

Darwin Plus: Final Report

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

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

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

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

Darwin Plus Project Information

Project reference	DPLUS105
Project title	Building capacity to make Montserrat a mountain chicken refuge
Territory(ies)	Montserrat
Lead Partner	Durrell Wildlife Conservation Trust
Project partner(s)	Montserrat National Trust, Montserrat Department of Environment, Montserrat Ministry of Education, Youth Affairs and Sports, WildDominique, ZSL, Norden's Ark, Chester Zoo & Bristol Zoo
Darwin Plus Grant value	£265,923.00
Start/end date of project	July 2020 / March 2023
Project Leader name	Mike Hudson
Project website/Twitter/blog etc.	www.mountainchicken.org https://www.facebook.com/ReWildCaribbean/ https://twitter.com/rewildcaribbean/ https://www.instagram.com/mountainchickenrecovery/
Report author(s) and date	Dr Mike Hudson and Mr Luke Brannon. Reviewed by Mr Stephen Mendes (DoE) and Ms Delmaude Ryan (MNT).

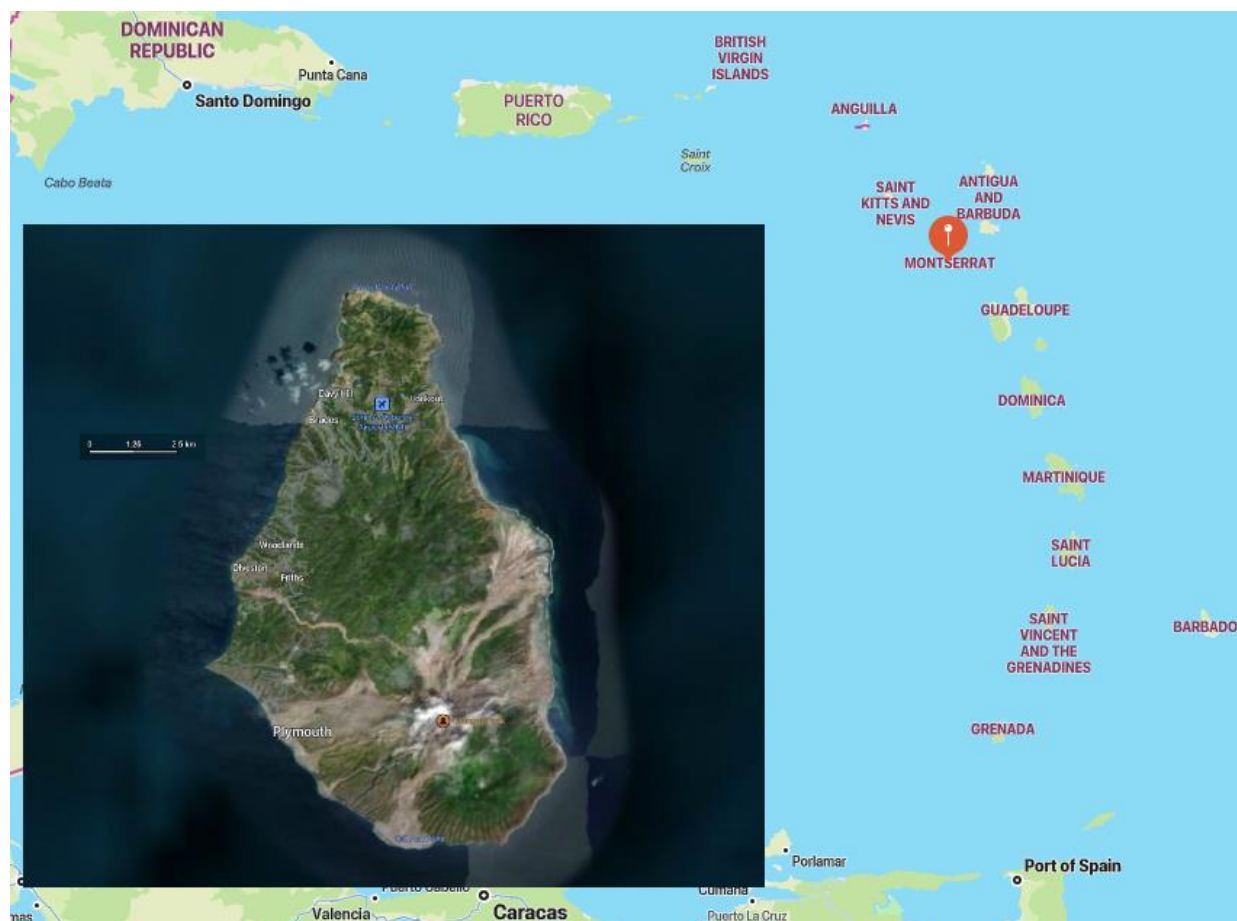
1 Project Summary

The project is located on the island of Montserrat, a United Kingdom Overseas Territory of the Lesser Antilles, within the Caribbean.

This project aims to re-establish a semi-wild, breeding population of mountain chickens on Montserrat and enable long-term protection of the species, this project combines ground-breaking habitat manipulation initiatives with in-country conservation capacity building and public/schools engagement activities. Knowledge of the efficacy of habitat manipulation in mitigating chytridiomycosis will be improved and disseminated to conservation practitioners globally. In the absence of native land mammals, the mountain chicken is the top terrestrial predator in Montserrat and its presence is vital to ecosystem functioning and crop-pest control. *Batrachochytrium dendrobatidis* (Bd) arrived in Dominica in 2002 and Montserrat in 2009, decimating both islands' mountain chicken populations. Bd persists in reservoir amphibian species on both islands rendering eradication impossible. Mechanisms are therefore required to enable the reintroduction of mountain chickens in the presence of Bd.

The Mountain Chicken Recovery Programme (MCRP) aims to recover a species from the brink of extinction and, in doing so, act as a globally important case study in the fight against a disease threatening amphibian survival globally. Once a familiar sound – a generation have grown up without hearing a mountain chicken calling. Local connection to, and sense of responsibility for the mountain chicken has decreased as a result. Public / schools outreach and capacity-building

components will contribute to the Government of Montserrat's 2020-2030 Youth Development Policy – focusing on employment and social development through provision of teaching/careers advice in priority areas including biology, veterinary medicine and environmental science. The project will also support a forthcoming national curriculum review (between 2020-2023), focusing on incorporating local environmental issues under four key areas: environment, sustainability, climate change and cultural identity. This project will enhance environmental and scientific understanding among all students, not only encouraging uptake of these subjects at the tertiary education level but also embedding sensitivity towards, and knowledge of, the local environment at all levels within the future workforce.



2 Project Partnerships

The project is a formal partnership with three on-island partners, as well as several international Zoos. The on-island partners work in an integrated fashion so that all work is delivered by Durrell, Department of Environment (DoE) and Montserrat National Trust (MNT) staff at all times, with outreach also in collaboration with the Ministry of Education, Youth Affairs and Sports. It can be assumed, therefore, that any progress in this report is the result of the collaborative efforts of all partners. Durrell's relationship with DoE is longstanding, and so this partnership has been borne out of collaborative working and understanding of each other's goals. MNT are a more recent joiner to the partnership but have objectives which are very closely aligned with that of Durrell and DoE, and so the partnership is of mutual benefit. All partners were involved in both the project planning and decision making. With the Department of Environment being a governmental body, the project status is disseminated to parliament on a quarterly basis, maintaining the visibility and progression of the project at all levels.

Over the project, the Montserrat National Trust recruited two interns on a full-time basis, with both interns being seconded to MCRP thanks to alterations in Darwin funding, allowing Miss Allison and Mr Sinclair, two to three days per week on the project (See Annex 1). During these days both interns were training and working alongside the team. This has given them both a well-rounded skillset that has aided in their retention, employing both individuals as project officers following the completion of the grant.

Working closely with both DoE and MNT in the maintenance and management of both the live food breeding facility and the mountain chicken safe-haven, partnerships have been excellent throughout. COVID curfews in Montserrat during January/February of 2021 saw both project officers Mr Weekes and Miss Ryan working flawlessly to ensure project feed schedules were maintained and husbandry upheld. Both DoE and MNT have aided in facilitating the passage of the MCRP during these curfews to which we were highly grateful.

Alongside the formal partnerships, informal relationships with local technical specialists, such as Calvin "Blacka" Fenton, have ensured that vital species centric work could be carried out. Durrell had previously nominated Mr. Fenton for Disney's Conservation Hero Award, which he won, a significant award recognising his efforts helping the MCRP, amongst other conservation initiatives on island, with a congratulatory ceremony being held at MNT in joint with DoE (Annex 2).

The project continues beyond the end of the DPLUS funding and so the partnerships will continue, within and beyond the scope of the current project. Durrell has had a presence in Montserrat for nearly 20 years and will continue to, into the future.

3 Project Achievements

3.1 Outputs

Output 1: Enhanced capacity exists within Montserrat DoE to implement effective conservation actions through newly recruited and highly trained Project Officers.

A training needs assessment has been carried out in Y3 by Dr Tim Wright, Durrell's Conservation Training Manager. Initially scheduled for Y1, covid-19 delayed the logistics of this so a digital primer was carried out, followed by an in-person assessment (1.1). A full report has been written identifying any skills gaps and training needs with recommendations and training providers identified (Annex 3). The recommendations of this report have been shared with the managers of each institution and training offers have already been made to address competency gaps. Some training has already been provided based on this report and a larger programme is now planned.

Two full time Project Officer(s) and two part-time Project Intern(s) (1.2) have received thorough training across a whole variety of conservation disciplines (Annex 1 & 5), including Durrell's Endangered Species Recovery course and completion of Durrell's Endangered Species Management post-graduate certificate, obtaining skills which make them more effective conservationists (Annex 4). We have delivered well trained staff for employment by project partners at project end, basing their training needs on the Conservation Practitioner Competency Register developed by Durrell / IUCN (1.3).

Both full time Project Officers can manage the running of primary outputs; insect facility; mountain chicken enclosures; data collection; outreach, with interns receiving training from these officers also (Annex 1 & 5). DoE has included and trained staff in forestry and wildlife skills across the three-year project including species specific surveying alongside the project collaborating with Exeter University's turtle project, training our officers in turtle surveying and nest management techniques. Other environmental training opportunities included JNCC linked soil and sediment surveys (Annex 5) (1.5).

Virtual inter-island exchange meetings with Dominica's Forestry, Wildlife and Parks Division and WildDominique occur monthly, allowing for knowledge sharing and strengthening of partnerships. Inter-island exchanges have taken place between Montserrat and Dominica, with two members of staff travelling to Dominica and vice versa, with two members from Dominica travelling to Montserrat to work alongside the team. A project officer also had the opportunity of an inter-island exchange with Durrell's St Lucia programme, all of which has strengthened capacity and partnerships whilst increasing motivation, value and skillsets of officers (1.6) (Annex 7).

Output 2: Mountain chicken population established and surviving in a semi-wild managed environment with signs of breeding and carrying capacity of enclosures is increased to 50.

The population of mountain chickens in Montserrat are doing excellently, with 16 animals of the 27 introduced in 2019 surviving to the end of the project (Annex 8). This is quite an impressive result and compares to a baseline state of no known wild animals since 2016, and all previously reintroduced animals believing to have been extirpated by chytridiomycosis. Outbreaks of chytridiomycosis were seen in Y1 and Y3 of the project. Y1 outbreak occurred during covid-19 lockdowns and prompted an immediate treatment response as human resources available to deal with the outbreak as originally planned, were not available due to the ban on international travel – this resulted in an emergency treatment protocol earlier than planned, to ensure the outbreak could be managed with the reduced resources available. An initial outbreak of Bd infection in Y3 disappeared naturally in July 2022, months later, a severe outbreak occurred in December 2023 to March 2023. Five mortalities occurred as a direct result of the disease though all others were successfully treated and cleared of disease and infection and returned to the enclosures (post-mortem reports available upon request) (2.3).

