

St. Helena Invertebrate Conservation Strategy *2016 to 2021*

Our vision:

“St. Helena’s unique invertebrates are recognised as globally significant and locally valued; and the habitats upon which they rely are understood, secured and improved, for future generations”



Forewords

“When I was the Invertebrate Education Officer on the Darwin-Plus funded “Bugs on the Brink” project, the outreach program allowed me to engage with many different people and age groups through the schools and at public events.

I had a great team of people working alongside of me, as a result my knowledge grew, and my confidence and expertise developed to deliver the education and awareness to others, and here I am now contributing to this Invertebrate Conservation Strategy.

St. Helena is undergoing changes and our unique invertebrate species are under threat.

I believe that this strategy lays out the best way to save our invertebrates on St. Helena, and I am committed to help in any way to save them.

Working together with the support of the international community, I am convinced that we can achieve something truly remarkable through implementing this strategy and set an example for the rest of the world to follow.”

Liza Fowler

Invertebrate Specialist and Education Officer,
St. Helena National Trust

“The focus of our conservation efforts needs to go beyond those species that are familiar and appealing to us, and extend to the most abundant creatures on our planet – the invertebrates.

Invertebrates are spectacular in their diversity. They account for the overwhelming majority of animal species around the globe and their significance is incalculable in terms of the services they provide and the vital roles they have in processes that enable healthy ecosystems to function and support the web of life.

In 2015, the IUCN Species Survival Commission established the Mid-Atlantic Islands Invertebrates Specialist Group with the aim of furthering conservation on islands with high invertebrate endemism. Part of the remit of this new Specialist Group is to assist with assessing invertebrates on St. Helena which has more endemic invertebrates than any other UK Overseas Territory. Initial progress with this is starting to reveal some alarming numbers of species that would fall into a threatened category.

In response to this information and recognising the need to implement urgent action to prevent some of the island’s endemic species from facing extinction, I welcome this important strategy for St. Helena which will provide a targeted approach to conservation action over the next 5 years. This strategy also demonstrates the value of a collaborative and inclusive approach to conservation planning, and the bringing together of relevant experts and constituencies to ensure alignment with decision-makers, local stakeholders and sound science to provide the best possible plan for action.

My thanks to all who have invested their time and effort in this strategy and I congratulate the successful partnership which has brought it all to fruition. I hope that not only will it make a major contribution to saving some of the wonderfully charismatic insects on St. Helena, but that it also helps to raise the profile of invertebrate conservation globally.”

Dr Simon N. Stuart

Chair, IUCN Species Survival Commission

Written by

Rebecca Cairns-Wicks (St. Helena National Trust)

Mike Jervis (Environmental Management Division, SHG)

Vicky Kindemba (Buglife)

In collaboration with

Annalea Beard, Jason Curtis, Andrew Darlow, Shayla Ellick, Liza Fowler, Alan Gray, Jonathan Hall, Jeremy Harris, Sarah Havery, Derek Henry, Roger Key, Rosie Key, Denny Leo, Cynthia Llas, Lourens Malan, Mikko Paajanen, Isabel Peters, Harry Pressly, Mark Stanley Price, David Pryce, Simon N. Stuart, Vanessa Thomas-Williams [Annex 4 provides a list of participants and their professional affiliations]

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Introduction

St. Helena holds around 30% of the total unique biodiversity of the UK and the Overseas Territories: a substantial biological legacy and responsibility. The island's invertebrate fauna makes up a significant proportion of that biodiversity.

St. Helena is home to a staggering 464 known species of endemic invertebrates. This did include iconic invertebrates such as the Giant earwig (*Labidura herculeana*), Giant ground beetle (*Aplothorax burchelli*) and the St. Helena darter (a dragonfly – *Sympetrum dilatatum*). Sadly, these species may have already become extinct.

As part of the Darwin-Plus funded Bugs on the Brink Project, the St. Helena National Trust has been assessing the threat of extinction facing our unique invertebrates according to Categories and Criteria of the IUCN Red List of Threatened Species™. So far, 50 invertebrate species have been submitted for red listing, with 16 species published at the time of writing. When completed it is highly likely that up to 80% of the island's endemic invertebrates will be in the Threatened categories according to IUCN (Critically Endangered, Endangered or Vulnerable). Of even more concern is that approximately a third of these species are likely to be considered Critically Endangered – the highest threat category. This highlights the real and immediate need to conserve the remaining endemic invertebrates and their habitats on St. Helena.

Buglife, together with the St. Helena National Trust, the Centre for Ecology and Hydrology, and the Environmental Management Division of the St. Helena Government, successfully carried out the Darwin-Plus funded Bugs on the Brink Project. The flagship project which ran for three years from 2014 to 2016, essentially established invertebrate conservation work on the island. A national strategy for the practical conservation of St. Helena's invertebrates was one of the final outputs of this

project. The strategy is essential for ensuring the long-term survival of invertebrate species and their habitats.

