has also engaged international invasive species experts on an ad hoc basis. Representatives for each of the partnering organisations sit on the project steering group, inputting into methods and approaches, engaging with and training local project staff, and supporting project manager where necessary. Partners receiving funds from the project (MAIISG and CABI) both have signed partnership agreements (**Evidence, Agreements, Partnership agreement**).

St Helena Government (SHG) is a key partner for conservation work on St Helena and for the longevity of successful project outcomes. SHG has been closely involved with the project, its development and has representatives on the project steering group. SHG is essential to the success and delivery of the project, therefore an 'SHG involvement' document (**Evidence, Agreements SHG involvement**) was drawn up,

to be clear on SHG's role and long-term involvement. So far eight local terrestrial conservation / pest control staff have been trained as 'Invasive Invertebrate Experts', learning how to the control the selected targeted invertebrate species (Common wasp and Big-headed ant). SHG are also inputting into monitoring and trial plans. By the end of the project the most effective control method/s will have been embedded into the SHG work plan.

Vicky Wilkins from the IUCN SSC Mid Atlantic Islands Invertebrate Specialist Group (MAIISG c/o Species Recovery Trust) is supporting the project by coaching staff on invertebrate conservation methods and project management techniques, in order to increase skills and capacity on the project and within the organisation. MAIISG has also brought in international invasive expertise via the IUCN network. This has helped staff to establish project evaluation tools, and define invasive invertebrate control monitoring and methods, as well as connecting staff with a number of key invasive experts.

Norbert Maczey from CABI is an invasive species control expert, particularly in relation to biocontrol, and provides a lot of professional expertise. He is particularly focusing on finding ways forward on the control of the Springbok mantis (*Miomantis caffra*) and overseeing of a researcher in South Africa to undertake testing of bio-control options.

Buglife continues to support the Trust in invertebrate conservation focussed projects and is heavily involved with supporting awareness raising and citizen science components of the project, through advice and communications support.

Other partners on the project although not included in the original project application but are strongly engaged with the project, include Gillian Key from Non-Native Species Secretariat (previously worked in Biosecurity on St Helena), and Dr Roger Key, an Entomologist who has done extensive work on St Helenian invertebrates. They are both on the project steering group, as well as being involved in other subgroups i.e. monitoring subgroup.

The project has been working with international experts Dr Richard Toft, Dr Ben Hoffman and Prof. Michael Samways who have direct experience in controlling (*Vespula vulgaris)* and (*Pheidole megacephala)*, their experience and knowledge has been invaluable in defining techniques and moving the project forward.

3. Project progress

3.1 Progress in carrying out project Activities

Output 1

Activities 1.1 & 1.2

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 none existed. Due to their more significant impacts on the environment and knowledge of control methods, the Big-headed ant and Argentine ant were chosen.

Four research plans were created (**Evidence Output 1, Activity 1.1 & 1.2 research plan**) for the target species Common wasp (V*espula vulgaris)*, Springbok mantis (*Miomantis caffra)*, Argentine ant (*Linepithema humile*) and Big-headed ant (*Pheidole megacephala).* The plans describe short/long term goals, the species ecology and distribution, a compiled list of control methods including pros/cons of using those control methods. This research indicated that the Argentine ant would not be suitable for control due to the extreme difficulties of applying 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.

Activity 1.3

An on-island workshop took place on 12th January 2021 (**Evidence Output 1, Activity 1.3 invertebrate workshop**) 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 control of the Springbok 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 benefitting endemic invertebrate populations and habitats.

Activities 1.4 & 1.5

As a result of activity 1.3, trial plans were developed for the Common wasp and the Big-headed ant (**Evidence Output 1, Activity 1.4 & 1.5, trials**). This document contains methods for monitoring of target invasive species and non-target invertebrates assessment, environmental attributes, as well as the implementation of trial control methods. This document is a live document and will be published online after the trials are completed. A list of non-target and target species have been identified

Activities 1.6 & 1.7

Ten trial sites were selected at different altitudes and areas of the island (five for wasps and five for ants), of which eight sites were selected for the trials and two sites were selected for the null treatment sites. Four sites have been mapped, marked and an environmental risk assessment conducted and ready to carry out the wasp control (**Evidence Output 1, Activity 1.6 & 1.7**), baseline survey of the non-target species at each wasp site will be carryout in May 2021 and once wasp activity is high enough a baseline survey of the wasp will be carryout before conducting the trials.