There had been no recorded breeding of the species on island since the near-extinction event in 2009. We have however seen plentiful breeding attempts over the project, with 116 nests recorded, eight of which were confirmed fertile with active tadpoles – these were the first mountain chicken nests known in Montserrat since the 2009 near-extinction of the species, a real success (2.4, see Annex 9). One of these nests was successful, with 42 froglets seen (2.4 Annex 9). Unfortunately, none appear to have survived to adulthood within the enclosure, though they may have left whilst small enough to escape. This was achieved much earlier in the project than expected. They may have been predated by both ground lizards (since removed), and green-backed herons which visited regularly during the period the metamorphs were present and are known to predate small animals (Annex 10). The unsuccessful nests are common across captivity, with a rough approximate of 8-9% fertility rate witnessed. Following this, we implemented a head starting protocol, whereby when froglets are next achieved, a set percentage, 50% or more, would be removed from the enclosures and raised in a secure offsite enclosure and once large enough to evade predation, roughly six months of age, they would be returned to the enclosures. We have not, therefore, achieved our aim of 50 animals in the enclosure, but have learned lessons which enable us to do so as the project continues.

At the start of the project, we had no data on the likely impact of environmental manipulation on the mitigation of the fungal disease chytridiomycosis in a field setting. Over the length of the Darwin project, we have collected 33 months of continuous monthly skin swab (infection status) data (1,000+ swabs – Indicator 2.2 - see Annex 8), with movement, health, and environmental data alongside it (2.1). Veterinary and husbandry advisors to the project have reviewed data monthly and have been happy with the progress, being key during outbreaks of chytridiomycosis.

Whilst further analyses of data collected on the interventions will be carried out beyond the lifetime of this project, we now know that the intervention is successful in mitigating chytridiomycosis in all but the most extreme weather conditions, when frog behaviour, and possibly immune responses, are altered too greatly – making them susceptible to Bd despite the opportunity to bathe in hot baths and use warmer areas. There is, however, hope that a modified version of this intervention – all water bodies heated – might mitigate the issue of frogs choosing not to use hot ponds in cold weather and so facilitate survival. This will be examined in the continuation of the project beyond this funding (See workshop report in Annex 11).

A second enclosure build has not been necessary as a significant outbreak of natural infection did not occur until Q4 of Y3 suppressing frog numbers (2.5, 2.6). Though a new enclosure based on this project, but in Dominica is under consideration pending the results of our 5-year management plan workshop (See workshop report in Annex 11). We have also agreed to a modification of our original intervention (all ponds heated) which will be trialled in the original enclosure in the 12 months following the completion of this project. The data collected during this

period will be analysed following the completion of this grant disseminated through a peer reviewed paper and presented at a conservation conference which will be stronger than if published at the present time and so more impactful. The data have, however, been presented at internal conferences (2.7, 2.8).

Output 3: 5-year conservation management plan for mountain chickens in Montserrat is created based on the results of the trials in the semi-wild enclosure.

Progress and results from data collection on the efficacy of the enclosure and interventions were presented and discussed. It was decided that this project will continued for another year with the modified pond heating schedule described in the progress report around Output 2 (3.1). A recent discovery of an allele in Dominican mountain chickens suggests this may be the key to understanding Bd resistance in Dominica, whilst it appears the Montserrat lineage lack this. Further research is required on Dominica with this being a key output of the workshop, identifying that population surveys and DNA sampling of Dominica's mountain chickens are the partnerships key priority, being scheduled for July/August 2023. Draft management plan has been agreed upon by all partners (3.2, Workshop report in Annex 11).

Whilst there will be no expansion of the enclosure in Montserrat (3.3, 3.4) until we complete our additional 12 months on the project (using now secured additional funding), in the management planning workshop, the partners decided to investigate the possibility of constructing an enclosure in Dominica to breed potentially genetically Bd-infection tolerant animals from which a new generation of animals could be bred and released in the wild across both Dominica and Montserrat (See workshop report in Annex 11).

Output 4: Increased public engagement with nature in Montserrat using the mountain chicken as an ambassador through outreach events and schools engagement.

At the start of the project, there was relatively limited knowledge of the mountain chicken in Montserrat's school children who had grown up with this species missing from the night-time soundscape. Older generations remember the species, which was hunted as a food source. We did not have a baseline for nature connectedness levels of Montserrat which we now have (NCI report in Annex 12). This is made interesting by the main measures of nature connectedness e.g. the Nature Connection Index, being relatively European-centric and having not being trialled in other cultures. We are pioneering this research in both Montserrat and other Durrell sites.

Baseline nature connectedness surveys were conducted throughout all primary schools on island, using Nature Connection Index (Richardson et al. 2019) as laid out in our proposal. This was undertaken in 200 students as a baseline before our outreach began and again afterwards to determine whether our outreach had modified student's nature connectedness and so likelihood of exhibiting pro-environmental behaviour. No significant difference in nature connection levels was detected after our outreach, though due to COVID, these were limited to only two sessions per school in the project and so unlikely to have a measurable impact - see report in Annex 12 for full results. This is a first of its kind in the Caribbean and has provided a baseline to measure the performance of our outreach beyond the end of this project with our outreach plan still active. Surveys of the general public were carried out both prior and following the role out of signage on trails to determine whether they had an impact on the nature connectedness of trail users vs. non-trail users. Due to covid, we had to move these surveys online and were unable to track users for follow up and so provide a matched sample which would have increased our ability to robustly detect a difference. The post-trail deployment sample did show a significantly larger NCI score, but it is not possible to confidently say this is due to the trail signs. For both interventions (schools and trails), we had intended to use a measure of short-term changes in pro-environment feeling such as the ENACT framework, but these were not calibrated and shown to be effective in time for our project.

Delivery of planned outreach activities as lay out in agreement with local partners in Y1 was initially restricted due to covid-19 and continued to present problems through Y2. Activities began to be deployed and targets hit during Y2 onward (4.1). Activities have been carried out across Y2/Y3 with outreach sessions through schools, activities during school holidays, at Easter, on

World Childrens Day, through summer schools, MNT's Monty's Messengers children's club, reaching more than 75% of students on island (Annex 8) (4.2).

We successfully facilitated month-long internships for two students during each year of the project in collaboration with MoEYAS (Annex 8). Interns were involved in the project's daily activities, learning a range of conservation and environmental skillsets and more importantly inspiring the next generation on island (See Annex 1 and photos of intern training in Annex 5). These individuals left with a broadened outlook on Montserrat's environment and species (4.3).

Mountain Chicken Day hikes were delivered in collaboration with DoE each September across various trails. Participants took part in a treasure hunt to find painted mountain chicken statues with audio calls being played as they approached each frog. Participation grew year on year from 16 attendees through to 50 in Y3. Environmental gift raffles were also drawn (Annex 8 Oct 22, Sep 22, Sep 21). All of which were advertised and broadcast via our social media channels. Details of the hike were featured on ZJB/MALHE Vibes. Project staff featured on the morning ZJB radio show on Mountain Chicken Day, engaging the island on the history and importance of the species and local song about the mountain chicken played (4.4). During this peak radio show, audience numbers can hit 5000, assuming half of this are on island listeners, 2500, 50% of the population will have been reached.

Project staff have been interviewed by ZJB multiple times during each year of the project (4.5) (Annex 8). Average audience of these interviews is thought to be 5000 for a peak show, with an additional 2000-5000 when including website replays accessed by diaspora and non-residents on Montserrat Echo. In addition, project staff have featured on 664 connect – a leading local website, with a large viewership of especially younger people in Montserrat, one of our key targets for outreach activities.

Project staff have posted regular social media content including photos, videos, blogs and competitions. Unique yearly engagements rose year on year to 14,000+ in our final year whilst our yearly reach hit 78,000+, with our followers steadily increasing to 2,099 across our three media channels (4.6). (Annexes 8).

Our nature connectedness signage has been deployed across seven trails (4.7 - images on trail and additional proofs attached as evidence in Annex 13), four of which were fully funded under this grant, whilst the Montserrat Tourism department funded a further three trails. A great success and one that has made the trails on island further immersive. Mountain chickens cast from concrete and painted by both the team and local artists/students have been placed along the one of these trails to accompany signage and promote interaction (Annex 14). We held a handover ceremony with the art students at Montserrat Secondary School who assisted with the painting stone MC statues (Annex 14). Feedback has been extremely positive from hikers and our nature connection surveys showed a significantly greater NCI score in the respondents post-trail signage, though we cannot confidently link this to the signs, as we had to use an online survey system which did not facilitate follow-up of initial respondents. In the 12-months following this project, we have secured continuation funding and will carry out an in-person before and after study using an indicator more sensitive to short-term changes in nature connectedness. We will notify Darwin Plus once this has been completed (See Annex 12 for details).

The project engaged with the Ministry of Education, Youth and Social Affairs who at the time were in the process of finalising a draft Sustainable Education curriculum. MCRP had planned to aid in providing feedback and contribution to both their sustainable environment curriculum and quality assurance process (4.8). The process by which the curriculum was designed changed due to a change in staffing at the Ministry, alongside a change in the objectives of this curriculum review and so we were unable to engage in this process.

3.2 Outcome

Project Outcome: Montserratian conservation capacity is developed enabling the delivery of a 5-year conservation plan for mountain chickens using intensive management strategies and supported by an increased local connectedness with the species.

0.1 Two Mountain Chicken Project Officers are appointed and trained during the project are awarded full-time employment contracts by DoE at the end of the project enabling DoE to deliver mountain chicken conservation efforts independently.

Mr Weeks was seconded to our project for a two-year period and has now returned to DoE on a full-time contract alongside a new promotion within the department. This is due in no small part to the extensive training including Durrell's ESR and DESMAN, providing enhanced competencies. Miss Ryan also extensively trained on Durrell's ESR and DESMAN. Miss Ryan has been retained by the Montserrat National Trust to continue delivery of the Mountain Chicken Project in Montserrat – an equivalent result to employment in DoE as set out in our outcome.

In addition, two part time interns were hired, trained in all aspects of the project, supported also by MNT and DoE. These interns have both been retained as full-time staff by MNT following completion of the project. As such, we believe we have achieved 0.1.

0.2 Successful chytridiomycosis mitigation strategies are implemented which result in no chytridiomycosis related mortality of mountain chickens maintained within semi-wild enclosures by the end of Year 2.

Unfortunately, the interventions did not prevent five mortalities caused by chytridiomycosis outbreak during Y3. Whilst this means we did not achieve 0.2, this was an experimental intervention and the results of the data collected during the experiment have proven invaluable in the design of the future conservation interventions for this species.

Continuation of the project using modifications to the interventions tested in this study, alongside continued analysis of the data collected during this funding, will allow even greater insight into the potential for habitat manipulation to enable the survival of the mountain chicken in the face of chytridiomycosis (See workshop report in Annex 11).

0.3 Successful management strategies result in at least one successful mountain chicken breeding attempt in semi-wild enclosures in Montserrat by the end of Year 2 Q2 representing the first successful breeding of the species in Montserrat in 10 years.

We have seen plentiful breeding attempts over the project, with 116 nests recorded, 8 of which were confirmed fertile with active tadpoles – these were the first mountain chicken nests known in Montserrat since the 2009 near-extinction of the species, a real success (Annex 8). One of these nests was successful, with 42 froglets seen (Annex 9). Whilst none of these individuals survived within the enclosure, we have made modifications which should boost the chances of this happening following the production of further fertile nests.

0.4 A five-year management plan to increase the population size and range of mountain chickens in Montserrat is agreed by project partners by Year 3 Q3, scoping strategies started, DoE workplans ratified and funding proposals developed.

See progress report for Output 3, above. Completed (Annex 11). We have also applied for and been awarded a grant and a private donation to facilitate the continuation of the project.

0.5 Public connectedness with mountain chickens and nature is increased compared to baseline levels in students and adults across Montserrat.

See progress report for Output 5, above. Nature connection levels did not show a significant increase in school children who were exposed to a limited number of sessions due to COVID restrictions in schools in Montserrat. NCI levels were very high in Montserrat already, and so less likely to change in the short-term than we expected at the start of the study. The same is true in the general public who responded to our online survey who started with very high NCI scores, and these were larger in the post-signage roll out survey, though this may be due to a biased sample (See Annex 12 for full report).

3.3 Monitoring of assumptions

Throughout this three-year project, the Project Lead has held fortnightly meetings with the in-country Project Coordinator to ensure project activities are on schedule, and outputs being delivered. In addition, every quarter, progress against each of the 'Measures of Success' within the project logframe have been reviewed to ensure they are either being achieved or are expected to be achieved on schedule (Also in monthly reports Annex 8). The Project Coordinator also held in-person weekly meetings with each of our partners to discuss both logistics and progress towards each of the priority outputs in our logframe alongside the assumptions listed.