The key achievements of the Bugs on the Brink project include:

- assembling knowledge of the island's invertebrates, including a baseline dataset
- 32 people trained locally in invertebrate conservation management
- an invertebrate reference collection built on island
- an invertebrate identification guide produced for the island (in progress)
- inclusion of over 100 Threatened invertebrate species within the *Environmental Protection Ordinance (2016)*
- development of an education kit for schools and hundreds of school children taught about the importance of invertebrates
- 50 endemic invertebrates submitted to the IUCN Red List
- knowledge and tools developed to support restoration of native habitats
- An IUCN SSC Invertebrates Specialist Group for the Mid-Atlantic tropical islands established, which brings together 22 international invertebrate experts with knowledge of the region to drive forward invertebrate conservation work
- The project provides a replicable model for other islands

The St. Helena Invertebrate Conservation Strategy is complementary to the recently developed Spiky yellow woodlouse conservation strategy. The strategy is titled *Spiky Yellow Woodlouse (Pseudolaureola atlantica) A Strategy for its Conservation 2016 – 2021* and was edited by Sarah Havery, Vicky Kindemba, Rebecca Cairns-Wicks, Phil Lambdon and Lourens Malan. There are several objectives which are similar to both strategies, such as restoring and managing habitats, writing habitat management plans, monitoring invertebrate species, raising

awareness to attract financial support, securing long-term resources, and increasing capacity for conservation of Spiky yellow woodlouse. While primarily concerned with the Spiky yellow woodlouse, the strategy will have broader positive outcomes for all invertebrate species and their habitats.

The St. Helena Invertebrate Conservation Strategy will be reviewed annually in a joint forum of the St. Helena National Trust and the Environmental Management Division of the St. Helena Government. The actions will be checked against their indicators to monitor progress of the strategy. This document will be revised in 2021 for the following five years.

Workshop

The St. Helena Invertebrate Conservation Strategy is the product of a 2-day workshop involving key international and St Helenian stakeholders as part of the Darwin-Plus funded Bugs on the Brink Project.

The core objective of the workshop was to produce a practical strategy for conserving St. Helena's terrestrial invertebrates for 5 years from 2016 to 2021.

The workshop was held over two days on the 26th and 27th of August 2015. It was held in a unique way; it was split between the UK and St. Helena, with one group of participants working in the UK and another group working simultaneously on St. Helena. The workshop was hosted in the UK by Buglife, facilitated by Vicky Kindemba. On St. Helena the workshop was hosted by the St. Helena National Trust, facilitated by Rebecca Cairns-Wicks. The two groups communicated through Skype and worked independently on different sections of the strategy, but regularly came together online to discuss progress and ideas. The unusual approach of holding a workshop in two locations concurrently was necessary to ensure all stakeholders were included in the process of creating the strategy.

On day 1, August 26th, the members of the Bugs on the Brink Steering Group together with Mark Stanley Price, Chair of the IUCN SSC Species Conservation Planning Sub-Committee, met via Skype in the UK and on St. Helena. The objective was to discuss the main threats and issues for invertebrate conservation and develop the vision in preparation for day 2. [Annex 1 describes the workshop agenda. Outputs of day 1 are described in Annex 2. The main threats and issues are described in Annex 3.]

On day 2, August 27th, the participants from day 1 were joined by representatives of all relevant conservation groups. In St. Helena: the St. Helena National Trust (SHNT), the

Environmental Management Division of the St. Helena Government (EMD), the Landscape and Ecology Mitigation Programme (LEMP), and the St. Helena Nature Conservation Group (SNCG). Simultaneously in the UK: Buglife, the Royal Society for the Protection of Birds (RSPB), the Centre for Ecology and Hydrology (CEH), and two independent invertebrate specialists (Roger Key and Rosie Key). [Participants and their affiliations are listed in Annex 4.] The vision and issues from day 1 were developed further into goals, objectives and actions, and the details of the strategy were drafted.

The agreed vision was as follows:

St. Helena's unique invertebrates are recognised as globally significant and locally valued; and the habitats upon which they rely are understood, secured and improved, for future generations.

Participants then developed and used a framework of seven goals to provide the basis for establishing how to achieve this vision over the next five years. These seven goals are as follows:

- 1 – Halt and reverse habitat loss and fragmentation, through expanding habitat area, quality and connectivity.
- 2 – Take action to contain the spread of invasive plants and animals, and reverse their damage through conventional and innovative measures based on priority endemic species and sites.
- 3 – Ensure no more invasive plants and animals arrive through training, protocols and biosecurity measures.
- 4 – Identify emerging issues arising from infrastructure development and their likely impacts, and alert decision makers as they affect endemic invertebrates and their habitats.
- 5 – Establish research and adequate monitoring for climate change and hydrology,

and establish the most prudent approaches to adaptation and mitigation.

6 – Increase the number of diverse sources of funding of adequate duration and overcome limitations of training and on island employment opportunities; at the same time increase international awareness and so stimulate international partnerships, with an overall long term aim of greater self-sufficiency for environmental conservation.

7 – Raise the profile of St. Helena's invertebrate fauna locally and on the global conservation scene, to attract local and global support for conservation action, in order to facilitate research interest and provide resources.

The following tables contain the detail of the St. Helena Invertebrate Conservation Strategy 2016-2021. With the support of key stakeholders and implementing parties, this represents the best chance of saving St. Helena's immensely valuable invertebrate fauna for generations to come.

