Darwin Initiative Main: Annual Report

To be completed with reference to the "Project Reporting Information Note": (https://www.darwininitiative.org.uk/resources-for-projects/information-notes-learning-notes-briefing-papers-and-reviews/).

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

Submission Deadline: 30th April 2023

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

Darwin Initiative Project Information

Project reference	29-003
Project title	Improving livelihoods and protecting biodiversity on Floreana Island, Galápagos
Country/ies	Ecuador
Lead Partner	Durrell Wildlife Conservation Trust
Project partner(s)	Island Conservation (IC); Jocotoco Foundation; Galápagos National Park Directive (GNPD), Galápagos Conservation Trust (GCT), Ecuadorian Ministry of Agriculture and Livestock, (MAG) Universität Wien (UW)
Darwin Initiative grant value	£498,076
Start/end dates of project	1 June 2022 – 31 March 2025
Reporting period (e.g. Apr 2022 – Mar 2023) and number (e.g. Annual Report 1, 2, 3)	1 June 2022 – 31 March 2023, Annual Report 1
Project Leader name	Jeff Dawson
Project website/blog/social media	
Report author(s) and date	Jeff Dawson (Durrell), Paula Castaño, Holly Johansson, Chad Hanson (IC), Victor Carrión, Vilma Calvopina (Jocotoco). 28 April 2023

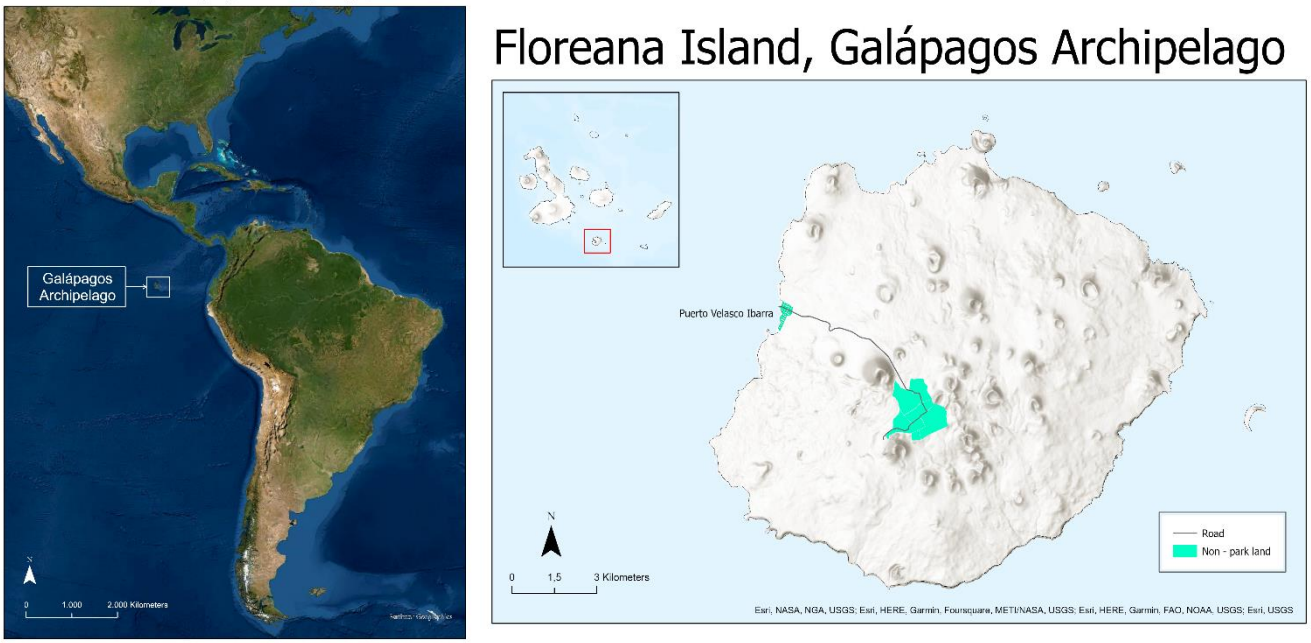
1. Project summary

The Galapagos Islands are renowned for Charles Darwin's revelations and a convergence of unique wildlife that exist nowhere else in the planet, such as Giant Tortoises, Land Iguanas, Lava Lizards, Darwin's Finches, the Galápagos Penguin, and many other endemic species. Unfortunately, invasive species are causing havoc across the archipelago by preying on these iconic and vulnerable native species.

The island of Floreana in particular has the most significant habitat degradation and highest level of species loss within the Galápagos archipelago, with 13 species that have been locally extirpated including the Floreana giant tortoises (*Chelonoidis niger*), Floreana mockingbird *(Mimus trifasciatus)*, Floreana racer (*Pseudalsophis spp*), vermilion flycatcher (*Pyrochephalus nanus*) and Galapagos hawk (*Buteo galapagoensis*). The Floreana mockingbird, for example, was extirpated from the island due to these invasive species and survives only on two small predator-free offshore islets. Floreana is also home to 54 IUCN Threatened species that are threatened by the presence of feral cats and invasive rats and mice. Whilst feral cattle, donkeys,

and goats have been eradicated, rodents and cats remain, threatening the survival of several remaining native species and limiting the populations of others.

Floreana Island, Galápagos Archipelago, Ecuador*



A small but vibrant community of 140 people call Floreana home, and they rely on healthy ecosystems to support the island's primary industries including tourism, farming, and a small fishery. Unfortunately, invasive rodents also have an impact on community livelihoods and food security through crop destruction, consuming and contaminating stored food, and depredating poultry. They are also vectors of multiple diseases, contributing to reduced health, economic insecurity and lost wages (Hopkins et al 2021, Morand et al. 2015).

Given these extreme challenges facing Floreana's ecosystems, wildlife, and its residents, the island has been identified as a priority conservation site within the archipelago. In response to the urgent need to support the community's holistic vision of a sustainable Floreana through restoration conservation activities, GNPD, IC, and Durrell partnered to jointly advance this complex conservation operation on Floreana. The partners' shared goal is to restore the ecological integrity of Floreana Island, and these efforts build on the successful restoration of Rabida, Pinzon and other small uninhabited islands in the archipelago, which have resulted in the recovery of dozens of endangered species.

Durrell, IC, GNDP, and Jocotoco have been working very closely with the community to develop a strategy to advance sustainable agriculture, remove invasive predators, and reintroduce a host of threatened species. These include: the Giant Tortoise, Floreana Racer, Darwin's finches (4 spp.), Vermillion Flycatcher, Galápagos Rail, Galápagos Hawk, Galapagos Barn Owl, Lava Gull and the Floreana Mockingbird.

However, the restoration of Floreana is at its heart a community-driven conservation initiative designed to not only protect threatened wildlife but to protect the livelihoods of the community. This work includes preventing extinctions and reintroducing locally extinct species, improving livelihoods by improving the foundational resource for ecotourism, and increasing the sustainability of agriculture and farming.

Planning and preparation is well underway by the partnership to remove invasive mammalian predators in the fall of 2023. These efforts required careful planning with Floreana community, resource managers and experts for a successful implementation and for laying out a roadmap for the most ambitious rewilding effort undertaken in the region today. Potential impacts of eradication methods on at-risk native species and livestock will be managed through captive holding of species. This infrastructure will subsequently aid long-term food security and native species reintroductions. Community livelihoods will be improved by activities in livestock feed production and improved harvest management.

Once these damaging invasive vertebrates are removed, the island's unique fauna and flora will have the opportunity to recover and flourish, creating the conditions for sustainable ecotourism

and farming on the island, and thereby transforming the lives of Floreana islanders who are largely dependent on farm-based income and tourism. We have an incredible opportunity to replicate successes at scale to prevent further loss of biodiversity, lessen the impacts of climate change, and ensure sustainable livelihoods for those living on the islands. Lessons learned from Floreana will be disseminated to the wider conservation community and are applied to future ecological restoration of inhabited islands globally (e.g., Pitcairn, Juan Fernandez), preventing further extinctions of threatened biodiversity.

2. Project stakeholders/ partners

This project is part of the broader Floreana Island Restoration Programme led by GNPD with IC, Durrell, and GCT as long-term partners jointly committed to the vision of restoring the natural balance on Floreana to protect at risk native species and support sustainable livelihoods. As the project has progressed, new partners have become involved, such as Jocotoco who joined the effort in 2021 and is a core partner in this Darwin Initiative supported project.

In 2009, IC and GNPD began discussing the feasibility of removing invasive predators and officially began developing action plans in earnest starting in 2012, once the Floreana community had created its holistic vision of a sustainable Floreana. This community plan became the basis of the broader Floreana Island Restoration Programme and has remained the driving vision of the overarching project to this day. Since then, IC, now joined by Jocotoco, has been working with the Floreana community to implement sustainable livestock and agricultural practices to improve livelihoods and manage risk for their livestock during invasive predator eradication.

In 2017, the GNPD held a workshop (including IC and Durrell) to identify critical, at-risk non-target species in preparation for an invasive predator eradication operation and identified the necessary and appropriate mitigation measures required, and its these non-target mitigation measures that serve as the foundation for this Darwin Initiative sponsored project. Durrell led captive holding trials for the five finch species in question from 2018-2019, while IC led captive holding trails in 2019 for short-eared owls in question to determine the appropriate holding and husbandry protocols that ensure healthy populations could be held safely and securely.

Over the course of last year, the partnership has continued to strengthen with all partners equally committed to the successful implementation of this project, which is a critical component of the overall Floreana Island Restoration strategy. In July 2022 a 3 -day reintroductions workshop was held on Floreana to discuss the timelines and responsibilities for the reintroduction of 13 species onto Floreana following a successful eradication. This workshop, led by GNP and funded by Re:Wild brought together multiple organisations including Durrell, IC, Jocotoco, Universitat Wein (UW), Charles Darwin Foundation, Galapagos Conservancy, GCT, Massey University, University of Minnesota, Houston Zoo and the Floreana Community.

