

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	DPLUS107
Project title	Community supported multispecies invasive vertebrate control on St Helena
Territory(ies)	St. Helena
Lead organisation	Saint Helena National Trust
Partner institutions	INBIMA, RSPB, Saint Helena Government
Grant value	312,019.00
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	https://www.facebook.com/SHnationaltrust
Report author(s) and date	James Fantom, Martina Peters & Mike Jervois 30 th April 2021

1. Project summary

St Helena faces significant problems with invasive vertebrate species negatively affecting native ecosystems. These hamper conservation and agricultural efforts, including endemic habitat restoration and survival of the Wirebird, the island's only surviving endemic land bird. It does not have to be explained how detrimental invasive species are to island habitats. In this project we are focusing on vertebrate species which are known to wreak havoc on the indigenous ecosystems and farmlands.

This project aims to better understand invasive vertebrate distribution and interactions, leading to community supported multispecies control to promote the recovery of native species, habitats, and improve agricultural productivity. The St Helena National Trust will collaborate with the local government, local community including stakeholders and project partners to lead efficient, multi-species invasive vertebrate management. This includes organising and motivating a group of local volunteers to trap targeted species and collect data.

The project is planned in 3 "stages". The first stage in Year 1 focused on setting-up the project and included collecting baseline data for presence and abundances of the key vertebrate species. This meant acquiring necessary tools and equipment, solidifying the project with partners and stakeholders, general public outreach and recruiting volunteers. Initial surveying and baseline data collection occurred in year 1, as well as data analysis. In the original project application, project partner INBIMA was set to make a short visit this year, but due to Covid-19, this couldn't happen, as quarantine and travel restrictions proved difficult, this change will be formalised in a change request, although it has been approved by a Darwin representative over email (Ref to Evidence 1).

The second year of the project is where most of the trapping and control programme goes ahead, with a focus on volunteer engagement and training. Data collection and citizen science aspects are also vital to year two's success.

2. Project stakeholders/partners

Our current project partners are INBIMA, RSPB and Saint Helena Government (SHG). Representatives from each are members' of the project steering group where they have been involved in monitoring and oversight of the project providing feedback, advice and guidance to the delivery of the project based on their field of expertise. Each partner has had various roles in designing and carrying out the project

Saint Helena Government (SHG) has provided us with support throughout the project from its relevant departments. The SHG Senior Veterinary Officer provided a letter of support (Ref. Evidence 2) to the Trust at the application stage of this project, offering advice not limited to steering group meetings, and through advocating for the project on the impact of invasive species in particular myna birds and feral cats which are the two most controversial species. The Senior Veterinary Officer has offered training on euthanasia of birds, as well as euthanasia of feral cats – refresher for 1 staff member.

In order to trap and cull the Common Myna bird, a license (ref. Evidence 3) was provided to the St. Helena National Trust by the SHG Environment and Natural Resources Committee, illustrating our government's support and recognition of the benefits of the project. SHG has been helpful in acquiring information and maps of different land tenants with whom we are now working with. The SHG Agriculture Officer provided project staff with details of government-led vertebrate control schemes, as well as contact details of those involved.

Invasive Bird Management (INBIMA) has been involved in this project since its inception in 2019. INBIMA is an invasive bird management specialist consultancy run by Susanna Saavedra, based in Tenerife, Grand Canarias, Spain. She brings with her a wealth of experience and knowledge in invasive species control, and particularly in organising and motivating volunteer trappers. Susanna visited St Helena in 2009 so has good knowledge of our specific requirements. In the planning stage of the project she supplied Darwin with a letter of support (ref. Evidence 4). Since the start of the project INBIMA has been helpful in the preparation of the myna culling application, sharing training materials and information, as well as delivering public talks online and in addition to main focus of mynas has provided guidance on the other project targeted species. During this first year of the project, INBIMA and SHNT encountered difficulties in agreeing on the terms of a working partnership; I believe this is related to language barrier, which was enhanced by the global pandemic that prevented travelling and thus delivery of some aspects of the project. After many months of negotiating an acceptable partnership agreement (Ref. Evidence 5) for both parties, it was finally signed on 29/3/2021. This is to be followed by work from INBIMA to directly support the project's outputs such as producing video tutorials, zoom training sessions/workshops etc. A change request to reflect this agreement will be submitted soon.

RSPB has supported Wirebird conservation on St Helena through the St Helena National Trust for over 15 years and have maintained open communication with the Trust. Jonathan Hall, Head of UK overseas territories at RSPB has attended steering group meetings (ref. Evidence 6), and recommended Steffen Opiel, who was the lead scientist in previous studies of vertebrate presence on St. Helena to join the steering group Steffen has provided the project with valuable feedback on surveying methods including the databases and instructions used in his previous studies, contributing directly to the surveying activities of the project.

Some members of the public have supplied anecdotal information of past and current vertebrate control. One particular member of the public, Patrick Henry, was a participant of the volunteer group formed by Susanna and Chris Feare during their myna research and trapping efforts in 2009. Patrick has offered to share his knowledge and lessons learnt with during the first phase of our trapping scheme.

3. Project progress

3.1 Progress in carrying out project Activities

Initial exposure to the project was done via printed news articles, as well as appearances on local radio stations. So far, the project team has made 3 radio appearances (Ref. Evidence. 7) as well as publishing 2 newspaper articles (Ref. Evidence 8 and 9) and 1 article written by the local Independent newspaper (Ref. Evidence 10) This media coverage has increased the public profile of this project, as there have been 2 letters from the public published in local newspapers regarding it (Ref. Evidence 11).



Figure 1: Project Team participating in a radio program talk show re: the project at Saint FM

The following actions contribute towards activities 1.1-1.3 The Project Team has located and mapped the known myna roosts on St. Helena. This was done partially with the help of a map from 2009. The 2009 map was produced as part of the South Atlantic Invasive Species Project, an EU funded project in the South Atlantic overseas territories. The original Myna Roost Surveys were carried out by Chris Feare and Susanna Saavedra (current project partner). Additional myna roosts were found through the co-operation and assistance from members of the public; these are also included in our map (ref. Figure 2).

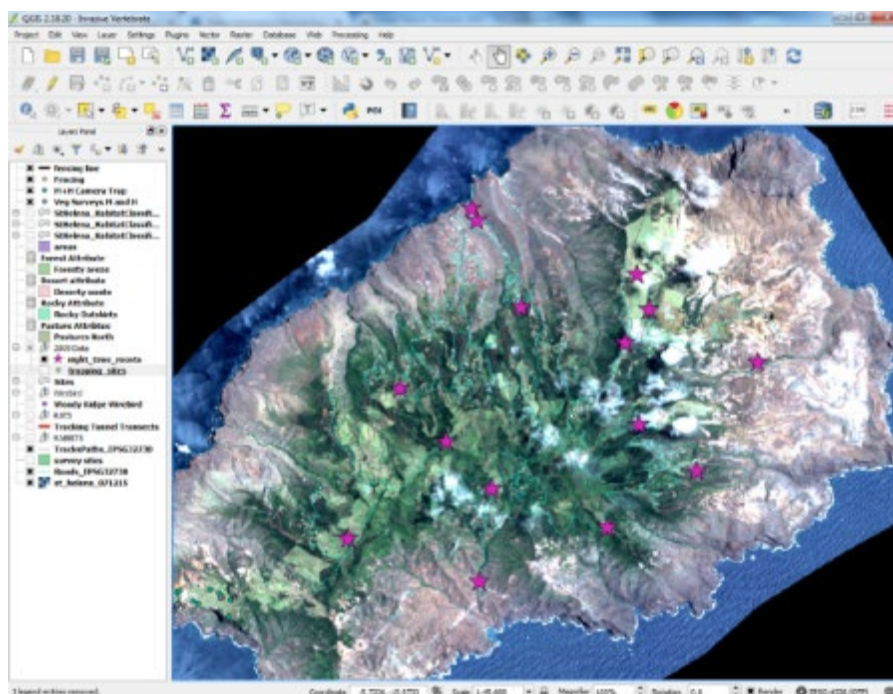


Figure 2: Screen shot of our Myna roost locations

The Project team visited each roost site identified on the 2009 map to determine whether the roosts were still active and planned how to count the myna population at each roost site with advice on methodology and training from Susanna (INBIMA). Each roost site was visited and a census count undertaken. The myna census was completed on 31st March 2021, with the final roost being counted, despite difficulty accessing and viewing it. The count data were recorded into a spreadsheet (ref. Figure 3); the final official estimate of myna population on St Helena being 3,908.

	Date	Observer	Trap Species	Location	Time Started	Time Finished	Birds Counted	Total Birds
4								
5	04/01/2021	KI	Ramson	Jamessown	18:24	18:27	264	
6	20/01/2021	Audrey	Barnon	Antislavon	20:24	22:20	332	577
7	24/01/2021	KI	Wild Mango	Longwood	18:30	18:45	266	
8	20/01/2021	Audrey	Wild Mango	Longwood	20:30	22:40	328	504
9	21/01/2021	Audrey	Ramson	Jamessown	18:10	19:05	151	
10	21/01/2021	Benny	Barnon	Jamessown	18:10	19:02	339	270
11	21/01/2021	James	Wild Mango	Oran	18:14	18:28	48	
12	21/01/2021	KI	Wild Mango	Oran	18:18	18:28	40	113
13	23/04/2021	AT	Cape Yew	Blue Hill	17:58	18:48	62	
14	23/04/2021	B	Cape Yew	Blue Hill	17:55	18:45	6	62
15	20/02/2021	KI	Bamboo	Sandy Bay	20:15	20:48	48	
16	04/02/2021	Audrey	Bamboo	Sandy Bay	18:15	18:45	51	93
17	04/02/2021	James	Bamboo	W/Sandy Bay	18:00	19:24	89	
18	04/02/2021	James	Bamboo	W/Sandy Bay	18:00	19:24	24	123
19	04/02/2021	James	Eucalyptus	Leachwood	18:30	19:01	333	
20	03/02/2021	Audrey	Eucalyptus	Leachwood	18:20	19:12	54	165
21	26/01/2021	James	Eucalyptus	W/Sandy Bay	18:30	18:30	118	
22	23/01/2021	Audrey	Eucalyptus	Phoenicia	22:00	22:20	118	284
23	07/04/2021	Audrey	Cyperus	Reservoir E	18:10	18:45	144	
24	07/04/2021	KI	Cyperus	Reservoir E	18:10	18:48	229	284
25	31/03/2021	Audrey	Cape Yew	Rock House	18:10	18:55	107	
26	31/03/2021	James	Cape Yew	Rock House	20:30	20:55	28	132
27	24/03/2021	Audrey	Pine	Blue Hill	18:00	18:00	77	
28	24/03/2021	KI	Pine	Blue Hill	18:00	18:00	148	
29	24/03/2021	Benny	Pine	Blue Hill	18:00	18:00	158	
30	24/03/2021	James	Pine	Blue Hill	20:00	20:00	300	588
31								2503

Figure 3: Screenshot of myna census count spreadsheet

Due to the rugged topography of the island it is likely that there are myna roosts in remote or inaccessible parts of St. Helena so are unseen and unheard. Through the establishment of a volunteer trapper network and continuous myna surveys undertaken over time we hope to locate these roosts and add them to our census data, if applicable.

Activities 1.4 and 1.6 are related to rabbit surveys and determining population densities. Rabbit population and density estimates were completed in January 2021, after a 3 month surveying process the methodology (ref. Evidence 12), for which was contributed to by RSPB's Steffen Opiel. A report on the results was produced and submitted to the steering group, following which it was made public (Ref. Evidence 13). The survey work was adapted from previous rabbit surveys carried out in 2009 by Wildlife Management Ltd; this allows our survey results to be easily compared. We selected 10 sites around the island where survey "plots" were chosen. These were marked with pegs and rabbit pellets within them were counted. This count was repeated twice, and an average was taken from each site. These data were used to estimate the population and densities of rabbits in each of those areas. A population estimate of 45,000-51,000 rabbits was calculated. Below is a screen shot of the survey sites on our GIS programme.