We had to add an assumption (2.1c), that natural infection will occur in the population allowing us to understand the effectiveness of our conservation interventions at mitigating this infection. In Y2, no natural infection occurred in the reservoir species or mountain chickens for the first time since 2009, so we believe this happening twice in two years to be unlikely. The lack of infection in Y2 is thought to be a result of unusually warm conditions during the cooler dry season which would have been less suitable for the reproduction of the fungus. Thankfully, this assumption was met, and an outbreak occurred in Y3 allowing us to collect data on the efficacy of the interventions.

No other changes to assumptions were made, and no management alterations were required.

4 Contribution to Darwin Plus Programme Objectives

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

With respect to UKOT government priorities our project has contributed to:

7 of the UK/Montserrat Charter – (UK commitment) - Use the UK, regional and local expertise to give advice and improve knowledge of technical and scientific issues. This includes regular consultation with interested non-governmental organisations and networks.

#2 (Montserrat commitment) – Ensure the protection and restoration of key habitats, species and landscape features through legislation and appropriate management structures and mechanisms, including a protected areas policy, and attempt the control and eradication of invasive species.

This project strived to support and achieve three core long-term outcomes that will facilitate the recovery and preservation of Montserrat's unique natural environment, heritage and associated cultural identity.

These are:

- The reintroduction and survival of a population of recently extinct in the wild, culturally significant, charismatic apex predators - *Leptodactylus fallax*, that can be utilised to develop successful conservation initiatives for the species in-situ, and in time support the re-colonisation of the species across its historic range. The Montserrat government are signatories to the Mountain Chicken Species Action Plan towards which this project is a major contributor with the aim of restoring the species across its historical range.
- The development of novel conservation initiatives, and thus also local capacity, to counteract the impact of deadly amphibian chytrid fungus on species and ecological symptoms.
- The development and institutionalisation of cross-organisational environmental engagement initiatives and training/development strategies for youth. Focused on raising and establishing national knowledge of local natural ecosystems, heritage

and conservation initiatives and exposure of youth to environmental career/training opportunities from such initiatives and hopefully also increase opportunities for succession of youth into environmental careers on island.

In reference to bullet point one and two, above, the project has successfully maintained a semi-wild population of mountain chickens in Montserrat despite the presence of the chytrid fungus in reservoir species and multiple outbreaks in the facility. This marks what we believe to be a world first for an in-situ, semi-wild population, previously driven to extinction by the impacts of chytrid fungus. The modified treatment techniques utilised across this period and subsequent efficacy analysis hold the potent to ensure the survival of a population in Montserrat for the future as we work towards developing other long-term strategies of resilience development. The population have now survived multiple full disease seasons since initial reintroduction, this marks a first for reintroduction attempts of the species. Y2 saw the metamorphosis of froglets, the first successful breeding of the species in Montserrat for a decade, and the first in a captive/semi-captive programme in the Caribbean.

In addition, the project recruited four local staff of different age demographics (teens, 20s,30s) all of whom received training in all aspects of the project, from the implementation of the novel conservation methods, through to husbandry management, needs assessment, fundraising/grant management, stakeholder collaboration and importantly outreach and engagement initiatives to both the local community and targeted youth groups. Local capacity especially within the youth is being built, lending itself to project longevity.

In reference to bullet point three, our previously unified development of a 2.5-year environmental engagement outreach strategy that targets the establishment of long-term institutionalised initiatives through the established partners, such as; the inclusion of natural heritage and ecosystems in holistic aspects of the schooling curriculum, celebration of unique environmental heritage through social events (festival, beach cleans, community hikes), and the creation of internship training opportunities & mentoring for youth interested in progressing into the environmental sector has been highly successful (Annex 1). It is hoped that this will not only establish a minimum knowledge level of unique natural heritage and important conservation issues throughout the community, but also “facilitate the development of a generation of wildlife conservation minded professionals on island”. This increased collaboration, engagement and provision of training opportunities through MCRP, MNT, DoE and MoHEYAS has improved succession routes for local youth into environmental careers and continues to be implemented beyond the scope of the grant.

An overall increase in appreciation of the species and it’s habitat within the public on island is seen. Aligned with the Montserrat ‘Build a Home for Wildlife’ initiative, run by the UK Overseas Territories Conservation Forum, this encourages landowners to leave areas of their property in their natural state, or co-managed with the Department of Environment and Montserrat National Trust to encourage and promote biodiversity conservation. One of the members of this initiative has volunteered their land to be used for the frogs enclosure for this project, and for any future expansions that may be necessary.

4.2 Gender equality and social inclusion

All project engagement activities are equal opportunity to all island residents, and school outreach sessions are designed to ensure they engage all genders / ages / religions and disability statuses equally.

When selecting our one-month internships in association with MoHEYAS, no disabled applicants applied, and no question was asked about the religion of the applicants. Equal gender opportunity was given, with final selected applicants being 50/50 male/female. Following the departure of our third project officer, equal opportunities were given to our part-time long-term internships in collaboration with MNT, with one male and one female selected. Our two local partners MNT and DoE are run by two influential women, we hoped that candidates saw that the opportunity was open to all, despite environment roles traditionally being the reserve of males in much of the Caribbean.

Please quantify the proportion of women on the Project Board ¹ .	50% or three members of the project board are women.
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women ² .	66% or two of the three project partners on island are led by women.

5 Monitoring and evaluation

There were no major changes to the project design. This is despite the first outbreak of chytridiomycosis having to be treated prematurely because of a lack of capacity to deal with the outbreak as planned during COVID-19 travel restrictions. Instead, we collected the data during a successive outbreak and delivered on the project design as intended.

The M&E system – based on regular meetings between the Project Lead, Project Coordinator, project partners and project staff – was successful in ensuring the project was delivered in full, where possible. The project utilised the logframe to track progress and reported these back to project partners during our regular meetings. These meetings also allowed for internal evaluation of the work conducted by the project, alongside a formal review of the project during our 5-year management plan workshop (Annex 11). This workshop was attended by both internal and external staff alongside project partners and stakeholders. All data collected during the project were presented and used to make decisions about the future conservation requirements for the mountain chicken, as well as the resources required to deliver it. The review concluded that the project had delivered its intended outputs. This workshop also determined the requirement for a continuation of the experimental enclosure project for an additional year to assess the impact of our modified interventions (all ponds heated to remove individual choice for the frogs, increasing the chances of warm exposure – and so successful infection / disease treatment) and another formal review will take place at this point.

6 Actions taken in response to Annual Report reviews

All feedback from prior reviews was actioned. Reviews were discussed with report contributors from each partner in face-to-face meetings.

Replies to comments on previous report:

Comment: 38 nests were recorded in the enclosure, three with tadpoles and one producing 42 froglets, although none were known to have survived to adulthood. The Report suggests escape or predation, possibly by green herons or ground lizards. The latter were reported to have been removed, and the project is considering removing a percentage of froglets to a predator safe environment in future years. Would it be possible to strengthen the existing enclosures to protect all the froglets against lizards entering or froglets escaping? And would it be feasible to use netting over special enclosures to deter green herons?

Response: We decided to create a headstarting area in the enclosure to protect young animals which would allow them to grow large enough that none of the other animals in the enclosure were a threat. The enclosure itself is too large to add similar interventions. The froglets are extremely small when first metamorphosed and so making the entire enclosure impermeable to

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

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

them would also make the enclosure impermeable to insects, reducing available prey items for the frogs. We are confident our chosen approach is the most likely to be successful whilst maintaining the health of all frogs in the enclosure.

Comment: Ground-breaking habitat manipulation is mentioned in the Introduction, referring to Output 2.1. It would be interesting to read more about the habitat manipulation techniques.

Answer: These are all detailed in our application. We have not redescribed them in our report, to avoid repetition. We hope these will be made available to the reviewer upon request. The interventions are ground-breaking not in their design, but in their utilisation in a natural environment for a species impacted by chytridiomycosis.

Comment: The Report comments that one reason for the failure of most nests is young adult frogs with low fertility, but the Report also indicates that the nests recorded since the project start were the first known in Montserrat since 2009, suggesting that its frogs are mature.

Answer: There are no wild frogs in Montserrat with all driven to extirpation by chytridiomycosis, so the nests in the enclosure are the first since 2009 (the introduction of the killer fungus). The frogs in the enclosure are mature, but were not at the beginning of the project (first time breeders), which is associated with higher failure rates in captivity.

Comment: Are there plans to transfer froglets to the facility in Dominica during the lifetime of the project?

Answer: The historically utilised facility in Dominica is no longer fit to hold animals, and was never successfully used for breeding (it was not bio secure so all animals contracted infection regularly from natural reservoirs, limiting breeding opportunities). This project aimed to mitigate the impacts of infection through environmental manipulation, and was successful in all but the most extreme weather conditions which occurred twice in the three year project during which time, anti-fungal treatment was required and was successful. As such we have created a model which could enable the long-term survival of semi-wild captive mountain chickens in Dominica. Following the survey currently being conducted on the island to determine the population size and prevalence of an allele with the potential to confer tolerance to infection with the Bd fungus, we will consider the possibility of recreating our enclosure from this project, on Dominica and so enable breeding and genetic management to boost the numbers of frogs with this allele expanding the wild population. All of these actions have been made possible only by the Darwin Plus funding, which has provided the potential for a future for this species.

7 Lessons learnt

Over the duration of the project a continuing challenging factor has been the Covid-19 pandemic. The associated curfews, travel requirements and working restrictions have played their role in impacting our project directly through school closures, curfews affecting essential husbandry, quarantine requirements for arrivals/travel and associated COVID sickness delaying objectives. Our ever-strengthening partnerships on island have been vital in providing support through these periods. Specifically, MNT's relationship with governing bodies enabled MCRP to gain increased freedom past curfew to ensure essential husbandry could be carried out and any unforeseen circumstances could be circumvented if required. Our partnership with DoE was also crucial in ensuring our activities were supported and could be carried out during this period. Our strong relationship and collaboration with DoE, with their backing at cabinet level is one that we would suffer without. It cannot be understated how important these government links and voices of support for Darwin projects are, engaging departments at all levels where possible should be sought by all projects to facilitate future fluidity of projects.

Our relationship with MNT is one of great benefit, strengthening over the project, being fully integrated as partners. Shared objectives are held and fluidity of collaboration flows freely. Significant support has been provided, from staffing, accounting and financial management support along with incorporation of project staff into all training opportunities held at MNT, to vehicle use where necessary, provision of office space and an overall inter-organisation team

feeling, promoting a thriving work environment. Project success has no doubt been heightened with such a partnership and we highly recommend this to other projects.

Our first successful froglets on island, the first mountain chicken metamorphs known in Montserrat since the 2009 near-extinction of the species, and the first in a captive/semi-captive programme in the Caribbean (Annex 8 & 9) saw a huge boost not only for the species but the team alike. 42 froglets were seen, though sadly none appear to have survived through to adulthood within the enclosure, though they may have left whilst small enough to escape through the perimeter fence line. Smaller mesh had been secured around the length of the perimeter prior to these metamorphs, primarily for predator prevention of potential froglets. The froglets may have also been predated by both ground lizards (since removed), thrashers, and green-backed herons which visited regularly during the period the metamorphs were present and are known to predate small animals (Annex 10). Though we took precautionary measures and it being more natural for the froglets to survive as is, moving forward we have a protocol in place to head start any successful metamorphs, translocating a percentage into a predator safe captive environment in which we would be able to see growth through to a size that they can then be released back into the semi-wild enclosure (approximately six months), removing predation risk.

In our second year, the Ministry of Health undertake mosquito fogging across the entire populated island. This measure aimed at reducing mosquito numbers but would impact the live-food invertebrates we breed for the project, as well as the location of the mountain chicken enclosure. The department is aware of the programme and had previously agreed to notify in advance when such activities were to be carried out, allowing for appropriate actions to be taken, but staff changes meant this did not happen. It was thanks to the well-known identity of the project that the community had alerted staff members in time to prevent disruption of either locations. From this experience we aimed to build on all relationships across departments, in this case, reiterating the projects vulnerabilities to the Ministry of Health to keep it at the forefront of thought with similar future activities. Additionally, alternate methods can be researched and proposed with the prospect of altering such practices for the better. We recommend projects consider such activities, how they may disrupt, identifying responsible bodies and engaging these to recognise their impact. The importance of creating and maintaining a recognised project identify cannot be understated, the support and thoughtfulness of the community is worth its weight in gold.