Activity 1.8

This is reported on below in Output 3, Activity 3.1, as there is overlap between the training for the two activities.

Activities 1.9 & 1.10

The wasp trial was due to start in early 2021; however, Common wasps have not been attracted to the lures (protein base e.g. fish, chicken), this is due to the low number of wasps present, meaning there is no pressure on their current food supply. It is thought that they are having a late season due to the variation in climate; therefore, the trial will begin later when wasp numbers have increased and uptake of the lures. This has delayed the actual testing of the protein base, wasp activity assessment and the non-target impacts assessment, as all elements rely on the wasp being attracted to a lure. Also, there has been a delay in receiving the toxic substance and bait stations from New Zealand, these were ordered in December 2020 but they did not arrive, due to DHL postal service having misplaced the package during shipment. Another consignment has been ordered and is due to arrive in May 2021. Ant trials will start once lure assessment and ant activity monitoring has completed, results outlined (**Evidence Output 1 Activity 1.10 survey results**).

Output 2

Activities under Output 2 are not due to start until October 2021, as this is the roll-out of one control methods based on the trial results.

Output 3

Activity 3.1

This activity (also covering activity 1.8) has been completed with project staff and eight of SHG terrestrial conservation/pest control staff being 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 Merchento regulations https://www.merchento.com/vespex.html.

Activity 3.3

Feedback assessment of training indicated that the participants found 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 field work was needed allowing to put what they have learnt into practice. (**Evidence Output 3, Activity 3.1 Training workshop**).

Activity 3.8

Vicky Wilkins (MAIISG) is currently carrying out a revision of the invasive elements of the St Helena Invertebrate Conservation Strategy, so far this has taken form of a spreadsheet with comments added (**Evidence Output 3, Activity 3.8 Invertebrate conservation strategy**).

Activity 3.8

There has been an increase awareness on invasive invertebrates and control through the St Helena Research Institute's 'Discovery 2 Discovery' conference where the Project manager and Project Officer both presented. In addition, in March 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 (**Evidence Output 3, Activity 3.10 International conference workshop**).

Output 4

There is some initial progress on activities under Output 4. We have started citizen science activities 4.1, 4.2 and 4.3; a citizen-science plan has been drafted on the outreach elements of the project (**Evidence Output 4, Activity 4.2 invertebrate questionnaire and Activity 4.3 citizen science plan**). Also, feedback questionnaires have been developed (**Evidence Output 4, Activity 4.1**) and one successful public awareness event was carried out on 5th November 2020 at the Jamestown market which received a lot of positive feedback from the public (**Evidence Output 4, Activity 4.4 Public awareness, Events**)

3.2 Progress towards project Outputs

Output 1

has been progressing very well in the first year of the project. Output indicator 1.1 has been completed with four research plans developed on potential target species (**Evidence Output 1, Activity 1.1 & 1.2 research plan**) and Output 1.2 achieved as a stakeholder's workshop was held on 12th January 2021 to discuss the three target species (V*espula vulgaris, Pheidole megacephala* and *Miomantis caffra)* and their possible control methods. A workshop report was disseminated to the steering group (**Evidence Output 1, Activity 1.3 invertebrate workshop, Stakeholders workshop report**). Output 1.3 is currently in progress with two trial plans (**Evidence Output 1, Activity 1.4 & 1.5 trials**) developed containing all elements of indicators 1.3. They are being used as live documents while the trial phase progresses. A monitoring protocol was agreed by the steering group and has been embedded into the trial plan. Output 1, Indicator 1.4 also completed with 10 sites identified; five wasp sites are mapped and a habitat assessment achieved (**Evidence Output 1, Activity 1.6 Map of trial sites**). Output 1.5 was delayed due to the low wasp activity and they are not currently attracted to the lures. Also, the wasp toxic substance (for control) and wasp bait stations have not arrived on island, due to the postal service misplacing the package. The Big-headed ant activity is currently being monitored and assessed for trial control to be implemented shortly, note this element is more flexible as ant activity is not as seasonal compared to that of the Common wasp.

Output 2

This output cannot be initiated until Output 1 has been completed.