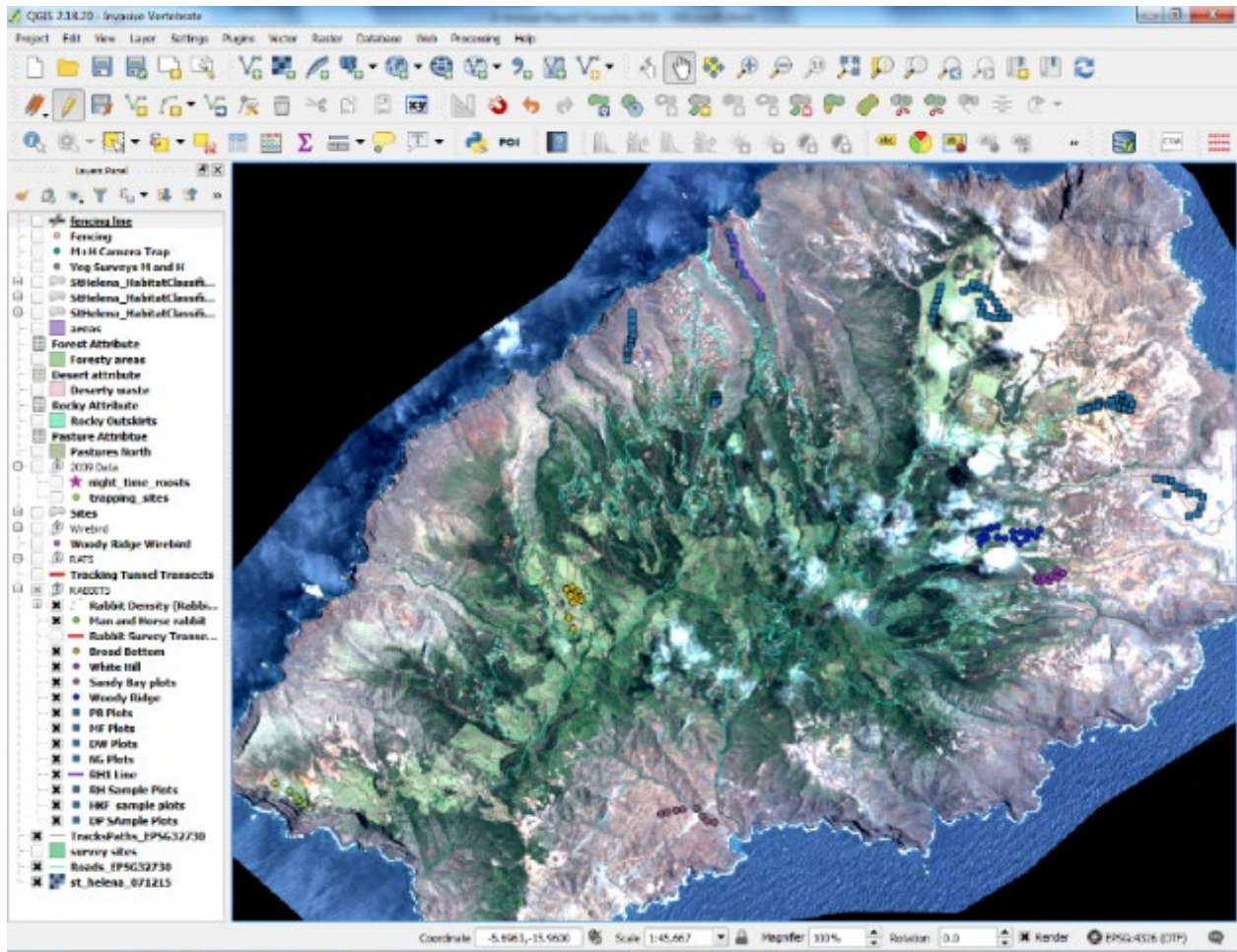


Figure 4 Screen shot of various rabbit pellet-counting plots on our GIS programme

Cat abundance work (activity 1.8) was slightly delayed this year. The project experienced a delay due to the transshipment to St Helena for the arrival of our camera traps, as our supplier ran out of stock and the shipment cut-off date was missed. Problems were also encountered with our battery chargers as the batteries did not charge quickly enough for all of the cameras. New battery chargers were ordered and received in February 2021. Regardless, the first full deployment of camera traps was on 11 March 2021, the camera deploying methodologies are similar to those used by Steffen Oppel as is laid out in his report: 'Habitat-specific effectiveness of feral cat control for the conservation of an endemic ground-nesting species' (Oppel et al 2014) based on his previous work on predator abundance on St. Helena, and he has contributed to how we are monitoring predators in this project. The data are currently being inputted by the Project team, which involves going through thousands of images, which is time consuming. The camera traps were also used by the project team to monitor Wirebird nests for signs of predation and predator activity.



Figure 5 Feral cat detected by camera trap at Middle Point (near Deadwood) an important Wirebird site

Due to the only recent commencement of camera monitoring, there is not enough data to estimate cat abundance, meaning that this activity has slipped slightly from the original timeframe in the implementation plan. This can be scheduled to occur concurrently to other project outputs in the beginning of year 2.

Activity 1.7 relates to rat abundances and surveying. Tracking tunnels used to monitor and establish baseline density estimates for rat species have been deployed using methodology contributed to by the project steering group. So far, rat tunnels have been deployed at 3 key conservation sites as well as 2 agricultural sites (ref. Figure 6).

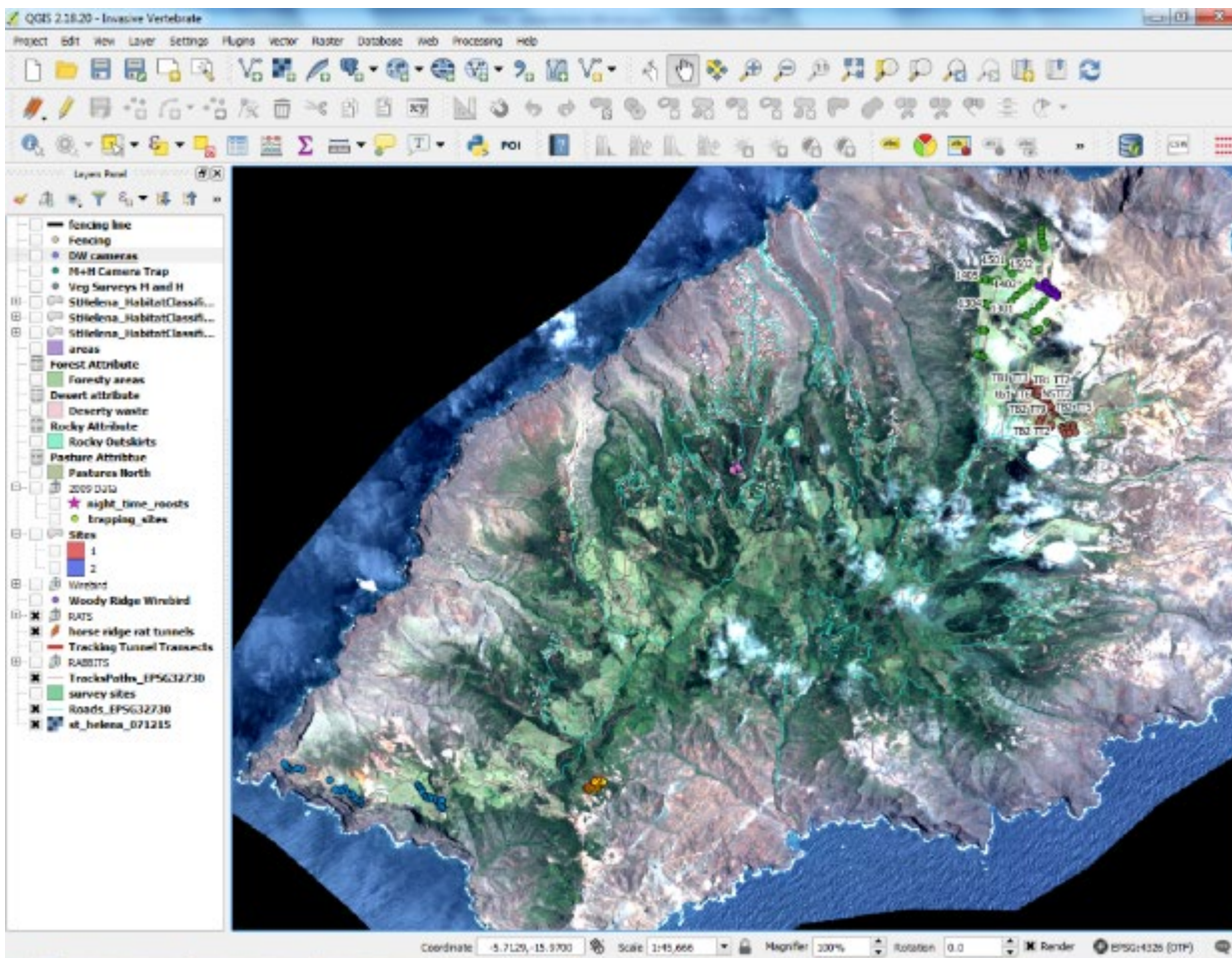
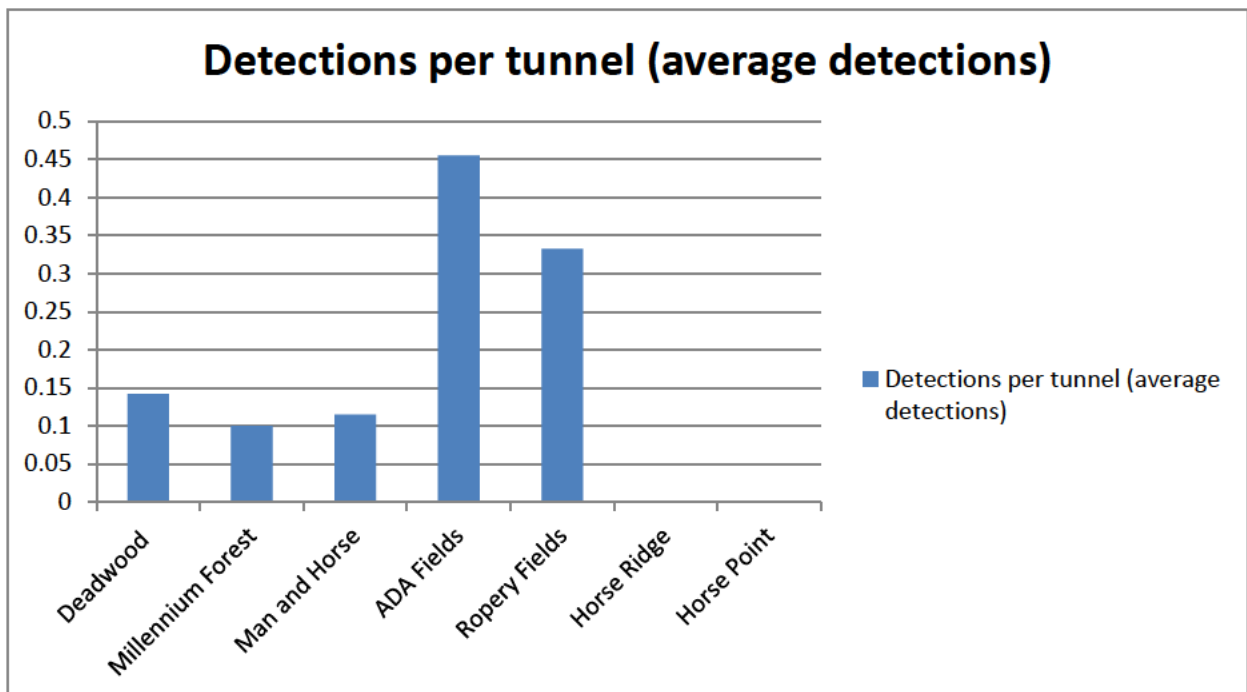


Figure 6: tracking tunnel locations

Two of the conservation sites (Man and Horse and Deadwood) also double as agricultural sites (pastureland). These data have been stored in excel spreadsheets (ref figure 7) on the National Trust Server. These data have yet to be analysed to find baseline densities for rat abundance. It was through conversation with Steffen Opiel that baseline population ‘densities’ for rats will not be easily attained, especially within the scope of this project, (while surveying for 4 other species within the course of less than a year), as that information requires more detailed, and time consuming work. Instead, it would be more appropriate to use a detection index, or “detections per tunnel” to compare post-control surveys (ref. Graph 1). This covers Activity 1.5.