IC is currently working on signing an agreement with UW for purchasing much needed innovation equipment (Wildlife Drones' system) that will support the post-release monitoring of finches placed in captive holding, as well as efforts related to feral cat eradication and future reintroduction of up to 12 species locally extirpated.

Working closely with the Floreana community is critical for the successful delivery of this project as well as the overall Floreana Restoration Programme, and this support from the Darwin Initiative has made numerous community engagement efforts possible. These engagement opportunities have been crucial to ensuring we have a regular dialogue with community members and that our efforts are understood and welcomed. To date, property management agreements that outline the action plan for ensuring the successful removal of invasive predators and mitigating any risk to pets and livestock has been signed with all landowners on the island.

A summary of the key project partners roles within this project are as follows:

Durrell: manage the Darwin grant and will lead the captive holding management of Darwin's finches during the invasive mammal eradication and oversee post-release monitoring. Will also lead on undertaking pre and post-eradication monitoring for key species groups including endemic reptiles, waterbirds and paint-billed crake.

Island Conservation: Lead the captive holding management of owls, oversee eradication implementation, and the pre and post-eradication monitoring of Galapagos petrels.

Galapagos National Parks Directorate: Overall programme lead including the rodent and feral cat eradication lead in-country and support captive holding, and post-release monitoring efforts.

Fundación Jocotoco: Lead relationships with Floreana community including the livestock and harvest management activities and support eradication implementation.

Galapagos Conservation Trust: Will serve as funding partner to ensure the project can be implemented properly.

Ministry of Agriculture: Provide agricultural extension and support on crop and livestock production.

Universitat Wien: Support post-release monitoring of Darwin finches and lead nest treatment activities for medium tree-finch.

In addition, the implementation of the project over the years has been supported by local stakeholders such as the local Government of Floreana, which is the local government, Asociación Verde Floreana, and the Biosafety Agency. Fundación Jocotoco has a technician permanently in Floreana to provide assistance and community relations for each phase of the project. A communications plan for the FLoreana Island restoration Programme is currently in the final development stages led by GNPD, Jocotoco and IC.

3. Project progress

3.1 Progress in carrying out project Activities

Output 1

Activity 1.1. Undertake full maintenance of aviaries, establish temporary owl enclosure on Floreana and purchase and install in the aviaries all necessary fixtures and fittings prior to capture of birds (finches and owls) and secured captive holding supplies (Y1)

In Y1, we developed the infrastructure plans for building the temporary owl enclosure on Floreana and completed construction in the last week of March 2023 (See Annex A). This enclosure will support holding the birds' captive until we capture enough individuals to transfer to Santa Cruz Island where they will be maintained in long-term captive-holding aviaries. The temporary enclosure will also provide a holding and treatment area for owls which may potentially arrive to Floreana and become exposed to pesticide over the operational period. Additionally, we secured a local construction contractor to install the ceiling mesh at the long-term owl captive-holding enclosures in Santa Cruz. The contractor is finishing installation of mesh in the owl aviaries in April.

In addition to the main owl aviaries a further four cages for housing guinea pigs and a wooden frame to set up the mouse cages were built which now allows the project team to utilize a vivarium to provide food to owls while in captivity. This valuable infrastructure is being finalized at time of writing.

In Y1, we secured part of the equipment and supplies needed for trapping and managing owls in captivity. Some of these supplies were sourced locally in Ecuador, and others in the United States which will arrive in April. Some supplies were not able to be secured due to no availability. Vendors indicated these supplies would be available by the end of April when we planned to procure them. These supplies will be stored and ready to be used in July 2023, when the trapping for owls will initiate.

Maintenance and repair work on the finch aviaries has begun in March and will be completed by early May. This was delayed due to Durrell's Mitigation Officer being delayed in travelling to Galápagos, initially due to visa delays and then through sustaining a back injury in early March. Equipment and kit for the aviaries has been sourced primarily in the UK and shipped to

Galápagos due to its specialist nature. Other e.g., fridges have been sourced in either Galápagos or mainland Ecuador.

Activity 1.2. Work with Galapagos National Park Directorate (GNPD) to complete permitting requirements and secure permits to proceed with import of finch and owl diet supplies purchased overseas or in mainland Ecuador and proceed with project implementation (Q1 Y1).

Permitting for all project activities are issued annually. Grant activities through Q4, Y1 remain covered under current permits. The project team, in collaboration with Fundacion Jocotoco, are actively renewing the permit through GNDP processes which will enable Y2 activities to be completed as well as all activities required by the general Floreana rodent and feral cat eradication project.

The GNDP has indicated that the subsequent year's permit would be ready and approved by 14 April 2023.

Activities 1.3 – 1.11: to be undertaken from Y2

Activity 1.12 Finalise monitoring plans for 5 non-target species groups e.g., Darwin's finch; paint-billed crake; water birds; reptiles; Galapagos petrel (Y1).

Monitoring plans for the five non-target species groups have been completed and implemented. In addition to these species-specific monitoring plans, we are also monitoring how the terrestrial restoration efforts to remove invasive species will impact the surrounding marine ecosystems and the wildlife that call them home. In order to do this, we will collect an additional pre-eradication baseline dataset in Y2 of this project. This monitoring includes predator activity, native landbird populations abundance, diurnal and nocturnal seabird abundance, reptile populations, including marine iguanas as a connector species abundance, arthropods, vegetation, and the near-shore marine environment. Funding for these additional monitoring efforts has been secured from the Wolf Creek Charitable Foundation and Oceankind, which could be considered additional matching funding to the Darwin Initiative Grant.

Activity 1.13 Train local GNPD staff in monitoring techniques for key non-target species (Y1, Y2, Y3)

We provided training for three GNPD staff, all males, in monitoring techniques for Galapagos petrel in Y1. This effort included the deployment of songmeters for acoustic data collection and motion-sensing cameras for surveying invasive predators (e.g., rodents and feral cats) interactions with the species. Also, we have provided training on data retrieval.

Additional training will occur in Y2 and Y3 of this grant. This training will include using motion-sensing cameras for surveying predator activity, acoustic monitoring for landbirds and seabirds, point counts for landbirds, boat-based bird counts for seabirds, and drone surveys for marine iguana population, vegetation estimates applying several methodologies including photomonitoring and soil and leaf sampling.

Activity 1.14 Undertake pre- (Y1) and post-eradication (Q4 Y2 and Y3) baseline surveys of key non-target species

IC have conducted surveys for Galapagos petrels to establish a baseline. We have some preliminary data about the phenology of the species and the impacts of invasive species on this. Results so far indicate the presence of the species in locations not previously recorded on Floreana Island but also the potential for colony expansion once invasive predators are removed. Baseline monitoring for this species before invasive predator eradication will continue for the next year until Q4 Y2. Finch surveys are undertaken on Floreana by the Charles Darwin Foundation and a full survey was undertaken in 2022.

Baseline reptile surveys were carried out in March 2023 by Durrell using additional funds secured by GCT (see Annex B for report). Waterbird and paint-billed crake surveys will be carried out when drier in late August-September 2023 (Q2 Y2).

Output 2

Activities 2.1 – 2.4: will be undertaken in Y2 and Y3 (see next section for more details).

Output 3

Activity 3.1: Project partners (Jocotoco) will work with each farmer to establish 2ha of their land to produce pastures and animal fodder, as well as other agricultural resources that can be used for preparing animal feed (Q1 and Q2 Y1).

Completed in Y1.

Activity 3.2: Project partners (Jocotoco) will work with each farmer to set an irrigation system at each farm to support agricultural productivity (Q2 Y1)

All irrigation systems and is in process of installing which is due to be completed in early May. Farms will utilize the irrigation systems for short-term production during ENSO and dry season to supply local and tourism demand.

Activity 3.3: Identify and recruit harvest and livestock management consultants to train Floreana community (Q1, Y1)
Activity 3.4: Conduct in-farm training on the use of the new equipment, preparing nutritionally balanced, locally produced livestock feed, and managing crop harvests (Q3-Q4 Y1)

Led by a newly recruited Jocotoco agricultural technician in conjunction with technicians from the Galapagos Ministry of Agriculture and Livestock (MAG) ongoing community training on balanced animal feed preparation has been undertaken since May 2022. In total 100% of farmers from 14 farms representing 24 households have received training. To date 39 individuals including 20 women (51%). A great achievement of this period was to develop a unique nutritional formula for livestock feed with local resources produced on Floreana Island (see Annex A and folder for photos). Equipment including two grass chopper's (used to feed cattle in stables during the baiting phase of the Floreana project); a corn dryer (support the processing of poultry feed and silage for livestock) and a vacuum packer (for vacuum storage of silage produced) have been purchased. The labelling machine planned to be purchased in Y1 could not be acquired due to the obstacles encountered in the purchase of land where the meat processing centre is to be located. The land which will be purchased by local NGO Verde Floreana has faced several bureaucratic hurdles but is close to receiving the necessary documents to proceed. Until the land is purchased there is nowhere to safely store this machine. To help with planting and preparation of feed for the post-eradication period 320 kg of hard maize seeds were purchased. The pending equipment purchases will be made in Y2. Agricultural support will continue to be provided for at least the following year.

Due to the pandemic, two additional families returned to Floreana and have started to raise livestock. It is therefore, necessary to provide them with facilities to manage their animals before the rodent eradication starts in October 2023. For this reason, the training on "Cattle Nutrition and Semi-stabled systems management" has been postponed and will take place in April and May.

