GEF-8 REQUEST FOR MSP (1-STEP) APPROVAL

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General Project Information

Project Information

Project Title:	
Restoring Ecological Integrity of Protected Areas of Galapagos, through Strengthening Capacities for Translocations of Birds and Snakes	
Region:	GEF Project ID:
Ecuador	11346
Country(ies):	Type of Project:
Ecuador	MSP
GEF Agency(ies):	GEF Agency Project ID:
CAF	CAF-GEF-030
Project Executing Entity(s):	Project Executing Type:
Galapagos National Park Service Fundación de Conservación Jocotoco	Government CSO
GEF Focal Area (s):	Submission Date:
Biodiversity	10/14/2023
Type of Trust Fund:	Project Duration (Months):
GET	48
GEF Project Grant: (a)	GEF Project Non-Grant: (b)
1,834,862.00	0.00
Agency Fee(s) Grant: (c)	Agency Fee(s) Non-Grant (d)
165,138.00	0.00
Total GEF Financing: (a+b+c+d)	Total Co-financing
2,000,000.00	14,000,000.00
PPG Amount: (e)	PPG Agency Fee(s): (f)
0.00	0.00
PPG total amount: (e+f)	Total GEF Resources: (a+b+c+d+e+f)
0.00	2,000,000.00
Project Tags	
CBIT: No NGI: No SGP: No Innovation: No	
Project Sector (CCM Only):	
Taxonomy:	

Focal Areas, Biodiversity, Biomes, Tropical Dry Forests, Species, Threatened Species, Animal Genetic Resources, Protected Areas and Landscapes, Terrestrial Protected Areas, Influencing models, Demonstrate innovative approache, Stakeholders, Local Communities, Type of Engagement, Information Dissemination, Participation, Consultation, Communications, Awareness Raising, Civil Society, Non-Governmental Organization, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Capacity, Knowledge and Research, Knowledge Generation, Training, Knowledge Exchange, Field Visit, Capacity Development, Innovation, Learning, Indicators to measure change, Adaptive management, Theory of change

Rio Markers

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
No Contribution 0	No Contribution 0	Principal Objective 2	No Contribution 0

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”.(max. 250 words, approximately 1/2 page)

Island-level eradication of invasive species, and other positive management efforts, followed by putting in place of effective biosecurity measures, area enabling recovery / restoration pathways to various islands in the Galapagos. Chief among these approaches is that of conservation translocation, through which formerly extirpated species can be restored to individual islands. The project objective is to restore the ecological integrity of Galapagos National Park by strengthening knowledge and capacities while implementing conservation translocations of locally extinct and/or threatened birds and snakes. Its three outcomes are as follows:

Outcome 1: Historical evidence of species presence guides conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands

Outcome 2: Five populations of locally extinct and/or threatened birds and snakes restored through conservation translocations

Outcome 3: Sustainability and knowledge are enhanced through capture of lessons learned and monitoring and evaluation

Project Description Overview

Project Objective

To restore the ecological integrity of Galapagos National Park by strengthening knowledge and capacities while implementing conservation translocations of locally extinct and/or threatened birds and snakes.

Project Components

Component 1: Establish historical baselines to guide conservation translocations

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
430,000.00	2,930,000.00

Outcome:

1: Historical evidence of species presence guides conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands

Output:

Output 1.1: Historical literature, field notes and other sources identified, a bibliography produced, and relevant evidence for species presence compiled into a database, for at least the islands of Santa Fe, Rabida, Pinzon, and Santiago.

Output 1.2: Occurrence data from museum collections and other sources are compiled and searched for records.

Output 1.3: Sub-fossil bearing caves are identified, excavated, and material recovered from at least 2 islands.

Output 1.4: Skeletal reference collections are created or compiled and subfossil material classified to species.

2: Conservation translocations of locally extinct and/or threatened bird and snake populations

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
1,165,360.00	8,200,000.00

Outcome:

Outcome 2: Five populations of locally extinct and/or threatened birds and snakes restored through conservation translocations

Output:

Output 2.1: Conservation translocation plans are developed for at least four locally extinct birds and one locally extinct snake.

Output 2.2: Four bird and one snake conservation translocation plans are implemented

Output 2.3: Monitoring confirms establishment and breeding of translocated populations

Component #3: Sustainability, knowledge, monitoring and evaluation

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
44,002.00	1,627,352.00

Outcome:

Outcome 3: Sustainability and knowledge are enhanced through capture of lessons learned and monitoring and evaluation

Output:

Output 3.1: International rewilding workshop to evaluate conservation translocations and share knowledge

Output 3.2: Effective management of knowledge, based on learning and dissemination of project lessons and innovations

Output 3.3: Project monitored and evaluated

M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
42,000.00	70,000.00

Outcome:

Project adequately monitored & evaluated

Output:

Periodical Reports of monitoring & Evaluation

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)
Component 1: Establish historical baselines to guide conservation translocations	430,000.00	2,930,000.00
2: Conservation translocations of locally extinct and/or threatened bird and snake populations	1,165,360.00	8,200,000.00
Component #3: Sustainability, knowledge, monitoring and evaluation	44,002.00	1,627,352.00
M&E	42,000.00	70,000.00
Subtotal	**1,681,362.00**	**12,827,352.00**
Project Management Cost	153,500.00	1,172,648.00
Total Project Cost ($)	**1,834,862.00**	**14,000,000.00**

Please provide justification

CAF is providing financial resources to cover co-financing PMC.

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

GLOBAL ENVIRONMENTAL PROBLEMS

The Galapagos Islands (see **Figure 1**) constitute a volcanic archipelago that formed 3-5 million years ago. Located at the confluence of three eastern Pacific currents, the Galapagos include 13 large islands and 100 smaller islands and islets that together comprise 7,880 km^2 of land. Straddling the equator, the islands are 1,000 km off the coast of Ecuador. The islands' equatorial climate, highly varied and rugged terrain, and extreme geographic isolation have contributed to the evolution of a rich array of terrestrial plants and animals that are found nowhere else.

Despite being relatively young in geological terms, the Galapagos Islands host a diverse biota; scientists have documented more than 1,300 species unique to the archipelago. Exploration of deep-sea communities in the archipelago continues to reveal species new to science.