Key to acronyms

ANRD – Agriculture and Natural Resources Division of SHG

Buglife – The Invertebrate Conservation Trust, UK

CEH – Centre for Ecology and Hydrology

CSH – Creative St. Helena

ED – Education Directorate of SHG

EMD – Environmental Management Division of SHG

ENRD – Environment and Natural Resources Directorate of SHG

EPO – *Environmental Protection Ordinance 2016*

IUCN – International Union for the Conservation of Nature

JNCC – Joint Nature Conservation Committee

LDCP – *Land Development Control Plan 2012*

LEMP – Landscape and Environmental Mitigation Programme

MAIISG – Mid-Atlantic Island Invertebrate Specialist Group

NCA – Nature Conservation Areas

RSPB – Royal Society for the Protection of Birds

SAERI – South Atlantic Environmental Research Institute

SHG – St. Helena Government

SHNT – St. Helena National Trust

SNCG – St. Helena Nature Conservation Group

SSC – Species Survival Commission

THE INVERTEBRATE CONSERVATION STRATEGY

Goal 1: Habitats

GOAL 1 – Halt and reverse habitat loss and fragmentation, through expanding habitat area, quality and connectivity.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 1.1 Continue existing habitat restoration and management work at priority sites (Central Peaks, Peakdale, Man and Horse, Blue Point, Millennium Forest and Prosperous Bay Plain); increase the area, quality and connectivity of St. Helena’s habitats for the benefit of invertebrates by 2021.							
1.1.1	Write management plans for all priority sites, implement the plans and review annually	EMD, SHNT, LEMP, SNCG	2018, and annual reviews	EMD	High	Management plans written by 2018 and updated after each annual review	Staff time. Within existing roles, projects and partnerships. External funding may be needed.
1.1.2	Produce practical guides on habitat restoration techniques which benefit invertebrates	SHNT, EMD, SNCG	2017	EMD, SHNT	High	Guidelines produced and in working practice by 2017	Staff time. Within existing roles, projects and partnerships. External funding may be needed.
1.1.3	Secure the financial and human resources to write and implement management plans for all priority sites, and produce practical guides on habitat restoration	EMD, SHNT, LEMP, SNCG	2017, and ongoing	EMD	High	Finances and human resources secured by 2017	Staff time. Within existing roles, projects and partnerships. External funding may be needed.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
1.1.4	Expand and improve a total of 5 hectares of habitat over all priority sites by 2021.	SHNT, EMD, LEMP, SNCG	2021	EMD	High	Increase habitat area over all priority sites by 5 hectares by 2021	Staff time. Within existing roles, projects and partnerships. External funding needed. Specialist equipment needed.
1.1.5	Identify and prioritise 10 new sites to facilitate more targeted work for invertebrate conservation on St. Helena	EMD, SHNT	2018	EMD, SHNT	Med	List of priority sites increased by 10 sites by 2018	Staff time. Within existing roles and projects.
Objective 1.2 Identify and prioritise endemic invertebrate species for targeted conservation by end 2017.							
1.2.1	Conduct a desktop study to identify and prioritise endemic invertebrate species for targeted conservation [this study will also help to identify four additional flagship species in 7.6.1]	EMD, SHNT, Buglife	2017	SHNT	High	Report of prioritised endemic invertebrates completed by 2017	Staff time. Within existing roles, projects and partnerships.
Objective 1.3 Monitor, survey, analyse and communicate progress of prioritised habitat and species.							
1.3.1	Develop and set up an invertebrate monitoring programme for priority sites and species, defining protocols and methodology	SHNT	2019	SHNT	High	Monitoring programmes, protocols and methodology established by 2019	Staff time. Within existing roles and projects. Specialist equipment needed. External funding may be needed.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
1.3.2	Develop on-island skills in identification of main invertebrate groups to genus and wherever possible to species	EMD, SHNT, SNCG	Ongoing	SHNT	High	Increased number of people with invertebrate identification skills on island	Trainer and staff time. Within existing roles, projects and partnerships. External funding may be needed.
1.3.3	Carry out the monitoring program for prioritised sites and species and report progress regularly	EMD, SHNT	2019, and ongoing	EMD	High	Evidence of monitoring being carried out and reported on	Staff time. Within existing roles, projects and partnerships. Specialist equipment needed.
1.3.4	Make monitoring reports easily accessible to everyone and communicate results via SHG's <i>State of the Environment Report</i> and annual workshops to share knowledge	EMD, SHNT	2019, and annual workshops	EMD	High	Monitoring reports available on SHG and SHNT websites and results published in the <i>State of the Environment Report</i> . Annual workshops held from 2019	Staff time. Within existing roles.
Objective 1.4 Increase capacity to propagate plants for prioritised invertebrate habitat restoration work, with a 50% increase by 2021.							
1.4.1	Increase knowledge in plant production methods through delivery of training sessions	EMD, SHNT, LEMP, ANRD	2017, and ongoing	EMD, SHNT, LEMP	Med	Increased number of plants ready to be planted compared to 2015 numbers based on nursery log books	Trainer and staff time. Within existing roles, projects and partnerships. External funding may be needed.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
1.4.2	Increase the number of plants in production for habitat restoration work in priority habitats	EMD, SHNT, LEMP	2021	EMD	Med	Increase number of plants produced by 50% by 2021, compared to 2015 capacity	Staff time. Within existing roles, projects and partnerships. Specialist equipment needed. External funding needed.
Objective 1.5 Control access, define “No Go Areas” and mitigate impacts of tourism to priority habitats by 2018.							
1.5.1	Ensure access issues addressed within NCA development plans and “No Go Areas” defined	ENRD	2018	ENRD	Med	Revised NCA development plans completed by 2018	Staff time. Within existing roles, projects and partnerships.
1.5.2	Communicate impacts of tourism-related activities on invertebrates	EMD, SHNT	2017, and ongoing	EMD, SHNT	High	At least two new communication methods for tourism-related impacts on invertebrates completed and utilised by 2017	Staff time. Within existing roles, projects and partnerships.
1.5.3	Construct boardwalk system on central peaks to reduce the impacts on invertebrates from walkers	EMD, Tourism	2017	EMD	High	Boardwalks present and in use in priority areas of the central peaks by 2017	Staff time and funding. Within current roles. External funding needed (BEST 2.0).
1.5.4	Establish a tour guide service to provide invertebrate interpretation	SHNT, Tourism	2017	SHNT	Low	Number of people using invertebrate guided walks increased by 2017	Staff time. Within existing roles, projects and partnerships.