Activities 3.5-3.7: To be undertaken in Y2 and Y3

Output 4

Activity 4.1: Infrastructure plans are developed in conjunction with Floreana pig farmers laying out the details for the construction of the piggeries covering aspects to manage risk during

invasive predator removal and enhancement of sanitary measures for animal and meat production (Q1 Y1)
Activity 4.2: Local construction team is secured to build the piggeries in Y1 following the infrastructure plans and needs from farmers.
Activity 4.3: All infrastructure required for pigs, chickens and cattle is completed (Y1) and livestock is placed in captive holding to prevent any losses from invasive predator removal.

In total seven piggeries have been completed with four constructed during Y1 including 2 funded exclusively by Darwin, which has covered 100% of the island's current pig producers. In addition, five cattle sheds and 14 poultry coops have been constructed (non-Darwin funds) as part of the livestock mitigation process. The formal handover of these facilities took place with the Ecuadorian Minister of the Environment on 22 April 2023 (see Annex A for photos and Annex C for sample contract)

Activity 4.4: Undertake baseline surveys of Floreana farmers current livestock and harvest management practices on Floreana Island and associated costs (Q1 Y1).

Due to other commitments of Jocotoco team in relation to preparing for the eradication in October 2023 including ensuring all livestock aspects are in place and logistics for the baiting operation this activity was not undertaken. Baselines from a comprehensive assessment undertaken in 2017 will be used to

Activities 4.5-4.8: To be undertaken Y2 and Y3.

3.2 Progress towards project Outputs

Below we described our progress for Year 1 (1 June 2022 to 31 March 2023) of this project against the Outputs and indicators, Island Conservation is being leading or supporting.

Output 1 – Six at-risk species successfully held in captivity (≥90% survival) during eradication of invasive predators from Floreana and impact of eradication on five key wildlife groups understood (pre vs post eradication surveys).

Two aviary complexes (one in the highlands and one in the lowlands of Floreana) for holding target finch numbers (830 birds) and one aviary complex (on Santa Cruz Island) and the temporary holding aviary (on Floreana) for holding up to 60 Galapagos short-eared owls completed. Finch aviaries are currently undergoing some minor maintenance and will be fully setup to receive the first birds on 15 May. As for owls, aviaries will be set up with enough perches of different types in early July to receive the first birds on 10 July at the temporary holding aviary on Floreana and 15 July at the permanent aviaries on Santa Cruz Island. This will allow the team to protect six at-risk bird species effectively while eradicating invasive rodents and feral cats on Floreana Island. The recruitment of volunteers to support the finch and owl mitigation has also begun. In total 16 volunteers will be required for the finch mitigation work across the period June 2023 – March 2024. At any one time four volunteers will work alongside four GNPD staff (four people for each aviary) with overall supervision by Durrell's Finch Mitigation Officer.

We also made progress towards the training of GNPD staff on wildlife monitoring techniques, with three GNPD staff trained in monitoring techniques for Galapagos petrels that included deployment of songmeters for acoustic data collection and motion-sensing cameras for surveying predators (e.g., rodents and feral cats) activity around the species breeding colonies. This training included the retrieval and processing of data. Staff trained will continue to support this monitoring effort in Y2 but will also expand their skills while supporting additional monitoring using motion-sensing cameras for surveying predator activity, acoustic monitoring for landbirds and seabirds, point counts for landbirds, boat-based bird counts for seabirds, and drone surveys for marine iguana population estimates and vegetation monitoring, including photomonitoring and soil and leaf sampling. Two GNPD staff (Anibal Altamareno and Francine Mora) supported the consultant undertaking baseline reptile surveys in March 2023. Both staff had received training in survey techniques in 2021 which were refreshed during this survey period.

Output 2 - Conservation measures (invasive predator eradication and nest treatment)

demonstrate a reduction in nest mortality for the Critically Endangered medium tree-finch by end of project.

The Critically Endangered medium tree-finch (MTF) is endemic to Floreana. A long-term research programme (started 2004) into nesting success and impact of predators and the invasive parasitic fly *Philornis downsii* on passerine bird species, including the MTF, on Floreana is being led by Universität Wien (UW). Due to several factors including requirement of the UW team to support monitoring and trapping of short-eared owls and to minimise stress to the various finch species during breeding prior to capture, nest monitoring has not been undertaken in 2023. Survey data collected January-March 2022 will be used as the baseline for which to compare post eradication data.

Output 3 - Floreana community (46% women) have increased self-sustainability in livestock management, animal feed production and harvest management and have shared lessons with 3 other islands/communities in Galapagos.

To date 39 people including 20 women (51%) have received training in animal food production. This has been led by Jocotoco's Agricutural Technician Karina Kastdelan. Further trainings in harvest management and livestock production are planned for Y2.

Output 4 - Floreana community livelihoods become more resilient and food security improved through adoption of sustainable livestock management and improved harvest management practices by ≥75% farmers and eradication of invasive rodents

With the exception two more cattle stables all livestock infrastructure has been completed which will improve livestock management moving forward.

3.3 Progress towards the project Outcome

Outcome: At risk wildlife and livestock populations are effectively protected during the eradication of invasive predators from Floreana Island while vulnerable community livelihoods are strengthened through sustainable livestock management by 2025.

With our progress today, we are on track to achieving our proposed Outcome by the end of the funding period. We have established the pre-requisite conditions to hold safely six at-risk species and have the projected survival rate of at least 90% of the captive-holding bird populations enabling the full recovery of the wild populations upon release. In 2022 in a separate project (a translocation effort requiring captive holding for quarantine purposes), we had the opportunity to test our captive holding protocols developed for Floreana finches on another Darwin finch species, the woodpecker finch yielding very successful results with a zero mortality of woodpecker finches while in captivity. These are excellent results because previous experiences with the species in captivity were unfavourable, with more than 50% mortality in some instances. Our results prove that these husbandry guidelines are transferable for future work with other Darwin finches requiring captive holding, either as part of non-target mitigation when invasive species are removed (as the activities supported by this grant) or as part of quarantine periods before being translocated to a new site.

The indicators developed to measure our progress towards our Outcome continue to be appropriate at the current stage level of this grant.

3.4 Monitoring of assumptions

Project Outcome assumptions

Assumption 1: No extreme weather events (e.g., El Niño event) occur that may affect the removal of invasive predators on Floreana.

Modelling has shown an increased possibility of an El Niño event this year. However, the Floreana Project Steering Committee has evaluated this against the project plan and prescription

and will proceed with implementing eradication on schedule. Project planning has taken into account a moderate amount of variability in weather to maintain a high likelihood of success in the removal of invasive predators on Floreana if an El Niño event materializes this year.

Assumption 2: Enabling conditions to complete the project remain in place for the duration of the project (e.g., access to Floreana Island, interest, permission, and mandate from the local community remains in place).

Enabling conditions to complete the project remain in place today. Several mechanisms have been implemented to ensure access to Floreana Island; interest, permission, and mandate from the local community remain in place. Additionally, we have secured all permits from the required authorities (e.g., GNPD) for implementing the activities established to be undertaken under this project and grant period.

Project Outputs assumptions

Assumptions Output 1:

Assumption 1. Enabling conditions to establish the infrastructure required are in place (e.g., access to Floreana Island and construction materials arrived from the mainland without any issues).

Enabling conditions (e.g., access to Floreana Island and construction materials from mainland Ecuador) were met for the short-eared owl's temporary and permanent aviary. However, we had some issues for the finch's aviaries that needed to be addressed before aviaries could be operative to receive birds. Extension to the aviaries was made early in Y1. Still, we encountered issues with the mesh sourced that disintegrated in a couple of months. As such, we had to source the mesh again from a different vendor, which proved problematic due to a lack of availability. Finally, this issue was overcome, and the mesh arrived in early March and is being installed on both finch aviaries in April. We are working on minor details to have the aviaries ready to receive birds by mid-May.

Assumption 2. The tools and methods implemented will be effective to maintain a healthy captive population of Darwin Finches and short-eared owls and ensure their survival while in captivity.

A full finch-mitigation plan was finalised in 2021 following 2-years of captive holding trials. As indicated above under section 3.3 in 2022, during a separate project (a translocation effort requiring captive holding for quarantine purposes), we had the opportunity to test our captive holding guidelines developed for the five species of Floreana Darwin finches on another Darwin finch species, the woodpecker finch. This effort yielded successful results with zero mortality of woodpecker finches while in captivity, compared to previous experiences with the species that resulted in some instances with mortality higher than 50%. Our results prove that these husbandry guidelines are transferable for future work with other Darwin finches and the Floreana species requiring captive holding, either as part of non-target mitigation when invasive species are removed or as part of quarantine periods before being translocated to a new site.

For owls, our tools and methods were developed and adjusted based on results obtained from captive-holding trials conducted with the species in 2019, which proved to be more successful for the species than on other occasions when the wildlife veterinarian from the Galapagos National Park needed to conduct any housing or treatment of injured owls.

Assumption 3. The radio-tags deployed for post-release monitoring of Darwin finches work appropriately and remain in place (do not fall off the bird) for the duration of their battery life.

For assumption 3, no advances have been made to determine if the assumption holds.

Assumption 4. Trained staff remain engaged and motivated to pursue the wildlife monitoring efforts throughout the project.

Today trained staff have remained engaged and motivated to pursue the wildlife monitoring efforts implemented. The team supports other partners and efforts that implement the tools they have been trained in. An example of this is the monitoring of lava lizards, where GNPD staff trained during 2021 were able to support and co-lead the monitoring efforts conducted early this year with a consultant.

Assumption 5. Existing programs to monitor Medium-tree finch on Floreana will continue for the foreseeable future.

This work is led by Universitat Wien as part of a long-term study. Whilst work was not undertaken in 2023 due to the teams other commitments for the programme i.e., short-eared owl tracking, UW have confirmed this will continue for the forthcoming years post eradication.

Assumptions Output 2:

Assumption 1. No extreme weather events (e.g., El Niño event) will occur that will affect the removal of invasive predators on Floreana and the recovery of at-risk species.