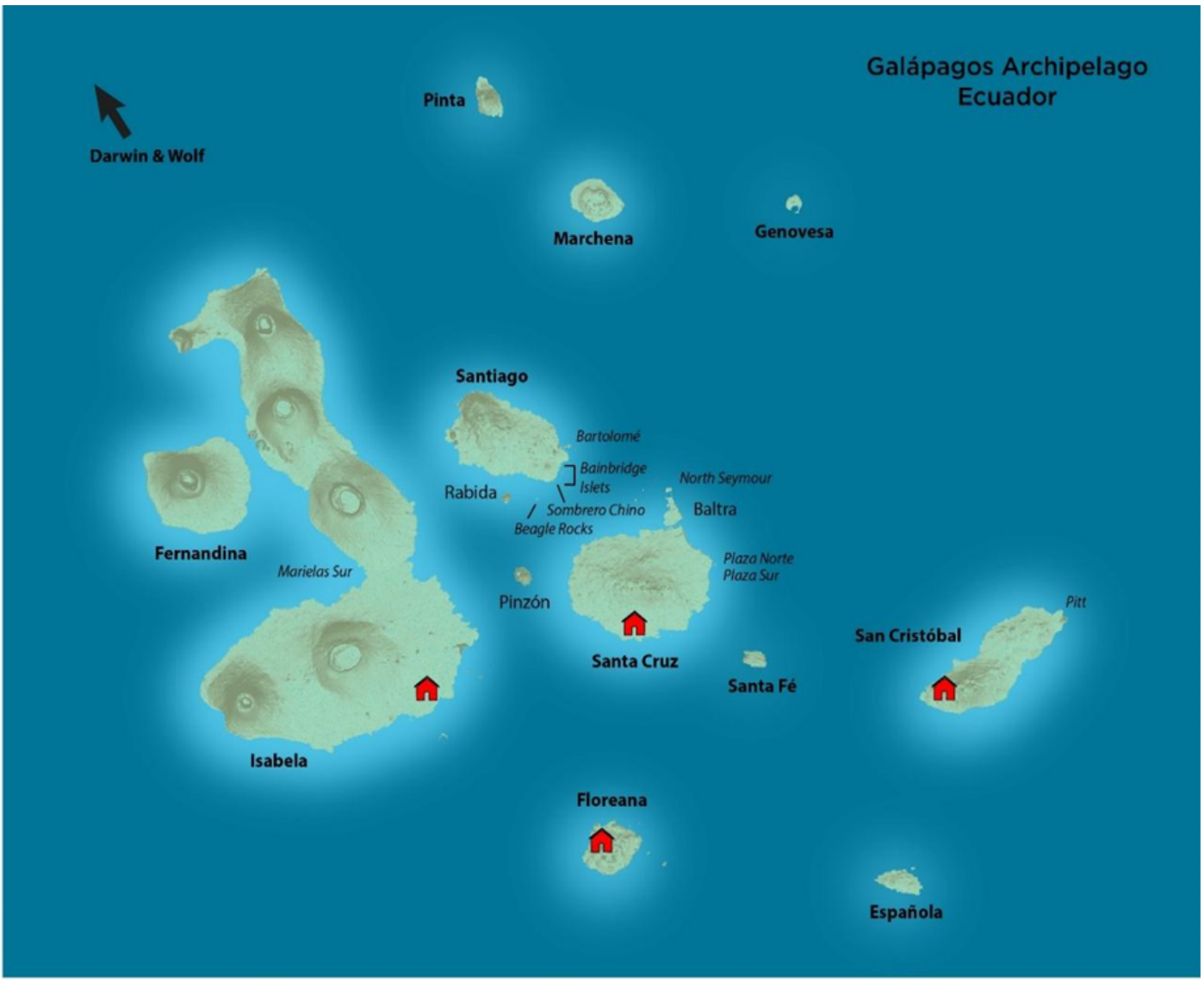
Unlike other oceanic archipelagos, the ecological and evolutionary processes characteristic of the Galapagos Islands have until recently been minimally affected by human activities; more than 95% of species are still

extant. This partly owes to the relatively recent colonization and settlement in the early 19th Century. The persistence of the rich, unique biodiversity made famous by Charles Darwin has positioned the Galapagos Islands as one of the most renowned natural sites in the world. They are one of the 'jewels' of Ecuador and a top conservation priority. All of the marine and coastal environs (13,800,000 ha, **Figure 2**) and nearly 97% of the land area (761,844 ha) in the Galapagos archipelago are under at least one form of protection.[1]1

Terrestrial taxa emblematic of the Galapagos Islands include eleven species of giant tortoise (e.g., the Galapagos tortoise, *Chelonoidis nigra* from Floreana Island), three species of land iguanas (e.g., the Galapagos land iguana, *Conolophus subcristatus*), the most northerly species of penguin in the world (Galapagos penguin, *Spheniscus mendiculus*), flightless cormorants (*Phalacrocorax harrisi*), Darwin's finches (family *Geospizinae*) and Galapagos mockingbirds (*Mimus* spp.) made famous in Darwin's publications, along with seemingly-fanciful plants (e.g., giant daisy trees, *Scalesia* spp.).

The Government of Ecuador (GoE) created the Galapagos National Park Service (DPNG) in 1959 and designated the Galapagos Marine Reserve (RMG) in 1996. In acknowledgment of their global conservation value, the Galapagos Islands became the first World Heritage Site in 1978 and were designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) Man and the Biosphere Reserve in 1984. However, in large part due to threats posed by invasive alien species, UNESCO listed the Galapagos Islands as a World Heritage Site in Danger in 2007[2]2. The World Wildlife Fund includes the Galapagos archipelago among the 'Global 200 Ecoregions,' thereby highlighting it as a priority for conservation[3]3.

Figure 1: Map of the Galapagos archipelago



Note: Red houses indicate the major towns on the four human-inhabited islands

Within the Galapagos Islands, specific sites have additional protected area status. Birdlife International has designated ten distinct Important Bird Areas (IBAs) in the Galapagos archipelago: San Cristobal Island, Española Island, two satellite islands of Floreana Island (Champion and Gardner), Floreana Island, the uplands of Santa Cruz Island, Puerto Ayora, the southern wetlands of Isabela Island, the uplands of Isabela Island, coastal areas of Fernandina Island and western Isabela Island, and the uplands of Santiago Island[4][4]. The IBA status is intended to help prioritize funds and implement urgent actions within regional priority setting schemes.