Both inter-Darwin and inter-island collaboration has occurred with great success (Annex 7 and Annex 5 for photo of training by and for DPLUS105 staff). Project staff had a greater opportunity to increase skillsets when training on Darwin associated projects, creating important relationships between projects and a network of professionals that all have experience that can be utilised. Cross project collaboration also saw boosted morale amongst the team, being a part of and knowing that similar projects exist. Equally, the materialisation of our inter-island exchange not only strengthened project alignments at all levels of operation, but it also allowed for skillsets and knowledge exchange, empowering and enthusing staff members to perform to the best of their abilities. We highly recommend where projects exist with similarly aligned goals that cross collaboration be sought to the benefit of all parties, be it for skills exchange, boosted morale or relationship building.

Whilst social media visits and interactions across platforms has increased significantly over the three years, high impact media has notably been video footage of our mountain chicken catching and eating a tarantula, going viral on twitter with 65,000 views. We've learnt that a mix of media types and both frog and human outputs work best, with posts involving project staff seeing more engagement than frog posts, especially from our on-island audience (Annex 8).

8 Risk Management

N/A

9 Sustainability and Legacy

The involvement of the Montserrat government in a scientific programme such as the Mountain Chicken Project, and its interaction with internationally recognised scientific institutions such as Durrell, ZSL, Chester Zoo, Nordens Ark and Bristol Zoo provides a public statement that the country is a good place to do science, and welcome to collaborative working. Indeed, since the Darwin funded Mountain Chicken Project began, an American University has begun visiting the island with students working on projects alongside the DoE and Ministry of Environment for education and research purposes. The Mountain Chicken Project has hosted students from this University ensuring the island is able to be open and supportive of such collaborations. It is difficult to specify direct economic benefits beyond increased recognition of the island by the general public following any news coverage on the project, and recognition by scientists who would be encouraged to carry out research on the island. It is likely this would translate into increased tourism / visitor revenue (though not readily directly measurable).

The Montserrat government is committed to the project, being signatories to a 20-year restoration plan for the species across Montserrat and Dominica. They are also committed to the continued employment of the returning member of staff seconded to the Mountain Chicken Project for the duration of the Darwin funding (Mr Weekes). The skills he has gained throughout this project will be essential in ensuring DoE retains skilled individuals beyond the retirement of the current generation of DoE field staff. The Montserrat government were participants in the five-year management plan workshop in Y3 of this grant, which generated a plan to continue the conservation of this species in Montserrat (Workshop report in Annex 11).

A Training Needs Assessment of project partners DoE was carried out by Durrell's Conservation Academies Manager, Dr Timothy Wright, drawing upon the ICUN's Conservation Practitioner Competency Register (Annex 3). Digital primers followed by on island assessments have produced a TNA report that not only identifies areas of beneficial training for staff members, it identifies opportunities to fulfil these, including training opportunities with Durrell at no expense. This importantly highlights and helps provide capacity and succession building within the government to aid in continued competencies to carry out crucial conservation work on island.

The project saw the recruitment of two part-time internships, increasing our local staff members to four, all of whom have taken over or were being trained in all aspects of the project, from husbandry of the mountain chicken to husbandry of the insect facility. All staff members have been accommodated by DoE in forestry skills, including bird and bat surveys (Annex 5). The remaining three local members of staff will continue to be employed on the programme following this 3-year grant. Two one-month interns were recruited from both the local high school and college each year of the project, completing training in all elements (Annex 1). This ran with the kind collaboration of MoHEYAS, encouraging succession of youth into environmental careers and training opportunities. We believe we have witnessed an increase in both capacity to conserve biodiversity and nature connection.

Our outreach exit strategy is to ensure that our 2.5-year workplan (Annex 15) is included within our partner institutions beyond the timeframe of this grant. This workplan will continue to be referenced and reviewed, with all outreach resources purchased through the Darwin grant and bearing Darwin branding, continuing to be utilised to promote Montserrat's unique natural heritage throughout the local community, be that MCRP, MNT or DoE. Outreach sessions carried out through all primary schools and part of the secondary school saw over 450 students taught (Annex 16). We carried out lessons and outreach at summer, Christmas and easter clubs across island for children, held activities at Children's Day in association with the Children's Society and the Ministry of Health and Social Services. Mountain chicken day hikes were held yearly amongst other extracurricular activities, all of which have greatly increased the sustained legacy of the project. All outreach equipment including project tent, tablecloths, flags, banners, painting equipment, will continue to be utilised within the project and by project partners.

Aluminium weather resistant nature connection trail signage bearing Darwin logo's and legacy have been rolled out across four primary hiking trails on island (Annex 17). Through this initiative we have also been successful in engaging the Tourism division who funded an

additional 18 signs on three further trails, nearly doubling our intended coverage and exposure. This additional signage also bares Darwin's logo and legacy, whilst being supported through a separate EU development grant awarded to Tourism.

The now infamous mountain chicken vehicle and our mascot "Levi" (whose name was selected by social media competition) will remain with full branding at the trust and continue to be utilised for mountain chicken field work and other wildlife conservation initiatives. This Darwin sponsored vehicle is well known on island with staff members regularly asked for updates or given stories and memories of times past, a real inclusion within the community (Annex 17).

To conclude, the potential ecological and community legacy of this project is vast. Should our interventions prove successful in the long run and contribute to the restoration of this apex predator across the island, we will replace a missing part of the ecosystem. A generation of children who grew up without hearing the species can now hear this in a small pocket of the island which we hope to expand, once a core nightscape sound across the island. Funding has been secured to continue the project for at least one more year, alongside funding for the priority activities identified during the 5-year management plan workshop which defines the next steps in the aim to restore this species across its native range.

10 Darwin Plus Identity

The Darwin logo is present on the project vehicle, insect breeding facility sign and on nature connection signage which has been deployed on forest trails. In addition, the logo has been placed on the project website, and on all external presentations made by the project including outreach events. Finally, the Darwin has repeatedly been mentioned as a funder of the project during radio show appearances to ensure the public understand Darwin's role in facilitating not only the project, but its impacts on the island and its biodiversity.

The Darwin funding hugely expanded a small project which was already present on island (originally also started with previous Darwin funding). The project is now promoted as being a predominantly Darwin funded project, as our other funding comes from private institutions who do not wish to be publicised.

The Darwin Initiative is well recognised in Montserrat having funded the mountain chicken project between 2011-2014, and is on our project vehicles. As the brand of this project has been built through social media and interaction with the public, Darwin is recognised on island as a facilitator of environmental projects with the community at its core.

Signage across nature trails on island sees the logo appearing on all 48 signs (See Annex 22). Outreach materials on island include our project pop up tent, branded tablecloths, flags and banners (Annex 17). These have all been used during outreach activities, workshops, children's day, at the National Trust during cruise ship tours, Christmas and easter celebrations and many more events (Annex 16).

The project has both Twitter and Facebook pages. The latter is mainly used to engage overseas public and Facebook for local engagement. It has been very successful over the length of the project, with unique monthly engagements exceeding 1,000, whilst our yearly reach hit 78,000+ and our followers steadily increasing to 2,099 (Annex 8). We regularly tag Darwin in our posts to ensure Darwin receives recognition for the important funding role it plays in the project.

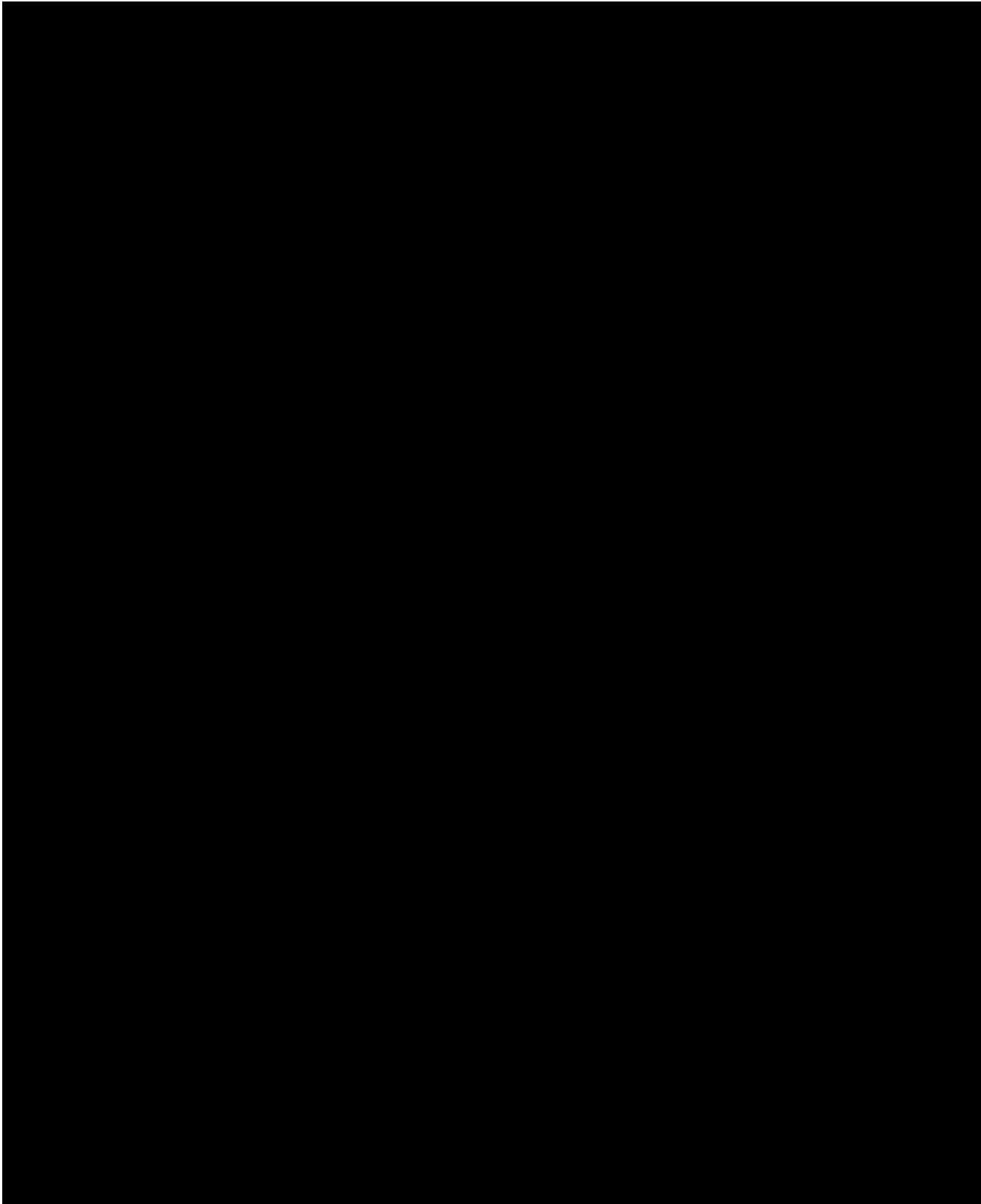
11 Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been investigated in the past 12 months	No
Does your project have a Safeguarding focal point?	No <i>[If yes, please provide their name and email]</i>
Has the focal point attended any formal training in the last 12 months?	All staff are required to read and agree to our safeguarding policy, though no formal training has taken place.
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 0% [and number] Planned: 0% [and number]
<p>Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses.</p> <p>We have recruited a new member of Durrell staff who is responsible for delivering training to all field staff on safeguarding. This will be rolled out for all staff retained on the project post-Darwin.</p>	