Goal 2: Existing invasive species

GOAL 2 – Take action to contain the spread of invasive plants and animals, and reverse their damage through conventional and innovative measures based on priority endemic species and sites.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 2.1 Identify which invasive plants and animals are most significant for endemic invertebrates by 2018.							
2.1.1	Periodically revise Roger Key's <i>Non-indigenous Animal Taxa on St. Helena: Likely Effects on Endemic and Indigenous Invertebrates & Their Habitats and Possible Control Measures (2014)</i> based on new arrivals and new knowledge	Buglife, SHNT, RK	2017, then biennially	SHNT	Low	Document revised by 2017, then biennially then after	Staff time and funding. Researcher assistance needed. External funding may be needed.
2.1.2	Produce a list of invasive plants and identify likely effects on native invertebrates and their habitats	EMD, SHNT, Buglife	2017	SHNT, EMD	Low	List of invasive plants and their effects on native invertebrates completed by 2017	Staff time and funding. Researcher assistance needed. External funding needed.
2.1.3	Draw up a matrix of invasive species versus vulnerabilities for habitat quality and species present	EMD, SHNT	2018	SHNT, EMD	Med	Matrix document completed by 2018	Staff time and funding. Researcher assistance needed. External funding needed.
Objective 2.2 Prioritise invasive species and sites for the feasibility of protection against invasion and effective control, or reduction, by 2018, and design scientifically rigorous control and reduction strategies by 2021.							

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
2.2.1	Design and implement a feasibility study to identify control methods for invasive species and prioritise work based on threat level and risk	EMD, ANRD, SHNT, Buglife, RSPB, SAERI	2017	EMD	Med	Feasibility study completed and being disseminated by 2017	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.
2.2.2	Design invasive species reduction strategies for priority sites and species	EMD, ANRD, SHNT	2018	EMD	Med	Invasive species reduction strategies completed by 2018	Staff time and funding. Researcher assistance needed. External funding needed.
2.2.3	Implement the results and recommendations of the feasibility study in 2.2.1 and reduction strategy in 2.2.2	ENRD, ANRD, SHNT, Buglife, RSPB, SAERI	2020	EMD, SHNT	Med	Project designed and commenced by 2020	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.
2.2.4	Secure funding and carry out research study into pathogens causing death of peaks tree species, identifying impacts on endemic tree species and their habitat and recommendations for action	EMD	2020	EMD	High	Report published identifying pathogens and management actions for peaks habitat restoration by 2020	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.

Goal 3: New invasive species

GOAL 3 – Ensure no more invasive plants and animals arrive through training, protocols and biosecurity measures.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 3.1 Build on existing biosecurity systems for prevention and early detection of new invasive species, focussing on entry points and high risk pathways on island.							
3.1.1	Work with SHG Biosecurity to see how biosecurity issues can be improved on key entry points	SHNT (DP), SHG Biosecurity	2016	SHNT	Med	Records of work between SHG Biosecurity and SHNT by 2016	Staff time. Within current projects and roles.
3.1.2	Work with SHG Biosecurity to develop and improve the present monitoring system at points of entry and high risk pathways	SHNT (DP), SHG, Biosecurity	2016	SHNT	Med	Documentation of an improved monitoring system by 2016	Staff time. Within current projects and roles.
Objective 3.2 Increase knowledge and skills of SHG Biosecurity staff about St. Helena's endemic invertebrates.							
3.2.1	Produce posters and/or leaflets on impacts of the arrival of invasive species for endemic invertebrates	SHNT (LF) (DP)	2017	SHNT (DP)	Low	Posters/leaflets available at entry points and from SHG Biosecurity staff by 2017	Staff time. Within current projects and roles.
3.2.2	Deliver training and produce protocols for SHG Biosecurity in the detection and identification of invertebrates	SHNT (LF) (DP)	2016, and ongoing	SHNT (DP)	Low	Increased knowledge and skills in detection and identification of invertebrates in SHG Biosecurity team by 2016	Staff time. Within current projects and roles.

Goal 4: Development issues

GOAL 4 – Identify emerging issues arising from infrastructure development and their likely impacts, and alert decision makers as they affect endemic invertebrates and their habitats.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 4.1 Identify and define endemic invertebrates and habitats most at risk from development by 2017.							
4.1.1	Maintain and update St. Helena's invertebrate database at least annually	EMD, SHNT	2016, and ongoing	SHNT	High	Evidence of the St. Helena invertebrate database updated annually	Staff time. Within existing roles and projects.
4.1.2	Train conservation workers in the management and use of the database	SHNT (DP)	2016, and ongoing	SHNT	High	Evidence of training conservation workers initially in 2016 and as needed thereafter	Trainer and staff time. Within existing roles and projects.
4.1.3	Link database to GIS to be able to produce map-based outputs on demand	SHNT, EMD	2017	SHNT	Med	Maps produced and in use as reference for development in sensitive sites by 2017	Staff time. Within existing roles and projects.
4.1.4	Conduct a desk study to review the potential impacts of ordinances and policies on invertebrates, including the <i>Land Development Control Plan 2012</i> and deliver recommendations for change to Legislative Council (LegCo)	ENRD, SHNT, Buglife	2017	SHNT, EMD	High	Desk study completed and recommendations to Legislative Council by 2017	Staff time. Within existing roles, projects and partnerships.
Objective 4.2 Make invertebrate data publicly available by 2017.							