The Alliance for Zero Extinction (AZE) identifies and prioritizes places around the world where multiple species evaluated as Endangered or Critically Endangered under IUCN criteria[5][5] are restricted to a single site. National Alliances for Zero Extinction, representing partnerships of government agencies and non-governmental organizations, have been initiated to accelerate the protection of AZE sites in compliance with

national commitments under the Convention on Biological Diversity (CBD). Within the Galapagos archipelago, AZE sites include: the coastal areas of Fernandina Island and western Isabela Island; Floreana Island; Floreana's satellite islands, Champion and Gardner; Española Island; and San Cristobal Island[6]6. These AZE sites form the basis for the ten Key Biodiversity Areas (KBAs) recognized for the Galapagos[7]7.

Despite the various forms of protection status awarded to the Galapagos Islands, the archipelago remains extremely vulnerable to environmental change. Eighty of the archipelago's native species are categorized as Critically Endangered on the IUCN Red List of Threatened Species, and an additional 164 are considered threatened with extinction[8]8. The loss of individual species—whether from the archipelago as a whole or their extirpation from individual islands—has profound, cascading impacts at the ecosystem level, particularly in cases where ecosystem processes, e.g., pollination and nutrient cycling, are compromised. The gradual decline in biodiversity has an adverse effect on human livelihoods through the loss of: a) food and medicine supply, e.g., protein from fish, as well as plant medicines; b) ecosystem function and resilience, e.g., water purification, soil fertility, and storm protection, c) cultural norms, e.g., spiritual and aesthetic values, and d) income opportunities, e.g., ecotourism and artisanal fishing.

DRIVERS OF ENVIRONMENTAL CHANGE

This section describes some of the key challenges facing terrestrial biodiversity in the Galapagos Islands, along with baseline efforts to strengthen management in order to respond to these challenges and better conserve the archipelago's globally significant biodiversity.

Threats and associated impacts on Galápagos' terrestrial biodiversity

The GoE's 5th National Report to the CBD[9]9 identifies the main threats to Ecuador's terrestrial biodiversity as: loss and degradation of habitats, invasive alien species, wildlife trafficking, unsustainable hunting, pollution, climate change (including extreme weather events) and population growth. All of the islands and associated marine ecosystems are adversely impacted by four inter-related threats: invasive alien species, climate change, population growth and expanding tourism[10]10.

The greatest driver of biodiversity loss in the Galapagos Islands is biological invasion[11]11. Invasive alien species are one of the most significant drivers of environmental degradation and species extinction worldwide, and they are generally considered the primary cause of biodiversity loss in island ecosystems[12]12. Globalization of trade, travel, and transport is greatly increasing the number and type of invasive alien

species being moved around the world, as well as the rate at which they are moving. At the same time, changes in climate and land use are rendering some habitats, even the best protected and most remote natural areas, increasingly susceptible to biological invasion[13]13. In its 5th National Report to the CBD[14]14, the Government of Ecuador (GoE) identified strategic and timely actions to mitigate the adverse impacts of invasive alien species as priority conservation imperatives. In addition, as a signatory to the Kunming-Montreal Global Biodiversity Framework, Ecuador has pledged to help meet the new 2030 targets including Target 6: Reduce rates of introduction and establishment of invasive alien species by 50 per cent.

Hundreds of invasive alien species are already well established within the Galapagos archipelago. Some of these organisms arrived with seafarers more than 100 years ago, while others have been introduced, either deliberately or inadvertently, more recently. Despite the development of improved regulatory frameworks, the rate of non-native species introductions into the Galapagos archipelago has remained steady in recent decades:[15]15 On average, 27 species have been introduced per year for the past 40 years[16]16. So far, 1,579 alien terrestrial and marine species have been introduced to Galapagos by humans. Of these, 1,476 have become established. Almost half were intentional introductions, most of which were plants. Most unintentional introductions stem from: a) arrival on plants and plant associated material, b) transport vehicles, and c) commodities (in particular fruit and vegetables). The number of alien species known to be present in Galapagos is positively and closely correlated with both the total number of residents and the number of tourist visitations[17]17.

Examples of invasive alien species that have already had substantial impacts in the Galapagos Islands include: black rats (*Rattus rattus*), house mice (*Mus musculus*), feral cats (*Felis catus*), feral goats (*Capra hircus*), feral donkeys (*Equus asinus*), fire ants (*Solenopsis geminata* and *Wasmannia auropunctata*), yellow fever mosquito (*Aedes aegypti*), avian vampire fly (*Philornis downsi*), blackberry (*Rubus niveus*), and grape algae (*Caulerpa racemosa*).

Invasive rodents and feral cats have had particularly **extensive impacts on endemic birds, small mammals, small reptiles, and giant tortoises**. These impacts can have ecosystem-wide ramifications. The extirpation of species from islands, such as small passerines and the suppression of existing populations through predation on, for example, giant tortoise eggs and hatchlings, reduces the species available to spread seeds (through their excrement) and 'plant' the next generation of native trees and shrubs. As canopy cover declines, so do the populations of understory plants that require shading from the harsh tropical sun. The loss of understory vegetation makes landscapes more vulnerable to soil erosion and contributes to declines in soil fertility through mineral leaching. This impairs soil fertility and undermines the capacity of landscapes to be resilient to further perturbations (e.g., extreme weather events, climate change). Within Galapagos, snakes are one of the top terrestrial predators, feeding on a variety of reptiles and small birds, and helping maintain ecosystem balance. Although this role is filled by invasive rats and cats, native prey species are not adapted to avoiding them, as the invaders prove themselves to be far more voracious predators, leading to declines in many native species.

As a result of the above factors, along with additional historical factors such as over-harvesting, a number of individual islands in the archipelago have experienced extirpations of one or more species. **Table 1** below presents an overview of this situation for the Galapagos islands.