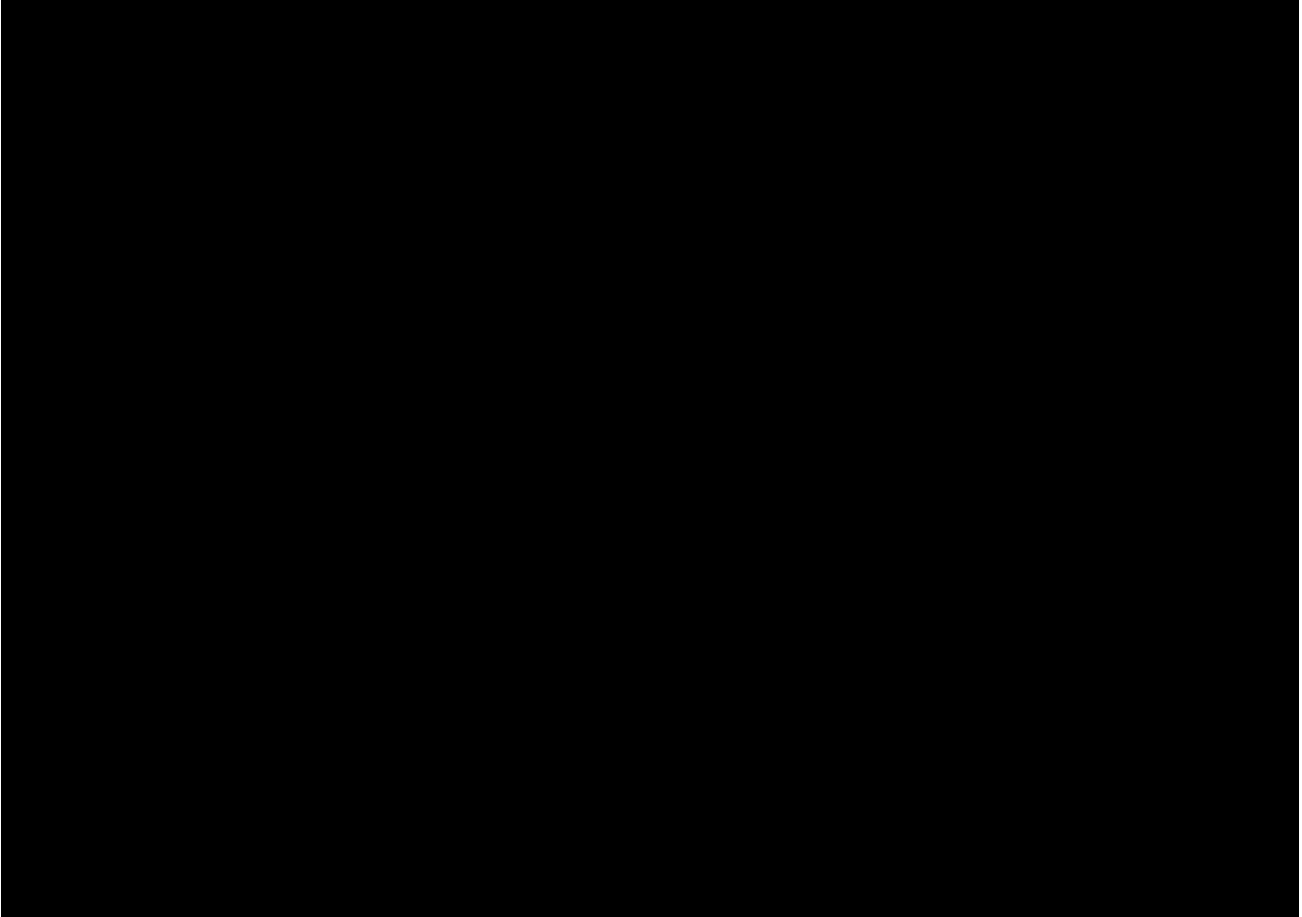
12 Finance and administration

12.1 Project expenditure

Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others				
Audit costs				
TOTAL	88,382	87,401.79		



12.2 Additional funds or in-kind contributions secured



12.3 Value for Money

The project was good value for money. The majority of our funding was used for core consumables and local staff salaries / training. These local salaries not only provided employment that would not have otherwise existed but facilitated the training and development of new staff members capable of leading conservation interventions in Montserrat where these skills are in short supply. We also provided internships throughout the project to ensure there is the potential for the succession of older staff, several of whom are due to retire from the Department of Environment soon.

The infrastructure for the project was already in place prior to the onset of this funding, meaning little capital expenditure was required to initiate the project, with a great deal of data collection, training and outreach facilitated with little capital outlay.

There has been no superfluous spending, with international travel kept to a minimum (one workshop with international attendees, the remainder virtual), in-kind contributions covering much of our partners time on the project, and core staff time. In addition, lab work, which could otherwise be very expensive, was largely covered by in-kind contributions in staff time by ZSL. Over the duration of the project, additional funding was sought from private donors to Durrell to cover the additional costs associated with the cost-of-living increases on the island, meaning there was no impact on the cost the project to Darwin, whilst all project activities were delivered.

All products purchased were done so at the best rate available on the island, though there is not always great competition between vendors due to the small size of the island. Should the Darwin team require, we can provide some examples of multiple quotes received when purchasing goods.

The main challenge in keeping costs down has been the high levels of inflation in Montserrat – which have meant the running costs of the programme have increased by over 150% compared to the budgeting period at the start of the grant. Rather than change our plans, we

have been able to successfully fundraise through private donations to cover the additional costs and run the programme as intended. Montserrat will always be financially challenging due to the reliance on imported goods, which come at a premium especially when international fuel and so shipping prices are so high. The costs are not insurmountable, though, and efficient and impactful projects can still be run in the territory.

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

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

Whilst we would like to discuss our successful breeding of the mountain chicken in Montserrat for the first time in over a decade, the end result of losing the metamorphs means this does not come across as a purely good news story. We are likely to have more to say following the 12 months of additional project time we have decided to run our enclosure for following our 5-year management plan workshop. This should allow us to provide best-practice guidance in the management of chytridiomycosis in a field setting. We will be in touch with Darwin when we have a more notable story to provide.