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
4.2.1	Investigate and implement the most effective ways to access invertebrate data	EMD, SAERI, SHNT	2017	SHNT	Med	Access to data is increased by 2017	Staff time. Within existing roles, projects and partnerships. External funding may be needed.
Objective 4.3 Ensure legislative framework in place to protect and enhance the status of our endemic invertebrates, including protection from the impacts of development.							
4.3.1	Ensure invertebrates are included in environmental check list for Environmental Impact Assessments (EIA)	EMD	2017	EMD	High	Revised check list for EIA includes invertebrates by 2017	Staff time. Within current roles.
4.3.2	Produce a set of guidelines for EIA practitioners on how to include invertebrates in the EIA process	Buglife, EMD	2017	EMD	High	Guidelines for EIA are available and being used by 2017	Staff time. Within existing roles, projects and partnerships.
4.3.3	Ensure that the <i>Environmental Protection Ordinance 2016</i> is enforced with regards to protection of endemic invertebrates and their habitats	ENRD, Attorney General's Chambers, Police Directorate	2016, and ongoing	EMD	High	Evidence of enforcement of EPO 2016 either through police reports, ENRD communications, or other actions by 2016	Staff time. Within current roles.

Goal 5: Climate change and water

GOAL 5 – Establish research and adequate monitoring for climate change and hydrology, and establish the most prudent approaches to adaptation and mitigation.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 5.1 Support climate monitoring, ensuring it reflects the conservation interests of St. Helena's endemic invertebrates.							
5.1.1	Identify climate monitoring needs for invertebrates	ENRD, SHNT	2016	EMD	Med	Brief report outlining climate monitoring needs for invertebrates by 2016	Staff time. Within existing roles, projects and partnerships.
5.1.2	Ensure invertebrate conservation interests are included in climate monitoring	ENRD, SHNT	2016	EMD	Med	Invertebrate conservation interests included in climate monitoring by 2016	Staff time. Within existing roles, projects and partnerships.
Objective 5.2 Design and implement a research and monitoring programme to investigate impacts of climate change to priority species and sites and undertake a risk assessment for those species and habitats to cope by 2020.							
5.2.1	Implement climate change monitoring programmes & reporting as required under the <i>EPO 2016</i>	ENRD	2016	EMD	High	Monitoring programme in place by 2016	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
5.2.2	Design and submit a project for submission for funding that produces an assessment of risk based on scientific data gathered and identification of mitigation measures	EMD, SHNT	2018	EMD	Med	Project submitted to funding body by 2018	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.
5.2.3	Carry out the project from 5.2.2 to produce an assessment of risk and implement the recommendations	EMD, SHNT, researcher	2020	EMD	Med	Project completed, assessment of risk completed, and recommendations implemented by 2020	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.
Objective 5.3 Establish a research project to assess the effects of woody vegetation on local climate and hydrology in 2017 to be completed by 2020.							
5.3.1	Design research project to assess the effects of woody vegetation on local climate and hydrology	SHNT, SHG, CEH	2017	SHNT & CEH	Med	Project designed and submitted for funding by 2017	Staff time and funding. Researcher assistance needed. External funding needed.
5.3.2	Carry out the research project from 5.3.1 and implement recommendations	SHNT, SHG, CEH, researcher	2020	SHNT & CEH	Med	Effects of woody vegetation on climate change and hydrology understood by 2020	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.
Objective 5.4 Establish a research project to assess the effects of climate and vegetation change on aquatic invertebrates by 2017 to be completed by 2020.							

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
5.4.1	Design a research project to assess the effects of climate and vegetation change on aquatic invertebrates	SHNT, RK, CEH	2017	SHNT	Med	Project designed and submitted for funding by 2017	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.
5.4.2	Carry out the research project from 5.4.1 and implement recommendations	SHNT, SHG RK, researcher	2020	SHNT	Med	Effects of climate and vegetation change on aquatic invertebrates understood by 2020	Staff time and funding. Researcher assistance needed. Specialist equipment needed. External funding needed.
Objective 5.5 Liaise with relevant St. Helena authorities to explore mechanisms to increase woody vegetation that has been identified to help mitigate climate change and have positive benefits on the island's hydrology.							
5.5.1	Hold a workshop to discuss relationships between woody vegetation, water supply and invertebrates based on evidence and ongoing research	EMD, SHNT, ANRD, ENRD, Connect, private landholders	2018	SHNT	Med	Workshop held and a discussion paper produced by 2018	Staff time and funding. Within current roles.
5.5.2	Design a restoration programme for increasing woody vegetation as an outcome from the workshop in 5.5.1	EMD, SHNT, ANRD, ENRD, Connect, private landholders	2020	EMD & SHNT	Med	Restoration programme designed by 2020 for increasing woody vegetation	Staff time and funding. Within current roles. External funding needed.
Objective 5.6 Formulate a national policy on climate change mitigation and adaptation.							
5.6.1	Hold a workshop to discuss a climate change policy	ENRD	2016	EMD	High	Draft climate change policy produced by 2016	Staff time. Within current roles.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
5.6.2	Produce a national climate change policy and ensure it is gazetted by SHG	ENRD	2017	ENRD	High	Policy gazetted by St. Helena Government by 2017	Staff time. Within current roles.