Table 1: Island-level extirpations in the Galapagos

Island name	Confirmed island-level extirpations*	Possible recent island-level extirpations*
Baltra	Galapagos rail[1,3] Little Vermilion Flycatcher[1,3] **Galapagos Land Iguana[1]**	
Fernandina	Mangrove finch[5]	Galapagos giant tortoise[1,2]
Floreana	Floreana racer[1] Floreana giant tortoise[2] Galapagos rail[1,3] Lava gull[1] Galapagos barn owl[1] Galapagos hawk[2] Floreana mockingbird[1] Little vermillion flycatcher[1,4] Grey warbler-finch[1] Large ground-finch[1] Sharp-beaked ground-finch[1] Bat species (*Lasiurus*)[1]	Galapagos dove[1] Vegetarian finch[1] Woodpecker finch[1] Large tree-finch[1]
Pinta	Pinta giant tortoise[1,2]	
Pinzon	Large tree-finch[1] Common cactus-finch[1]	Vegetarian finch[1] Woodpecker finch[1]
Rabida	Galapagos land iguana[1] Leaf-tailed Gecko[1] Giant tortoise[1] Galapagos mouse[1]	Little vermillion flycatcher[1,4] Woodpecker finch[1] Large tree-finch[1]
San Cristobal	Giant tortoise[2]	Large ground-finch[1]

Island name	Confirmed island-level extirpations*	Possible recent island-level extirpations*
	Little vermillion flycatcher[1,4] Galapagos hawk[2]	Woodpecker finch[1] Galapagos rail[1,3] Galapagos rice rat[1]
Santa Cruz	Central Galapagos racer[1] Galapagos land iguana[1] Sharp-beaked ground-finch[1] Galapagos mouse[1]	Galapagos hawk[2]
Santa Fe	**Santa Fe giant tortoise[2]** Little vermillion flycatcher[1]	Large ground-finch[1] Woodpecker finch[1]

* Key to probable causes of extirpations: 1 – Invasive species; 2 – Human persecution / hunting; 3) Human-altered habitat; 4) Philornis fly; 5) Habitat loss. Species marked in **bold** have been successfully reintroduced or had taxon substitutions implemented.

Sources: **Arteaga**, A., Bustamante, L., Viera, J., Tapia, W., & Guayasamin, J. M. (2019). *Reptiles of the Galapagos: Life on the Enchanted Islands*. Tropical Herping, Quito; BirdLife International Datazone (www.datazone.birdlife.org); **Brinkhuizen**, Dusan M., Nilsson, Jonas. (2020). Birds and Mammals of the Galapagos. Lynx and Birdlife International Field Guides, Lynx Edicions, Barcelona.; **Dvorak**, M., Nemeth, E., Wendelin, B., Herrera, P., Mosquera, D., Anchundia, D., Sevilla, C., Tebbich, S., & Fessl, B. (2017). Conservation status of landbirds on Floreana: the smallest inhabited Galápagos Island. *Journal of Field Ornithology*, *88*(2), 132–145. https://doi.org/10.1111/jofo.12197; **Dvorak**, M., Fessl, B., Nemeth, E., Anchundia, D., Cotín, J., Schulze, C. H., Tapia, W., & Wendelin, B. (2019). Survival and extinction of breeding landbirds on San Cristóbal, a highly degraded island in the Galápagos. *Bird Conservation International*, *August*, 1–15. https://doi.org/10.1017/s0959270919000285; **Reptiles** of Ecuador (www.reptilesofecuador.com); **Steadman**, D. W., Stafford, T. W., Donahue, D. J., & Jull, A. J. T. (1991). Chronology of Holocene vertebrate extinction in the Galápagos Islands. *Quaternary Research*, *36*(1), 126–133. https://doi.org/10.1016/0033-5894(91)90021-V; **Wilson** DE, Lacher TE and Mittermeier RA eds (2017). Handbook of the Mammals of the world Vol 7. Rodents II. Lynx Ediciones, Barcelona.

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Climate change adds an additional level of uncertainty and threat to Galapagos ecosystems. Climate change models predict an increase in precipitation within the archipelago, similar to what has been observed during recent El Niño events. This may assist the establishment of new invasive species in Galápagos by creating optimal conditions for reproduction, particularly in dry environments. It may also increase the prevalence of infectious diseases carried by biological vectors, such as mosquitoes and flies, which are affected by availability of water. On the other hand, higher rainfall during El Niño events have tended to be associated with increased breeding amongst terrestrial birds due to more abundant food sources, and is therefore likely to provide an associated benefit to translocated species.[18][18]

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Baseline actions and plans to address threats and restore ecosystems

In its 5th National Report to the CBD[1], the Government of Ecuador (GoE) identified strategic and timely actions to mitigate the adverse impacts of invasive alien species as priority conservation imperatives. In addition, as a signatory to the Kunming-Montreal Global Biodiversity Framework, Ecuador has pledged to

help meet the new 2030 targets including Target 6: Reduce rates of introduction and establishment of invasive alien species by 50 per cent. Actions and plans related to delivery on these commitments are discussed below.

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Management planning and priority setting

Key planning documents related to the conservation and restoration of the Galapagos Islands include: (i) the Galapagos 2030 Strategic Plan, (ii) the Management Plan for the Protected Areas of the Galapagos, and; (iii) the Invasive Species Management Plan for the Galapagos (2019-2029).[19][19] Taken together, these plans, and associated actions—particularly as they relate to management of invasive alien species and restoration—establish the broad sectoral context and baseline to which the present project is contributing.

The Galapagos 2030 Strategic Plan has six key environmental strategies and associated goals. Among those most relevant to the aims of the present project are the following:

- **E11. Strategy:** Consolidate, coordinate and integrate management actions to conserve and restore the ecological integrity of ecosystems and biodiversity.

  Goal: The number of emblematic Galapagos species in critical conservation status has been reduced

- **E12. Strategy:** Strengthen the comprehensive biosecurity system for Galapágos. Improve the inspection and quarantine system, including optimization of the management model, procedures, automation, infrastructure and personnel, with emphasis on the loading dock in Guayaquil.

  Goal: The number of accidental and deliberate introductions of species, and their inter-island dispersal and establishment is reduced.

Within the above strategies, two principal actions under the lead of the DPNG are: (i) to "Strengthen and maintain management programs to establish conditions that are ideal for the restoration of affected ecosystems" (E11-3) and (ii) "Implement programs for the control and eradication of invasive species…This includes a project for the ecological restoration of Floreana Island through the eradication of invasive rodents and feral cats." (E-12-1)

The above actions are further underpinned by the *Galapagos Protected Areas Management Plan*. Program 1.1 of the Management Plan is for "Conservation and restoration of ecosystems and their biodiversity," while Program 1.3 is for "Control and surveillance." Together with a program for ecological monitoring, these interlinked programs are designed to deliver Objective 1, which is conserving Galapagos ecosystems and their island and marine biodiversity to maintain their ability to deliver services.