Output 3

Under Output 3, Indicator 3.1, a total of eight SHG terrestrial conservation/pest control staff have been trained in using ant and wasp chemical baits. The results of their feedback forms (**Evidence Output 3, Activity 3.1 Training workshop**) demonstrated that the information was put across in an uncomplicated, easily understandable manner. They understood why it is important to control these target species and how we are going to control them. Indicator 3.4, the revising of the St Helena Invertebrate Conservation Strategy has begun and the existing invasive invertebrate actions and targets were reviewed by experts, see consultation spreadsheet (**Evidence Output 3, Activity 3.8 Invertebrate conservation strategy**). For Indicator 3.5 our team has already started to disseminate information from the project to the wider

island and UKOTs, evidence is provided in the form of a PowerPoint presentation, delivered at the St Helena Research Institute (SHRI) 'Discovery 2 Discovery' conference and a poster at the 'Staying Connected for Conservation in a Changed World: UKOTCF online conference 2021'. There will be an article in the next Darwin Initiative newsletter, which has a theme of invasive species (**Evidence Output 3, Activity 3.9 Engagement with UKOTs**).

Output 4

Indicator 4.1, one public event was delivered. This took place in the Jamestown market where an information stall was set-up on a busy day (5th November 2020) and 50 people visited the stall (Indicator 4.1). A citizen science plan (Indicator 4.2) has been written to initiate the citizen science scheme (**Evidence Output 4, Activity 4.3 Citizen science plan**).

3.3 Progress towards the project Outcome

Steady progress is being made towards the project's 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.

Indicator 0.1: monitoring methods are currently undergoing testing for both the Big-headed ant and the Common wasp, using food attractants; results are compiled and distributed to the steering group. This will allow the project to assess the impact on trial control methods on the population of the two target species (**Evidence Output 1, Activity 1.10 Survey results**).

Outcome 0.2: The endemic invertebrate indicator is proving more complicated to define (**Evidence Output 1, Activity 1.4 & 1.5 trials**). There is concern that the timescale of the project will make it difficult to measure the change in numbers of a single species and so a proxy, (like the hoverfly, as there have been observations of the Common wasp predating on endemic hoverflies) is currently being explored within the project steering group and will be outlined in a change request once defined.

Training to deliver Outcome 0.3 has begun and the training of eight experts (ratio 3 women:5 men) started with background knowledge and chemical control techniques for the Common wasp and Big-headed ant. At the training workshops 12 people attended: eight from SHG and four from SHNT (**Evidence Output 3, Activity 3.1 Training workshop**).

Outcome 0.4 is not due to start until later in the project as it defines the legacy of the control via SHG, however the partnership with SHG is being maintained and an agreement has been developed (**Evidence Agreements, Partnership agreement**).

Outcome 0.5 on island the baseline of citizen-led monitoring results on invasive invertebrates led by SHG. Previously there has been 29 phone calls in 2020 and 35 calls in 2019 of the common wasp by the public. Due to the low wasp activity only three phone calls were made from the public to date. The citizen science program (**Evidence Output 4, Activity 4.3 Citizen science plan**) is in the draft phase and not placed in this moment in time.

Outcome 0.6 a baseline has been established on the understanding of invasive invertebrates, their impact and control. A random survey took place where 40 people took part (ratio 18 women: 22 men) the results were 43% of the participants knew what an invertebrate is. However, 60% of the participants knew the difference between endemic and invasive invertebrates. Majority of the participant can name an invasive invertebrate rather than an endemic invertebrate. This can be improved by educating the public more on the endemic's and the impacts the invasive invertebrate has on the environment. (**Evidence, Output 4, Activity 4.2 Invasive invertebrate questionnaire**). Four volunteers are taking part in citizen science by carrying out wasp counting around their homes using beer traps.

3.4 Monitoring of assumptions

The project established a risk register (**Evidence, Documents, Risk register**), 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: the transportation of chemical baits to the island and whether wasp activity will be high enough to facilitate the trial control or final control.

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

The project is looking at controlling two aggressive generalist predatory invasive invertebrate (common wasp and the big-headed ant) which is known to damage endemic habitats and feed on endemic invertebrates. This project would help safeguard the endemic invertebrate diversity especially in sensitive endemic habitats like the cloud forest for future generations which will contribution 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 will undergo citizen science and build on the public and education programs to promote and improve on conservation biological diversity which support '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).

5. OPTIONAL: Consideration of gender equality issues

St Helena population is approx. 4,500 which means approx. 2,800 is of a working age, due to the small pool of working population, therefore team has four staff of which three are female. During project recruitment we encourage diversity in applicants and did not discriminate based on gender or any other diversity factor, as per Trust's equal opportunities policy. We engaged and encouraged the entire community / stakeholder to attend the public events and stakeholder workshops. Twelve SHG conservation and Trust staff attended training and are 'expert' in St Helena appropriate invasive invertebrate control methods of which 50% were female.