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

Please insert your project’s logframe (if your project has a logframe), including indicators, means of verification and assumptions. N.B. if your application’s logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact BCF-Reports@niras.com if you have any questions regarding this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Viable mountain chicken populations persist and fulfil their ecological role across Montserrat by 2039. DoE’s capacity to enact successful conservation interventions is improved by training a new generation forestry officers.			
<p>Outcome: Montserratian conservation capacity is developed enabling the delivery of a 5-year conservation plan for mountain chickens using intensive management strategies and supported by an increased local connectedness with the species.</p>	<p>0.1 Two Mountain Chicken Project Officers are appointed and trained during the project are awarded full-time employment contracts by DoE at the end of the project enabling DoE to deliver mountain chicken conservation efforts independently.</p> <p>0.2 Successful chytridiomycosis mitigation strategies are implemented which result in no chytridiomycosis related mortality of mountain chickens maintained within semi-wild enclosures by the end of Year 2.</p> <p>0.3 Successful management strategies result in at least one successful mountain chicken breeding attempt in semi-wild enclosures in Montserrat by the end of Year 2 Q2 representing the first successful breeding of the species in Montserrat in 10 years.</p> <p>0.4 A five-year management plan to increase the population size and range of mountain chickens in Montserrat is agreed by project partners by Year 3 Q3, scoping strategies started, DoE workplans ratified and funding proposals developed.</p>	<p>0.1a Training records maintained by the employees against the competency framework and signed by trainers.</p> <p>0.1b Signed contract of employment between mountain chicken project officers and Government of Montserrat.</p> <p>0.2 Health-reports and swab results submitted to project veterinarians.</p> <p>0.3 Reports, photographs and video evidence of mountain chicken tadpoles in Montserrat.</p> <p>0.4 A five-year management plan is printed and approved by all MCRP partners.</p> <p>0.5.a Nature connectedness surveys using the Nature Connectedness Index over the lifespan of the project.</p> <p>0.5.b Questionnaires of attitudes towards mountain chickens conducted under an experimental framework with groups using signed and unsigned National Trials.</p>	<p>0.1.a Suitable candidates are available on Montserrat and are retained until the project end.</p> <p>0.1.b There are no financial or personnel constraints on DoE that prevent contracting permanent members of staff.</p> <p>0.1.c There is no change in DoE management which results in project officers not being offered permanent roles at the end of the project.</p> <p>0.2 Novel interventions are successful in preventing chytridiomycosis in the population.</p> <p>0.2 No extreme weather events severely damage the enclosure or cause mortality in mountain chickens.</p> <p>0.3 Conditions within the semi-wild enclosures experienced by mountain chickens during Phase one and two do not negatively impact the likelihood of breeding.</p> <p>0.4 Project partners remain engaged in the project long-term.</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>0.5 Public connectedness with mountain chickens and nature is increased compared to baseline levels in students and adults across Montserrat.</p>		<p>0.5 Schools remain willing and able to engage in outreach events.</p> <p>0.6 Key project staff are retained throughout the project ensuring continuity.</p>
<p>Output 1</p> <p>Enhanced capacity exists within Montserrat DoE to implement effective conservation actions through newly recruited and highly trained Project Officers.</p>	<p>1.1 A training needs assessment identifies the skills gaps and training needs of DOE staff in a virtual primer session in Year 1 Q3 & an in-person workshop in Year 2 Q2 and informs the design of a tailored training programme delivered to staff from Year 2.</p> <p>1.2 By end of Year 1 Q2 two Mountain Chicken Project Officer roles in MNT are filled by Montserratians.</p> <p>1.3 Mountain Chicken Project Officers demonstrate high level of competency in all required skills described in the Durrell Conservation Practitioner Competency Framework.</p> <p>1.4 By project-end, Mountain Chicken Project Officers can manage the insect facility, the mountain chicken enclosures, run outreach project activities and are trained in data collection and management.</p> <p>1.5 By project-end, Mountain Chicken Project Officers are trained in wildlife monitoring and forestry skills sufficient to independently carry out DoE's responsibilities.</p>	<p>1.1 Training needs assessment reports completed and approved by local partners.</p> <p>1.2 Two part time Mountain Chicken project Officers are employed.</p> <p>1.3. Training register confirms MCPOs have achieved all competencies outlined in the Durrell Conservation Practitioner Competency Framework.</p> <p>1.4 Training reports produced and post-training evaluation completed.</p> <p>1.5 Compilation of training progress reports by senior forestry staff from DoE demonstrating competency in required forestry skills.</p> <p>1.6.a Report from staff involved in exchange highlights knowledge and skills transferred.</p> <p>1.6.b Questionnaire shows increased motivation levels in staff taking part in exchanges.</p>	<p>1.1 Suitable training providers are identified and available should training needs assessment identify needs beyond existing internal training capacity.</p> <p>1.2 Suitable candidates are identified in Montserrat and agree to be employed by MNT for the duration of the project.</p> <p>1.4 Mountain Chicken Project Officers are retained throughout the project ensuring they receive a full schedule of training.</p> <p>1.6 There are no political or climatic issues that prevent travel between the islands for the duration of the project.</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>1.6 Annual staff exchanges between DoE / MNT and WildDominique (Mountain Chicken Project Dominica partner), ensures transfer of knowledge and skills in mountain chicken conservation between both islands and increasing staff motivation.</p>		
<p>Output 2</p> <p>Mountain chicken population established and surviving in a semi-wild managed environment with signs of breeding and carrying capacity of enclosures is increased to 50.</p>	<p>2.1 Habitat manipulation techniques are trailed for 24 months at enclosure site to determine efficacy in mitigating chytridiomycosis a field setting.</p> <p>2.2 At least 800 swabs are taken and processed with real-time PCR to determine chytrid fungus infection status of mountain chickens within the enclosure.</p> <p>2.3 No mortality from chytridiomycosis with optimal body condition indexes in mountain chickens one and two years after entering enclosure.</p> <p>2.4 Breeding attempts recorded by end of Year 1 show captive-bred and reintroduced mountain chickens have successfully adapted to their wild environment.</p> <p>2.5 A second enclosure is constructed in forest within the historical range of the mountain chicken on Montserrat by project end, increasing carrying capacity of enclosures to at least 50.</p>	<p>2.1 Technical reports and recorded data.</p> <p>2.2 Swab database and reports for partners on infection status.</p> <p>2.3 Annual reports of mountain chicken survival, chytrid infection, treatment regimens and breeding based on monitoring data.</p> <p>2.4 Reports and photographs of mountain chicken paired burrow use and / or foam nests.</p> <p>2.5 Reports and photos on building of second enclosure.</p> <p>2.6 Report on transport of MCs.</p> <p>2.7. Email confirmation of submission of a manuscript for peer-review, or online availability.</p> <p>2.7.b Article in Froglog or similar practitioner-focussed conservation publication.</p> <p>2.8 Conference programme.</p>	<p>2.1.a No mountain chicken mortality caused by disease within enclosure.</p> <p>2.1.b The live food colony does not suffer a collapse in numbers, restricting project staff to providing wild insects collected on a regular basis.</p> <p>2.1c That natural infection will occur in the population allowing us to understand the effectiveness of our conservation interventions at mitigating this infection.</p> <p>2.2 All 27 mountain chickens survive the duration of the project, ensuring this number of swabs can be taken.</p> <p>2.3 Extreme climatic events such as hurricanes do not damage enclosure or result in mortality of mountain chickens.</p> <p>2.4 Trials within the first enclosure are successful in mitigating chytridiomycosis justifying the construction of a second enclosure.</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>2.6 Second mountain chicken cohort released into new enclosure by project end brining the enclosure population to at least 50.</p> <p>2.7 Knowledge gained from the project is disseminated through a peer-reviewed paper and practitioner focussed literature by project end.</p> <p>2.8 Project outcomes are presented at a conservation conference in Year 3 to maximise the international dissemination of results.</p>		<p>2.5 Appropriate land is secured and agreements with landowners are achieved within project timeframe.</p> <p>2.6.a Sufficient mountain chickens are available in captivity for release and animals survive the transport from Europe to Montserrat.</p> <p>2.6.b No mountain chicken mortality caused by chytridiomycosis within the first enclosure ensuring ethics approval will be awarded for the establishment of the second population.</p> <p>2.6.c Sufficient funding is raised to enable the construction of the second enclosure and the transport of frogs.</p> <p>2.7 Results from the project progress at the expected rate allowing publication by this date.</p> <p>2.8 Presentation is accepted at a suitable conference.</p>
<p>Output 3</p> <p>5-year conservation management plan for mountain chickens on Montserrat is created based on the results of the trials in the semi-wild enclosure.</p>	<p>3.1 Results from trials in Output 2 are presented during a workshop attended by international programme partners and stakeholders in Year 3 Q2 and a five-year management plan is developed and ratified by Year 3 Q3.</p> <p>3.2 Timescale and implementation plan for scaling up phase agreed by relevant stakeholders by Year 3 Q3.</p> <p>3.3. Potential areas for future expansion of the mitigation strategies identified in</p>	<p>3.1 Workshop reports and minutes.</p> <p>3.1.b Plan printed and disseminated to project partners.</p> <p>3.2. MOU on the implementation of the management plan signed by all partners.</p> <p>3.3 Report on sites identified.</p> <p>3.4. Draft proposals and submission confirmations.</p>	<p>3.1 No political or extreme weather problems prevent the hosting of a workshop.</p> <p>3.2 All stakeholders remain engaged in the project and agree with all activities in the management plan.</p> <p>3.4 Suitable funding opportunities remain available or alternative funding sources are identified.</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>the management plan identified by project end.</p> <p>3.4 Funding opportunities have been identified and proposals developed to enable delivery of the actions agreed in the 5-year management plan by project end.</p>		
<p>Output 4</p> <p>Increased public engagement with nature in Montserrat using the mountain chicken as an ambassador through outreach events and schools engagement.</p>	<p>4.1 The public and schools engagement plan is agreed by Durrell, DoE, MNT, and MoEYAS activities are being implemented in each year of the project, starting Year 1 Q3.</p> <p>4.2. At least one outreach activity is undertaken, annually, in every educational institution (five primary schools, one secondary school and one college), covering at least 75% of the 700 students in Montserrat by project end.</p> <p>4.3 A month long internship is facilitated for at least two students per year within the mountain chicken project in collaboration with MoEYAS including mentoring for high school seniors and college enrollees interested in environment careers.</p> <p>4.4 Mountain Chicken Day events are held in each year of the project engaging at least 5% of the Montserrat population (approx. 250 people) each year.</p>	<p>4.1 Outreach plan has been signed by each of the relevant project partners by end of Year 1 Q3.</p> <p>4.2 Monthly activity reports detailing e.g. number of activities delivered, summary of activity, number of participants, activity leader.</p> <p>4.3 Report submitted by the students involved.</p> <p>4.4 Annual mountain chicken day report.</p> <p>4.5 Monthly activity reports.</p> <p>4.6 Records of social media engagement.</p> <p>4.7 Photographs of signage on hiking trails.</p> <p>4.8.a Meeting reports produced by project staff members in attendance.</p> <p>4.8.b Lesson plans reviewed with staff members of two schools delivering elements of the new curriculum.</p>	<p>4.1 There is no disruption to leadership of one of the relevant partners, which prevents agreement.</p> <p>4.2 Schools want to participate in outreach sessions.</p> <p>4.3 Sufficient students apply for the immersion experience each year.</p> <p>4.4 Outreach activities attract expected audiences through radio exposure and word-of-mouth.</p> <p>4.5 ZJB want interviews about the project at this frequency.</p> <p>4.6 Peaks in project activity do not prevent creation of new material in any given month.</p> <p>4.7 There is no change to the management of Tourism which results in a refusal to allow the erection of signage on national trails.</p> <p>4.8.a National curriculum review goes ahead.</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>4.5 Project staff are interviewed on Montserrat's radio station (ZJB) at least three times per year in each project year.</p> <p>4.6 At least 1000 unique individuals engage with project social media posts in each year of the project.</p> <p>4.7 Nature focussed signage is produced and erected on at least four hiking trails in the Centre Hills protected area by end of the first year of the project.</p> <p>4.8 By project end, at least two national curriculum review workshops have been attended by project staff to promote inclusion of mountain chickens and local environmental issues into national curriculum.</p>		<p>4.8.b There is no change to staffing within the MoEYAS which is detrimental to the involvement of project staff in the national curriculum review process.</p>
<p>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)</p> <p>1.1 Training needs assessment conducted for DoE (co-funded) (remote primer session, then in-person)</p> <p>1.2 Advertise and interview for two Mountain Chicken Project Officers</p> <p>1.3 Appoint two Mountain Chicken Project Officers</p> <p>1.4 Develop training schedule for Mountain Chicken Project Officers according to Durrell competency framework and training needs assessment for DoE</p> <p>1.5 Training of Mountain Chicken Project Officers in Forestry skills and conservation management in-line with mountain chicken project activities</p> <p>1.6 Monthly reports of activities and training progress by Mountain Chicken Project Officers</p> <p>1.7 Mountain Chicken Project Officer attends DESMAN course in Jersey, Channel Islands</p> <p>1.8 Exchange visits between Montserrat and Dominica mountain chicken staff (MCPOs, DoE staff, WildDominique staff)</p> <p>2.1 Monthly capture, skin swabbing for chytrid fungus DNA and morphometric measurement recording of all mountain chickens in the enclosure (co-funded)</p> <p>2.2 Th-weekly feeding of all mountain chickens, including visual health check and enclosure integrity check (co-funded)</p> <p>2.3 Weekly pond changes within the enclosure</p> <p>2.4 Monthly data logger download (including pond use auto-PIT tag reader, camera traps and environmental data loggers) (co-funded)</p> <p>2.5 Monthly health reports sent to project veterinary and husbandry experts</p> <p>2.6 Analyse health and habitat use data to determine success of habitat manipulations</p> <p>2.7 Report and manuscript production based on data from 2.6</p>			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>2.8 Present results of study at an international conservation conference</p> <p>2.9 Conduct survey of sites on Montserrat to assess suitability for the construction of a second enclosure</p> <p>2.10 Request permission from landowner for construction of second enclosure</p> <p>2.11 Oversee construction of second enclosure (co-funded)</p> <p>2.12 Build boxes for transport of second release cohort of mountain chickens (co-funded)</p> <p>2.13 Transport second cohort of frogs to Montserrat (co-funded)</p> <p>2.14 Release second cohort of frogs to the second enclosure (co-funded)</p> <p>3.1 Hold workshop with project staff and government and European Zoo partners to discuss results of trials and plans for scaling-up of conservation activities</p> <p>3.2 Draft 5-year mountain chicken conservation management plan based on the workshop from 3.1</p> <p>3.3 Project partners sign MOU to deliver activities in 5-year conservation management plan</p> <p>3.4 Develop implementation plan for management plan along with timeline</p> <p>3.5 Write report on recommended sites for expansion of the management interventions as part of the 5-year plan</p> <p>3.6 Identify suitable funding sources for 5-year conservation management plan activities</p> <p>3.7 Develop and submit proposals for the funding sources identified in 3.6</p> <p>4.1 Hold workshop between Durrell, DoE, MNT and MoEYAS to agree an outreach strategy for the project on Montserrat covering annual activities and responsibilities (co-funded)</p> <p>4.2 Draft outreach strategy based on the results of the workshop in 4.1</p> <p>4.3 Produce outreach materials to facilitate schools and wider community outreach (co-funded)</p> <p>4.4 Conduct baseline nature connectedness surveys in schools and in the wider community</p> <p>4.5 Conduct outreach sessions in each educational facility in Montserrat in each year of the project</p> <p>4.6 Host college students within the project for two weeks to provide experience in environmental careers (co-funded)</p> <p>4.7 Host college student projects throughout the project</p> <p>4.8 Conduct outreach activities on international Mountain Chicken Day in collaboration with local and international partners</p> <p>4.9 Conduct interviews on Montserrat National Radio (ZJB) to discuss project progress</p> <p>4.10 Post project information and activities on project social media channels</p> <p>4.11 Design mountain chicken and nature-based signage for use on National Trails</p> <p>4.12 Tender production of signs and deploy them on National Trails (co-funded)</p> <p>4.13 Conduct surveys in an experimental framework to determine efficacy of signage in driving improved attitude towards mountain chickens</p> <p>4.14 Conduct end of project nature connectedness surveys in schools and wider community</p> <p>4.15 Attend National Curriculum review workshops to aid integration of mountain chickens and nature into curriculum</p> <p>4.16 Support DoE and MNT in the production of curriculum resources</p> <p>4.17 Review lesson plans with teachers to aid deployment of new National Curriculum elements into teaching</p>			