Tunnel ID	Date	Tunnel Active	Tunnel link tracks	Other	Observer initials	Comments
			Rat	Mouse		
0021	18-Sep-20	1	0	0	AF RJ DL	
0022	18-Sep-20	1	0	0	AF RJ DL	
0026	18-Sep-20	1	0	1	AF RJ DL	
0024	18-Sep-20	1	0	1	AF RJ DL	
0025	18-Sep-20	1	0	0	AF RJ DL	
0026	18-Sep-20	1	0	0	AF RJ DL	
0027	18-Sep-20	1	0	0	AF RJ DL	
0028	18-Sep-20	1	0	1	AF RJ DL	
0029	18-Sep-20	1	0	0	AF RJ DL	
0030	18-Sep-20	1	0	0	AF RJ DL	
0031	18-Sep-20	1	0	0	Ant	AF RJ DL
0032	18-Sep-20	1	0	0	Ant	AF RJ DL
0035	18-Sep-20	1	0	0	Ant	AF RJ DL
0034	18-Sep-20	1	0	0	Ant	AF RJ DL
0035	18-Sep-20	1	0	0	Ant	AF RJ DL
0036	18-Sep-20	1	1	0	Ant	AF RJ DL
0037	18-Sep-20	1	1	0	Ant	AF RJ DL
0038	18-Sep-20	1	0	0	Ant	AF RJ DL
0039	18-Sep-20	1	0	0	Ant	AF RJ DL
0040	18-Sep-20	1	0	0	Ant	AF RJ DL
0041	18-Sep-20	1	0	0	Ant	AF RJ DL
0042	18-Sep-20	1	0	0	Ant	AF RJ DL
0043	18-Sep-20	1	0	0	Ant	AF RJ DL
0044	18-Sep-20	1	0	0	Ant	AF RJ DL
0045	18-Sep-20	1	0	0	Ant	AF RJ DL
0046	18-Sep-20	1	0	0	Ant	AF RJ DL
0047	18-Sep-20	1	0	0	Ant	AF RJ DL
0048	18-Sep-20	1	0	0	Ant	AF RJ DL

Figure 7: Tracking Tunnel data entry spreadsheet



Graph 1: Rat detections per tunnel in our various sites

Lastly, the project required vegetation surveys to establish a baseline for habitat health and type. Vegetation surveys were carried out in the 3 selected project conservation sites over the last year. The survey methodology was similar to methodology used by other departments of the Saint Helena National Trust. The data were digitised in spreadsheets on the National Trust Server

As for the fieldwork, much progress has been made. All equipment was received (activity 2.1), except for the free-standing cat and rabbit traps, which are due to arrive in May 2021, having been ordered in February 2021. Equipment received included:

- Camera traps and required accessories
- Camera and Accessories
- Laptops and Accessories
- GPS Handhelds and accessories
- Rabbit Drop Traps,
- Rabbit and Cat free Standing Traps
- Wire Mesh for Myna Bird Traps
- Fencing Materials

To date, the project team has built 12 specialist myna traps of two different designs (activity 2.1), the Australian Funnel Trap (ref figure 9), and the more standard drop-door trap (ref. Figure 10). A few experimental designs have been built and tested. We are waiting on the arrival of Susana, our project partner from INBIMA to test the best trap type for St. Helena. She has advised that drop-door traps may be the most successful. We plan on constructing more of these traps and distributing them to the volunteers we have enlisted for the project. We will also deliver trap building workshops to volunteers where they will learn to construct the traps themselves. The probation depart of the local police service have been engaged to have activities such as trap construction as an activity for people carrying out community service sentences.



Figure 8 valve on Australian funnel trap design



Figure 9 drop door trap design

Activities 4.2, the project has recruited over 30 volunteers to take part in our volunteer trapping program (ref. Figure 10). They are enthusiastic about the project and the benefits it will provide for the island. The next step is to familiarise them with the traps, train them in trap use and humane handling and dispatching of trapped species.

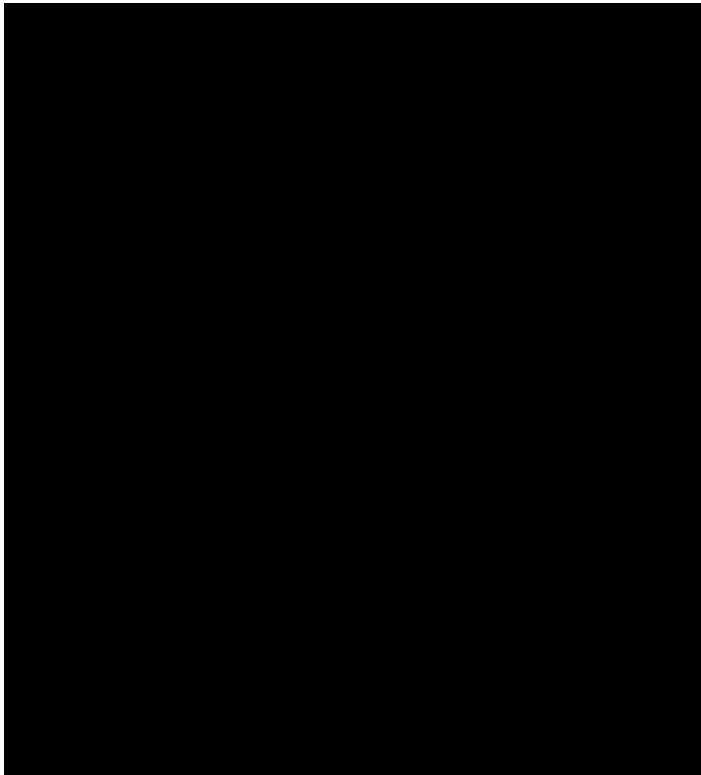


Figure 8: Volunteer sign up spreadsheet

Much progress on activities 5.1 and 5.3 has been made. Volunteers were recruited through 6 public awareness events, in the form of meetings at community centres around the island in the evenings. Attendance of the meetings was as follows:

Location	Attendees
Jamestown	1
Half Tree Hollow	1
Longwood	0
Kingshurst	0
Sandy Bay	9
TOTAL	11

Table 1: attendees to public awareness events

The project team has been engaging in regular social media posts on the National Trust Facebook pages: <https://www.facebook.com/SHnationaltrust> and <https://www.facebook.com/communityforests> some gaining a lot of viewership. Project Officer Dennis Leo, has partnered with St. Helena Tourism to produce a “virtual” Wirebird tour where he shows the habitat and behaviours of the St. Helena Plover. This can be viewed here: <https://www.youtube.com/watch?v=6Pa1JJkmbAQ>

As over April 1st, the team has taken all primary students on St Helena (356 children) on a Wirebird tour, showing the endemic bird on its nest. Below (Fig. 11) is a post by the Trust’s Education and Outreach Officer, Sheena Isaac.



Figure 9 Screenshot of social media post about the virtual Wirebird tour

Not only has every primary-school aged child been exposed to a Wirebird in the field, but every school child, total 581 students, on St. Helena has attended an assembly about invasive species in general, and this project in particular. This occurred during the week of the 8th of February 2021. In addition to the assemblies, the project team delivered a lesson to the secondary school “Eco-Schools” class (ref. Figure 12) where they surveyed the school grounds for rabbit evidence (pellets) and estimated the rabbit population present. The eco-schools class is an enrichment class which comprises of 12 students.



Figure 10 Project Manager delivering a lesson to the eco-schools class

The Vertebrate Project team is in contact with the teacher of the eco-schools class and hope in the future to deliver more lessons. After the assemblies were carried out, the students from all 4 schools (including Prince Andrew Secondary School) participated in a “Logo Competition” launched by the project, where they designed logos for the Project, the winning logo was designed by Dani Thomas of Prince Andrew Secondary School and 3 runners up were chosen. The project team also produced information including leaflets for the National

Trust's 20 year anniversary of the Millennium Forest as well as 2 interactive activities, which were highly popular – a bean-bag-toss game and a “splat the rat”.



Figure 11 Winning logo for the school logo competition

In September 2020 the National Trust presented at the St Helena Research Institute (SHRI) one-day Discovery 2 Discovery Conference on St Helena; highlighting research being performed on the island. There was a combined audience of about 80 people. Project manager, James Fantom delivered a presentation introducing the project, species and types of vertebrate control, and gave an overview of works planned for the project.



Figure 12 James delivering a presentation at the Discovery 2 Discovery conference with about 80 attendees

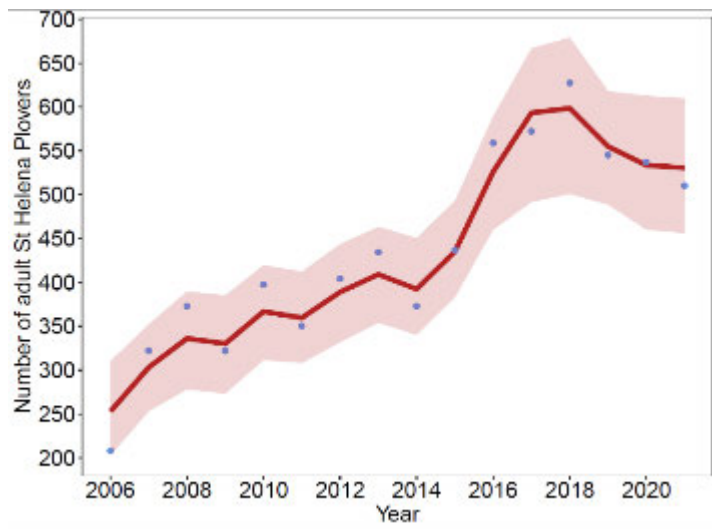
An area to be fenced using rabbit proof fencing to achieve activity 2.9 and drop traps for rabbits has been chosen at the Millennium Forest, and a contract has been signed with contractors to deliver works. The work will begin when fencing materials arrive on the site at beginning of April 2021. This site will be compared to a nearby site that is not fenced to help judge the efficacy of the fencing

The annual Wirebird census was undertaken in January 2021 by the project team led by the Project Officer, Denis Leo (ref. Figure 15) fulfilling activity 3.2. A total population of 595 birds were counted for this year a 3.7% decrease to the previous year.



Figure 13: Project Officer and Field Assistant undertaking Wirebird census counts

The census also included a volunteer from the public, who was therefore given exposure to the project and other National Trust staff for cross-training and exposure but also to provide extra help at larger sites. The data from the census were shared with Steffen Opiel who processed it (ref. graph). These data were then shared with the general public through press release in the local newspapers, as well as on the National Trust social media pages (ref. figure 16). During Wirebird breeding season, there has been a program of cat trapping and control in key Wirebird sites, where cat presence is known. Bradley's, which is geographically close to the Millennium Forest, has produced 5 cats caught to date.



Graph 2: Wirebird census counts trend from 2006 - 2021



Figure 14: Screenshot of Facebook post

3.2 Progress towards project Outputs

1. Improved ecological knowledge of key introduced vertebrate species to help inform control methods.

The baseline condition of this output is that there is some knowledge of vertebrate presence and abundance on the island. Vertebrate presence has been monitored in various sites over the past decade or so, but these data are reasonably outdated. There had never been a full island-wide Myna census, only rough estimations. By performing a Myna census, we have already improved the ecological knowledge of this species on island. The rabbit surveys also, have improved the knowledge of this species on the island, by illustrating that there was a clear increase in rabbit population since the first time this was carried out. There are a few possible reasons for this, stricter gun control laws in recent years and a cultural shift away from people

consuming rabbit meat. Rabbit used to be a popular menu item for many Saint Helenians, but its popularity has declined. This past year has also been an unusually wet one, providing more food for rabbits resulting in a higher population.

Rat population indices have been created for the various sites on which we have surveyed, refer to section 3.1 graph 2 above. Feral cats have been observed in new places on the island, as cat trapping has been ongoing during the Wirebird nesting season. More knowledge will be gained the more that we work with the various species over the next year as well.