6. Monitoring and evaluation

The monitoring of the project is being led by the Trust, with the project manager responsible for the plan 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 meets monthly at the moment (**Evidence, Steering group, minutes, recording**), due to the delayed start of the project, affected by Covid-19 in early 2020 so an increased level of support was needed. The steering group is closely evaluating all elements of the project, problem solving and providing expert advice. The Trust provide the group with a monitoring spreadsheet 'Invasive Invertebrates Project Tracker' (**Evidence, Documents, Invasive inverts project tracker**). The tracker contains 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 helps to flag progress and highlight areas of concern. Any arising problems are discussed and resolved during the steering group meetings.

Monitoring and evidence gathering of indicators has already begun with research and trial plans produced and disseminated, workshop products collated, results of training of 'invasive experts' and citizen science baselines gathered. Some of these are initiating baselines for the monitoring of the overall outcome, such as methodologies for invertebrate baselines and gathering data on public understanding of invasives and their control.

The original M&E plan has been implemented, some elements have been slightly adapted, for example the 'Monitoring Protocol' (Indicator 1.3) is being included in the trial plan, rather than a separate document. This is because in the plan, the ecological monitoring of control work is more directly in context. The steering group is working really well, and additionally, some sub-groups and off-shoot meetings have been run to focus on key areas, such as surveying and monitoring.

7. Lessons learnt

Procuring goods from 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. 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. Covid-19 restrictions have impacted on importing products via air freight. The flight schedule has 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.

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. Another consignment was ordered, it missed the March 2021 flight but is due to arrive in May 2021. This has made a big impact on the project where we could miss the timeframe for trialling the bait. This was an unforeseen circumstance, but next time we would deliver the package to the UK and send it via a reliable shipping agency.

Whilst writing up the log frame we assume that the wasp activity would be the same as per the previous year, but the wasp activity is lower which cause a delay in trialling the wasp baits. Unfortunately, this was unseen circumstance that 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. This is out of our control but we can continue with the trials by lowing the wasp activity threshold that were recommended by the Vespex supplier.

The project has good support from specialist, members of the steering group and SHG team which has made good process in moving the project forward in a short time frame and obstacles were resolved in a timely matter.

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

9. Other comments on progress not covered elsewhere

The covid-19 pandemic has affected the project and made it difficult for traveling overseas to present workshops / presentations and having specialists coming to St Helena to help with the training and controlling the invasive species. The pandemic has also delayed goods coming to the island. The delay in receiving funds and the starting of the project has made a setback in procuring goods and given us less time in completing tasks within the timeframe which has put a lot pressure on staff capacity.

10. 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. There is an increase demand in invertebrate identification and surveying on St Helena and Ascension Islands that requires the expertise and skills from the project team. Control of invasive species is a hot topic in the Overseas Territories and this project is looking into methods to control some of the key invasive species that are threaten St Helena's biodiversity, 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.

Increased capacity is already being demonstrated in other UKOTs, and MAIISG has already taken learning from the project and it has been incorporated into developing future invertebrate conservation projects on Ascension Island. Increased interest has been facilitated through a poster on the project which was presented at the recent online conference: 'Staying Connected for Conservation in a Changed World: UKOTCF online conference 2021'; and there will be an article in the next Darwin Initiatives newsletter, which has a theme of invasive species.

Skills on invasive invertebrates are already being embedded on island with eight SHG and four Trust staff with new expertise on the ecology and chemical control of the two target species. The 'SHG involvement' document (**Evidence, Agreements, SHG Involvement**), starts the process of defining roles and responsibilities, as the government will embed methods into their work, to allow long-term delivery of control methods. Public awareness raising has already started with four articles in the local newspaper and weekly update on social media. A logo competition was carried out in all four island schools.

11. Darwin identity

The first article in the local newspaper has informed the public of Darwin funding the project and the Darwin logos have been inserted in all articles, promotion materials (e.g. key rings, pens, bags and t-shirts), research plans, trial plans, survey sheets, posters, leaflets, social media and citizen science materials. Darwin initiative was also recognised in presentations in conference and workshops. There is a dedicated page on the Trust website promoting the project and displaying the Darwin logo (**Evidence, Pictures, Additional Pictures, Darwin logo promotion**).