Invasive species management in the Galapagos is guided by the *Invasive Species Management Plan for the Galapagos*, which greatly expands on the above-mentioned "Control and surveillance" aspects of Program 1.3 of the Management Plan. This plan, covering the period 2019-2029, represents a follow up to the first such plan, which was published in 2007. The current plan identifies invasive species as one of the principal threats facing biodiversity in the Galapagos. It offers strategic guidance for coordinated institutional action between different public and private entities with direct and indirect powers in the management of invasive species. The plan is organized according to the three management processes necessary to prevent the

arrival, establishment and dispersal of invasive species, to control and minimize impacts and to restore and conserve affected ecosystems. These management processes are: biosafety, integrated management of priority invasive species and restoration.

Baseline actions related to invasive species management and restoration, undertaken in line with the above-defined policy and management planning context, are discussed below

Invasive species eradication

Since 1960, the DPNG and parters have attempted 52 invasive vertebrate population eradications in the Galapagos Islands. Of these, 43 (83%) were successful, and 9 (17%) failed due to insufficient funding to implement the work at the scale necessary to achieve complete eradication.

As technical information, eradication tools (e.g., rodent baits), and funds have increased over the years, so has the frequency and success rate of invasive vertebrate eradications. With the exeption of three successful eradications on satellite islands that were followed by reinvasions (black rats on Bartolome and Sombrero Chino Islands, 2011; black and Norway rats on Seymour Norte in 2017), results from all of the invasive vertebrate eradication projects over the last decade have been sustained. Since the completion of rodent eradications on Pinzon and Plaza Sur Islands in 2012, and Seymour Norte in 2019, invasive mammals had been eradicated from all feasible uninhabited Galapagos islands. All 11 eradications of invasive mammals attempted on islands in the Galapagos larger than 150 ha in the last 12 years have been successful, and no subsequent reinvasions have occurred. The feral goat and pig eradications on Santiago Island were the largest attempted worldwide.

In 2012, the DPNG undertook an archipelago-wide analysis of the presence and impact of invasive alien species and subsequently released a report entitled, “Control and Eradication of Priority Invasive Species to Reduce the Vulnerability of Endemic and Native Species of the Galapagos Islands.” Based on this analysis, invasive rodents and feral cats were considered among the top priorities for invasive vertebrate eradication. With support from GEF 10807, Floreana Island is currently undergoing an eradication of invasive rats and cats. Once complete, this work will enable the repatriation of 13 missing species to Floreana. Once the eradication procedures from Floreana are proven, they can be upscaled to the three remaining human-inhabited islands in the Galapagos archipelago and potentially hundreds of human-inhabited islands worldwide.

Biosecurity

An important goal within the above-described Galapagos 2030 Strategic Vision is to reduce the number of accidental or deliberate introductions of species and their inter-island dispersal and establishment through a comprehensive biosecurity system. This is a key complementary activity for species translocations where the primary extinction driver is invasive species. Preventing the re-establishment of those damaging invasive species (in this case rats and cats) is critical to the success of species translocations.

Component 1 of GEF 9282, which closed in 2022, sought to further develop a state-of-the-art biosecurity system with the expectation of a substantial reduction in the number of invasive alien species entering the Galapagos archipelago. All scheduled outputs were successfully realized despite setbacks by COVID-19. Through that effort, the project successfully enabled improved systems, equipment, training and protocols for the Galapagos Biosecurity Agency (ABG) and, according to ABGs Biosecurity Index, the risks to biosecurity have decreased (23% in 2020 to 19% in 2021) due to the increased capacity of ABG to inspect, recognize,

seize and correctly dispose of animal and plant material posing a threat to the Galapagoś natural ecosystems.[20][20]

The GEF project produced an updated and approved biosecurity framework for the Galapagos Islands by ABG. According to the final project evaluation[21][21], the component that supported biosecurity was considered effective in the realization of the Outcome, efficient in the management of the componeńt s resources and relevant to GEF, national and sector policies and as such was rated as 'Highly Satisfactory.'

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Conservation translocation as a tool for species conservation and ecological restoration of Galapagos Islands

Conservation translocation is an increasingly important tool for species conservation and ecological restoration globally[28]. Since 1993, of the 27 of the 48 bird and mammal species for which conservation has likely prevented extinction involved reintroductions.[29] However, given the potential risks associated with conservation translocation, a set of guidelines has been developed by the IUCN[30].

Conservation translocations of species, as defined by the IUCN[30], may be grouped into two main types and associated sub-types. The first is 'population restoration', defined as any conservation translocation where a species is intentionally moved to an area within its indigenous range. This includes moving species back into areas from which they have disappeared ('reintroduction') and into an area where conspecifics still exist in order to enhance those populations' viability ('reinforcement').

The second type of conservation translocation is known as 'conservation introduction,' which involves intentionally moving and releasing a species outside of its indigenous range. Such actions are generally taken either to avoid extinction of a species or population ('assisted colonization') or to re-establish ecosystem functions previously lost due to extinction ('ecological replacement').

As seen above in **Table 1**, invasive species have been identified as a likely cause in several island-level extirpations in the Galapagos. In cases where invasives are considered among the key causal factors underlying island-level species loss, the removal of these same invasives—through island-level eradication—has created important opportunities for conservation translocations.

Following successful eradications in Galapagos, species thought to be extinct have recovered (see Rabida Island example below). Other species, particularly birds that are strong flyers, e.g., Galapagos dove (*Zenaida galapagoensis*), will likely naturally recolonize once threats have been removed. However, for many species that have been extirpated from islands, such as snakes and small passerine species, re-establishment of populations will not occur without human intervention in the form of conservation translocations.

Whilst some invasive species, in particular invasive mammals, have been removed from several islands—thereby enabling conservation translocations—other damaging invasive species such as the avian vampire fly *Philornis downsii* remain present on many of the major islands.[22][22] *Philornis* lays eggs in bird nests and the larvae parasitize nestlings that can cause high levels of mortality depending on species. The little vermillion flycatcher (*Pryocephalus nanus*) is one such species that persists on islands with invasive rats and cats but

whose populations are being impacted by *Philornis*. In such limited cases, i.e., where prior eradication of invasives is not feasible, conservation translocations to reinforce populations and exchange genetic diversity to aid persistence combined with local control of *Philornis* may still be a viable conservation strategy.

Island-level overviews

This section considers the above-described issues—including island-level extirpations, experience to date with conservation translocation and perceived opportunities going forward—for selected islands in the Galapagos.