See Outcome, Assumption 1.

Assumption 2. Removal of invasive predators is completed successfully.

For assumption 2, no advances have been made to determine if the assumption holds. However, considering Island Conservation's impressive track record of successful rodent and feral cat eradications implemented worldwide and the technical expertise, we are confident that removing invasive predators can be achieved successfully. As indicated previously, although potential extreme weather events occur this year, there are mechanisms to ensure the project's success.

Assumption 3. Existing programs to monitor Medium-tree finch nesting on Floreana will continue for the foreseeable future.

See Output 1, Assumption 5.

Assumption 4. Trained staff can find and identify active medium tree finch nests to inject with insecticide against Philornis.

This will be undertaken by UW staff in Year 2 for the project. Several people trained in this technique still work within the Floreana Programme partners.

Assumption 5. Trained persons remain engaged and motivated to pursue the treatment of active nests with insecticide.

No reason to believe this assumption does not hold.

Assumptions Output 3

Assumption 1: Community members willing to engage in sustainable livestock feeding management practices training and implementation at each farm.

This has held true with 100% of farms (24 households) engaging with the programme on on balanced animal feed preparation during Y1. These community members remain willing to engage in further training that will be provided during Y2.

Assumption 2: No extreme or unusual weather conditions affect the production of agricultural products to be utilized for the development of balanced feed for livestock during the implementation.

No unusual or extreme weather conditions have occurred that will impact. Heavy rains caused 3 people lost 20% of corn harvest. Losing some corn to finches.

Assumption 3: Support from the Ecuadorian Ministry of Agriculture (MAG) will be maintained to provide technical assistance to the farmers while implementing the new livestock management and feeding practices.

Jocotoco have recruited an Agricultural Technician to lead all the training and provide technical assistance to farmers, who has been in place since April 2022. The MAG are continuing to support this role.

Assumptions Output 4

Assumption 1: Enabling conditions to establish the infrastructure required are in place (e.g. access to Floreana island and construction materials arrived from the mainland without any issues).

All conditions for enabling the building of necessary livestock structures were met and all infrastructure has been completed, except for that of two new households (with funding from other sources).

Assumption 2: Community members willing to engage in sustainable livestock feeding and harvest management practices training and implementation at each farm.

Given the engagement of community members in training for animal feed production and general engagement with the project there is no reason to believe this assumption will not hold. A consultant has already been hired to undertake this training later in the year.

Assumption 3: Removal of invasive predators is completed successfully

The eradication team remain confident that the eradication will successfully remove all invasive, rats and cats from Floreana Island.

3.5 Impact: achievement of positive impact on biodiversity and poverty reduction

Project impact
Ecological restoration of Floreana Island safeguards endemic and globally threatened species, enhancing livelihood resilience and food security while providing a community-values integrated model for inhabited islands restoration.

In regard to the overall impact towards supporting biodiversity outcomes, significant progress made to date this year related to securing the infrastructure necessary to support the eradication of invasive predators. These efforts have established the pathways for safeguarding endemic and globally threatened species such as the medium tree-finch, one of the five Darwin finch species to be brought in captivity for minimizing risk during the eradication operation. This will protect finch populations, providing unexposed backup populations in the unlikely event of a significant impact on wild populations from baiting. Additionally, the infrastructure and training provided to farmers for developing their own silage and animal feed provide multiple benefits to the Floreana community, improving livestock health, product quality, and production resilience to climate change.

As part of the overall Floreana restoration project, in alignment with the Darwin Initiative priority to impact human wellbeing, modifications will be made to the main dock on the island that improves access to supplies and equipment. This has also increased awareness of biosecurity, a vital component of the overall project that will support the investment made and benefit the community in the long-term by reducing the impact of invasive species on their livelihoods.

4. Project support to the Conventions, Treaties or Agreements

Ecuador is party to several multilateral environmental agreements regarding the protection of the environment (17 treaties have been endorsed and ratified) under the Convention of Biological Diversity (CBD). Ecuador is also Party to the Nagoya and Cartagena Protocols. Therefore, Ecuador has developed their own NBSAP as mandated by the 10th CBD Conference of Parties (COP) in Nagoya, Japan where the Aichi Biodiversity targets were decided.

As per the Aichi Target, this Darwin Initiative project supports Ecuador's efforts by promoting and facilitating sustainable management of areas under agriculture, ensuring conservation of biodiversity (Target 7), while improving food security. It also creates the enabling conditions for implementing the eradication of invasive alien species (Target 9) from Floreana Island. Additionally, by eradicating invasive species and managing associated risks to wildlife populations this will prevent the extinction and protect populations of threatened species (Target 12), such as the Critically Endangered medium tree-finch, as well as enable the reintroduction of the Endangered Floreana mockingbird and 12 other species.

As per the 15th COP of the CBD in Kunming-Montreal, where parties approved the Post 2020 Global Biodiversity Framework (GBF), encompassing four goals and 23 targets to be achieved by 2030, this project also supports Ecuador in addressing and accomplishing 2 Goals and at least 4 targets (4, 6, 8,10).

This project incorporates a holistic approach, so by eradicating invasive alien species (IAS) and managing the associated risks for humans and non-target species, Ecuador will support the GBF ambitious goals and targets. More specifically, Goal A aims to maintain, enhance, or restore the integrity, connectivity, and resilience of all ecosystems, sustainably increasing the area of natural ecosystems by 2050. This goal also aims to halt human induced extinctions of known threatened species, reduce tenfold the extinction rate and risk of all species, and increase the abundance of native wild species to healthy, resilient levels. Goal B aims to sustainably use and manage biodiversity, securing nature's interconnectedness and overall contribution to people.

The project is undoubtedly supporting the new GBF by:

- Target 10: Promoting and facilitating adequate sustainable management of land and see resources by implementing friendly biodiversity practices ensuring conservation of biodiversity and reducing human/biodiversity conflicts.
- Target 6: Also, by creating the adequate conditions for the removal of IAS, and implementing the eradication, the Project is supporting Ecuador's ambition to achieve that aims to eliminate IAS from biodiversity in a priority site, specifically on an island.
- Target 4: Once the eradication is executed, the populations of at least 54 species listed on an endangered category by the IUCN, will be able to thrive without one of the major drivers of extinctions -IAS- ensuring that Ecuador is accomplishing at the same time with which the objective is to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species.

Specific Conventions, Treaties, and Agreements Mentioned

<u>GOAL A</u>

The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050;

Human induced extinction of known threatened species is halted, and by 2050, extinction rate and risk of all species are reduced tenfold, and the abundance of native wild species is increased to healthy and resilient levels;

The genetic diversity within populations of wild and domesticated species, is maintained, safeguarding their adaptive potential.

<u>GOAL B</u>

Biodiversity is sustainably used and managed and nature's contributions to people, including ecosystem functions and services, are valued, maintained and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development, for the benefit of present and future generations by 2050.

TARGET 10

Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches contributing to the resilience and long-term efficiency and productivity of these production systems and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people,including ecosystem functions and services.

TARGET 6

Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 percent, by 2030, eradicating or controlling invasive alien species especially in priority sites, such as islands .

TARGET 4

Ensure urgent management actions, to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.

TARGET 8

Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solution and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

5. Project support to poverty reduction

Floreana farmers rely heavily on imported livestock feeds from mainland Ecuador. This increases production costs and limits access of these vulnerable households to protein because the number of animals that can be maintained by a household for protein is reduced. Additionally, the annual dry season and ENSO event negatively impact animal production in Galápagos because local feed (e.g., pastures and other produce) availability is reduced, as well as their agricultural production. By implementing and training the community on sustainable livestock management practices (e.g., silage, local nutritionally balanced feed production), and improved harvest management practices, as well as establishing irrigation systems at each farm, food security and household incomes can be improved. Infrastructure and training (39 persons) in these areas has begun in Y1 and will continue throughout the project.

Some expected results by the end of the project include:

Without rodents, crop production will increase 30-40%. An increased supply of locally produced, nutritionally balanced livestock feeds, will reduce the need of importing from the mainland, thereby reducing livestock production costs by c.20%.

Improved harvest management will reduce losses from harvest to consumer by 15-20% representing annual savings of 6,000-8,000 USD per farmer. These will all combine to increase farmers' household incomes including a significant benefit to women who comprise 70% of all 40 farmers on Floreana.

Sustainable livestock management will facilitate ecological restoration, enhancing ecotourism opportunities (through increased wildlife viewing opportunities) and provide improved conditions for growing and harvesting crops on Floreana.

This will improve food security, increasing the abundance and variety of foods readily available for the local community (c.40 households), improving their resilience to global climate change and local climate fluctuations.

Increased household incomes resulting from these improved livestock and crop management measures are sustained, allowing vulnerable families to break out of poverty.

Strategies and lessons learned from Floreana will be transferred to other inhabited Galápagos islands (3 other islands), improving food security and household incomes across the archipelago (for approx. 1000 households).

6. Gender equality and social inclusion

Durrell and its partners involved in this project remain steadfastly committed to the principle of equal opportunities and gender equality across all levels of the project and their respective organisations. This project has aimed to promote the inclusion of women in the farming industry, what has traditionally been a male dominated society.

Numerous female community leaders on Floreana have been closely involved in the community consultation process for this project.

As stated in the application, by the end of Y3 of this project, we are planning to create opportunities for female farmers on Floreana to attend women-in-agriculture meet-ups on other Galapagos islands. This will facilitate knowledge exchange opportunities to share experiences and lessons learned in utilizing the new livestock feed systems and harvest management techniques being implemented on Floreana. This will contribute to a collective commercialization increase and added product value for women-owned farm products.