The indicators towards this output are a map of Myna roosts produced (ref. Figure 2). The distribution and density of key species is being regularly monitored on key sites, using our various surveys. The Myna census was completed at the end of March 2021 with 3,908 birds. The rabbit distribution and abundance can be seen in section 3.1 figure 4 (ref. Evidence 13). Baseline estimates of rat densities can be seen in section 3.1 graph 2. Baseline estimate of cat abundance is ongoing at the moment, but will be completed for the 3 conservation sites by the end of April. All indicators are achievable.

2. Evidence of effective invasive vertebrate control methods for St Helena, with Best Practice for myna and rabbit control produced

There is some baseline knowledge on vertebrate management on the island. For example, there is a program of government-licensed shooters on the island, who are licensed to shoot rabbits in certain areas in certain times of the year. This was provided to them under the condition that they record data about what they shoot. However, this data has been hard to acquire from the shooters. Many landowners trap rabbits on their land, but records are not kept. The National Trust led a predator control programme funded by OTEP in 2012 which carried out tracking tunnel monitoring, camera traps, cat trapping, and rabbit trapping. So these data are always available as a further baseline from past years.

The bulk of the work contributing to this output is scheduled to be undertaken in years 2 and 3 of the project, as this is mainly related to trapping activities. Necessary preparations for this work have been undertaken. A license to allow the National Trust to kill Mynas has been obtained, and some traps have been built and tested for effectiveness. Six cats have been caught and euthanised during the Wirebird nesting season this year (November-May), contributing to our indicator “50 cats caught and destroyed by end of project”. The target of 50 cats per year for year 1 of the project has not been met. The cats so far were not the result of a very intense trapping program, using only 4 cat traps. When focus shifts to trapping in year 2 with the 25 cat traps that are on their way it is likely the project will meet this figure. Likewise, many people are interested in rabbit trapping. As long as volunteers stay committed. 300 rabbits will be caught by the end of project

We are in the process of installing some rabbit drop-traps in the Millennium Forest, to assess their efficiency. Unfortunately, our rabbit free standing traps are delayed until May. Regardless, both trap types will be tested by the end of 2022, as stated in the log frame. The best practice control guidelines will be achievable, and some have already been written by INBIMA. All of INBIMA’s training materials, lessons from testing traps, and training from the SHG Veterinary Officer will feed into the creation of these guidelines and will be achievable by the end of 2022.

Three thousand mynas destroyed by the end of project (indicator 2.3) is achievable assuming that INBIMA’s 6-month visit goes according to plan, and all volunteers remain committed not just at trapping, but at recording the trapping.

Regular rat baiting will occur by mid-2021. This will involve cooperation and communication with various land owners. We already have procured the rat poison, and are just waiting on our consignment of rat bait stations.

3. Increased understanding of interactions between targeted introduced vertebrates, and their combined impacts on native flora and fauna

Some knowledge of these vertebrates’ interactions with each other is available. There has been work done in the relating to vertebrate presence and abundance; particularly with feral cats and Wirebirds. Wirebird censuses in previous years have shown an increase in

Wirebird chick survival when employing feral cat control. The National Trust has long-known the interactions between rats, rabbits, and endemic flora, as it relates to the Millennium Forest project, and other projects that the organisation has managed.

The Wirebird population census, has been undertaken for 2021. The nests that were found were GPS marked, and the total numbers of nests were recorded as part of the census. Some nests were monitored using motion sensing cameras, in hope of catching any events of predation on camera and study Wirebird behaviour.

Project staff is well trained in the various survey methods implemented in this project, and future monitoring will benefit from their efficiency.

Indicator 3.1 is a monitoring protocol for our key sites by the April 2021. No monitoring protocol is currently exists, however, using monitoring methodologies for the targeted species a site monitoring protocol will be created.

Indicator 3.2 is annual vegetation surveys to monitor vegetation changes in control and comparable areas. We have done baseline vegetation surveys in project sites, 3 plots per site. We will put control measures in around 2 of these plots, and leave 1 plot open to monitor changes in control and non-control areas. One plot in the Millennium Forest is currently being enclosed by rabbit-proof fencing.

4. Improved local capacity for control of vertebrate predator and pest species

Local capacity for vertebrate predator control is present on the island, but mostly delivered by Saint Helena Government's Public Health section. For example, it is part of the government service to bait for rats around the island. There was once a program where the government made rat poison available to people. Feral cat control has been a common activity within the St. Helena National Trust since 2011/12. However, post the OTEP funded project only 1 staff member has remained responsible for this work. Three field staff (the current project staff) are now able to carry out this work.

The 4 local project staff members have increased knowledge of vertebrate control, particularly feral cat control. One staff member has 9 years of experience in feral cat control and has trained the other 3 project members over the last year. All four staff members have gained increased knowledge in trapping and controlling myna birds through our trap testing. They were able to observe myna bird behaviour and particularly their behaviour towards different baits, and trap settings.

All the indicators under this output will be achievable by the indicated dates, assuming that the control programme and other project activities go according to plan. The project team and community helpers will all be building traps, which will enable us achieve the 100 traps stipulated under indicator 4.4 for myna birds. We plan on delivering training to all 31 volunteers under indicator 4.3. Indicator 4.2 was achieved for the 4 project team members at the National Trust. These team members received on-site training by Project Leader in cat control and euthanasia. A volunteer named Patrick Henry also joined the team one day in April 2021, where he shared lessons with the team that he learned during INBIMA's 2009 visit to St. Helena. He gave them on-site training in myna trapping and myna euthanasia.

5. Greater public awareness of invasive vertebrate species and the need for proactiveness in tackling the challenge they pose.

The baseline condition of public awareness of the challenges and dangers of invasive vertebrates is somewhat hard to gauge. The local population have two simultaneous attitudes on invasive vertebrates. While many (particularly landowners and farmers) want to tackle the challenge of invasive vertebrates, it is not often in the forefront of people's minds that invasive species pose an ecological problem. At the outset of the project a small online survey was given, paired with around 20 in-person interviews to gauge public opinion on invasive vertebrates. The results were, that most people understood the terms "invasive species", and 16 of 20 people identified Mynas as a pest. Of these 20 people surveyed in person, 50% would be willing to catch Mynas on their land if given the resources to do so. These results were presented at the SHRI one-day conference.

However, there are still some members of the public that are not aware of the dangers of invasive vertebrates, as on 2 occasions a concerned member of the public wrote to

newspapers to voice their concerns about the project work. In response, the project staff went on local radio to talk about the need for control programs, and particularly focused the issue onto the topic of invasive competitiveness, and protection of the Wirebird (ref. Evidence 7). Project staff delivered 5 presentations around the island in different community centres, although there was a very poor turnout. Only 10 members of the public attended 1 of the meetings, the other four meetings had no attendees. A consultation meeting was organized in Jamestown where 1 public member attended, this meeting took place during the working day which is most likely the reason for a poor turn-out. The presentation delivered by project staff at the SHRI conference reached about 80 people (ref. Figure 14), and was well received. Furthermore, the presentations made at the schools on the island about the project, the need for invasive vertebrate control, and vulnerability of the Wirebird reached 581 children. Project staff also delivered tours to 365 primary school students (Ref. Figure 17), meaning each primary student got to see a Wirebird, and its nest. During the school assemblies that were delivered, the project team was surprised at how much information the students already knew about the Wirebird and its threats, due to tours and outreach they were given in the past.



Figure 15: Project Officer hosting Wirebird tour to school children.

Social media posts have been made periodically regarding the Wirebird, rabbit survey numbers, and project activities receiving reasonable amount of traffic. A post was made on a popular bird watching Facebook Group “Bird the feck at home”, ([link: https://www.facebook.com/groups/birdthefeckathome/permalink/415630376377859](https://www.facebook.com/groups/birdthefeckathome/permalink/415630376377859)) receiving reasonable attention and raising the profile of Wirebird conservation and this project globally. We have 2 representative from RSPB on the project steering group and tag RSPB in on our Facebook posts, they have the potential to share Wirebird news to their 1+ million members.

Indicator 5.1 is achievable by the end of project, as it will be viable to target volunteers and receive feedback from the talks already given. Feedback forms have been drafted and are poised to be distributed. Indicator 5.2 requires a visit from INBIMA, which is scheduled for year 2. Indicator 5.3 is easily demonstrable, and achievable. The Field Officer has social media duties included in his job description, and will continue to post updates. With the recent addition

of an Education and Outreach Officer to the project, social media posts will be of higher quality. Indicator 5.4 is achievable but will be a year 3 activity.

3.3 Progress towards the project Outcome

Project Outcome: “The distribution, ecological interactions and appropriate control methods of invasive vertebrates on St Helena are better understood and supported by the public and future actions to sustain control are identified and agreed.”

In order to better understand the ecology and therefore better control these species, baselines need to be established. This year, the project team has worked to establish these baselines on our selected 6 project sites. This has resulted in baselines for rabbit abundance (island wide), vegetation types and condition (conservation areas only), rat abundance, cat abundance, myna abundance, and Wirebird population. These are the baselines against which the project will be able to compare post-control findings.

A good number (31) of volunteers have been recruited, and are keen to trap and do their best for the project. Year two of the project will be focused on mobilizing the volunteer force. It is predicted that many volunteers will “waver” from the project, leaving behind only the most dedicated ones. This is expected, and is a good thing, as it is easier to work with a few dedicated volunteers. Project Partner IMBIMA (Susanna Saavedra) will be instrumental in these efforts. As volunteering evolves and as the project receives more attention, it is hoped that people are going to emerge as post-project champions of vertebrate trapping. Susanna is currently producing a comprehensive training video that will be used to train these volunteers initially in the absence of a physical visit due to Covid-19.

The only indicator to date that requires revision is 1”5 Baseline estimate of black and brown rat densities in at least 3 key areas by end of 2020” where ‘density’ is not fit for this output, refer to section 3.1 of this report, and graph 1. Remainder of indicator have are adequate at this time.

The project will meet its outcome. The biggest part of the project will be mobilizing the volunteer group, as they will become the champions of vertebrate control on the island for mynas and rabbits especially. After our Myna bird census, there was discussion between the National Trust and project Partner INBIMA about the possibility of a large scale Myna eradication, and INBIMA believes that it is possible, but not within the timeframe of the project. The effectiveness and better understanding of the ecological interactions have been theorised and interpreted however these will be proven once trapping for all species has occurred.

3.4 Monitoring of assumptions

Assumption	Comments
Difference in control methods detected and quantifiable (appropriate methods using previous experience and expert guidance).	Controls will be employed in year 2 of the project, year 1 has been a preparation and baseline stage for the project. When controls commence, we will be able to better demonstrate the differences between different trap types and their effectiveness. We have previous experience in this from past predator control projects led by the National Trust, as well as the previous South Atlantic Invasive Species project.
Effectiveness of control methods that allow for detection of changes in vegetation and Wirebird success (controls based on methods shown to be effective elsewhere, vegetation surveying based on established	It is important that the control methods can actually show there is a change in vegetation and Wirebird numbers increasing refer to assumption 1 comments, where controls will begin in year 2. The vegetation area that has been fenced off should be able to demonstrate improved seedling regeneration, and

techniques, staff experienced in nest monitoring	general better health, as it is in a previously unprotected area.
Government and public attendance and feedback received (Government supportive of project and problems are also recognised by farmers/other members of the community).	At the chamber of commerce meeting that the project staff gave a presentation to, the farmers were generally in great support of the project (which you can imagine, as it will mean greater yields for them). Government and public support is still generally high. We have completed questionnaires which ... This risk is still relevant, as one of the greatest risks to the project is if it loses public support.
Public and media willingness to engage with the project (public awareness campaign will build on public knowledge from previous projects to reinforce)	The project team has completed 3 radio interviews and published 3 articles in the 2 local newspapers. In the beginning there was some contrasting views on vertebrate control (Ref. Evidence 10) which has been helpful to have the Senior veterinary Officer on board the project as he has advocated for importance of myna control on Saint FM radio station. From our questionnaires there are XX% of people whom are interested in the project and vertebrate controls. The project needs to remain committed to public relations and support, utilizing volunteer trappers as advocates within the public
Density of key vertebrates detectable (staff already have experience of tracking tunnels and camera traps and effective monitoring methods)	This has been somewhat of a concern as rat detection has been low, in general, with some sites returning no rats at all, and others only returning one or two. For the rest of the species the detection were in reasonable range. Tracking tunnel methodology will be revised and positions adjusted on sites based on these results.
All key myna areas can be accessed and mapped (roosts are easily detected at dusk/dawn and can be mapped using landmarks from a distance if required)	Myna roosts were found by using previous information and map produced in 2009 additional roosts (ref. Figure 3) were through public participation– informing. It is likely that not all myna roost are detected. Accessibility to myna areas have not cause a huge problem for the project however with knowledge gained as project progresses there will be areas that have accessibility issues due to the topography of St Helena i.e. deep valleys, cliffs etc. . These areas could possibly be counted through employing the use of a drone (hire) or by estimating based on the observed size of the roost and comparing to roosts with known populations.
Sufficient coverage of St Helena can be achieved (suitable locations and methods will be utilised for each species, based on prior experience, expert advice and reports)	Project key sites have been chosen input from the project steering group and our own prior experience. We have sufficient camera traps to cover large areas and maximise vertebrate detections. The sites are heavily focussed on the eastern side of the island (4 sites and 2 on western side) however this is justified by the larger Wirebird populations present and areas.
Landowners and managers are willing to co-operate (strong pre-existing landowner relationships and partnerships can be utilised)	We have been able to carry out work on public and private land without incident, prior to which we gained permission from landowners and informed them about what we are doing. There is a strong resistance to poisoning of animals on island especially in regards to rabbits, however the project is using live traps for 3 targeted species, only poison used will be for rat baiting. Do not foresee a problem with this as rat baiting is a common practise as long as we have appropriate measures in place that is outlined in our