Goal 6: Resources and awareness

GOAL 6 – Increase the number of diverse sources of funding of adequate duration and overcome limitations of training and on island employment opportunities; at the same time increase international awareness and so stimulate international partnerships, with an overall long term aim of greater self-sufficiency for environmental conservation.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 6.1 Secure international and local government support for invertebrate conservation.							
6.1.1	Understand international drivers behind government funding decisions and lobby accordingly	Councillors, EMD, SHNT, SAERI, RSPB, Buglife	2017, and ongoing	EMD, SHNT	High	Increased funding opportunities are available for invertebrate conservation by 2017	Staff time. Within existing roles, projects and partnerships.
6.1.2	Increase public awareness through effective targeted communication so as to influence policy and funding decisions	EMD, SHNT, Councillors, RSPB, Buglife	2016, and ongoing	EMD, SHNT	High	At least two new methods for increasing public awareness completed and utilised by 2016	Staff time. Within existing roles, projects and partnerships.
6.1.3	Carry out a monetary valuation on the benefit of our endemic invertebrates to the island	EMD, SAERI, Buglife, SHNT	2018	EMD	Med	Monetary valuation report completed and the results promoted in media by 2018	Staff time and funding. Researcher assistance needed. External funding needed.
6.1.4	Use visiting researchers and ongoing local projects to engage St Helenians about invertebrate conservation	EMD, SHNT, SNCG, SAERI	2016, and ongoing	EMD, SHNT	High	Increased support for invertebrate conservation by St Helenians by 2016	Staff time. Within existing roles, projects and partnerships.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 6.2 Identify human resource limitations and training needs in conservation required to deliver the St. Helena Invertebrate Conservation Strategy 2016 to 2021 & ensure all staff working in conservation on St. Helena receive training in invertebrate conservation techniques.							
6.2.1	Carry out a desk study to identify human resource limitations and training needs in conservation required to deliver the <i>St. Helena Invertebrate Conservation Strategy 2016 to 2021</i>	EMD (MJ), SHNT (DP, RCW)	2016	EMD, SHNT	High	A needs analysis for human resources and training requirements completed by 2016	Staff time. Within current roles.
6.2.2	Communicate limitations and needs identified in 6.2.1 to ensure EMD and SHNT strategies and budgetary projections, and applications to project funds, reflect the identified needs	EMD, SHNT	2016, and ongoing	SHNT, EMD	High	Invertebrate conservation is incorporated into SHNT and EMD strategies and budgets, and project applications include an invertebrate focus by 2016	Staff time. Within current roles.
6.2.3	Deliver annual training in invertebrate conservation techniques to all staff working in conservation on St. Helena	SHNT (DP, LF), EMD	2016, and annually	EMD, SHNT	High	All conservation staff receive training in invertebrate conservation techniques by 2016, and annually thereafter	Trainer and staff time. Within current roles.
6.2.4	Ensure targeted recruitment of volunteers with invertebrate skills	EMD, SHNT, SNCG,	2017	EMD, SHNT	Med	Volunteers actively involved in invertebrate projects by 2017	Staff time. Within current roles.
Objective 6.3 Co-ordinate funding requests in line with invertebrate strategy and so secure more on-island funding to support invertebrates by 2018.							

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
6.3.1	Set up funding review group in line with funding cycles	EMD	In line with call for bids	EMD	High	More on-island funding secured to support invertebrates by 2018	Coordinator for group and staff time. Within current roles.
Objective 6.4 Strengthen local and international links with partner organisations, and promote the island as a research destination, identify new sources of funding and increase the number of invertebrate research and conservation projects by 2018.							
6.4.1	Keep the Joint Nature Conservation Committee (JNCC) updated at least annually with human resource limitations and training needs required to deliver the <i>St. Helena Invertebrate Conservation Strategy 2016 to 2021</i> as identified in 6.2.1	EMD, SHNT	2016, and annually	EMD	Low	Evidence of communication to JNCC through emails, phone logs, and meeting minutes.	Staff time. Within current roles.
6.4.2	Identify international organisations that share our goals with whom we can cultivate a relationship	SAERI, EMD, SHNT, Buglife	2016, and ongoing	SAERI, Buglife	Low	New partnerships established between international organisations and St Helenian conservation organisations	Staff time. Within current roles.
6.4.3	Encourage international research on St. Helena – linked to SAERI and other international academic institutions	ENRD, EMD, SHNT, SAERI, Buglife	2017, and ongoing	SAERI	Low	New research projects established on St. Helena by 2017	Staff time. Within current roles.
6.4.4	Identify and implement research and conservation action for individual endemic invertebrate species, e.g. species recovery plans	EMD, SHNT, SAERI, Buglife	2018	EMD, SHNT	Med	Research and conservation actions commenced	Staff time and funding. Within current roles. External funding

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
							needed.
6.4.5	Identify new sources of funding for invertebrate conservation and secure this funding	SAERI, Buglife, RSPB, SHNT, ENRD	2017	SHNT, Buglife, EMD	Med	Increased funding streams for invertebrate conservation by 2017	Staff time. Within current roles.
6.4.6	Investigate the feasibility of establishing a tourism “green tax” to provide core funding for conservation	ENRD, EMD, Tourism, SHNT, Councillors	2016	ENRD	Med	Paper presented to Councillors about a tourism “green tax” for conservation	Staff time. Within current roles.
6.4.7	Establish a “green tax” from tourists arriving at St. Helena airport	EMD, ENRD, SHNT, Councillors	2017	ENRD	Med	“Green tax” is generating income for conservation by 2017	Staff time. Within current roles.