Please quantify the proportion of women on the Project Board[1].	Within the Darwin Initiative Project Board consisting Durrell, IC, Jocotoco and GNPD 1 of 4 persons are women (25%). In terms of representation of women leading mitigation efforts 5 out of 9 are women (56%) and within the Floreana Community Council 4 of 7 are women (57%)	
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].	Of the six named project partners four of six (67%) are led by women: Durrell, IC, GCT and UW	

7. Monitoring and evaluation

The M&E logframe developed for the proposal remains suitable. Each organisation (Durrell, IC, Jocotoco) has responsibility for M&E related to their portions of the project on a monthly basis with respect their individual institutional coordinators. During this first year as it has been predominantly putting in place conditions to enable effective mitigation M&E processes have been relatively light. The Project Leader has had quarterly calls and more frequent email contact with the key partners to check on progress towards the goals. The Project Leader has undertaken a visit to Galapagos in April 2023 to discuss progress and challenges directly with the partners and individual staff leading certain components as well as the wider Floreana Restoration Programme activities.

As the project moves into Y2 this will be increased to bi-weekly calls (between Project Leader and Mitigation Officer) and monthly calls with IC and Jocotoco. This is to ensure M&E remains

[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.

on track and that any challenges and potential issues are identified early so that these can be overcome and resolved.

8. Lessons learnt

Infrastructure establishment, including procurement of materials and construction

One of the challenges we experienced during Y1 of this project provided some important lessons regarding the coordination and construction of infrastructure required for managing risk to wildlife and livestock. While some of the infrastructure needed for the Floreana project had already been built prior to this grant term, we needed to build the remaining infrastructure to implement the invasive predator removal with the Darwin Initiative's generous support. Over the past year the local teams have constructed a temporary and permanent aviary for owls, four piggeries, five cattle barns, and three additional chicken coops. The amount of construction projects limited staffing capacity which resulted in minor delays to some planned infrastructure (the temporary owl aviary construction or mesh installation at the permanent aviaries in Santa Cruz, for example).

If we were to do another similar project like this, we will consider staggering the construction of any infrastructure needed and include more realistic deadlines that account for minor, unexpected delays (for example, the remoteness of the Galapagos can cause unforeseen and sudden cargo delivery delays that can set back project activity). As such, going forward we will ensure that all construction project timelines are more thoughtfully arranged to allow for the additional staffing capacity needed, and this should help ensure that deadlines are met.

Monitoring and Evaluation

Whilst there has not been any significant issues, after conversations with partners we will increase the level of communication in the project moving forward so as to identify any challenges and issues in good time. From a Darwin Initiative project perspective this will be enhanced by having Durrell's Mitigation Officer in place in the Galapagos to help facilitate communication with the in-country partners.

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

No reviews have highlighted any actions requiring response to date.

10. Risk Management

The project team continues to monitor weather trends which are traditionally variable between models within the localized region. At present, some models indicate a moderate risk that El Niño will be experienced this year, which would extend and intensify the rainy season over the project's prescribed implementation widow, a period of time that was selected to coincide with the dry season to minimize alternative food for rodents. Although this is the case, project planning has accounted for potential impacts associated with higher humidity and remains on track for scheduled implementation. In the event that significant rainfall impacts certainty in project success, the operational window has room to shift to accommodate for conditions to normalize which will be determined through an evaluation of field data and decided by the Floreana Programmes's steering committee.

Recent changes occurred at the Ministerial level of Ecuador, with a new Ministry of Environment appointed. When changes like this happen, there are often changes at the Galapagos National Park Directorate at the Director level. Although this is the case, there is no need for adjustments as the project is broadly supported, and new representatives remain committed to the project. Last week we were informed that the Director of the Galapagos National Park currently appointed would continue in his role and that the previous Minister of Environment, now Minister of International Relationships for Ecuador, will remain involved in the project supporting the new Minister of Environment. Any change in government would occur after the implementation of invasive predator removal.

Considering what we previously mentioned, there is no need for significant adaptations for the project.

11. Other comments on progress not covered elsewhere

We do not have additional comments at this point.

12. Sustainability and legacy

Although we have identified some new risks to the project, we have mechanisms to manage those in place. As such, we don't foresee any changes in the proposed sustainability and legacy of the project. Under question 10, you can find information about the mechanisms in place to cope with the risks identified in Y1 of the project. At a local community level there has been great engagement in measures aimed at promoting sustainable agriculture on Floreana. Over the next two years of the project as the programme moves to mitigation, eradication and post-eradication there will be more activities to ensure the long-term sustainability of actions.

13. Darwin Initiative identity

A communications plan is currently in development of the Floreana Programme steering group which will guide communications. Given the sensitive nature of the work being undertaken i.e., an island-wide eradication of invasive mammals, communication and publication of information has to be carefully controlled. In addition, all communications must be signed off by GNPD as the programme lead and national authority. Durrell and partners will work with the Programme Steering Group to ensure communications reflect the various donors to the work, including Darwin Initiative in any communications. To date the Darwin Initiative logo has been included on official documents e.g., the official handover document for infrastructure signed by farmers and the Ecuadorian Minister of Environment.

14. 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 [*If yes, please provide their name and email]* See below	
Has the focal point attended any formal training in the last 12 months?	No [*If yes, please provide date and details of training*]	
What proportion (and number) of project staff have received formal training on Safeguarding?		Past: % [and number] Planned: % [and number] For
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses.		
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. The project is part of the wider Floreana Island Restoration Programme which has funding from multiple sources including World Bank, GEF, KfW. As part of the funding requirements for these grants ESMS assessments have been completed. Since the design of the project, a highly participatory process has been maintained. However, throughout the project, as lead organisation Jocotoco has maintained technicians in charge of		

community relations who have worked in a person-to-person approach to resolve doubts, reduce conflicts, and establish cooperation agreements and shared responsibilities in the project.

In the build up to the eradication in October 2023, safeguarding measures to ensure safety of local communities will be increased led in-country partners.

Safeguarding issues surrounding staff are the responsibility of each partner organisation. For example, within Durrell safeguarding falls under the remit of our Global Safety and Risk Manager [redacted] Within the next 12 months 16 volunteers will be participating in the project to support the implementation of the finch mitigation component. All volunteers will be briefed in relevant safeguarding issues and be informed of the mechanism by which they can raise concerns i.e, to the Mitigation Officer, Project Leader and Global Safety and Risk Manager.

15. Project expenditure

Please expand and complete Table 1. If all receipts have not yet been received, please provide indicative figures and clearly mark them as Draft. The Actual claim form will be taken as the final accounting for funds.

Table 1: Project expenditure during the reporting period (1 April 2022 – 31 March 2023)

Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	[redacted]			
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				

TOTAL	**189,312.80**	**189,290.70**		

Two change requests were submitted by the project. The first in September 2022 requesting the addition of a second Island Conservation staff member, Chad Hanson, to help with the oversight and management of the project. No change to top level budget lines due to this request.

A second Change request was made in March 2023, resulting in the increase to the Travel and Subsistence line by £400 and a reduction in the Operating Costs line by £400. This was to account for the Project Leader's flight for a project review visit to Galapagos in April 2023.

[redacted]

Capital Items

This line has been overspent due to the need to buy an additional grass chopper to enable sufficient production of animal feed and silage for all the farms in Floreana. Since the project started an additional 2 households have moved back to Floreana and require cattle stables building (funded through match funding) and therefore subsequent increase in feed production.

Jocotoco had underspend in their operating costs due to only six piggeries rather than the initial envisaged seven (funded by Darwin and matched funding) being required. This underspend was utilised to purchase the second grass chopper but has been reported in capital items for future clarity.

This was highlighted during the Project Leaders review visit to Galapagos in April 2023 hence we have not been able to report it to Darwin until now.

The labeller which was due to be purchased in Year 1 has not been able to be purchased as there has been delays in acquiring the land on which the meat processing plant (where the labeller will be located) will be built. The labeller will be purchased in Year 2.

[redacted]

Table 2: Project mobilising of matched funding during the reporting period (1 April 2022 – 31 March 2023)

	Matched funding secured to date	Total matched funding expected by end of project
Matched funding leveraged by the partners to deliver the project.	[redacted]	

	[redacted]	
Total additional finance mobilised by new activities building on evidence, best practices and project (£)		

16. OPTIONAL: Outstanding achievements or progress of your project so far (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).

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
IMAGE 1	PIGGERY MAX FREIRE	MAX FREIRE PIGGERY, FLOREANA ISLAND ECUADOR. CAPTION: KARINA KASTDALEN – JOCOTOCO		Yes
IMAGE 2	PIGGERY VERA FAMILY	VERA´S FAMILY PIGGERY, FLOREANA ISLAND ECUADOR CAPTION: KARINA KASTDALEN – JOCOTOCO		Yes
IMAGE 3	CORN CROP MR. ANIBAL ALTAMIRANO	CHARLES WHITMER FARM, FLOREANA ISLAND, ECUADOR CAPTION: KARINA KASTDALEN – JOCOTOCO		Yes

IMAGE 4	CORN SEED PREPARATION	MR. FRANKLIN PINCAY, FLOREANA ISLAND, ECUADOR CAPTION: KARINA KASTDALEN – JOCOTOCO		Yes
IMAGE 5	HOLGER VERA FARM	SOIL PREPARATION FOR SILAGE CORN PLANTING, FLOREANA ISLAND, ECUADOR CAPTION: KARINA KASTDALEN – JOCOTOCO		Yes
IMAGE 6	JASMANI MORENO FARM	SOIL PREPARATION FOR CORN PLANTING, FLOREANA ISLAND, ECUADOR CAPTION: KARINA KASTDALEN – JOCOTOCO		Yes

Annex 1: Report of progress and achievements against logframe for Financial Year 2022-2023