	<p>rat survey methodology (Ref. Evidence 14) At the moment this has not been a problem, but I suspect as we go into the poisoning phase of the project (for rats) this could become an issue with landowners not wanting poison on their land. We will communicate with the public on control methods and how safety is being highly considered in this project</p>
<p>High community involvement for trapping and low interference (effective communication will build on previous campaigns and community needs).</p>	<p>No trapping has been undertaken during this first year of the project that involves volunteers. Community interest and support so far has been high and it is essential that it remains high throughout duration of project. Volunteers will be trained in trapping and humane disposal to prepare them for trapping in year 2 on arrival of myna specialist (INBMA)</p>
<p>Guidelines approved and adopted by on-island stakeholders including SHG (SHG and stakeholders will be involved in production; guidance will be clear and easy to follow).</p>	<p>The project will update and use the guidelines produced by the OTEP predator control project for rats, rabbits and cat. Project partners INBIMA and SHG will be actively inputting, advising and reviewing guideline materials moving forward. These will be produced before trapping begins in year 2 and important to note that in initial control stages, supervision will be high.</p>
<p>Traps effective (designs are known to work from previous experience or records, locations are selected using experience and expert advice to maximise effectiveness)</p>	<p>Rabbit cage traps have been effective from previous experience and has been used in previous project and at the Millennium Forest for many years. Rabbit drop traps are a newer and will be tested. Susana is confident that the myna trap design will be highly effective on St Helena and especially in favour of the drop door traps. Despite this we are producing the 2 trap types (ref. Figures 8 and 9) and will actively test it out on her arrival.</p>
<p>Number of cats trapped similar to approximate average yearly catch for previous predator control project (same methods utilised and built upon).</p>	<p>Since September the project has caught and destroyed 5 feral cats at Bradley's camp which was seen to have a noticeable population of feral cats and predation on the Wirebird. This utilised only 4 cat traps. On arrival of additional cat traps and increased effort the number of cats caught will dramatically increase.</p>
<p>300 rabbits represents 1% of 2008 population. We have been conservative to reflect traps being tested and methods honed.</p>	<p>According to our own survey, the new rabbit estimation has been placed at 45,000-52,000. Now, 300 rabbits only represent ~0.6% of the population. We have not yet begun any rabbit trapping due to transshipment to island, this will be carried out in year 2.</p>
<p>3000 myna represents substantial portion of estimated population (effective methods and expertise used).</p>	<p>According to our myna bird census, the estimated population of Mynas is ~4,000 – 5,000. 3,000 birds represent 75% of the total myna population. This is higher estimated population than originally thought. Susana (INBIMA) is confident that 300 myna birds is achievable for the project if carried out properly and avoid trap shyness.</p>
<p>Effectiveness and impacts detectable (robust monitoring building on previous experience and research data).</p>	<p>In order to monitor vertebrate species effectively and detect our impacts, it is vital that our baseline data is good, with enough detections to determine a change. Our detection rate for rat species has been low in some agricultural sites, perhaps due to adequate control measures already in place there. Methodologies (Ref. Evidence 12, 14 and 15) have been written for rabbit, cat and rat surveys that will</p>

	allow for the effective monitoring of these species, some of these require revising and updating. After this first year some are in need of revising/updating. This will be better assessed when trapping for all specie take place in year 2.
Low interference by general public (public awareness campaign will build on public knowledge from previous projects to reinforce).	Still an important assumption to keep in mind as our traps and equipment will be regularly deployed /stationed in the field. Crime is low here, but these items are still commodities that will be sought after especially in regards to rabbit traps which have been regularly stolen. This project empowers the public (volunteers) to undertake their own vertebrate controls using traps provided, therefore this will prevent traps from being stolen. Nevertheless traps will be marked, awareness and outreach events will inform people and lower the chances of theft/sabotage.
Access granted (strong pre-existing relationships will be utilised).	Deadwood pastures have experience water leaks potentially due to vehicles running over pipes. Although this cannot be attributed to being the responsibility of the Trust it could potentially affect access to some pastures. However there has been a good pre-existing relationship so should easily resolved. No other access obstacles encountered.
Interactions and impacts of multiple vertebrates detectable, data available (scientific literature available and will be utilised to inform monitoring).	Various forms of scientific literature has been provided by project partners and stakeholders and desk study undertaken by project. Better assessed after trapping commences in year 2.
Effectiveness detectable (expertise of project staff and external experts will be utilised)	Similar to some previous assumptions, it is important that our baseline data is good enough to monitor changes throughout the project, but some survey results have come back with low detection rates. Methodology will be revised/updated with project steering group. Effectiveness will be assessed in year 2 after commencement of trapping.
Suitable training identified (external expertise will be utilised, as well as existing staff with 'Train the trainer' training)	This is still a good assumption to keep in mind. Formal training has been identified by the senior veterinary officer of Saint Helena, as well as INBIMA. This is going to be undertaken in following weeks.
Public uptake and engagement is sufficient and can be maintained (will use pre-existing staff knowledge and working relationships, will encourage farmer and landowners known to have vertebrate problems)	Public engagement needs to be at the forefront of project year 2 activities in order to manage this assumption. A change request (Ref. Evidence 17) was submitted at the beginning of the project to include employing the Trust's Education and Outreach Officer to the project, who will help set-up citizen science programme, set-up and create education sessions with schools and assist on public awareness information and activities.
Public uptake (interest in need to control invasive vertebrates that are problematic on land/crops)	People have a general interest in invasive vertebrate species based on public interest and feedback from the first year of the project, public interest and uptake of project goals is likely to remain high.
Assume no strong opposition to discussing Bird Protection Ordinance (provide evidence-base and discuss best options), and it is still relevant	This has not been explored by the project to date, will be progressed with the arrival and continued input of Susana (INBIMA). Engagement by local politicians has been positive

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

This project has supported local government’s policies by contributing to the main goals of the islands 10 year plan. We have contributed to the goal of ‘Altogether greener’ by protecting endemic fauna and flora and our agricultural sector by tackling invasive species. This projects main focus is on controlling invasive vertebrate species in order to increase the endemic Wirebird population, improve native habitats and support agriculture. By tackling vertebrate species we are also helping to reduce the spreading of invasive plant species through spreading of seed etc. The project is working with farmers, who can join in our volunteer trapper programme and those within some of our selected sites (Horse ridge farm, Ex-ada fields and Ropery field) will eventually benefit from our controls once started. Under this goal investing in renewable energy with a view to becoming 100% self-sufficient is included and is contributed to by the project as some of our data collected from Deadwood doubles as ecological monitoring data for PASH Global pre-construction of wind turbines.

Another of the goals the project contributes to is ‘Altogether healthier’ as we are supporting local production of fresh fruit and vegetables through the inclusion of agricultural sites in our selected areas. The Project Manager had meetings with agriculture support, and the island agronomist which gave the project insight into challenges faced by farmers. Tracking tunnels have been deployed on a farm and data collected (ref. Figure 18 below).

Also to mention that we are providing training to local project staff, government staff and undertaking educational sessions with all schools on island there for address the ‘Altogether better’ goal of being committed to St Helenians being the leaders of the Island and we will equip them with the skills and experience to take up key posts.

The Government is a major stakeholder and project partner on this project so all lessons learnt, protocols etc. will be shared with them, supported and hopefully adopted by them. Below is a screenshot of rat survey results on one of the farms we surveyed.

Tunnel ID	Date	Tunnel Present	Tunnel ink tracks		Other	Observer initials	Comments
			RAT	MOUSE			
TB1TT1	28/01/2021	yes		x		KJ DL AF	
TB1TT2	28/01/2021	yes				KJ DL AF	
TB1TT3	28/01/2021	yes		x		KJ DL AF	
TB1TT4	28/01/2021	yes		x		KJ DL AF	
TB1TT5	28/01/2021	yes				KJ DL AF	
TB1TT6	28/01/2021	yes				KJ DL AF	
TB1TT7	28/01/2021	yes				KJ DL AF	
TB1TT8	28/01/2021	yes	x			KJ DL AF	
NSTT1	28/01/2021	yes		x		KJ DL AF	
NSTT2	28/01/2021	yes	x			KJ DL AF	
NSTT3	28/01/2021	yes	x			KJ DL AF	
TB2TT1	28/01/2021	yes	x			KJ DL AF	
TB2TT2	28/01/2021	yes	x			KJ DL AF	
TB2TT3	28/01/2021	yes	x			KJ DL AF	
TB2TT4	28/01/2021	yes				KJ DL AF	
TB2TT5	28/01/2021	yes				KJ DL AF	
TB2TT6	28/01/2021	yes	x			KJ DL AF	
TB2TT7	28/01/2021	yes	x			KJ DL AF	
TB2TT8	28/01/2021	yes		x		KJ DL AF	
TB2TT9	28/01/2021	yes	x			KJ DL AF	
TB2TT10	28/01/2021	yes		x		KJ DL AF	
TB2TT11	28/01/2021	yes	x			KJ DL AF	

Figure 16: Screenshot of rat survey results at a farm the project team surveyed.

This project contributes to the wider UKOT’s environmental and climate outcome through the Convention of Biological diversity Article 8(h) which is: “Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;”

through vertebrate control of targeted species and discussion around myna birds are leaning to the possibility of complete island eradication beyond the lifespan of the project. The project also contributed to Article 12(a) that states “Establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components and provide support for such education and training for the specific needs of developing countries”. The project has completed various outreach and awareness activities (ref. Figures 10, 11, 12, 14 and 17 and Table 1 in section 3.1) and in year 2, are planning to launch a citizen science programme, enlisting help and gathering knowledge of the local public.

All of the points above also contribute to the following Sustainable development goals: 2 Zero Hunger, 4 Quality Education, 5 Gender Equality, 8 Decent work and economic growth, 15 Life on land and 11 Sustainable cities and communities.

5. OPTIONAL: Consideration of gender equality issues

The agriculture and conservation sectors are dominated by men, here are a number of women in these roles within the Government and other organisations. At the National Trust we have an almost equal proportion of men to women (9 men and 8 women). Recruitment undertaken for available positions on this project (Project Manager and Field Assistant) was carried out following the Trusts recruitment procedures.

Volunteers that have been enlisted for the trapping programme there is a 1:3.4 ratio of women to men; it is hoped that when Susana (INBIMA) arrives on island she attract more volunteer trappers and be a beacon of female empowerment for vertebrate controls. The Trust has an Equal Opportunities Policy, so anyone will be provided with volunteer, and training opportunities irrespective of gender.