12. 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.

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.

13. Project expenditure

Table 1: Project expenditure <u>during the reporting period</u> (1 April 2019 – 31 March 2020)

Project spend (indicative) in this financial year	**2019/20 D+ Grant (£)**	**2019/20 Total actual D+ Costs (£)**	**Variance %**	**Comments (please explain significant variances)**
Staff costs	[redacted]			

Consultancy costs	[redacted]
Overhead Costs	
Travel and subsistence	
Operating Costs	
Capital items	
Others	
Partner Cost	
TOTAL	

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

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2019-2020 – <u>if applicable</u>

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
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.		The project thus far has increased staff capacity within the invertebrate team and aid with the increase demand in invertebrate identification/ surveying and contribute to the succession plan. Controlling the target species will improve St Helena biodiversity by recovering and re-establishing endemic invertebrate ecosystem functions. This will support the tourist industry as endemic diversity will be healthier. This project will also help agriculture industry and the bee production as the invasive species won't compete or decline the beneficial invertebrates (e.g. hoverflies). Engaging with the general public and schools will encourage participation and support, as well this will give the community ownership which will ensure long-term control.	
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.	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. 0.2 By project end endemic invertebrate indicator species show a 10% increase in abundance/distribution in 3 years post control from baseline monitoring.	0.1 Ten non-endemic sites identified, five habitat assessment completed, wasp trial plan implemented, 0.2 monitoring protocol have been agreed by the steering group and it was decided to revise the indicator 0.2 as establishing an increase within the time frame will not be feasible as other environment factors could have an effect on the outcome.	0.1 Trial wasp bait and implement ant trial plan 0.2 Revise the outcome and start monitoring the invertebrate diversity at the trail and null treatment site. 0.3 Organise basic training session for 10 conservation practitioners.

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
	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. 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. 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	0.3 Twelve SHNT and SHG staff are trained in ant and wasp controls. 0.4 This activity will be achieved at the end of the project. 0.5. Citizen science plan drafted	0.4 This activity will be achieved at the end of the project. 0.5 organise public events to encourage people to sign up to the citizen science plan.
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* and *Pheidole megacephala*. 1.2 Trial methods for 2 target invasive species to be field tested are assessed and agreed at stakeholder workshop by late 2020 1.3 Monitoring protocols and species are defined and agreed with steering group prior to trial implementation, including assessment of impacts on	1.1 Activity completed with four research plans created with control methods and ecology of the target species are compiled. Evidence provided in section 3.2 1.2 Trial methods for two target invasive species have been identified and agreed at stakeholder workshop and steering group. 1.3 monitoring protocols have been drafted and agreed by the steering group. 1.4 Ten sites have been identified and five sites have been mapped and site/habitat assessment completed. 1.5 Wasp trials delayed until the wasp activity increase.	

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
	target and non-target species by early 2021. 1.4 Nine initial trial sites identified, sites mapped, site/habitat assessment and trail implementation plan completed by early 2021. 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.		
Activity 1.1 Identify and assess knowledge on the distribution, behaviour and ecology of target invasive invertebrate species		Completed with 4 research plans developed. (**Evidence, Output 1, Activity 1.1 & 1.2 research plan**).	
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		Completed with all control methods from other countries compiled into the research plan	
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		An on-island workshop was hold with stakeholders agreeing on the target species and methods we will be using. Outcome of the workshop were sent to steering group and stakeholders (**Evidence, Output 1, Activity 1.3 Invertebrate workshop**).	Hold another on-island workshop to capture stakeholders that were missed and provide everyone with an update of the project.
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		Monitoring protocol for the trial sites have been agreed in the steering group and will be embedded in the trial plan. (**Evidence. Meeting minutes**.)	