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Impact Ecological restoration of Floreana Island safeguards endemic and globally threatened species, enhancing livelihood resilience and food security while providing a community-values integrated model for inhabited islands restoration			[redacted]
Outcome At risk wildlife and livestock populations are effectively protected during the eradication of invasive predators from Floreana Island while vulnerable community livelihoods are strengthened through sustainable livestock management by 2025.	0.1 By end Y2 at least 90% survival in six captive held bird species which would enable full recovery of wild populations. 0.2 Measurable net increase in abundance of endemic reptiles (lava lizards and geckos) on Floreana by project end date compared to pre-eradication baselines. (Note changes to other species populations will likely take longer than 1 year) 0.3 Livestock feed imports reduced by 50% and an increase of 20-25% net income for Floreana livelihoods by end of Project cf. pre-eradication baselines. 0.4 40 people trained by the end of project to ensure local capacity exists to maintain Floreana long-term sustainable livestock and local produce harvest management practices.	0.1 To be started in Y2 of project 0.2 Baseline survey of reptiles (lava lizard and gecko species) on Floreana undertaken in March 2023 0.3 TBC 0.4 39 people trained to date	Captive holdings of five Darwin's finch species will be initiated on Floreana (capture will start May 2023) and for Short-eared owls with birds being caught and transported to holding facilities on Santa Cruz. Floreana island eradication of invasive rodents and cats will begin October 2023
Output 1. Six at-risk species successfully held in captivity (≥90% survival) during eradication of invasive predators from	1.1 Two aviary complexes (one in the highlands and one in the lowlands of Floreana) are operative by end of Y1 to enable captive holding of target finch numbers:	1.1 Equipment for kitting out aviaries purchased in UK (shipped via air freight) and Ecuador. Further repairs (e.g., replacing some degraded mesh), maintenance and kitting out aviaries will be undertaken in April and May	

Floreana and impact of eradication on five key wildlife groups understood (pre vs post eradication surveys)	• 140 Medium tree finches • 150 Small tree finches • 140 Common cactus finches • 200 Small ground finches • 200 Medium ground finches 1.2 One aviary complex (on Santa Cruz) and one temporary holding aviary (on Floreana) are operative by end of Y1 to enable captive holding of target numbers (60 birds max) of Galapagos short-eared owls. 1.3 Six at-risk bird species are effectively protected during the eradication with at least 90% survival of captive held populations. 1.4 Post-release monitoring (radio tracking and observational counts) of captive held Darwin's finches demonstrates survival in the wild with at least 30% of released individuals observed 1 year post release (Y3 Q4).	1.2 Temporary owl enclosure on Floreana and Permanent owl enclosure on Santa Cruz near complete 1.3 To be undertaken May 2023 – March 2024 1.4 To be undertaken end of Y2 and Y3	
Activity 1.1 Undertake full maintenance of aviaries, establish temporary owl enclosure on Floreana and purchase and install in the aviaries all necessary fixtures and fittings prior to capture of birds (finches and owls) and secured captive holding supplies (Y1)		Finch aviaries: significant amount of equipment purchased in UK and shipped to Ecuador in late March / early April. Maintenance ongoing to be completed early May Temporary owl aviary completed Flroeana and permanent owl aviary completed Santa Cruz	Finalise repairs, maintenance and kitting out of finch aviaries. Kitting out of owl aviaries
Activity 1.2 Work with GNPD to complete permitting requirements and secure permits to proceed with import of finch and owl diet supplies purchased overseas or in mainland Ecuador and proceed with project implementation (Q1 Y1).		All completed	
Activity 1.3 Capture requisite numbers of finches of each species from lowland and highland sites and bring into captivity following finch mitigation plan (May-September Y2)		To be completed Y2	Undertake in Y2
Activity 1.4 Carry out daily husbandry (feeding, cleaning, health checks) on all finches held in captivity with weekly reports to Durrell (May-January Y2)		To be completed Y2	Undertake in Y2

Activity 1.5 Undertake weekly maintenance checks and predator control at finch aviaries (May-January Y2)		To be completed Y2	Undertake in Y2	Undertak
Activity 1.6 Once conditions allow and environment is safe, fit subset of finches with radio transmitters and release finches from aviaries (Q4 Y2)		To be completed Y2	Undertake in Y2	
Activity 1.7 Undertake post-release monitoring of released finches (Y2 and Y3)		To be completed Y2	Undertake in Y2	
Activity 1.8 Recruit two local positions (veterinarian and mouse farm keeper) to support the captive owl programme (Q1 Y2)		To be completed Y2	Undertake in Y2	
Activity 1.9 Establish a rodent facility for producing rodents to feed owls during captivity (Q1 Y2) and conduct daily rodent husbandry (feeding, breeding and cleaning) Q1 Y2 through Q4 Y3 and beyond		To be completed Y2 and Y3	Undertake in Y2 and Y3	
Activity 1.10 Capture owls from Floreana island and hold them at a temporary captivity facility on Floreana until a sufficient number of owls are captured for transport to Santa Cruz where the owl aviaries are located (August-September Y2)		To be completed Y2	Undertake in Y2	
Activity 1.11 Carry out daily husbandry (feeding, cleaning, health checks) on all owls held in captivity with weekly reports to Island Conservation for the first 6 months (Q2 to Q3 Y2) and then monthly reports throughout the remainder of the captive period (Q4 Y2 to Q4 Y3 and beyond).		To be completed Y2 and Y3	Undertake in Y2 and Y3	
Activity 1.12 Finalise monitoring plans for 5 non-target species groups e.g., Darwin's finch; paint-billed crake; water birds; reptiles; Galapagos petrel (Y1).		Monitoring plans for 5-target groups finalised		
Activity 1.13 Train local GNPD staff in monitoring techniques for key non-target species (Y1, Y2, Y3)		3 GNPD staff trained in Petrel monitoring using sound recorders in Y1 (2 GNPD staff previously trained in reptile surveys)	Further training will be undertaken in Y2 and Y3	
Activity 1.14 Undertake pre- (Y1) and post-eradication (Q4 Y2 and Y3) baseline surveys of key non-target species		Baseline surveys completed for petrels and reptiles in Y1. Finch baselines from 2022.	Waterbird and crake surveys to be done in Y2 Aug-Sep	
Output 2. Conservation measures (invasive predator eradication and nest treatment) demonstrate a reduction in nest mortality for the Critically Endangered medium tree-finch by end of project	2.1 Zero (0%) nest (egg and chick) mortality due to invasive predators (rodents and feral cats) post-eradication (Y3) recorded for 100 surveyed nests (Yearly average 44.5% mortality due to predations). 2.2 At least four local GNPD staff trained in injecting finch nests with insecticide (permethrin) in Y1 to support *Philornis downsi* control before	2.1 To be assessed post-eradication 2.2 Not undertaken in 2023 due to UW team being engaged in short-eared owl monitoring. Will be done in January 2024 prior and during nest treatment. 2.3 To be done in Y2 and Y3 2.4 To be assessed in Y2 and Y3		

	and after invasive predator removal from Floreana. 2.3 At least 20 medium tree-finch nests are successfully treated with permethrin insecticide to control against *Philornis downsi* maximizing fledgling success in Y2 and Y3. 2.4 Total brood loss from *P. downsi* would go from 32.4% to 0% but partial brood loss may drop from 13% to 5% for medium tree-finch nests treated for *Philornis downsi* in treatment years (Y2 and Y3).		
Activity 2.1. Carry out annual nest monitoring of medium tree-finch nests		Previous year's data to be used as baseline	To be undertaken in Y2 and Y3
Activity 2.2. Train local GNPD staff in nest treatment and monitoring protocols of medium tree-finch (Y1)			To be undertaken in Y2 and Y3
Activity 2.3 Carry out nest treatment of medium tree-finch nests by GNP with support of Universitat Wien staff (Q4 Y1, Q4 Y2 and Q4 Y3)			To be undertaken in Y2 and Y3
Activity 2.4. Data collection analysis, nest treatment and monitoring reports are completed by project partners (Q4 Y2 and Y3).			To be undertaken in Y2 and Y3
Output 3. Floreana community (46% women) have increased self-sustainability in livestock management, animal feed production and harvest management and have shared lessons with 3 other islands/communities in Galapagos	3.1. One 2-month community training session for 40 people on balanced feed preparation using local resources and use of equipment in Y1. 3.2 All community households dedicated to livestock farming on Floreana (22 households, 40 persons) are trained in livestock feeding management practices (e.g. balanced feed and silage production) by end of Y1. 3.3 All farmers (40 persons, 70% women managers) in Floreana have implemented and tried the sustainable livestock feeding management	3.1 39 community members trained on ongoing basis since May 2022 3.2 39 people trained in animal feed production 3.3 TBC 3.4 TBC 3.5 TBC 3.6 TBC	

	practices learned on their farms by mid Y2. 3.4 Import of livestock feed from mainland Ecuador reduced by 50% due to producing nutritionally balanced livestock feed locally resulting in average savings of $882USD per year/farmer (approx. $17,640/year for all 22 farming households) by the end of Y3. 3.5 All farmers (40 persons, 70% women managers) trained in improved harvest management practices by end Y1 and provided ongoing technical assistance throughout the project. 3.6 By the end of Y3 at least five women farmers from Floreana travel once (for 1 week) to other three inhabited islands within the Galapagos archipelago to develop knowledge on other agricultural practices, adding value to products and exchange knowledge with other women farmers.		
Activity 3.1. Project partners (Jocotoco) will work with each farmer to establish 2ha of their land to produce pastures and animal fodder, as well as other agricultural resources that can be used for preparing animal feed (Q1 and Q2 Y1).		Completed for 14 farms (100%)	
Activity 3.2 Project partners (Jocotoco) will work with each farmer to set an irrigation system at each farm to support agricultural productivity (Q2 Y1)		Irrigation systems purchased	To be installed in Y2 May
Activity 3.3 Identify and recruit harvest and livestock management consultants to train Floreana community (Q1, Y1)		Consultants identified and recruited for livestock management	
Activity 3.4 Conduct in-farm training on the use of the new equipment, preparing nutritionally balanced, locally produced livestock feed, and managing crop harvests (Q3-Q4 Y1)		Training undertaken by Jocotoco Agricultural Technician	Training and support continue through Y2. Harvest management training (May) and livestock management (Sep) in Y2.
Activity 3.5 Floreana farmers implement livestock and harvest management practices learned during training, evaluate results and make necessary adjustments to ensure uptake of these techniques (Y2)			To be done in Y2