Susana (INBIMA) and Martina Peters (Project co-leader) are two women involved at a high level in this project and in year 2 Sheena Isaac (Education and Outreach Officer) will be joining the project team, creating a 1.3:1 ratio of men to women.

Our outreach activities have attempted to make accessibility and inclusion as effective as possible school children targeted by going into school, consultation held at community centres which have wheel chair access tec. Presentations have both audio and visual materials. (Ref. Evidence 16)

6. Monitoring and evaluation

Monitoring of this project is undertaken by the Project Leader, co-leader and Project manager, as well as the project steering group.

One to one meetings are scheduled to take place monthly between co-leader and project manager, more recently these have been taking place bi-weekly. These meetings go over project progress and check work against expected progress of the project. Steering group meetings started strong in beginning of the project but as project progressed these stopped happening, due to an increase in workload. These meetings will be resumed and a steering group meeting scheduled. All relevant documents are shared with the steering group beforehand.

Project manager continually checks project activities and progress against the project implementation plan, generating a monthly work plan. A risk register is kept to monitor project changes and potential threats to the project.

It became clear over the course of the year that one output was not progressing on schedule which was the inclusion of annual visits from Project Partner INBIMA, due to impact of Covid-19 on travel restrictions and activities. INBIMA and the Trust came to the conclusion that it would be more beneficial for INBIMA to undertake one-long 5/6 month visit in year 2 of the project instead of short visits spaced over the 3 years. This decision was based on the myna licence which would not come into effect until April 2021 and that a longer, more intense trapping effort would achieve the project outcome. A change request will be submitted to reflect this change. All outputs will be monitored and evaluated as originally proposed.

Output and activities can be demonstrated to contribute to the project outcome by annual census counts, surveys (rabbit, myna and vegetation) and accurate records of trapping

kept, all of this will be compared and conclusion drawn. Reports produced as part of this project will be made available on the National Trust website i.e. the rabbit report and publicised in the local newspapers i.e. annual Wirebird census counts (Ref. Evidence 9).

7. Lessons learnt

Generally, in consideration of many factors such as covid-19 and a delayed start to project, the first year of project activities went well. Good management was delivered and the project team worked well together. The management style (coaching, democratic style) is received well by project staff and inspired them to take the project into their own hands. The project staff carry a wealth of knowledge on the subjects of the projects that is important to draw upon in the future of the project. This can be built into the rest of the project by empowering staff in a similar way, in the future, including the volunteers for the project. It is very important that volunteers be made to feel simultaneously autonomous and looked after, while being led to do things the right way.

One change is that the project partners should sign their partnership agreements (Ref. Evidence 5) (if applicable) before the project commences. This year there was a problem due to a project partner being unhappy with the terms of their working partnership agreement, this led to extensive negotiations which took a considerable amount of time that could have been more efficiently spent working towards delivering the project outputs. It was difficult to negotiate in part as activities were already written into the project log frame and implementation plan that were reliant on this partner's cooperation.

The following is a recurring theme in UKOT projects, and maybe more so in projects on St. Helena, but it is imperative that projects on the island have all the materials ordered as soon as possible once starting the project. The Project Manager came into post in September, 3 months after the project officially started (June), thus materials were not ordered in Q1 as planned. This caused a general delay in the materials arriving (as it usually takes approximately 3 months for materials to arrive via sea) and thus the activities that relied on these materials were also delayed (particularly, cat presence surveying and other camera trap activities).

The project staff also attempted to reach out to the community through public consultations in various community centres around the island. This only had some success. The general public was either not willing to necessarily come out on their own time to show their interest in the project activities or a longer promotional or advertising period needed to gather interest. In the future, a more direct method of public engagement needs to be adopted such as physically taking traps and staff to social gatherings (i.e. cultural events such as St Helena's day, millennium Forest anniversary celebration etc.) And engaging with the public there, which may spark lively discussion.

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

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9. Other comments on progress not covered elsewhere

The design of the project has remained mostly the same expect for the changes to INBIMA responsibilities i.e. visits to the island. Methodologies for rat, cat and rabbit surveys were drawn up (ref. Evidence 12, 14 and 15) however on implementation these need to be updated.

A significant difficulty encountered on the project has been that of agreeing a partnership with INBIMA due to many factors but especially in relation to travel restrictions, other things to be negotiated were responsibilities and payment method (payment for travel accommodation etc.). Negotiations were entered into and an agreeable partnership agreement was drawn up that suited both parties (Ref. Evidence 1 and 5). A change request to reflect this will be submitted soon.

10. Sustainability and legacy

There has been 3 newspaper articles published (Ref. Evidence 8 and 9), 3 radio interviews (Ref. Evidence 7) and 6 public awareness events (ref. section 3.1 Figure 1 and Table 1) held to promote the work of the project on island. Increased interest has been shown by general public through the signing up of 31 volunteers to be volunteer trappers and by members of the general public either enquiring about or discussing the outputs of the project with various members of the team.

The National Trust is committed long-term to the conservation of the Wirebird, endemic and native habitats which includes invertebrate species. There are no significant changes to original proposal as gauging the opinion, educating and empowering the general public is a key activity to ensuring success of the project and it's sustainability beyond, by maintaining the volunteer trapper network and identifying a champion who will continue to push this forward. Invasive species will also be incorporated into the educational curriculum through lesson plans etc. and through outreach activities i.e. activity days, tours etc.

The annual Wirebird census counts will be published each year and following which we can also include updates on cat, rabbit and myna trapping numbers and/or census counts for relevant species. This will allow the public to recognise the increased benefits of removing invasive vertebrate species.

Economic and ecological sustainability overlaps in this project as the Trust as an environmental organisation is contracted to undertake ecological monitoring on sensitive sites as a requirement of planning permission and contribution to environmental impact assessments as well as advocating for and being contracted to carry out land management of invasive species for the benefit of pasturelands (grazing animals and Wirebird).

Other economic activities will include the provision of tours (Wirebird and Millennium Forest) which will on successful completion of project show the effects of invasive species removal.

Local project staff will be trained to undertake, and provide guidance on multispecies management in the long-term as well as volunteers will be trained in myna and rabbit control through which a champion/s will emerge for the trapping programme and thus will ensure sustainability beyond life of this project.

11. Darwin identity

The Darwin Initiative has been promoted by the project through the continued use of its continued use on our published articles (Evidence 8 and 9), awareness materials, pamphlets and presentations (Ref. Evidence 16) as well as being mentioned during our radio interviews (Ref. Evidence 7). Some of our Facebook posts have either mentioned and/or tagged the Darwin Initiative, this needs improving upon. Other social media channels i.e. twitter are planned to be looked into allowing a wider platform for sharing and linking posts.

St. Helena has luckily been the recipient of many past Darwin grants to different organisations (SHG, SHAPE, Connect and National Trust). Numerous grants have been awarded to the St Helena National Trust i.e. 20-005 Community Forests Project: Creating community forests to enhance biodiversity and provide educational activities among others etc.; so people are quite aware of the Darwin Initiative, however understanding is limited to those working in the respective organisations. In the future, more information about the Darwin Initiative will be injected into public outreach activities which will be enhanced through the new role of Education and Outreach Officer on the project.

12. Safeguarding

The St. Helena National Trust has a safeguarding policy easily accessible to all employees on the organization's server, as well as whistleblowing policies and codes of conduct. Safeguarding training was carried out by the Education and Outreach officer at the beginning of

the project (October 2021). When project partners or others join to work on the project with us, safeguarding policies will be shared with them.

As we work with young and vulnerable people all employees are vetted prior to employment. No issues related to safeguarding have occurred, and the National Trust has procedures and training in place on how to handle them.

13. Project expenditure

Table 1: Project expenditure during the reporting period (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				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				

Others (Please specify)	
TOTAL	

All of these changes have been agreed by Darwin through 2 change requests over the reporting period.

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

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
<p>Impact</p> <p>St Helena's key invasive vertebrates are controlled with community engagement, good native plant regeneration and colony expansion as well as increased abundance of Wirebirds, native invertebrates and increased agricultural productivity.</p>		<p>31 members of the community are engaged with the project and poised ready to begin controlling key vertebrate species. Baseline conditions of 6 sites around the island have been studied, including samples of vegetation health, and vertebrate presence, native, and invasive. The baseline for Wirebird population health has been taken. All of this data will be used to compare our trapping effectiveness against.</p>	
<p>Outcome</p> <p>The distribution, ecological interactions and appropriate control methods of invasive vertebrates on St Helena are better understood and supported by the public and future actions to sustain control are identified and agreed.</p>	<p>0.1 Control methods for five key species have been evaluated by 2022 and measurable reductions in target vertebrates against year 1 baselines and results disseminated by the end of the project</p> <p>0.2 Multispecies vertebrate control has had a positive effect on native and agricultural vegetation with 50% increase in target vegetation survival/seedlings from year 1 baseline, and Wirebird population has yearly 10% increase in nesting success in control areas from year 1 baseline, by end of the project</p> <p>0.3 By the end of 2022 at least four Trust and SHG staff and 20 members of the local community are well equipped and motivated for invasive vertebrate control through specialist training and trap provision</p>	<p>0.1 control is set for year 2 of the project. Baselines have been established.</p> <p>0.2 Work toward this indicator is set for years 2 and 3 of the project</p> <p>0.3 Currently there are 4 members of staff and 31 members of the community poised in the position to be trained on vertebrate control. The training videos will be produced by end of April, 2021. These staff and volunteers are well motivated.</p>	<p>0.1 Control program will begin in year 2. This involves constructing, providing and organising traps for volunteers and collecting data on trapping effectiveness.</p> <p>0.2 Next reporting period will see trapping and control programs begin. Annual monitoring will also commence with the key sites constantly monitored to assess effectiveness.</p> <p>0.3 Training needs to be undertaken through project partner INBIMA training videos. This training will also be given to members of public. Project staff will have to regularly provide refresher training to members of the public.</p>

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
	0.4 Priority control actions identified and feasibility study of large-scale eradication attempt completed by March 2023	0.4 This indicator is scheduled to be worked towards in year 3.	0.4 Before large-scale eradication can be thought of, results from the control program need to be acquired. However, in discussion with Susana (INBIMA), eradication of myna birds is thought to be promising.
Output 1. 1. Improved ecological knowledge of key introduced vertebrate species to help inform control methods	<p>1.1 Distribution and density of five key vertebrates regularly monitored by end 2021.</p> <p>1.2 Map of significant myna roosts (20+ individuals) by April 2021</p> <p>1.3 Myna population census undertaken by March 2021</p> <p>1.4 Rabbit distribution and abundance estimated by March 2021</p> <p>1.5 Baseline estimate of black and brown rat densities in at least 3 key areas by end of 2020</p> <p>1.6 Baseline estimate of cat abundance in at least 3 key areas by end 2020</p>	<p>1.1 Distribution and densities of mynas, rats, rabbits, and wirebirds have been established. We are still working on establishing the baseline condition for feral cats around the island using our camera trapping methods. The evidence for this is in section 3.2</p> <p>1.2 Map completed, but will be updated throughout the lifetime of the project as roosts become known (Ref. Figure 2)</p> <p>1.3 Myna census is completed, but report not finalised with steering group ref. Figure 3).</p> <p>1.4 Rabbit distribution and abundance has been found, and mapped, with a report completed. (Ref. Evidence 13 and Figure 4)</p> <p>1.5 baseline estimates of rat densities have been finalised (without a report) in 3 conservation sites and 3 agriculture sites (Ref. Figure 6 and 7 and Graph 1)</p> <p>1.6 Cat abundance has been measured in 1 conservation site, but returned little results, so methodology needs to be revisited and surveys retried (Ref. evidence 15).</p>	
Activity 1.1 Identify and survey myna roosts and undertake counts		Completed	A citizen science programme is being prepared in order to encourage and increase public participation for detection of myna roosts.
Activity 1.2, Map key myna locations		Completed	Map will be updates as new roosting sites become known.