Goal 7: Education and culture, communication and collaboration

GOAL 7 – Raise the profile of St. Helena’s invertebrate fauna locally and on the global conservation scene, to attract local and global support for conservation action, in order to facilitate research interest and provide resources.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 7.1 Ensure that outreach materials are accessible to everyone, and that invertebrates are integrated into future outreach materials and events.							
7.1.1	Increase accessibility of information about invertebrates and their habitats through diverse local & international media	EMD, SHNT, SNCG, Buglife, SAERI, RSPB, Tourism	2016, and ongoing	EMD, SHNT	Med	Number of local and international news items about St. Helena’s invertebrates and their habitats increased by 2016, and each year thereafter	Staff time. Within existing budgets of projects and partnerships.
7.1.2	Establish a Festival of St. Helena Nature, an annual event involving public participation, with a distinct focus on invertebrates	EMD, SHNT, SNCG, Tourism, ESH, CSH, LEMP, ANRD	2017, then annually	Festival committee	Low	Festival held by 2017, and each year thereafter	Temporary staff. Funding and sponsorship needed.
Objective 7.2 Establish permanent environmental education programmes delivering education and outreach to school age pupils from 5-18 years, their teachers and the public.							
7.2.1	Review current provision, and develop and implement environmental education programmes	SHNT, ENRD, and Education Directorate (ED)	2017	SHNT	Med	Educational programmes established & curriculum supported by 2017	Staff time. Within current projects and roles.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
7.2.2	Identify funding to support education programmes and help St Helenians gain internationally recognised qualifications and/or further their professional development in conservation	ENRD, SHNT, ED, ESH	2018	SHNT	Med	Increased number of St Helenians achieving higher education qualifications, undertaking training, or work experience in environmental conservation by 2018	Staff time. Within current roles.
Objective 7.3 Complete red listing of St. Helena's endemic terrestrial invertebrates by 2021 and communicate the results.							
7.3.1	Continue red listing of St. Helena's endemic terrestrial invertebrates	MAISG, SHNT	2021	MAISG	High	Red list completed by 2021	Volunteer time and expenses. Within current projects and MAISG volunteer time.
7.3.2	Communicate the results of the red-listing process	SHNT, EMD, ENRD, SNCG, MAISG, IUCN	Ongoing as results are published	MAISG & IUCN	High	Communication to all stakeholders at least annually and inclusion of information into Schedule 2 of the <i>EPO 2016</i>	Staff time. Within current projects and MAISG volunteer time.
Objective 7.4 Use MAISG & IUCN network to identify parallel studies and activities on other islands and bring in new collaborators and resources.							
7.4.1	Carry out a desk study to identify parallel studies, activities and contacts for invertebrate conservation	MAISG, IUCN, SHNT	2016	MAISG, SHNT	Low	Desk study completed by 2016	Staff time. Within existing projects and partnerships.
7.4.2	Initiate contact and discuss collaboration with parallel studies, as identified in 7.4.1	MAISG, IUCN, SHNT	2017, and ongoing	MAISG, IUCN & SHNT	Low	Collaborative research opportunities identified and pursued by 2017	MAISG volunteer time.

Action no.	What?	Who is responsible?	When?	Coordinator	Priority	Indicator	Resources required
Objective 7.5 Encourage and assist in publication in peer-reviewed journals from current projects and activities.							
7.5.1	Publish invertebrate research from current projects and activities in peer-reviewed journals	SHNT, RSPB, EMD	2017, and ongoing	SHNT & RSPB	Med	Papers written and submitted to journals for publication for 2017 and each year thereafter	Staff time. Within existing projects and partnerships.
Objective 7.6 Promote more flagship endemic invertebrate species.							
7.6.1	Identify four additional flagship species to highlight invertebrate conservation from the priority species identified in 1.2.1	Buglife, RSPB, EMD, SHNT, SNCG	2017	EMD, SHNT	Med	Four additional flagship species chosen by 2017	Staff time. Within existing budgets and partnerships.
7.6.2	Use the four additional flagship species from 7.6.1 to promote endemic invertebrate conservation	Buglife, RSPB, SHNT, EMD, Tourism	2018	Buglife, RSPB, SHNT	Med	At least one local and one international media piece about the four additional flagship species, by 2018	Staff time. Within existing budgets and partnerships.
7.6.3	Designate a national invertebrate for St. Helena	EMD, SHNT, Councillors	2018	EMD	Low	St. Helena has a national invertebrate by 2018	Staff time. Within existing budgets and partnerships.

Annex 1: Workshop agenda

Conservation planning for St. Helena's endemic terrestrial invertebrate fauna

Aim: To identify, plan and resource invertebrate conservation action for St. Helena's endemic terrestrial invertebrates from 2016 to 2021

Output: A St. Helena terrestrial invertebrate conservation strategy from 2016 to 2021

Day 1 (Wednesday 26th August 2015)

Intro (session together)

1100-1200 UK & 1000-1100 SH Future for St. Helena's invertebrates - initial ideas to feed into Workshop day 2

Stage 1 (Split session)

1200 UK & 1100 SH

Key issues facing St. Helena's invertebrates and prioritise, and decide which ones are to be addressed by day 2.

Lunch

Pull out key sites/habitats, microhabitats and species.

1400-1500 UK & 1300-1400 St. Helena – reconvene to discuss results

Stage 2 (Split session)

1500-1630 UK & 1400-1530 SH

Knowledge gaps (45 mins)

Discussions on life cycle and microhabitat needs of key species/assemblages and their targeting (45 mins)

1630 UK & 1530 SH back discuss results (30 mins)

Day 2 (Thursday 27th August 2015)

Facilitator on St. Helena: Rebecca Cairns-Wicks.

Facilitator in UK: Vicky Kindemba.

Session 1

0930-1000 Scene setting: short presentation on invertebrates and project achievements; and of existing/future relevant project

1000-1030 Explanation of the workshop and structure of the day and the future for St. Helena's invertebrates

Session 2

1030-1100 Confirmation of issues and goals

1100-1200 Confirmation of objectives

(1200-1245 Lunch)

Session 3

1245-1400 For each issue:

- **What needs to be done? site specific, habitat specific, island-wide**
- By who? individuals, organizations, partnership & cooperation
- What expertise is needed? that we haven't got contact/mine experience from other islands – Hawaii, New Zealand's small islands etc
- What resources are needed? Finance, manpower, where do they come from?