Activity 3.6 Floreana farmers incorporate and maintain long term livestock and harvest management practices learned during project implementation (Y3 and onwards)			To be done in Y3
Activity 3.7 Floreana women farmers (at least five) with support of partners (Jocotoco) undertake exchanges on the "Floreana" experience and acquire ideas for improving commercialization of their products with agricultural sectors of Santa Cruz and San Cristobal Islands (Y3).			To be done in Y3
Output 4. Floreana community livelihoods become more resilient and food security improved through adoption of sustainable livestock management and improved harvest management practices by ≥75% farmers and eradication of invasive rodents.	4.1 Seven piggeries are built and operative by the end of Y1 for managing risks to pigs during the invasive predator removal on Floreana and enhancing sanitary measures for meat production. 4.2 Seventy-five percent of Floreana farmers (70% women) increase production of livestock products (e.g. meat, eggs, milk) by ≥30% above baseline (start of project) to supply the local and tourism demand by the end of Y3. 4.3 Zero livestock losses due to baiting occur during the removal of invasive predators from Floreana in Y2. 4.4 Crop damage by rodents will be reduced to zero by the end of Y3, having an estimated savings of $800-1500 USD per year/farmer. 4.5 Agricultural produce loss from harvest to consumer is reduced to 15-20% (currently c.50% lost) by the end of Y3 through adoption of improved harvest management practices, having an estimated savings of $6000-8000 USD per year/farmer.	4.1 Seven piggeries built and operative (4 completed in Y1) 4.2 TBC 4.3 TBC 4.4 TBC 4.5 TBC	
Activity 4.1 Infrastructure plans are developed in conjunction with Floreana pig farmers laying out the details for the construction of the piggeries covering aspects to manage risk during invasive predator removal and enhancement of sanitary measures for animal and meat production (Q1 Y1)		Completed	

Activity 4.2 Local construction team is secured to build the piggeries in Y1 following the infrastructure plans and needs from farmers.	Completed	
Activity 4.3 All infrastructure required for pigs, chickens and cattle is completed (Y1) and livestock is placed in captive holding to prevent any losses from invasive predator removal.	7 piggeries, 5 cattle sheds and 14 chicken coops completed	2 more cattle sheds to be built in Y2
Activity 4.4 Undertake baseline surveys of Floreana farmers current livestock and harvest management practices on Floreana Island and associated costs (Q1 Y1).	Not undertaken due to other priorities. 2017 survey will be used as baseline.	
Activity 4.5 Floreana farmers implement livestock management practices learned during training to improve livestock production and manage risks (Y2 and Y3) with support of project partners.		To be done in Y2 and Y3
Activity 4.6 Jocotoco, with support of external consultants and Floreana farmers, develop a manual of agricultural best practices for Floreana Island (Q1 Y2).		To be done in Y2
Activity 4.7 Floreana farmers implement harvest management practices laid out in manual to reduce loss of produce from harvest to consumer (Y2 and Y3).		To be done in Y2 and Y3
Activity 4.8 Conduct Floreana farmer's livestock and crop surveys to evaluate results of implementing improved livestock and harvest management practices (Q4 Y3).		To be done in Y3

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

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
Impact: Ecological restoration of Floreana Island safeguards endemic and globally threatened species, enhancing livelihood resilience and food security while providing a community-values integrated model for inhabited islands restoration			
Outcome: At risk wildlife and livestock populations are effectively protected during the eradication of invasive predators from Floreana Island while vulnerable community livelihoods are strengthened through sustainable livestock management by 2025.	0.1 By end Y2 at least 90% survival in six captive held bird species which would enable full recovery of wild populations. 0.2 Measurable net increase in abundance of endemic reptiles (lava lizards and geckos) on Floreana by project end date compared to pre-eradication baselines. (Note changes to other species populations will likely take longer than 1 year) 0.3 Livestock feed imports reduced by 50% and an increase of 20-25% net income for Floreana livelihoods by end of Project cf. pre-eradication baselines. 0.4 40 people trained by the end of project to ensure local capacity exists to maintain Floreana long-term sustainable livestock and local produce harvest management practices.	0.1 Captive holding report and biological monitoring data and report. 0.2 Biological monitoring data and reports. 0.3 Initial and end of project socioeconomic and farmers' livestock production reports. 0.4 Evaluation of capacity development and implementation of sustainable livestock and local produce harvest management practices by the Floreana community report.	No extreme weather events (e.g. El Niño event) occur that may affect the removal of invasive predators on Floreana. Enabling conditions to complete the project remain in place for the duration of the project (e.g. access to Floreana Island, interest, permission, and mandate from the local community remains in place).
Outputs: **1**. Six at-risk species successfully held in captivity (≥90% survival) during eradication of invasive predators from Floreana and impact of eradication on five key wildlife groups understood (pre vs post eradication surveys)	1.1 Two aviary complexes (one in the highlands and one in the lowlands of Floreana) are operative by end of Y1 to enable captive holding of target finch numbers: ● 140 Medium tree finches ● 150 Small tree finches ● 140 Common cactus finches ● 200 Small ground finches ● 200 Medium ground finches	1.1 Infrastructure compliance reports indicating that aviary infrastructure is operative; photographs.	Enabling conditions to establish the infrastructure required are in place (e.g. access to Floreana Island and construction materials arrived from the mainland without any issues). The tools and methods implemented will be effective to maintain a healthy captive population of Darwin Finches and short-eared owls and ensure their survival while in captivity.

	1.2 One aviary complex (on Santa Cruz) and one temporary holding aviary (on Floreana) are operative by end of Y1 to enable captive holding of target numbers (60 birds max) of Galapagos short-eared owls. 1.3 Six at-risk bird species are effectively protected during the eradication with at least 90% survival of captive held populations. 1.4 Post-release monitoring (radio tracking and observational counts) of captive held Darwin's finches demonstrates survival in the wild with at least 30% of released individuals observed 1 year post release (Y3 Q4). 1.5 At least 5 local GNPD staff trained in wildlife monitoring techniques in Y1 and Y3. 1.6 Changes in abundance/population of 5 non-target native species groups (Darwin's finch; paint-billed crake; water birds; reptiles; Galapagos petrel) pre (Y1) and post eradication (Y3) quantified. 1.7 Increased abundance, distribution or breeding success is documented for key indicator species including Galapagos petrel, reptiles (lava lizards, geckos) by end of Y3 cf. pre-eradication baseline.	1.2 Infrastructure compliance reports, photographs 1.3 Captive holding reports 1.4 Post-release monitoring reports 1.5 Training records disaggregated by gender 1.6 Survey reports 1.7 Survey reports	The radio-tags deployed for post-release monitoring of Darwin finches work appropriately and remain in place (do not fall off the bird) for the duration of their battery life. Trained staff remain engaged and motivated to pursue the wildlife monitoring efforts throughout the project. Existing programs to monitor Medium-tree finch on Floreana will continue for the foreseeable future.
2. Conservation measures (invasive predator eradication and nest treatment) demonstrate a reduction in nest mortality for the Critically	2.1 Zero (0%) nest (egg and chick) mortality due to invasive predators (rodents and feral cats) post-eradication (Y3) recorded for 100	2.1 Survey reports	No extreme weather events (e.g. El Niño event) will occur that will affect the removal of invasive predators on Floreana and the recovery of at-risk species.

Endangered medium tree-finch by end of project	surveyed nests (Yearly average 44.5% mortality due to predations). 2.2 At least four local GNPD staff trained in injecting finch nests with insecticide (permethrin) in Y1 to support *Philornis downsi* control before and after invasive predator removal from Floreana. 2.3 At least 20 medium tree-finch nests are successfully treated with permethrin insecticide to control against *Philornis downsi* maximizing fledgling success in Y2 and Y3. 2.4 Total brood loss from *P. downsi* would go from 32.4% to 0% but partial brood loss may drop from 13% to 5% for medium tree-finch nests treated for *Philornis downsi* in treatment years (Y2 and Y3).	2.2 Training reports, disaggregated by gender 2.3 Field reports to the GNPD indicating the treatment of Darwin's finches' nests with insecticide; photographs 2.4 Nest survey reports	Removal of invasive predators is completed successfully. Existing programs to monitor Medium-tree finch nesting on Floreana will continue for the foreseeable future. Trained staff can find and identify active medium tree finch nests to inject with insecticide against *Philornis*. Trained persons remain engaged and motivated to pursue the treatment of active nests with insecticide.
3. Floreana community (46% women) have increased self-sustainability in livestock management, animal feed production and harvest management and have shared lessons with 3 other islands/communities in Galapagos	3.1. One 2-month community training session for 40 people on balanced feed preparation using local resources and use of equipment in Y1. 3.2 All community households dedicated to livestock farming on Floreana (22 households, 40 persons) are trained in livestock feeding management practices (e.g. balanced feed and silage production) by end of Y1. 3.3 All farmers (40 persons, 70% women managers) in Floreana have implemented and tried the sustainable livestock feeding management practices learned on their farms by mid Y2.	3.1 Training and progress report 3.2 Training and progress report 3.3 Survey will document number of farmers by gender that have implemented and tried the new livestock feeding management practices.	Community members willing to engage in sustainable livestock feeding management practices training and implementation at each farm. No extreme or unusual weather conditions affect the production of agricultural products to be utilized for the development of balanced feed for livestock during the implementation. Support from the Ecuadorian Ministry of Agriculture (MAG) will be maintained to provide technical assistance to the farmers while implementing the new livestock management and feeding practices.