1. Santa Cruz Island (986 km^2) is the most populous (c.18,000 inhabitants) and the second largest of the Galapagos islands. Due to the large human presence, it has a suite of invasive species (including predators such as rodents (*Rattus rattus, Rattus norvegicus, Mus musculus*), feral cats and, more recently, opossums (*Didelphis marsupialis*)). The island has lost several species as a result, including the Central Galapagos racer (*Pseudalsophis dorsalis*), Sharp-beaked ground-finch, and Galapagos mouse (*Nesoryzomys indefessus*), of which the latter is now Extinct. Eradication of invasive mammalian predators on Santa Cruz is not currently feasible due to the island's significant human population and size, which in turn is preventing the reintroduction of any species extirpated by these same invasives. However, it is envisioned that following a successful eradication on Floreana those procedures can, at some point in the future, be applied to Santa Cruz, paving the way for future reintroductions.

Some species, including the Little vermillion flycatcher, persist on Santa Cruz despite the presence of invasive species. These small and highly threatened populations (some of which are fewer than 10 pairs) present important opportunities for conservation translocations through population reinforcement measures (source populations to be identified).

2. Santiago Island (585 km^2) lies 25 km northwest of Santa Cruz. Although uninhabited, it has lost several species due to pressures from early attempts at colonization, harvesting by early seafarers and invasive species, with other species persisting but sharply reduced in number. Key invasive species on Santiago include rodents (*Rattus rattus, Mus musculus*), while pigs were eradicated in 2004, and goats and donkeys in 2006. It remains uncertain how many species have been extirpated as a result of these invasive species due to a lack of records, with the Galapagos land iguana the only species known with certainty to have disappeared. The Galapagos mouse (*Nesoryzomys swarthi*) was believed to be extinct until it was rediscovered in 1997.[23]23

In 2019, land iguanas (*Conolophus subcristatus*) were reintroduced to Santiago Island from which they had gone extinct due to invasive species.[24]24 Surveys in 2022 showed that the iguanas are successfully reproducing on Santiago and beginning to positively affect the environment. As is the case on Santa Cruz, some extant bird species, such as Little vermillion flycatcher, would benefit from population reinforcement measures to help persistence in the presence of invasive species.

3. Floreana Island (173 km^2) lies in the southern part of the archipelago and is the smallest of the inhabited islands, with a population of around 140 people. Floreana was also the first to be inhabited and as such has been impacted by numerous invasive species, including goats (now eradicated), rats, mice and feral cats.

Due to the long association with both humans and invasive species, and historically never having had a native rodent, Floreana has suffered perhaps the greatest number of species' extirpations (13 vertebrate species) of any island in the Galapagos.

Conservation translocation opportunities at Floreana have thus far been stymied by the persistence of invasive species. Feral goats, donkeys and pigs were removed from the island in 2009. Eradicating the remaining invasive rodents and feral cats—currently planned with GEF support to take place in October 2023—will finally make Floreana free of invasive mammals, thereby fulfilling an important enabling condition for conservation translocation. This will create opportunities for the reintroduction of at least five IUCN globally threatened vertebrate species on Floreana Island, and as many as seven other Galapagos endemic species. Potential reintroductions include the Floreana racer (*Pseudalsophis biserialis*), Floreana mockingbird (*Mimus trifasciatus*), Galapagos rail (*Laterallus spilonotus*), Little vermillion flycatcher (*Pryocephalus nanus*), Grey warbler-finch (*Certhidea fusca*), Vegetarian finch (*Platyspiza crassirostris*) Large ground-finch (*Geospiza magnirostris*) and Sharp-beaked ground-finch (*Geospiza difficilis*). Feasibility assessments have been undertaken for all proposed bird reintroductions and an overall plan for a series of conservation translocations onto Floreana—to take place following the above planned eradications was developed and agreed by Government and stakeholders in 2022.

4. Santa Fe Island (24 km^2) lies 18 km southeast of Santa Cruz. It is one of the oldest islands in the archipelago and is a popular tourist island. Santa Fe is more fortunate than many islands in Galapagos in that it has never been invaded by rats (or any other mammalian predator) and, as a result, the Galapagos rice rat (*Aegialomys galapagoensis*) survives here despite having gone extinct on other islands.[25]25 Santa Fe has, however, had a population of invasive goats (introduced sometime prior to 1905), which had negative impacts on the vegetation especially in the absence of the native Santa Fe giant tortoise which went extinct, likely due to hunting by humans.

The island has been undergoing ecological restoration since the 1970s, when goats were eradicated from the island. Giant tortoises were reintroduced between 2015 and 2020 to act as ecosystem engineers, opening the vegetation and making space. However, Santa Fe is possibly still missing three passerine bird species – Little vermillion flycatcher, Large ground-finch and Woodpecker finch – due to historical habitat loss and degradation. Establishment of historical baselines will determine which species have been lost and restoration of these species will aid the continued regeneration of the island.

5. Pinzon Island (18 km^2) lies 11 km west of Santa Cruz at the center of the archipelago. The island had an invasive black rat (*Rattus rattus*) population for at least 120 years until their successful eradication in 2012. It is suspected that several passerine bird species were extirpated from Pinzon by rodents, though this is not conclusive due to a lack of records. Land-bird surveys in early 2018 found two species (Common cactus finch *Geospiza scandens* and Galapagos rail *Laterallus spilonota*) never before recorded from the island[26]26, though Common cactus finch was suspected to have been present on Pinzon prior to rats establishing there. A small trial reintroduction of Woodpecker finch was undertaken in 2022 and further reintroductions of this species are required to fully establish a population. Vegetarian finch and Large-tree finch (*Geospiza psittacula*) are suspected to have been extirpated from Pinzon, making them candidates for reintroduction after historical evidence confirms their prior presence.

6. Rabida Island (5 km^2) lies between Santiago and Pinzon Islands, and was joined to Santiago Island during the last ice age. It is a small, arid island for which very little is understood about its past fauna, especially breeding birds, given its proximity to Santiago. Two years after invasive Norway rats (*Rattus norvegicus)* were eradicated in 2011, two island endemic land snails that were considered extinct for over 100 years were rediscovered and a leaf-toed gecko was also found post eradication in late 2012.[31]The only known geckos from Rabida were recorded from subfossils[27][27] estimated at more than 5,700 years old, which were classified to genus only. Taxonomists are currently describing the Rabida gecko as a new species. Also known from subfossils are a tortoise, land iguana and mouse. However, these subfossils are more than 6000 years-old, and more recent subfossils or other historical evidence would be required to potentially link local extinctions with anthropogenic impacts and thereby justify translocations. Further subfossil investigation may identify what other species have gone missing from Rabida.