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
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		Activity completed, species chosen was the common wasp and the big-headed ant. A trial plan has been agreed and developed by the steering group. (**Evidence Output 1, Activity 1.4 & 1.5 trials**).	
Activity 1.6, Map 9 trial sites incorporating range of island conditions but avoiding areas with sensitive endemics (specialist habitats)		Ten sites are identified with 8 sites are used to trial the baits on and 2 sites are null-treatment site. Four wasp sites are marked and mapped. (**Evidence Output 1, Activity 1.6 Map of trial sites**).	Marked and mapped four big-headed ant sites
Activity 1.7, Undertake habitat and environmental risk assessments and baseline surveys of trial sites and send to steering group		Environmental risk assessment and old records of invertebrates found at the wasp site are compiled. Once the wasp activity commence baseline survey can be completed. (**Evidence, Output 1, Activity 1.7 Environmental risk assessment**).	Environmental risk assessment and old records of invertebrates compile for the ant sites and non-target invertebrates are assessed. Baseline survey of commence
Activity 1.8, Project staff trained on control methods and equipment secured, plus other trial preparations readied for the control methods to be applied		Four project staff are trained in target species ecology, monitoring methods and the use of chemical baits to control ants and wasps. (**Evidence, Output 1, Activity 1.8 Training**).	
Activity 1.9, Trial control methods implemented and tested at chosen sites		Due to delay in the wasp activity, the necessary assessment needed to be completed before we begin trials. The wasp is seasonal therefore the wasp has taken high priority.	Trial the wasp baits once the wasp activity increased and trial the ant baits.
Activity 1.10, Monitoring fieldwork applied during and post trail phase utilising pre-agreed protocol, and fieldwork results recorded		Monitoring and results of fieldwork will start once the wasp activity commence.	Monitoring and compile results of the fieldwork for the ant and wasp.

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
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		This activity will start once the trials are completed	This activity will commence in Q3 2021/202 once the trials have completed.
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 are assessed and agreed at stakeholder workshop; and implementation plan completed by late 2021 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 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. 2.4 A 'roll-out' phase evaluation report on applicability and effectiveness of control method produced by 2023.	This output will commence once output 1 is completed.	
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.			
Activity 2.2. Mapping of roll-out sites that were selected during workshop, showing habitats and vulnerability factors			
Activity 2.3. Undertake habitat and environmental risk assessments of roll-out sites and send to steering group			

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
Activity 2.4. Roll-out implementation plan written, based on outcomes of workshop, mapping and risk assessment results, and sent out to stakeholders			
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			
Activity 2.6. Prepare control areas, equipment and project staff, and undertake any training needed in readiness for implementation			
Activity 2.7. Implement control method on selected roll-out sites			
Activity 2.8. Monitor roll-out sites on a regular cycle, dependent on methods and species, utilising the monitoring protocol and record 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			
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)			
Activity 2.11.			
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. 3.2 In addition, ten conservation practitioners and land managers on St Helena with increased skills and	3.1 Six conservation / pest control (SHG) staff are trained in using the control methods of the target species and they are putting their theory into practice out in the field. Evidence of this activity can be found in section 3.3 of the report. 3.2 This activity not started; schedule to start in Q2 2021/2022.	

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
	knowledge of invasive invertebrates and their control by end of 2022. 3.3 Invasive invertebrate control methods integrated into the government's Peaks Management Plan invasives work by 2023 3.4 The 'St Helena Invertebrate Conservation Strategy' by 2023 with informed revised invasive control goals and actions for the next 5 years. 3.5 Case study learning shared with wider UKOTs and other islands, and relevant stakeholders aware and accessing results by early 2023.	3.3 This activity not started; schedule to start in Q3 2022/2023 3.4 The St Helena Invertebrate Conservation Strategy have been looked and reversion on the strategy have started. 3.5 The project is still in the early stages therefore there is nothing to report on the results, however the project manager providing updates of the project to UK Overseas Territories Conservation Forum Southern Oceans Working Group and MAIISG are making their UKOTs connections aware of the project.	
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		Four project staff and 8 of St Helena Government conservationist / pest control being trained in target species ecology, monitoring methods and the use of chemical baits to control ants and wasps. (**Evidence, Output 3, Activity 3.1 Training workshop**).	Training in monitoring methods
3.2 Training workshop for 10 wider conservation practitioners and land managers on invasive invertebrates control methods			This activity has been planned in Q2 2021/2022
3.3 Feedback assessments conducted for participants of training to understanding skill improvements		Feedback on ant and wasp control training completed (**Evidence, Output 3, Activity 3.3, Feedback assessments**).	
3.4 Produce control guidelines and activities to be integrated into site management plans and work programmes			This activity is planned for 2022/2023