	3.4 Import of livestock feed from mainland Ecuador reduced by 50% due to producing nutritionally balanced livestock feed locally resulting in average savings of $882USD per year/farmer (approx. $17,640/year for all 22 farming households) by the end of Y3. 3.5 All farmers (40 persons, 70% women managers) trained in improved harvest management practices by end Y1 and provided ongoing technical assistance throughout the project. 3.6 By the end of Y3 at least five women farmers from Floreana travel once (for 1 week) to other three inhabited islands within the Galapagos archipelago to develop knowledge on other agricultural practices, adding value to products and exchange knowledge with other women farmers.	3.4 Farmers' survey will document the reduction on animal feed importation from mainland Ecuador. 3.5 Training and progress reports 3.6 Records of community meetings and focus group surveys with women.	
4. Floreana community livelihoods become more resilient and food security improved through adoption of sustainable livestock management and improved harvest management practices by ≥75% farmers and eradication of invasive rodents	4.1 Seven piggeries are built and operative by the end of Y1 for managing risks to pigs during the invasive predator removal on Floreana and enhancing sanitary measures for meat production. 4.2 Seventy-five percent of Floreana farmers (70% women) increase production of livestock products (e.g. meat, eggs, milk) by ≥30% above baseline (start of project) to supply the local and tourism demand by the end of Y3. 4.3 Zero livestock losses due to baiting occur during the removal of invasive predators from Floreana in Y2.	4.1 Infrastructure compliance reports indicating that piggeries infrastructure construction has been completed and donation agreements signed by each farmer receiving a piggery. Photographs. 4.2 Farmer's production survey 4.3 Farmers' livestock and crop production survey reports	Enabling conditions to establish the infrastructure required are in place (e.g. access to Floreana island and construction materials arrived from the mainland without any issues). Community members willing to engage in sustainable livestock feeding and harvest management practices training and implementation at each farm. Removal of invasive predators is completed successfully.

	4.4 Crop damage by rodents will be reduced to zero by the end of Y3, having an estimated savings of $800-1500 USD per year/farmer. 4.5 Agricultural produce loss from harvest to consumer is reduced to 15-20% (currently c.50% lost) by the end of Y3 through adoption of improved harvest management practices, having an estimated savings of $6000-8000 USD per year/farmer.	4.4 Farmers' livestock and crop production survey reports 4.5 Farmer's crop production and sales survey reports	

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

Output 1. Six at-risk species successfully held in captivity (≥90% survival) during eradication of invasive predators from Floreana and impact of eradication on five key wildlife groups understood (pre vs post eradication surveys).

Activities

1.1 Undertake full maintenance of aviaries, establish temporary owl enclosure on Floreana and purchase and install in the aviaries all necessary fixtures and fittings prior to capture of birds (finches and owls) and secured captive holding supplies (Y1)
1.2 Work with GNPD to complete permitting requirements and secure permits to proceed with import of finch and owl diet supplies purchased overseas or in mainland Ecuador and proceed with project implementation (Q1 Y1).
1.3 Capture requisite numbers of finches of each species from lowland and highland sites and bring into captivity following finch mitigation plan (May-September Y2)
1.4 Carry out daily husbandry (feeding, cleaning, health checks) on all finches held in captivity with weekly reports to Durrell (May-January Y2)
1.5 Undertake weekly maintenance checks and predator control at finch aviaries (May-January Y2)
1.6 Once conditions allow and environment is safe, fit subset of finches with radio transmitters and release finches from aviaries (Q4 Y2)
1.7 Undertake post-release monitoring of released finches (Y2 and Y3)
1.8 Recruit two local positions (veterinarian and mouse farm keeper) to support the captive owl programme (Q1 Y2)
1.9 Establish a rodent facility for producing rodents to feed owls during captivity (Q1 Y2) and conduct daily rodent husbandry (feeding, breeding and cleaning) Q1 Y2 through Q4 Y3 and beyond.
1.10 Capture owls from Floreana island and hold them at a temporary captivity facility on Floreana until a sufficient number of owls are captured for transport to Santa Cruz where the owl aviaries are located (August-September Y2)
1.11 Carry out daily husbandry (feeding, cleaning, health checks) on all owls held in captivity with weekly reports to Island Conservation for the first 6 months (Q2 to Q3 Y2) and then monthly reports throughout the remainder of the captive period (Q4 Y2 to Q4 Y3 and beyond).
1.12 Finalise monitoring plans for 5 non-target species groups e.g., Darwin's finch; paint-billed crake; water birds; reptiles; Galapagos petrel (Y1).
1.13 Train local GNPD staff in monitoring techniques for key non-target species (Y1, Y2, Y3)
1.14 Undertake pre- (Y1) and post-eradication (Q4 Y2 and Y3) baseline surveys of key non-target species

Output 2. Conservation measures (invasive predator eradication and nest treatment) demonstrate a reduction in nest mortality for the Critically Endangered medium tree-finch by end of project.

Activities
2.1 Carry out annual nest monitoring of medium tree-finch nests
2.2 Train local GNPD staff in nest treatment and monitoring protocols of medium tree-finch (Y1)
2.3 Carry out nest treatment of medium tree-finch nests by GNP with support of Universitat Wien staff (Q4 Y1, Q4 Y2 and Q4 Y3)
2.4 Data collection analysis, nest treatment and monitoring reports are completed by project partners (Q4 Y2 and Y3).

Output 3. Floreana community (46% women) have increased self-sustainability in livestock management, animal feed production and harvest management and have shared lessons with 3 other islands/communities in Galapagos.

Activities
3.1 Project partners (Jocotoco) will work with each farmer to establish 2ha of their land to produce pastures and animal fodder, as well as other agricultural resources that can be used for preparing animal feed (Q1 and Q2 Y1).
3.2 Project partners (Jocotoco) will work with each farmer to set an irrigation system at each farm to support agricultural productivity (Q2 Y1)
3.3 Identify and recruit harvest and livestock management consultants to train Floreana community (Q1, Y1)
3.4 Conduct in-farm training on the use of the new equipment, preparing nutritionally balanced, locally produced livestock feed, and managing crop harvests (Q3-Q4 Y1)
3.5 Floreana farmers implement livestock and harvest management practices learned during training, evaluate results and make necessary adjustments to ensure uptake of these techniques (Y2)
3.6 Floreana farmers incorporate and maintain long term livestock and harvest management practices learned during project implementation (Y3 and onwards)
3.7 Floreana women farmers (at least five) with support of partners (Jocotoco) undertake exchanges on the “Floreana” experience and acquire ideas for improving commercialization of their products with agricultural sectors of Santa Cruz and San Cristobal Islands (Y3).

Output 4. Floreana community livelihoods become more resilient and food security improved through adoption of sustainable livestock management and improved harvest management practices by ≥75% farmers and eradication of invasive rodents.

Activities
4.1 Infrastructure plans are developed in conjunction with Floreana pig farmers laying out the details for the construction of the piggeries covering aspects to manage risk during invasive predator removal and enhancement of sanitary measures for animal and meat production (Q1 Y1)
4.2 Local construction team is secured to build the piggeries in Y1 following the infrastructure plans and needs from farmers.
4.3 All infrastructure required for pigs, chickens and cattle is completed (Y1) and livestock is placed in captive holding to prevent any losses from invasive predator removal.
4.4 Undertake baseline surveys of Floreana farmers current livestock and harvest management practices on Floreana Island and associated costs (Q1 Y1).
4.5 Floreana farmers implement livestock management practices learned during training to improve livestock production and manage risks (Y2 and Y3) with support of project partners.
4.6 Jocotoco, with support of external consultants and Floreana farmers, develop a manual of agricultural best practices for Floreana Island (Q1 Y2).
4.7 Floreana farmers implement harvest management practices laid out in manual to reduce loss of produce from harvest to consumer (Y2 and Y3).
4.8 Conduct Floreana farmer’s livestock and crop surveys to evaluate results of implementing improved livestock and harvest management practices (Q4 Y3).

Annex 3: Standard Indicators

Table 1 Project Standard Indicators

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-A01	At least 5 local GNPD staff trained in wildlife monitoring techniques in Y1 and Y3	Number of people from key national stakeholders receiving training in wildlife monitoring techniques	People	Gender	3			3	5
DI-A01	All community households dedicated to livestock farming on Floreana (22 households, 40 persons) are trained in livestock feeding management practices (e.g. balanced feed and silage production) by end of Y1. All farmers (40 persons, 70% women managers) trained in improved harvest management practices by end Y1 and provided ongoing technical assistance throughout the project.	Number of people form local communities who have received training in livestock feed management practices and harvest management	People	Gender	39			39	40
DI-A03	At least 5 local GNPD staff trained in wildlife monitoring techniques in Y1 and Y3	Number of local/national organisations with improved capability and capacity as a result of project.	Number	Organisation Type	1			1	1
DI-A06	Import of livestock feed from mainland Ecuador reduced by 50% due to producing nutritionally balanced livestock feed locally resulting in average savings of $882USD per year/farmer (approx. $17,640/year for all 22 farming households) by the end of Y3.	Number of people with improved access to services or infrastructure for improved well-being.	Number	Gender	0			0	66 (based on 22 households at av. 3 persons/household)

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-C02	Changes in abundance/population of 5 non-target native species groups (Darwin's finch; paint-billed crake; water birds; reptiles; Galapagos petrel) pre (Y1) and post eradication (Y3) quantified.	Number of new conservation or species stock assessments published.	Number	Taxa	0			5	5

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)

Annex 4: Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	X
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	X
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.	X
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.	X
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 16)?	X
Have you involved your partners in preparation of the report and named the main contributors	X
Have you completed the Project Expenditure table fully?	X
Do not include claim forms or other communications with this report.	