Barriers to Addressing the Environmental Problems and Root Causes

The following barriers are currently standing in the way of a speedier and more effective implementation of conservation translocations and associated habitat restoration in the Galapagos Islands:

- *Persistence of causal factors that led to extirpation, e.g. invasive species*: The persistence of invasive species like rodents and feral cats can block opportunities to rehabilitate and restore ecosystems as one of the principle IUCN guidelines for conservation translocations is that the threat has been removed or mediated. Conversely, their removal can provide an important opportunity (see above) where other factors (see below) also align. This has been demonstrated in Galapagos with the giant tortoise taxon substitution on Santa Fe following the eradication of feral goats, and Galapagos land iguana reintroduction to Santiago following the eradication of feral goats, pigs and donkeys. Likewise, the eradication of rats from Pinzon provides an opportunity to restore missing bird species.
- *Uncertain historical baselines*:[28][28] There is a need for a high level of confidence in historical baselines to guide translocations. However, there is in the Galapagos insufficient baseline knowledge of what species were present on islands prior to the introduction of damaging invasive species, in particular smaller, less obtrusive birds and reptiles. The archipelago has been visited by whalers, pirates, and other seafarers for centuries prior to permanent human settlements in the early 19th century and long-before detailed species accounts were being made. Hundreds of invasive alien species have been established on islands across the archipelago and many of the most damaging ones such as rats have likely been on islands for centuries. This means that many species have possibly been extirpated from islands without our knowledge. Techniques such as the examination of sub-fossil evidence can enable us to piece together the historical species baselines of individual islands, which can then guide future reintroduction actions. Besides Floreana, most Galapagos islands have incomplete and insufficient baseline knowledge of historical species presence. This situation is made more difficult by shortcomings in accessibility of data

related to museum collections. Even for well digitized collections, there are many challenges to using these data effectively. These include taxonomic and locality names that have changed over time or been misspelt, inconsistent entering of data in a variety of different fields (making them difficult to find in searches), and some of the largest or most important collections not sharing all of their data online.

- *Source population:* Identifying a source population is a key stage in assessing feasibility for any conservation translocation. The goal is to identify a population that most closely fits the extirpated one, but which will also not negatively impact the source population. For example, removing individuals from an already small population may increase the source population's extinction risk (this is a potentially significant barrier to any future reintroductions involving Large tree-finch). Many widespread species in Galapagos (e.g., finches) are also characterized as having different races and evolutionary significant units on different islands and at different sites across the archipelago. Feasibility studies must therefore consider which source populations are most suitable; this can also be informed by the historical baselines.
- *Managing disease risk:* Within Galapagos there is a range of avian diseases including avian malaria and avian pox alongside numerous parasites. Disease screening prior to translocations is required to minimize the risk of transferring new disease strains to other islands, especially as birds will be being released into areas with other populations (different species but all susceptible).
- *Social feasibility:* A key consideration, especially when undertaking translocations to human inhabited islands such as Floreana and with species that may be perceived negatively by communities, such as snakes and hawks. Social barriers can be overcome and mitigated against through community engagement and outreach activities in advance of any release and are an integral part of the conservation translocation planning process.
- *Technical skill requirements*: Projects such as those discussed above have built skills capacity within Galapagos to undertake translocations of large reptiles. However, such skills are not necessarily directly transferable to other species groups, such as snakes and birds, which present different technical challenges. Specifically, these are skills related to the capture, captive holding and transport, release methods and post-release monitoring of these species. Such skills are imperative to not only enabling translocations to go ahead but in ensuring appropriate animal welfare standards are maintained during the process. To date, 5-6 DPNG staff have received training on bird handling and aviculture skills, four of whom are working on the mitigation program for native species on Floreana. Developing technical skills and capacities within Galapagos in a range of species will enable species recovery and ecosystem restoration to be undertaken throughout the archipelago utilizing conservation translocations as a key tool.

Project Baseline Scenario

In the absence of GEF support, the process of ecological restoration through conservation translocation would likely continue in line with present trends of piecemeal financing resulting in a lack of an integrated strategy or translocation capacity development in local institutions and ad hoc restoration efforts. The lack of updated historical baselines would represent an ongoing knowledge gap, uncertainty and therefore barrier to potential conservation translocations. GEF support will enable local capacities to be developed and a suite of conservation translocations to be undertaken within Galapagos. As such, without this project, restoration of islands' fauna would continue slowly with lower capacities to achieve transformational change

through building knowledge, capacity in and learn about conservation translocations in Galapagos. This will impact on the effectiveness of future conservation translocations in the archipelago and would represent a lost opportunity for valuable lessons and experiences to be shared with the global conservation community and influence similar translocations globally.

[1] Human settlements are currently restricted to c. 3% of the land area of the Galapagos archipelago in specifically zoned areas.

[2] From the list of World Heritage Sites in Danger in 2010.

[3] Olson, D. M., Dinerstein, E. 2002. The Global 200: Priority ecoregions for global conservation. Annals of the Missouri Botanical Garden 89(2):199-224.

[4] http://www.birdlife.org/datazone/userfiles/file/IBAs/AmCntryPDFs/Ecuador.pdf

[5] http://www.iucnredlist.org/

[6] http://www.zeroextinction.org/search_results_country.cfm

[7] http://www.keybiodiversityareas.org/

[8] http://www.iucnredlist.org/; Roque-Albelo 2007; Tye 2007

[9] Ministry of Environment 2014; https://www.cbd.int/doc/world/ec/ec-nr-05-es.pdf

[10] The World Bank estimates that tourism contributed $705,000,000 to the country's economy in 2020, the majority of which was generated in the Galapagos Islands; https://data.worldbank.org/indicator/ST.INT.RCPT.CD

[11] Watkins, G. and F. Cruz (2007). Galapagos at risk. A socioeconomic analysis. Puerto Ayora, Ecuador, Charles Darwin Foundation. ; Helmsley Charitable Trust's Galapagos Strategic Plan 2012; https://www.worldwildlife.org/ecoregions/nt1307