Session 4

1400-1430 Present back on each issue and their objectives

1430-1515 Defining resources, actions/projects, responsibilities and timeline

1515-1600 Next steps: Strategy content, use and delivery

Annex 2: Outputs of day 1

Vision

The globally unique invertebrates of St. Helena are locally valued, so we will respond to understand, and to improve their conservation status and safeguard the habitats upon which they rely, for future generations.

Issues

Habitat aspects – contain or reverse habitat loss, either through improving their areas and quality, or decreasing fragmentation

Current invasives – take action to contain spread of invasives and reverse the damage, through active measures and exploration of alternatives, using the existing prioritisation of site and problem invasive species.

New invasives – ensure no more invasives arrive, through appropriate policies and biosecurity measures

Emerging issues – identify in advance emerging issues and their likely impacts, and alert government as they affect endemic invertebrate and their habitats, through development, demand for services, social change and human mobility.

Climate change – establish adequate monitoring urgently and encourage an official policy of reforestation with suitable tree species, as the most prudent mitigation measure in absence of certainty about climate change

Resources and access – intensify the search for diverse sources of funding of adequate duration and overcome limitations of training and on island employment opportunities; with a long term aim of greater self-sufficiency for environmental conservation

Education and culture – increase awareness on island and globally, of the values and threats to St. Helena endemic invertebrate fauna and the costs of not doing so

Global profile and collaboration - raise the profile of St. Helena on the global conservation scene, to attract and facilitate research interest and resources; and thereby enabling St. Helena to profit from experiences on other island ecosystems

Annex 3: Threats table

This table lists the specific and overarching threats to the priority invertebrate conservation sites on St. Helena.

Site	Specific threats	Overarching threats
High Central Ridge (central peaks - formerly Diana's Peak NP, Cason's, High Peak, Mt Vesey, Depot)	Grazing, rats, mice, frogs, edge effects paths/fragmentation small isolated pockets, increased access/tourism, development - e.g. Depot	Invasives & knowledge of their impacts, human resources, access to funding, access to expertise, climate change, knowledge of habitat and species ecologies
Peak Dale	grazing, management conflicts, multiple land ownership, different management regimes, tourism/access	Invasives, climate change, resources-funding
Prosperous Bay Plain	Development, off road driving, fragmentation new access roads/fencing, increased external & internal biosecurity risk, soil erosion and quality, Pollution, air, water, ground & lighting, uncertainty over operational environmental management of airport, ground and ground water pollution risk from airport infrastructure	Invasives, climate change, knowledge of impacts of invasives, species ecologies & habitats
Blue Point	Grazing - rabbits, mice, sheep, soil erosion, accessibility to reach sites, access tourism, low species diversity/lack of native ground cover, deteriorating habitat quality	Resources here are not currently mainstream priority for EMD or SHNT, invasives, climate change
Smaller isolated fragments (Man & Horse, Flagstaff, The Barn, Lower Rupert's, Deep Valley, Long Range, Great Stone Top, Fisher's valley, Shark's valley, Ben Coolen, Turks Cap, High Hill, Thompson's wood, Lot, Prosperous Bay beach hinterland, Pipe Ridge, and Bilberry, Mulberry and Netley Guts	Soil erosion, lack of native ground cover, fragments/edge effects impacted by encroachment, new light pollution from sites with beacons & development, most PBW, development pressure lower Rupert's, grazing pressure from rabbits, mice, pollution/contamination at lower Rupert's, possible impact on water courses/springs with increased demand, off road driving, agricultural pests/pesticides from agricultural areas	climate change, resources - not priority for mainstream conservation, invasive species,

Annex 4: Workshop participants list

Day 1

St. Helena

Rebecca Cairns-Wicks	Head of Operations (SHNT)
Jeremy Harris	Director (SHNT)
Mike Jervois	Terrestrial Conservation Officer (EMD)
Isabel Peters	Manager, Environmental Assessment and Advocacy (EMD)

UK

Alan Gray	Plant Ecologist (CEH)
Roger Key	Independent invertebrate specialist
Rosie Key	Independent invertebrate specialist
Vicky Kindemba	Buglife
David Pryce	Project Manager, Bugs on the Brink project (SHNT)
Mark Stanley Price	Chair, IUCN SSC Species Conservation Planning Sub-Committee

Day 2

St. Helena

Annalea Beard	Marine Conservation Assistant (EMD)
Rebecca Cairns-Wicks	Head of Operations (SHNT)
Jason Courtis	Project Manager, Community Forest Project (SHNT)
Andrew Darlow	Project Assistant, Cloud Forest Project (EMD)
Shayla Ellick	Species Conservation and Environmental Research Officer (EMD)
Liza Fowler	Education Officer, Bugs on the Brink Project (SHNT)
Jeremy Harris	Director (SHNT)
Mike Jervois	Terrestrial Conservation Officer (EMD)
Denny Leo	Wirebird Conservation Officer (SHNT)
Cynthia Llas	Project Co-ordinator, Community Forest Project (SHNT)
Lourens Malan	Project Manager, Cloud Forest Project (EMD)
Mikko Paaanen	Ecologist (LEMP)
Isabel Peters	Manager, Environmental Assessment and Advocacy (EMD)
Harry Pressly	Volunteer, Community Forest Project (SHNT)
Vanessa Thomas-Williams	Endemic Nursery Officer (EMD)

UK

Alan Gray	Plant Ecologist (CEH)
Jonathan Hall	Head of UK Overseas Territories (RSPB)
Roger Key	Independent invertebrate specialist
Rosie Key	Independent invertebrate specialist
Vicky Kindemba	Buglife
David Pryce	Project Manager, Bugs on the Brink (SHNT)
Mark Stanley Price	Chair, IUCN SSC Species Conservation Planning Sub-Committee