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
1.3 Undertake population estimate of mynas on St Helena from roost counts		Completed, but not finalised with steering group	Finalise the census data, and write a report on findings.
1.4 Survey for rabbits, building on previous work		Rabbit surveys were completed using similar methodology as in 2008	None
1.5 Deploy tracking tunnels and camera traps at key locations for detecting rats, cats and rabbits		Tracking tunnels have been deployed in 6 main sites, plus a few extras. Camera traps have been deployed at 1 conservation site, and have been used to monitor Wirebird nests	Continue deploying camera traps in our 3 key conservation sites to establish a better registry of cat abundance.
1.6 Estimate rabbit distribution and density and monitor		Distribution has been estimated using various survey methods.	Monitoring needs to continue to increase accuracy of baseline data and also to see effectiveness of control methods.
1.7 Establish rat baseline densities in key sites		Tracking tunnels have been deployed to measure indexes of rat activity, however, to get a density from this data will require more work	Increase tunnel surveys to have enough data to measure densities. Discussed that 'density' is not a good measure as require a lot more work that is perhaps beyond the scope of this project will be discussed further with steering group.
1.8 Establish cat density estimate in key sites		Camera traps have been deployed, first site's data has been processed and cat's identified.	Further camera trapping needs to be completed, with a greater volume of cameras to detect more cat activity.
Output 2. Evidence of effective invasive vertebrate control methods for St Helena, with Best Practice for myna and rabbit control produced	<p>2.1 Two trap types tested for rabbit and myna trapping effectiveness in at least 3 conservation and 3 agricultural locations by end 2022</p> <p>2.2 Best practice control guidelines, including humane disposal, produced before 2022</p>	<p>2.1 Two trap types for mynas have been built (Ref. Figure 8 and 9), and their effectiveness will be tested in year 2. Two trap types for rabbits are available for testing also in year 2, although the free standing cages have been used previously by staff and have proven to be effective however a suitable bait is required especially in regards to seasonality.</p> <p>2.2 A trapping guideline was produced by INBIMA in 2020, regarding use of myna traps. Further materials will be produced by SHNT and INBIMA in 2021 and 2022</p>	

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
	<p>2.3 3000 myna trapped and humanely destroyed by the end of the project</p> <p>2.4 At least 300 rabbits and 50 cats caught and humanely destroyed per year by end of the project</p> <p>2.5 Regular baiting for black and brown rats in at least 3 key conservation areas by mid-2021.</p>	<p>2.3 SHNT was only licensed to trap and kill mynas from April 2021. This trapping scheme will largely take place in the 2021-2022</p> <p>2.4 5 cats were caught and destroyed in the last Wirebird nesting season. More cat traps and rabbit traps are on their way to the island. Rabbit traps will be available for distribution to volunteers.</p> <p>2.5 Rat poison received. Waiting on a shipment of bait boxes before setting out rat poison.</p>	
2.1 Order equipment		Equipment ordered and received except the cat and rabbit traps, which are on their way	none
2.2 Build specialist myna/rabbit traps		12 myna traps have been built, with 4 pre-existing ones.	<p>“Trap building workshops” to be undertaken with the public. Also have been talks about having persons required to complete community-service build traps to earn hours. All these actions to be finalised</p> <p>Arrange visit of Susana 9INBIMA) to deliver training.</p>
2.3 Identify and agree control sites with Steering group		Man and Horse, Deadwood Plain, and Millennium Forest are the agreed conservation sites. ADA fields, Ropery Fields, and Horse Ridge farm are the agreed agricultural sites.	Establish control and comparable areas of the agreed sites and further agricultural sites with problems with all 4 vertebrate species need to be identified for trappers
2.4 Agree trapping density, use and recording procedures within sites with Steering group, ensuring humane treatment		No progress as of yet.	Needs to be agreed in coming steering group meetings.
2.5 Produce guidance for trap use and humane disposal guidance		1 guiding leaflet was produced by INBIMA in 2020, but it needs to be finalised, along with guidance for usage of cat traps, rabbit traps, and rat	Training undertaken by SHG Senior Veterinary Officer to SHNT and SHG staff on humane disposal of rabbits and cats. Project staff will then train

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
		poison. INBIMA is currently producing a training video that the project will use to train volunteers in humane trapping and disposal of mynas	public in humane disposal of rabbits and mynas.
2.6 Visit by myna specialist and intense trapping in agreed sites		This is now planned for later in year 2 of the project, as Covid-19 has made travelling difficult this past year	Visit organised, training and intensive trapping in sites carried out.
2.7 Deploy myna, rabbit and cat traps in agreed sites		Cat traps were deployed in areas where cats were observed and Wirebird nests were present. 5 cats caught. The rest of the traps have yet to be deployed.	Cat, myna, and rabbit trap deployment by volunteers and staff in agreed sites around the island.
2.8 Install rat bait stations and regularly rebait, recording bait used/replenished		Not yet commenced	Rat baiting needs to be commenced.
2.9 Install rabbit fencing where necessary		A fencing contract has been awarded to a contractor, and fencing has begun surrounding an area in the Millennium Forest that vegetation surveys have been carried out on. Rabbit trapping will be used in conjunction with this fence to establish and monitor vegetation changes within the fence and compare them to vegetation outside the fence.	Fencing needs to be completed to specification by contractors and rabbit trapping commenced.
2.10 Maintain records of location, date and number of target vertebrates trapped and humanely destroyed		Cats that have been trapped have been recorded, photographed and euthanised.	Data collection methods need to be finalised for the rest of the species, and then volunteers need to be monitored by project staff to ensure accurate and regular recording of data. This data will be collated and stored at the National Trust.

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
2.11 Produce report on trap effectiveness		No progress	Will be completed as trapping scheme develops
2.12 Produce Best Practice guidelines for effective vertebrate control for St Helena		No progress	Will be completed as trapping scheme develops and tangible lessons are learned.
2.13 Feasibility study for large-scale eradication		No progress	Will be completed as trapping scheme develops
Output 3. Increased understanding of interactions between targeted introduced vertebrates, and their combined impacts on native flora and fauna	<p>3.1 Established monitoring protocol for target non-native vertebrates in at least 3 conservation and 3 agricultural areas by April 2021</p> <p>3.2 Annual vegetation surveys in control areas and comparable areas of no control</p> <p>3.3 Wirebird population census undertaken annually and at least 50% of detected nests monitored in at least 3 locations November-December each year</p> <p>3.4 Annual monitoring of vertebrate activity in areas of control and selected comparable areas of no control</p> <p>3.5 Analysis of changes in monitored variables, as well as desk-based research, to increase understanding of, and identify actions for multiple control efforts to maximise benefits by March 2023.</p>	<p>3.1 No monitoring protocol has been established, but all surveying methods have been finalized and staff have become adept at them, meaning monitoring should naturally fall into place when site-monitoring protocols are written.</p> <p>3.2 Vegetation surveys have been completed in 3 conservation areas. 1 survey site has been enclosed by rabbit proof fencing and differences in vegetation health will be monitored</p> <p>3.3 A Wirebird census was undertaken for 2020-2021, and nests monitored on an ad hoc basis. We had not yet received our camera traps for vertebrate presence monitoring, but when we did receive some, we used those to monitor Wirebird nests.</p> <p>3.4 Baseline vertebrate activity collected for all species except for Cats. This is currently being done with data currently being input for conservation site 2 out of 3.</p> <p>3.5 Too early in project for this indicator</p>	
Activities: 3.1 Establish site monitoring protocols		3.1 Site monitoring protocols have been established in April 2021	

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
3.2 Undertake annual Wirebird population census		Wirebird population census was undertaken in January 2021	
3.3 Monitor Wirebird nests for at least November and December each year		Some Wirebird nests were monitored, some were not. Wirebird nests were GPS marked, and would be checked visually whenever the site was revisited. Some particular Wirebird nests (those in close proximity to known cat activity) were monitored with Motion Cameras.	
3.4 Baseline site assessment before vertebrate controls undertaken, including presence and vegetation surveys, on control and comparable sites		Controls haven't been fully designed by the steering group yet, as part of it relies in INBIMA's arrival and the free standing traps and bait stations have not yet arrived on the Island, despite the first attempt at ordering them being in November 2020. Regardless, vertebrate and vegetation surveys have been carried out on the 3 conservation sites, and rat surveys on the 3 agricultural sites, so they will feed into the baselines before control is undertaken.	
3.5 Regular checks and analysis of tracking tunnels and camera trap recordings		These are ongoing throughout the project, and have been ongoing since the project began in the agreed project sites.	
3.6 Monitor vertebrate presence/abundance on control and comparable sites		We have measured vertebrate presence on control sites, when control programme is designed formally we will be able to target control and variable sites better, but we have a good baseline at the moment.	
3.7 Monitor vegetation changes annually on control and comparable sites		Vegetation surveys undertaken on various sites which will give us a good baseline to monitor change next year.	
3.8 Analyse differences in monitored variables		Too early to have noticed differences	
3.9 Undertake desk-study of research articles on invasive vertebrate interactions and impacts of multispecies management		Have researched multiple species and control programmes as well as survey techniques, with article recommendations from Project partners	
3.10 Report results of vertebrate control		Post control action	
3.11 Identify priority actions for multiple control efforts to maximise benefits		Post-control action	
4.1 Train Trust and SHG staff in control techniques			

<p>4. Improved local capacity for control of vertebrate predator and pest species</p>	<p>4.1 Effectiveness of techniques identified and shared with project partners by end of 2022</p> <p>4.2 At least four staff with increased skills and knowledge of vertebrate control (Trust and SHG) by December 2020</p> <p>4.3 20 community members attending at least two training events/workshops on trapping methods by end of Year 3</p> <p>4.4 100 myna and rabbit traps available to volunteers following training, to be distributed island wide, including trapping and humane disposal guidance by end 2021</p>	<p>4.1 Post-control activity</p> <p>4.2 4 staff have had on-site training in cat trapping, cat euthanasia, and myna trapping and euthanasia. Staff have undergone research into other methods of vertebrate trapping as well as other poisons for rats, and euthanasia methods for rabbits. Professional training by INBIMA has been organized, and training by Senior Veterinary Officer is also being organized</p> <p>4.3 community members have attended provisional meetings about the project in general. More meetings will coincide with INBIMA's visit to the island, and are set to go this year.</p> <p>4.4 13 traps have been built, as well as a number of trap components for assembly by the volunteers. Persons sentenced to community service will also help build traps as a way to fulfil community service hours.</p>
<p>4.1 Train Trust and SHG staff in control techniques</p>	<p>SHNT staff have had on-site training in cat trapping, cat euthanasia, and myna trapping and euthanasia. Staff have undergone research into other methods of vertebrate trapping as well as other poisons for rats, and euthanasia methods for rabbits. Professional training by INBIMA has been organised, and training by Senior Veterinary Officer is also being planned.</p>	
<p>4.2 Recruit trapping volunteers from community, including farmers, syndicate members and land owners/managers</p>	<p>31 trapping volunteer have been recruited from public meetings, and other channels. This includes landowners and farmers.</p>	
<p>4.3 Run community trapping information sessions and workshops</p>	<p>See section 3.1</p>	
<p>4.4 Train volunteer trappers</p>	<p>This activity is poised to be undertaken once the Trust receives training materials from INBIMA</p>	
<p>4.5 Ensure trap use and humane disposal guidance is provided and abided by all volunteer trappers</p>	<p>1 trap use document provided by INBIMA but more to follow this upcoming year.</p>	
<p>4.6 Provide traps to volunteers (following training)</p>	<p>Training hasn't yet been undertaken, so no traps provided yet</p>	