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
3.5 Integration of guidance into St Helena's plans and programmes (government and wider) in preparation for implementation in 2023/24			This activity is planned for 2022/2023
3.6 SHG invasive invertebrate protocol defined and written up			This activity is planned for 2022/2023
3.7 Meetings and process to adopt protocol into SHG system for invasive control and integrated into workplans			This activity is planned for 2022/2023
3.8 Review Invertebrate Conservation Strategy and update invasive conservation goals and actions		This activity has been looked at and review is ongoing. (**Evidence, Output 3, Activity 3.8 Invertebrate conservation strategy**).	
3.9 Wider dissemination of results and engagement with UKOTs, using case studies to promote findings within the territories		project manager providing updates of the project to UK Overseas Territories Conservation Forum Southern Oceans Working Group and MAIISG are making their UKOTs connections aware of the project. (**Evidence, Output 3, Activity 3.9 Engagement with UKOTs**)	
3.10 International conference/workshop attended to disseminate results; and to gain wider understanding and increase network of invasive invertebrate control experience		Due to Covid 19 overseas travel have been postpone but the project has increase awareness of the project through online conference (discovery 2 discovery)	Attend International conference/ workshop once it is possible to travel.
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. 4.2 Citizen science monitoring scheme tested, established and implemented for the project's target invasive invertebrates by 2021	4.1 A total of 63 people attended two public events (at the market and Millennium Forest) to increase their awareness of invasive invertebrates and how the project will address some of these species. 4.2 A citizen science plan have been drafted. Evidence of this activity is found in 3.2 of this report.	

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
	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	4.3 This activity has started but not much interest from the public, this will need to be address and find ways to encourage people to join.	
4.1 Produce feedback questionnaires and interview templates to be used during events and workshops		Some Feedback questionnaire templates have been created. (**Evidence, Output 4, Activity 4.1 Questionnaire templates**)	Feedback of baseline questionnaires will be disseminated.
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		Thirty islanders were randomly interview to gather baseline on island understanding of invasive invertebrates. (**Evidence, Output 4, Activity 4.2 Invasive invertebrate questionnaire**)	This will get disseminated through social and local media.
4.3 Design citizen science programme utilising target invasive invertebrate species and tailored to allow broad inclusivity across island		A draft citizen science plan developed.	Citizen science plan finalise by the steering group and implemented.
4.4 Undertake two public awareness events incorporating identification of invasive invertebrates, their impact and why take action; also gathering event records and feedback		Two public awareness events had taken place during 2020/2021. (**Evidence, Output 4, Activity 4.4 Public awareness**)	Carryout at least one public awareness event,
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 is still in the draft phased (**Evidence, Output 4, Activity 4.3**)	Implemented the citizen science plan
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 citizen science plan is still in the draft phased, (**Evidence, Output 4, Activity 4.4 Public awareness**)	

Project summary	Measurable Indicators	*Progress and Achievements April 2019 - March 2020*	Actions required/planned for next period
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			Carry out public awareness event, obtain 50 islanders who are willing to be interview and increase their knowledge on bugs.

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

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: 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.			
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.	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. 0.2 By project end endemic invertebrate indicator species show a 10% increase in abundance/distribution in 3 years post control from baseline monitoring. 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. 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. 0.5 By the end of the project citizen-led monitoring results in an 80% increase (with a 40% increase by year 2 and	0.1 Monitoring data, analysis results and report on target invasive invertebrate species. 0.2 Monitoring data, analysis results and report on endemic indicator invertebrates. 0.3 Trainee interviews demonstrate evidence of application of new control skills and knowledge and 'new experts' demonstrate knowledge transfer. 0.4 Final control protocol completed and integrated into invasive control system at SHG for at least one species 0.5. SHG annual invasive records and SHNT citizen science records analysed to assess contribution increases.	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). 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). Weather conditions allow consistent survey methods to be applied (contingency timings built into project design). Government policy and staff continues to prioritise invasives 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).

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	80% by year 3) in the number of records of invasive invertebrates (from SHG baseline). 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).	0.6 Feedback from members of the public to assess their awareness and understanding of invasive invertebrates pre and post the project activities.	Public and media willingness to engage with the project (the Trust has strong community and media relationships to facilitate wide engagement).
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* and *Pheidole megacephala.* 1.2 Trial methods for 2 target invasive species to be field tested are assessed and agreed at stakeholder workshop by late 2020 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. 1.4 Nine initial trial sites identified, sites mapped, site/habitat assessment and trail implementation plan completed by early 2021. 1.5 By late 2021, control method effectiveness tested for at least 2 target species on trial sites with complementary monitoring, and results	1.1 Summary document of control options plus full feasibility assessment completed and sent to workshop attendees. 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. 1.3 Monitoring protocols and species, site assessments/risk analysis are signed off by partners and experts, and finalised documents are available online. 1.4 Trial site maps, site/habitat assessment report and implementation plan completed and circulated to stakeholders. 1.5 Document recording and reviewing of the 'trial phase' including: control methods, photos, monitoring results, feasibility assessment; and draft	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 MAIISGs experience of high-quality facilitation techniques will be applied at workshops). 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). 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). Expert agreement on protocols to be utilised (extensive expert knowledge on techniques plus strong facilitation techniques to manage disagreements, will help to define protocols).