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

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
<p>Impact</p> <p>Viable mountain chicken populations persist and fulfil their ecological role across Montserrat by 2039. DoE's capacity to enact successful conservation interventions is improved by training a new generation of forestry officers.</p>		<p>We have gained valuable data on the potential for habitat manipulation to mitigate chytridiomycosis in a field setting which otherwise causes mortality in the mountain chicken. These data show it is effective in all but the most extreme weather conditions, with natural clearance of infection when exposed to the interventions, something recorded in only two animals in Montserrat in history, despite widespread monitoring. We have now modified the intervention to heating all ponds in the enclosure, i.e. not providing the choice of cold ponds which likely continue to act as reservoirs of disease. This will be trailed in the 12 months following this experiment and is an important step towards building a set of tools to facilitate the restoration of the species. We are also conducting range-wide surveys in Dominica, where potential genetic signatures of tolerance of infection have been detected and could be managed through captive breeding in a replica enclosure in Dominica – something we could not have done without this project and a potentially huge milestone in the restoration of viable populations of this species across its historical range as projected in our Outcome. We have also trained two full time staff now employed in continued positions in conservation in Montserrat, where skills are otherwise severely lacking. In addition two interns have been trained and represent a continued 'conveyor of talent' into conservation organisations on the island. These staff have achieved an incredible amount during the project, with formal training courses and a wide range of experiences and we are very happy that both have been retained and promoted by their respective organisations. Improvements in nature connection on the island should also lead to improved pro-environmental behaviours, but this should be continued to ensure it is the case.</p>
<p>Outcome</p> <p>Montserratian conservation capacity is developed enabling the delivery of a 5-year conservation plan for mountain chickens using intensive management strategies and supported by an increased local connectedness with the species.</p>	<p>0.1 Two Mountain Chicken Project Officers are appointed and trained during the project are awarded full-time employment contracts by DoE at the end of the project enabling DoE to deliver mountain chicken conservation efforts independently.</p> <p>0.2 Successful chytridiomycosis mitigation strategies are implemented which result in no chytridiomycosis</p>	<p>0.1 Two full time project officers and two part time interns appointed. All have received on the job training across all project activities (Annex 1 & 5) from other conservation projects on island and both full time officers attended formal training courses internationally fulfilling needs as assessed by their completion of the Durrell / IUCN Endangered Species Practitioner Competency Framework [REDACTED] Both officers can now deliver mountain chicken conservation independently, could run another conservation project and are on a pathway to a career in conservation. The interns are also developing towards this aim.</p> <p>0.2 Chytridiomycosis mitigation strategies were implemented successfully during Y1/Y2, however a severe outbreak saw five mortalities as a result of the fungus</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	<p>related mortality of mountain chickens maintained within semi-wild enclosures by the end of Year 2.</p> <p>0.3 Successful management strategies result in at least one successful mountain chicken breeding attempt in semi-wild enclosures in Montserrat by the end of Year 2 Q2 representing the first successful breeding of the species on Montserrat in 10 years.</p> <p>0.4 A five-year management plan to increase the population size and range of mountain chickens on Montserrat is agreed by project partners by Year 3 Q3, scoping strategies started, DoE workplans ratified and funding proposals developed.</p> <p>0.5 Public connectedness with mountain chickens and nature is increased compared to baseline levels in students and adults across Montserrat.</p>	<p>in Y3 (Annex 8). This is still a great success, and was reliant on the assumption that the interventions were successful – determining whether this was true or not was the main aim of the project. We now know they are effective in all but the most extreme weather conditions, and have made some modifications to improve their impact which will be trialled over the next 12 months.</p> <p>0.3 There have been 116 nests over the project including eight with tadpoles, and one which resulted in 42 metamorphs (Annex 8 & 9), the first successful breeding of this species in over a decade. Unfortunately, none appear to have survived to adulthood within the enclosure, though they may have left whilst small enough to escape. This was achieved much earlier than expected. They may have been predated by both ground lizards (now removed), and green-backed herons which visited regularly during the period the metamorphs were present and are known to predate small animals (Annex 10).</p> <p>0.4 Five-year management plan workshop held on island Q3 of Y3. Strategy produced, funding proposals identified and actions begun to be taken including the extension of the experimental enclosure in Montserrat with modified interventions for chytridiomycosis, and a range-wide survey on Dominica to understand the population size and potential genetic management options for the species (Annex 11). A workplan for each of these has been agreed by all partners.</p> <p>0.5 Outreach activities carried out across Y2/Y3 across schools, childrens clubs and events, mountain chicken day hikes (e.g. Annex 8 & 16). Nature connection surveys taken pre and post roll out of signage showed a greater level of nature connectedness post-signage roll out (Annex 12). It is possible the sample, which was self-selected, will have been those who used the trail and are more likely to engage in this kind of survey, but it remains useful to know we have had an impact with at least a sample of the public in Montserrat.</p>
<p>Output 1.</p> <p>Enhanced capacity exists within Montserrat DoE to implement effective conservation actions through newly recruited and highly trained Project Officers.</p>	<p>1.1 A training needs assessment identifies the skills gaps and training needs of DOE staff in a virtual primer session in Year 1 Q1 and an in-person workshop in Y2 Q2 and informs the design of a tailored training programme delivered to staff from Year 1 Q2.</p> <p>1.2 By end of Year 1 Q2 two</p>	<p>Overall progress: The Project Officers have received extensive training and have achieved competency across all agreed levels in our competency assessment at the project baseline. (Annex 6). We have a training needs assessment for DoE which is now guiding training for wider conservation staff in the department alongside some staff in our partners, Montserrat National Trust.</p> <p>1.1 Training needs assessment completed (Annex 3), presented to DoE, and being used to guide training for department staff, alongside staff from our partners, MNT. Indicator was useful.</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	<p>Mountain Chicken Project Officer roles in MNT are filled by Montserratians.</p> <p>1.3 Mountain Chicken Project Officers demonstrate high level of competency in all required skills described in the Durrell Conservation Practitioner Competency Framework.</p> <p>1.4 By project-end, Mountain Chicken Project Officers can manage the insect facility, the mountain chicken enclosures, run outreach project activities and are trained in data collection and management.</p> <p>1.5 By project-end, Mountain Chicken Project Officers are trained in wildlife monitoring and forestry skills sufficient to independently carry out DoE's responsibilities.</p> <p>1.6 Annual staff exchanges between DoE / MNT and WildDominique (Mountain Chicken Project Dominica partner), ensures transfer of knowledge and skills in mountain chicken conservation between both islands and increasing staff motivation.</p>	<p>1.2 Two Mountain Chicken Project Officer Roles were filled in Y1 and the staff retained (see previous Annual reports for evidence). Indicator was useful.</p> <p>1.3 Both project staff have reached a high level of competency in all skills identified in the project baseline assessments (Annex 6) and continue to gain additional skills in their new roles at project end. We will continue to work with them on these and other skills in the future as part of our training needs assessment programme. Indicator was useful.</p> <p>1.4 The Project Officers have received training in each of these elements (See Annex 5 & 8). They have now both run the insect and mountain chicken facilities as the person in charge during various periods of leave and are competent in data collection and management. Miss Ryan has been promoted to Project Coordinator for continuation of the project, and Mr Weekes promoted within DoE where has a permanent contract. Indicator was useful.</p> <p>1.5 The staff have assisted DoE in their wildlife monitoring responsibilities throughout the project and gained important skills and experience based on their competency framework assessment. Indicator was useful.</p> <p>1.6 Three inter-island exchanges took place between Montserrat and Dominica, and one between Montserrat and St Lucia. All were very positively received with staff participants gaining experience in the project activities on the other islands – most of which are unique (e.g. wild monitoring in Dominica not possible in Montserrat where wild animals are thought to have been extirpated, and animal captive husbandry in Montserrat, not currently occurring in Dominica). (Annex 7). Indicator was useful.</p>
Activity 1.1. Training needs assessment conducted for DoE (co-funded) (remote primer session, then in-person)		Completed assessment (Annex 3). Now used to inform training programme for relevant staff.
Activity 1.2. Advertise and interview for two Mountain Chicken Project Officers		Delivered and recruited in Y1.
Activity 1.3. Appoint two Mountain Chicken Project Officers		Delivered in Y1.

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 1.4. Develop training schedule for Mountain Chicken Project Officers according to Durrell competency framework and training needs assessment for DoE		Competency assessments completed and monitored against throughout project. Training needs assessment completed (Annex 6).
Activity 1.5. Training of Mountain Chicken Project Officers in Forestry skills and conservation management in-line with mountain chicken project activities		All completed as planned. Both staff are capable of delivering all conservation management skills as planned.
Activity 1.6. Monthly reports of activities and training progress by Mountain Chicken Project Officers		All completed – see Annex 8.
Activity 1.7. Mountain Chicken Project Officer attends DESMAN course in Jersey, Channel Islands		Both Project Officers attended the courses at different times throughout the programme, after we awarded an additional scholarship from the Carl Jones Scholarship, to the second Project Officer (See Annex 5).
Activity 1.8. Exchange visits between Montserrat and Dominica mountain chicken staff (MCPOs, DoE staff, WildDominique staff)		Three Montserrat-Dominica exchanges completed, and one Montserrat-St Lucia exchange following virtual exchanges during COVID restrictions (See Annex 7).
<p>Output 2.</p> <p>Mountain chicken population established and surviving in a semi-wild managed environment with signs of breeding and carrying capacity of enclosures is increased to 50.</p>	<p>2.1 Habitat manipulation techniques are trailed for 24 months at enclosure site to determine efficacy in mitigating chytridiomycosis a field setting.</p> <p>2.2 At least 800 swabs are taken and processed with real-time PCR to determine chytrid fungus infection status of mountain chickens within the enclosure.</p> <p>2.3 No mortality from chytridiomycosis with optimal body condition indexes in mountain chickens one and two years after entering enclosure.</p> <p>2.4 Breeding attempts recorded by end of Year 1 show captive-bred and reintroduced mountain chickens have successfully adapted to their wild environment.</p> <p>2.5 A second enclosure is constructed in forest within the historical range of</p>	<p>2.1 Habitat manipulation techniques were trialled across the 24 months and found to be effective at mitigating chytridiomycosis in a field setting in all but the most extreme weather conditions. Modifications to the interventions will be trialled in the 12 months following this project. This indicator was useful.</p> <p>2.2 Over 1000 swabs were collected and processed to determine Bd status of animals in the enclosure (Annex 8). This indicator was useful – though not a useful target, and instead, in-line with predictions and increased when outbreaks occurred.</p> <p>2.3. Five mortalities occurred as a direct result of the disease (in Y3) though all others were successfully treated and cleared of disease and infection and returned to the enclosures (post-mortem reports available upon request). The assumption that the interventions would be successful was not met completely, though only in the most extreme weather conditions. The data collected and insight gained on this intervention have been invaluable in designing future conservation interventions for this species. This indicator was semi-useful, though again, an optimistic target which we were unsure we would meet 100% - but we are happy with this outcome.</p> <p>2.4 We have seen plentiful breeding attempts over the project, with 116 nests recorded, eight of which were confirmed fertile with active tadpoles – these were the first mountain chicken nests known in Montserrat since the 2009 near-extinction of the species, a real success (see Annex 9). One of these nests was successful, with 42 froglets seen (Annex 9). The reintroduced animals showed excellent adaptation to the wild, with more muscle mass than in biosecure captive collection, and anecdotally, faster recovery in behaviours and feeding post chytrid infection,</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	<p>the mountain chicken on Montserrat by project end, increasing carrying capacity of enclosures to at least 50.</p> <p>2.6 Second mountain chicken cohort released into new enclosure by project end brining the enclosure population to at least 50.</p> <p>2.7 Knowledge gained from the project is disseminated through a peer-reviewed paper and practitioner focussed literature by project end.</p> <p>2.8 Project outcomes are presented at a conservation conference in Year 3 to maximise the international dissemination of results.</p>	<p>likely due to the more natural stress levels in the semi-wild enclosure. Useful indicator.</p> <p>2.5 No second enclosure was constructed, as we did not successfully produce adult frogs during the project lifetime. The data gained on our interventions have allowed us to design modifications which will be tested in the original enclosure for an additional 12 months. Useful indicator though too reliant on previous outputs.</p> <p>2.6 See 2.5</p> <p>2.7 We have not published a peer-review paper at this point, instead choosing to wait until we have completed the coming 12 months of data collection on our modified intervention (all ponds heated – See workshop report in Annex 11). We believe this will be a strong manuscript capable of reaching a higher impact journal and so wider readership and conservation impact. We will update the Darwin team once this is delivered and of course acknowledge the Darwin support to the programme. Useful indicator.</p> <p>2.8 We have presented project outcomes at internal conferences but have chosen to wait to present them at an external conference in line with our answer to 2.7. Useful indicator.</p>
Activity 2.1. Monthly capture, skin swabbing for chytrid fungus DNA and morphometric measurement recording of all mountain chickens in the enclosure (co-funded)		33 months of continuous data collected (over 1000 swabs – Annex 8).
Activity 2.2. Thrice-weekly feeding of all mountain chickens, including visual health check and enclosure integrity check (co-funded)		Delivered – see Annex 8.
Activity 2.3. Weekly pond changes within the enclosure		Delivered.
Activity 2.4. Monthly data logger download (including pond use auto-PIT tag reader, camera traps and environmental data loggers) (co-funded)		Delivered – see Annex 8.
Activity 2.5. Monthly health reports sent to project veterinary and husbandry experts		Delivered – see Annex 8.
Activity 2.6. Analyse health and habitat use data to determine success of habitat manipulations>		Delivered, though more data being collected for the next 12 months on a modified intervention (all ponds heated) before report complete to maximise impact.