4.7 Share techniques and lessons with partners and wider stakeholders	This will be achieved through steering group, training sessions, information sessions, and public outreach, as well as formal management plans. These avenues have been set up, but nothing to share yet.
4.8 Participate in international conference or workshop	Not yet occurred due to Covid-19
5.1 Greater public awareness of invasive vertebrate species and the need for proactiveness in tackling the challenge they pose.	<p>5.1 50 people attending each of at least 3 awareness events by the end of the project and at least 50% demonstrating increased understanding of the need for control in last event compared to baseline of first event.</p> <p>5.2 Promotion by myna specialist during each visit to St Helena, targeting local media</p> <p>5.3 Posts on social media followed by at least 20 people and each post shared at least once.</p> <p>5.4 Advocate for changes to Bird Protection Ordinance</p> <p>5.1 Already achieved this if you include the national conference attended, Millennium Forest 20 year anniversary, school assemblies, lessons, and public information sessions, but these will continue to happen over the course of the project with the help of the education and outreach officer.</p> <p>5.2 While a trip was attempted twice, due to covid, and quarantine restrictions, as well in difficulties in negotiation, the first trip has now been conjoined with the second and third into one larger trip. INBIMA did present and was present via Zoom in one of the public information sessions.</p> <p>5.3 engaged in a number of social media posts, some with varying degrees of interaction.</p> <p>5.4 received myna bird killing license this year, but changes to the ordinance is a year 3 activity.</p>
Activities 5.1 Undertake public awareness events, including getting feedback.	See section 3.1
5.2 Promotion by myna specialist, including local media articles and appearances	See above section in this table
5.3 Undertake monthly social media posts	See above section in this table
5.4 Seek endorsement from relevant Legislative Council committee for legislation amendment to Bird Protection Ordinance	See above action in this table

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

N.B. if your application’s log frame 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
<p>Impact: St Helena’s key invasive vertebrates are controlled with community engagement, good native plant regeneration and colony expansion as well as increased abundance of Wirebirds, native invertebrates and increased agricultural productivity.</p>			
<p>Outcome: The distribution, ecological interactions and appropriate control methods of invasive vertebrates on St Helena are better understood and supported by the public and future actions to sustain control are identified and agreed</p>	<p>.1 Control methods for five key species have been evaluated by 2022 and measurable reductions in target vertebrates against year 1 baselines and results disseminated by the end of the project</p> <p>0.2 Multispecies vertebrate control has had a positive effect on native and agricultural vegetation with 50% increase in target vegetation survival/seedlings from year 1 baseline, and Wirebird population has yearly 10% increase in nesting success in control areas from year 1 baseline, by end of the project</p> <p>0.3 By the end of 2022 at least four Trust and SHG staff and 20 members of the local community are well equipped and motivated for invasive vertebrate control through specialist training and trap provision</p> <p>0.4 Priority control actions identified and feasibility study of large-scale eradication attempt completed by March 2023</p>	<p>0.1 Guidelines produced. Monitoring and trap data, analysis of results, reports, news articles, presentation/publicity of vertebrate data.</p> <p>0.2 Monitoring data, report on management of target invasive species. Articles drafted for publication</p> <p>0.3 Training attendance records, certificates of attendance, records of traps distributed, control records, pre and post surveys with participants of training days.</p> <p>0.4 Action plan produced. Feasibility report produced and shared.</p>	<p>Difference in control methods detected and quantifiable (appropriate methods using previous experience and expert guidance).</p> <p>Effectiveness of control methods that allow for detection of changes in vegetation and Wirebird success (controls based on methods shown to be effective elsewhere, vegetation surveying based on established techniques, staff experienced in nest monitoring).</p> <p>Government and public attendance and feedback received (Government supportive of project and problems are also recognised by farmers/other members of the community).</p> <p>Public and media willingness to engage with the project (public awareness campaign will build on public knowledge from previous projects to reinforce)</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Output 1</p> <p>1. Improved ecological knowledge of key introduced vertebrate species to help inform control methods</p>	<p>1.1 Distribution and density of five key vertebrates regularly monitored by end 2021.</p> <p>1.2 Map of significant myna roosts (20+ individuals) by April 2021</p> <p>1.3 Myna population census undertaken by March 2021</p> <p>1.4 Rabbit distribution and abundance estimated by March 2021</p> <p>1.5 Baseline estimate of black and brown rat densities in at least 3 key areas by end of 2020</p> <p>1.6 Baseline estimate of cat abundance in at least 3 key areas by end 2020</p>	<p>1.1 Monitoring data, report</p> <p>1.2 Map produced</p> <p>1.3 Census data</p> <p>1.4 Survey data</p> <p>1.5 Records of monitoring, including tracking tunnels and camera trap data.</p> <p>1.6 Camera trap records, survey records</p>	<p>Density of key vertebrates detectable (staff already have experience of tracking tunnels and camera traps and effective monitoring methods)</p> <p>All key myna areas can be accessed and mapped (roosts are easily detected at dusk/dawn and can be mapped using landmarks from a distance if required)</p> <p>Sufficient coverage of St Helena can be achieved (suitable locations and methods will be utilised for each species, based on prior experience, expert advice and reports)</p> <p>Landowners and managers are willing to cooperate (strong pre-existing landowner relationships and partnerships can be utilised)</p>
<p>Output 2</p> <p>2. Evidence of effective invasive vertebrate control methods for St Helena, with Best Practice for myna and rabbit control produced</p>	<p>2.1 Two trap types tested for rabbit and myna trapping effectiveness in at least 3 conservation and 3 agricultural locations by end 2022</p> <p>2.2 Best practice control guidelines, including humane disposal, produced before 2022</p> <p>2.3 3000 myna trapped and humanely destroyed by the end of the project</p> <p>2.4 At least 300 rabbits and 50 cats caught and humanely destroyed per year by end of the project</p> <p>2.5 Regular baiting for black and brown rats in at least 3 key conservation areas by mid-2021.</p>	<p>2.1 Traps constructed/purchased, trapping locations and records.</p> <p>2.2 Control documentation available.</p> <p>2.3 Trap records, data analysis, report produced.</p> <p>2.4 Trap records</p> <p>2.5 Bait location and rebaiting records</p>	<p>High community involvement for trapping and low interference (effective communication will build on previous campaigns and community needs).</p> <p>Guidelines approved and adopted by on-island stakeholders including SHG (SHG and stakeholders will be involved in production, guidance will be clear and easy to follow).</p> <p>Traps effective (designs are known to work from previous experience or records, locations are selected using experience and expert advice to maximise effectiveness)</p> <p>Number of cats trapped similar to approximate average yearly catch for</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
			previous predator control project (same methods utilised and built upon). 300 rabbits represents 1% of 2008 population. We have been conservative to reflect traps being tested and methods honed.
Output 3 3. Increased understanding of interactions between targeted introduced vertebrates, and their combined impacts on native flora and fauna	3.1 Established monitoring protocol for target non-native vertebrates in at least 3 conservation and 3 agricultural areas by April 2021 3.2 Annual vegetation surveys in control areas and comparable areas of no control 3.3 Wirebird population census undertaken annually and at least 50% of detected nests monitored in at least 3 locations November-December each year 3.4 Annual monitoring of vertebrate activity in areas of control and selected comparable areas of no control 3.5 Analysis of changes in monitored variables, as well as desk-based research, to increase understanding of, and identify actions for multiple control efforts to maximise benefits by March 2023.	3.1 Monitoring protocols documented, record and map of locations. 3.2 Vegetation survey records, analysis. 3.3 Census records, nest records and camera trap evidence. 3.4 Camera trap, tracking tunnel evidence, record database, analysis 3.5 Data analysis, literature review, report, recommendations and actions, Action plan	Effectiveness and impacts detectable (robust monitoring building on previous experience and research data). Low interference by general public (public awareness campaign will build on public knowledge from previous projects to reinforce). Access granted (strong pre-existing relationships will be utilised). Interactions and impacts of multiple vertebrates detectable, data available (scientific literature available and will be utilised to inform monitoring).
Output 4 4. Improved local capacity for control of vertebrate predator and pest species	4.1 Effectiveness of techniques identified and shared with project partners by end of 2022 4.2 At least four staff with increased skills and knowledge of vertebrate control (Trust and SHG) by December 2020	4.1 Analysis of impact/effectiveness of different techniques, communications with project partners 4.2 Feedback from training and certification, work programme 4.3 Attendance records, certificates, feedback from workshops	Effectiveness detectable (expertise of project staff and external experts will be utilised) Suitable training identified (external expertise will be utilised, as well as existing staff with 'Train the trainer' training)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	4.3 20 community members attending at least two training events/workshops on trapping methods by end of Year 3 4.4 100 myna and rabbit traps available to volunteers following training, to be distributed island wide, including trapping and humane disposal guidance by end 2021	4.4 Number of volunteers, trap distribution records, trap records from participants, Guidance documentation, and analysis of records.	Public uptake and engagement is sufficient and can be maintained (will use pre-existing staff knowledge and working relationships, will encourage farmer and landowners known to have vertebrate problems)
Output 5 5: Greater public awareness of invasive vertebrate species and the need for proactiveness in tackling the challenge they pose	5.1 50 people attending each of at least 3 awareness events by the end of the project and at least 50% demonstrating increased understanding of the need for control in last event compared to baseline of first event. 5.2 Promotion by myna specialist during each visit to St Helena, targeting local media 5.3 Posts on social media followed by at least 20 people and each post shared at least once. 5.4 Advocate for changes to Bird Protection Ordinance	5.1 Feedback from event participants, record of numbers attending. 5.2 Newspaper articles and radio show appearances 5.3 Social media posts and social media analytics data. 5.4 Notes on discussions for amendments to Bird Protection Ordinance with relevant Legislative Council committee/ENRC	Public uptake (interest in need to control invasive vertebrates that are problematic on land/crops) We assume this holds true as the project will focus on raising awareness on how invasive species impact on their daily lives. We have been conservative in our expectation on numbers attending to reflect the challenge of engaging people in this subject. Assume no strong opposition to discussing Bird Protection Ordinance (provide evidence-base and discuss best options), and it is still relevant
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) 1.1 Identify and survey myna roosts and undertake counts 1.2 Map key myna locations 1.3 Undertake population estimate of mynas on St Helena from roost counts 1.4 Survey for rabbits, building on previous work 1.5 Deploy tracking tunnels and camera traps at key locations for detecting rats, cats and rabbits 1.6 Estimate rabbit distribution and density and monitor 1.7 Establish rat baseline densities in key sites 1.8 Establish cat density estimate in key sites)			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<ul style="list-style-type: none"> 2.1 Order equipment 2.2 Build specialist myna/rabbit traps 2.3 Identify and agree control sites with Steering group 2.4 Agree trapping density, use and recording procedures within sites with Steering group, ensuring humane treatment 2.5 Produce guidance for trap use and humane disposal guidance 2.6 Visit by myna specialist and intense trapping in agreed sites 2.7 Deploy myna, rabbit and cat traps in agreed sites 2.8 Install rat bait stations and regularly rebait, recording bait used/replenished 2.9 Install rabbit fencing where necessary 2.10 Maintain records of location, date and number of target vertebrates trapped and humanely destroyed 2.11 Produce report on trap effectiveness 2.12 Produce Best Practice guidelines for effective vertebrate control for St Helena 2.13 Feasibility study for large-scale eradication 			
<ul style="list-style-type: none"> 3.1 Establish site monitoring protocols 3.2 Undertake annual Wirebird population census 3.3 Monitor Wirebird nests for at least November and December each year 3.4 Baseline site assessment before vertebrate controls undertaken, including presence and vegetation surveys, on control and comparable sites 3.5 Regular checks and analysis of tracking tunnels and camera trap recordings 3.6 Monitor vertebrate presence/abundance on control and comparable sites 3.7 Monitor vegetation changes annually on control and comparable sites 3.8 Analyse differences in monitored variables 3.9 Undertake desk-study of research articles on invasive vertebrate interactions and impacts of multispecies management 3.10 Report results of vertebrate control 3.11 Identify priority actions for multiple control efforts to maximise benefits 			
<ul style="list-style-type: none"> 4.2 Train Trust and SHG staff in control techniques 4.3 Recruit trapping volunteers from community, including farmers, syndicate members and land owners/managers 4.4 Run community trapping information sessions and workshops 4.5 Train volunteer trappers 4.6 Ensure trap use and humane disposal guidance is provided and abided by all volunteer trappers 4.7 Provide traps to volunteers (following training) 4.8 Share techniques and lessons with partners and wider stakeholders 4.9 Participate in international conference or workshop 			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>5.1 Undertake public awareness events, including getting feedback.</p> <p>5.2 Promotion by myna specialist, including local media articles and appearances</p> <p>5.3 Undertake monthly social media posts</p> <p>Seek endorsement from relevant Legislative Council committee for legislation amendment to Bird Protection Ordinance</p>			

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.	✓
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.	✓
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.	✓
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.	✓
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	