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	written into a full review and feasibility assessment from trial sites.	implementation protocol for trialled methods completed and sent to workshop attendees.	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).
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 are assessed and agreed at stakeholder workshop; and implementation plan completed by late 2021 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 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. 2.4 A 'roll-out' phase evaluation report on applicability and effectiveness of control method produced by 2023.	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 2.2 Records of 'roll-out' of control methods and completed implementation records, photographic evidence, field notes and monitoring reports. 2.3 Minutes of review meetings recording the steering group's assessments of progress. 2.4 Final report on control methods complete including feedback from steering group and stakeholders, accessible on Trust website.	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). 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). Weather conditions allow the work to be undertaken (contingency dates will be scheduled). 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).
Output 3 St Helena and other UKOTs capacity and understanding increased on identification, monitoring and control invasive invertebrate species via	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.	3.1 Development programme attendance list, attendee before and after surveys; with evidence of new 'experts' providing advice to others.	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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
training, integration into plans and knowledge sharing	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. 3.3 Invasive invertebrate control methods integrated into the government's Peaks Management Plan invasives work by 2023 3.4 The 'St Helena Invertebrate Conservation Strategy' by 2023 with informed revised invasive control goals and actions for the next 5 years. 3.5 Case study learning shared with wider UKOTs and other islands, and relevant stakeholders aware and accessing results by early 2023.	3.2 Training materials, feedback forms and interviews with participants on application of skills. 3.3. Revised site management plans with amended implementation plan that includes invasive invertebrate control actions to be implemented 3.4 The revised invertebrate conservation strategy available on SHNT's and MAIISG's websites. 3.5 Case studies written and embedded in newsletters, and data and information integrated into regional and international databases, and presented at a conference	partners in project delivery and development will support adoption). Conservation staff commitment and capacity maintained for engaging with training (this project has been developed with St Helena's government and they will help shape the design of training session). Sufficient results to make concrete recommendations for changes to strategies and plans (scientific skills within project partners will support building a robust evidence base). 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).
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. 4.2 Citizen science monitoring scheme tested, established and implemented for the project's target invasive invertebrates by 2021 4.3 Evidence of at least 30 islanders (50:50 women and men), with 10 in 2021 and 20 in 2022, actively engaged	4.1 Event attendee feedback results, photo evidence of events and records of attendance. 4.2 Citizen science materials accessible on SHNT website and project promotion articles and social media/web analytics. 4.3 Record of individual participation citizen science scheme and evidence of directly contributing data to schemes monitoring.	Public are willing to attend the events (previous invertebrate focused events have been well attended, and publicity and consultations will support this). Appropriate citizen survey techniques can be identified (partners with strong citizen-science experience will support scheme development). 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).

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	in invasive invertebrate monitoring by end of 2022		

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.

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 trail 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.

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)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
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** 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 3.6 SHG invasive invertebrate protocol defined and written up 3.7 Meetings and process to adopt protocol into SHG system for invasive control and integrated into workplans 3.8 Review Invertebrate Conservation Strategy and update invasive conservation goals and actions 3.9 Wider dissemination of results and engagement with UKOTs, using case studies to promote findings within the territories 3.10 International conference/workshop attended to disseminate results; and to gain wider understanding and increase network of invasive invertebrate control experience **Output 4: Increased public support and engagement in control, via improved public awareness on invasive invertebrate species and direct involvement in monitoring** 4.1 Produce feedback questionnaires and interview templates to be used during events and workshops 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 4.2 Design citizen science programme utilising target invasive invertebrate species and tailored to allow broad inclusivity across island 4.3 Undertake two public awareness events incorporating identification of invasive invertebrates, their impact and why take action; also gathering event records and feedback 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 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 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			

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

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Checklist for submission

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