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 2.7. Report and manuscript production based on data from 2.6		See 2.6
Activity 2.8. Present results of study at an international conservation conference		See 2.6
Activity 2.9. Conduct survey of sites in Montserrat to assess suitability for the construction of a second enclosure		Not completed – further data required on success of interventions before a second enclosure can be justified. Though consideration of building an enclosure in Dominica pending the results of a range-wide survey on the island agreed during our 5-year management plan workshop (See Annex 11).
Activity 2.10. Request permission from landowner for construction of second enclosure		See 2.9
Activity 2.11. Oversee construction of second enclosure (co-funded)		See 2.9
Activity 2.12. Build boxes for transport of second release cohort of mountain chickens (co-funded)		See 2.9
Activity 2.13. Transport second cohort of frogs to Montserrat (co-funded)		See 2.9
Activity 2.14. Release second cohort of frogs to the second enclosure (co-funded)		See 2.9
<p>Output 3.</p> <p>5-year conservation management plan for mountain chickens on Montserrat is created based on the results of the trials in the semi-wild enclosure.</p>	<p>3.1 Results from trials in Output 2 are presented during a workshop attended by international programme partners and stakeholders in Year 3 Q2 and a five-year management plan is developed and ratified by Year 3 Q3.</p> <p>3.2 Timescale and implementation plan for scaling up phase agreed by relevant stakeholders by Year 3 Q3.</p> <p>3.3. Potential areas for future expansion of the mitigation strategies identified in the management plan identified by project end.</p>	<p>In Q3 of Y3 a successful 5-year conservation management plan workshop was held in Montserrat at the Montserrat National Trust. All on island partners were in attendance, with specialists attending in person and online, from Dominica, Europe and South America. A 5-year management plan has been produced and agreed by all partners (Annex 11).</p> <p>3.2 Activities identified in the 5-year management plan workshop are already underway, including a modified intervention in the enclosure for 12 months, and a range-wide survey on Dominica for population size estimation and examination of the potential for genetic management of the species to mitigate chytridiomycosis.</p> <p>3.3 An expansion of the enclosure project to Dominica has been identified within the management plan, pending the results of the range-wide survey. Not further enclosures are planned on Montserrat pending the analysis of data on our modified intervention over the next 12 months (Annex 11).</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	3.4 Funding opportunities have been identified and proposals developed to enable delivery of the actions agreed in the 5-year management plan by project end.	3.4 Funding has already been raised for the continuation of the enclosure project, and the range-wide survey on Dominica. More funding will be raised dependent on the results of these activities.
Activity 3.1. Hold workshop with project staff and government and European Zoo partners to discuss results of trials and plans for scaling-up of conservation activities		In Q3 of Y3 a successful 5-year conservation management plan workshop was held in Montserrat at the Montserrat National Trust. All on island partners were in attendance, with specialists attending in person and online, from Dominica, Europe and South America (Annex 11).
Activity 3.2. Draft 5-year mountain chicken conservation management plan based on the workshop from 3.1		A 5-year management plan has been produced and agreed by all partners (Annex 11).
Activity 3.3. Project partners sign MOU to deliver activities in 5-year conservation management plan		A project MOU for all partners already exists and a new MOU for the delivery of these specific actions was judged not to be required.
Activity 3.4. Develop implementation plan for management plan along with timeline		Implementation plan for first 12 months developed with first actions underway. Longer-term timeline dependent on these results.
Activity 3.5. Write report on recommended sites for expansion of the management interventions as part of the 5-year plan		See workshop report in Annex 11. This is no longer required in the short-term.
Activity 3.6. Identify suitable funding sources for 5-year conservation management plan activities		Funding already raised and being used to deliver the first 12 months of objectives from the 5-year management plan.
Activity 3.7. Develop and submit proposals for the funding sources identified in 3.6.		See 3.6
Output 4. Increased public engagement with nature in Montserrat using the mountain chicken as an ambassador through outreach events and schools engagement.	4.1 The public and schools engagement plan is agreed by Durrell, DoE, MNT, and MoEYAS activities are being implemented in each year of the project, starting Year 1 Q3. 4.2. At least one outreach activity is undertaken, annually, in every educational institution (five primary schools, one secondary school and one	4.1 The engagement plan was agreed in Y1 (Annex 15). Indicator useful. 4.2 All achieved except in Y1 during COVID restrictions when schools were not open or did not allow visitors. But over approximately 65% of the c. 700 students were reached during the project lifetime (Annex 8 and Annex 16 for photos). Useful indicator. 4.3 We successfully facilitated month-long internships for two students during each year of the project in collaboration with MoEYAS (Annex 1 & 5) Interns were involved in the project's daily activities, learning a range of conservation and environmental skillsets and more importantly inspiring the next generation on island. These

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	<p>college), covering at least 75% of the 700 students in Montserrat by project end.</p> <p>4.3 A month long internship is facilitated for at least two students per year within the mountain chicken project in collaboration with MoEYAS including mentoring for high school seniors and college enrollees interested in environment careers.</p> <p>4.4 Mountain Chicken Day events are held in each year of the project engaging at least 5% of the Montserrat population (approx. 250 people) each year.</p> <p>4.5 Project staff are interviewed on Montserrat's radio station (ZJB) at least three times per year in each project year.</p> <p>4.6 At least 1000 unique engagements with project social media posts in each year of the project.</p> <p>4.7 Nature focussed signage is produced and erected on at least four hiking trails in the Centre Hills protected area by end of the first year of the project.</p> <p>4.8 By project end, at least two national curriculum review workshops have been attended by project staff to promote</p>	<p>individuals left with a broadened outlook on Montserrat's environment and species. Useful indicator.</p> <p>4.4 Mountain Chicken Day hikes were delivered in collaboration with DoE each September across various trails. Participants took part in a treasure hunt to find painted mountain chicken statues with audio calls being played as they approached each frog. Participation grew year on year from 16 attendees through to 50 in Y3 (Annex 8). Project staff featured on the morning ZJB radio show on Mountain Chicken Day, engaging the island on the history and importance of the species and local song about the mountain chicken played. During this peak radio show, audience numbers can hit 5000, assuming half of this are on island listeners, 2500, 50% of the population will have been reached. A useful indicator.</p> <p>4.5 Project staff have been interviewed by ZJB multiple times during each year of the project (Annex 8). Average audience of these interviews is thought to be 5000 for a peak show, with an additional 2000-5000 when including website replays accessed by diaspora and non-residents on Montserrat Echo. In addition, project staff have featured on 664 connect – a leading local website, with a large viewership of especially younger people in Montserrat, one of our key targets for outreach activities. Useful indicator. Though it could have included audience targets, though this is inferred rather than directly measured.</p> <p>4.6 Project staff have posted regular social media content including photos, videos, blogs and competitions. Unique yearly engagements rose year on year to 14,000+ in our final year whilst our yearly reach hit 78,000+, with our followers steadily increasing to 2,099 across our three media channels (Annex 8).</p> <p>4.7 Our nature connectedness signage has been deployed across seven trails (images on trail and additional proofs attached as evidence in Annex 13), four of which were fully funded under this grant, whilst the Montserrat Tourism department funded a further three trails. A great success and one that has made the trails on island further immersive. Mountain chickens cast from concrete and painted by both the team and local artists/students have been placed along the one of these trails to accompany signage and promote interaction (Annex 14). A useful indicator.</p> <p>4.8 The project engaged with the Ministry of Education, Youth and Social Affairs who at the time were in the process of finalising a draft Sustainable Education curriculum. MCRP had planned to aid in providing feedback and contribution to both their sustainable environment curriculum and quality assurance process (4.8). The process by which the curriculum was designed changed due to a change in staffing</p>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	inclusion of mountain chickens and local environmental issues into national curriculum.	at the Ministry, alongside a change in the objectives of this curriculum review and so we were unable to engage in this process.
Activity 4.1. Hold workshop between Durrell, DoE, MNT and MoEYAS to agree an outreach strategy for the project in Montserrat covering annual activities and responsibilities		Workshop held in Y1 (Annex 15).
Activity 4.2. Draft outreach strategy based on the results of the workshop in 4.1.		Strategy developed in Y1 (Annex 15) and implemented throughout project (Annex 8).
Activity 4.3. Produce outreach materials to facilitate schools and wider community outreach		Outreach materials used throughout our activities – see e.g. Annex 16 & 7.
Activity 4.4. Conduct baseline nature connectedness surveys in schools and in the wider community		Conducted. Results in Annex 12.
Activity 4.5. Conduct outreach sessions in each educational facility in Montserrat in each year of the project		Achieved except in Y1 when COVID restrictions prevented school visits.
Activity 4.6. Host college students within the project for two weeks to provide experience in environmental careers (co-funded)		Hosted two students in Y2 and Y2 (See Annex 8).
Activity 4.7. Host college student projects throughout the project		No longer required for students. Instead we focussed on 4.6
Activity 4.8. Conduct outreach activities on international Mountain Chicken Day in collaboration with local and international partners.		Mountain Chicken Day hikes were delivered in collaboration with DoE each September across various trails. Participants took part in a treasure hunt to find painted mountain chicken statues with audio calls being played as they approached each frog. Participation grew year on year from 16 attendees through to 50 in Y3. Environmental gift raffles were also drawn (Annex 8). All of which were advertised and broadcast via our social media channels. Details of the hike were featured on ZJB/MALHE Vibes. Project staff featured on the morning ZJB radio show on Mountain Chicken Day, engaging the island on the history and importance of the species and local song about the mountain chicken played
Activity 4.9. Conduct interviews on Montserrat National Radio (ZJB) to discuss project progress		Project staff have been interviewed by ZJB multiple times during each year of the project (Annex 8). Average audience of these interviews is thought to be 5000 for a peak show, with an additional 2000-5000 when including website replays accessed by diaspora and non-residents on Montserrat Echo. In addition, project staff have featured on 664 connect – a leading local website, with a large viewership of especially younger people in Montserrat, one of our key targets for outreach activities.

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 4.10. Post project information and activities on project social media channels		Project staff have posted regular social media content including photos, videos, blogs and competitions. Unique yearly engagements rose year on year to 14,000+ in our final year whilst our yearly reach hit 78,000+, with our followers steadily increasing to 2,099 across our three media channels. (Annex 8).
Activity 4.11. Design mountain chicken and nature-based signage for use on National Trails		Designed (Annex 13).
Activity 4.12. Tender production of signs and deploy them on National Trails (co-funded)		Deployed across seven trails (see Annex 13).
Activity 4.13. Conduct surveys in an experimental framework to determine efficacy of signage in driving improved attitude towards mountain chickens		Attitude surveys conducted. Summary results in Annex 12.
Activity 4.14. Conduct end of project nature connectedness surveys in schools and wider community		Conducted. Results in Annex 12.
Activity 4.15. Attend National Curriculum review workshops to aid integration of mountain chickens and nature into curriculum		MCRP had planned to aid in providing feedback and contribution to both their sustainable environment curriculum and quality assurance process. The process by which the curriculum was designed changed due to a change in staffing at the Ministry, alongside a change in the objectives of this curriculum review and so we were unable to engage in this process.
Activity 4.16. Support DoE and MNT in the production of curriculum resources		NA as 4.15
Activity 4.17. Review lesson plans with teachers to aid deployment of new National Curriculum elements into teaching		NA as 4.15

Annex 3 Standard Indicators

Table 1 Project Standard Indicators

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Project Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS - A01	Mountain Chicken Project Officers demonstrate high level of competency in all required skills described in the Durrell Conservation Practitioner Competency Framework And By project-end, Mountain Chicken Project Officers can manage the insect facility, the mountain chicken enclosures, run outreach project activities and are trained in data collection and management	Number of people from key national and local stakeholders completing structured and relevant training	People	Men; women All retained at end of project	2; 2	0; 1	2; 1	4	4 (training weeks aggregated: 48)
DPLUS-A02	A month-long internship is facilitated for at least two students per year within the mountain chicken project in collaboration with MoEYAS	Number of secondments or placements completed by individuals from key national and local stakeholders, or likely to be employed by these organisations at project completion	People	Men; women	1; 1	1; 1	1; 1	1; 1	1; 1 (total placement months: 24) Two latest interns now employed by key national stakeholder
DPLUS-A03	Two Mountain Chicken Project Officers are appointed and trained during the project are awarded full-time employment contracts by DoE at the end of the project enabling DoE to deliver mountain chicken	Number of local / national organisations with improved capability and capacity as a result of project.	Organisations	Government department ; NGO	1; 1	1; 1	1; 1	1; 1	1; 1 (DoE and MNT)

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Project Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
	conservation efforts independently.								
DPLUS-A04	<p>Mountain Chicken Project Officers demonstrate high level of competency in all required skills described in the Durrell Conservation Practitioner Competency Framework.</p> <p>And</p> <p>By project-end, Mountain Chicken Project Officers are trained in wildlife monitoring and forestry skills sufficient to independently carry out DoE's responsibilities</p>	Number of people from key national and local stakeholders showing improved competencies having completed structured and relevant training	People	Men; women	1; 1	1; 1	1; 1	1; 1	1; 1
DPLUS-B02	A five-year management plan to increase the population size and range of mountain chickens in Montserrat is agreed by project partners by Year 3 Q3, scoping strategies started, DoE workplans ratified and funding proposals developed	Number of new/improved species management plans available and endorsed	Number	Languages; local	1	0	1	1	1 (5-year management plan)
DPLUS-C12	At least 1000 unique individuals engage with project social media posts in each year of the project	Number of engagements with project social media accounts / posts	Number	Reach / Engagement / Impressions (twitter)	36,000	12,000	14,000	36,000	3000
DPLUS-C15	Project staff are interviewed on Montserrat's radio station (ZJB) at least three times per year in each project year.	Number of Media related activities.	Number	Internet; Radio (all national)	8	4	5	13	9

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Project Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS-E03	Habitat manipulation techniques are trailed for 24 months at enclosure site to determine efficacy in mitigating chytridiomycosis a field setting And Successful management strategies result in at least one successful mountain chicken breeding attempt in semi-wild enclosures in Montserrat by the end of Year 2 Q2 representing the first successful breeding of the species in Montserrat in 10 years	Threats facing Threatened Species reduced (DEFRA KPI)	Species	Threats reduced	1	0	0	1	1

Checklist for submission

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