[12] Dov F. Sax, Steven D. Gaines. Species invasions and extinction: The future of native biodiversity on islands.; Proceedings of the National Academy of Sciences Aug 2008, 105 (Supplement 1) 11490-11497; DOI: 10.1073/pnas.0802290105 ; REASER, J., MEYERSON, L., CRONK, Q., DE POORTER, M., ELDREGE, L., GREEN, E., . . . VAIUTU, L. (2007). Ecological and socioeconomic impacts of invasive alien species in island ecosystems. Environmental Conservation, 34(2), 98-111. doi:10.1017/ S0376892907003815 Available at: https://doi.org/10.1017/S0376892907003815; Bellard Céline, Cassey Phillip and Blackburn Tim M. 2016 Alien species as a driver of recent extinctions Biol. Lett.1220150623 http://doi.org/10.1098/rsbl.2015.0623

[13] McNeely, J.A., H.A. Mooney, L.E. Neville, P. Schei, and J.K. Waage (eds.) 2001. A Global Strategy on Invasive Alien Species. IUCN Gland, Switzerland, and Cambridge, UK. x + 50 pp; Simberloff and Rejmanek 2011

[14] Ministry of Environment 2014

[15] ABG 2014

[16] Toral-Granda MV, Causton CE, Jäger H, Trueman M, Izurieta JC, Araujo E, et al. (2017) Alien species pathways to the Galapagos Islands, Ecuador. PLoS ONE 12(9): e0184379. https://doi.org/10.1371/journal.pone.0184379

[17] Ibid.

[18] See Jiménez-Uzcátegui, Gustavo, et. al. 2019. Threats and Vision for the Conservation of Galápagos Birds. The Open Ornithology Journal. Vol. 12; Paltán, Homero et. al. 2021. Climate and Sea Surface Trends in the Galapagos Islands. Scientific Reports 11: 14465; Climate Change Vulnerability Assessment of the Galápagos Islands. 2011. Eds. I. Larrea and G. Di Carlo. WWF and Conservation International, USA.

[19] Galápagos Government Council. Galápagos 2030 Plan. Puerto Baquerizo Moreno, Galápagos, Ecuador; Plan de Manejo de las Áreas Protegidas de Galápagos para el Buen Vivir. 2014. Dirección del Parque Nacional Galápagos, 2014; Fondo de Inversión Ambiental Sostenible, 2018. Plan de Manejo de Especies Invasoras para Galápagos (2019-2029)

[20] A detailed analysis of the status of Galapagos biosecurity system, along with the improvements delivered through Component 1 of GEF 9282, is available in Annex 6.13 of the project's Terminal Evaluation.

[21] Asesoramiento Ambiental Estratégico (AAE). 2022. *Safeguarding biodiversity in the Galapagos Islands by enhancing biosecurity and creating the enabling environment for the restoration of Galapagos Islands ecosystems -GEF ID 9282.* Terminal evaluation: final report draft.

[22] Fessl et al (2017) Galapagos landbirds (passerines, cuckoos, and doves): Status, threats, and knowledge gaps. Pp. 149-160. *In:* Galapagos report 2015-2016. GNPD, GCREG, CDF and GC.

[23] See Seddon et al 2014. Science 345 pp 406-412; see also Dowler, R. & Weksler, M. 2018. *Nesoryzomys swarthi. The IUCN Red List of Threatened Species 2018: e.T14709A22390617.* https://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T14709A22390617.en. Accessed on 20 July 2023.

[24] Bolam et al. 2020 How many bird and mammal extinctions have conservation action prevented? Conservation Letters DOI: 10.1111/conl.12762. See https://galapagosconservation.org.uk/reintroduced-land-iguanas-breed-santiago-island/

[25] Wilson et al 2017 Handbook of the Mammals of the World. Vol. 7 Rodents 2. Lynx Editions, Barcelona

[26] Rueda, D., et al. (2019). Preventing extinctions: planning and undertaking invasive rodent eradication from Pinzon Island, Galapagos. Island invasives: scaling up to meet the challenge. C. R. Veitch, M. N. Clout, A. R. Martin, J. C. Russell and C. J. West. Gland, Switzerland, International Union for Conservation of Nature and Natural Resources. **Occasional Paper of the IUCN Species Survival Commission No. 62:** 51-56.

[27] Subfossils are skeletal remains that are not old enough to be considered fossils but too young to be considered “modern”, usually due to the lack of complete mineralization of the bones. Subfossils also often contain viable DNA that can be used to identify species or population and thus be valuable for this work.

[28] Steadman, D. W. 1986. Holocene vertebrate fossils from Isla Floreana, Galápagos. *Smithsonian Contributions to Zoology,* 413**,** 1-103; see also Steadman, David W., Thomas W. Stafford, Douglas J. Donahue, and A. J. Jull. 'Chronology of Holocene vertebrate extinction in the Galápagos Islands.' *Quaternary research* 36, no. 1 (1991): 126-133.

B. PROJECT DESCRIPTION

Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF’s policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

The present project will help to achieve Galapagos 2030 Strategic Plan strategy E11 by actively restoring lost species to islands, thereby enhancing ecological integrity and biodiversity. As a result, the conservation status of key species will be improved.

Following the removal of key extinction drivers—notably those related to invasive vertebrates—and strengthening of biosecurity and other enabling conditions across the archipelago, conservation translocations have become a timely option, one for which incremental support is particularly needed. For example, Floreana Island is currently in the late stages of removal of damaging invasive species (includes rats, cats and goats) through island-level eradications—currently underway with support from GEF 10807. As

Floreana is successfully cleared of invasive rats and cats, the reintroduction of 13 missing species becomes feasible.

Where islands have been cleared of invasive species, there is always the risk of reinvasion (particularly by rats) due to their ongoing presence on other large, inhabited islands such as Santa Cruz and San Cristobal (eradication on these islands is currently not feasible with existing methods and technology). Effective biosecurity measures are therefore required to prevent the reinvasion and re-establishment of such invasive species. These exist within the Galapagos and are managed by the Galapagos Biosecurity Agency (ABG). Through GEF 9282, ABG's systems, equipment, training and protocols were improved and, according to ABGs Biosecurity Index, the risks to biosecurity have decreased due to the increased capacity of ABG to inspect, recognize, seize and correctly dispose of animal and plant material posing a threat to the Galapagoś natural ecosystems. This is ongoing work, but due to these improved measures being in place, the risk to conservation translocation from reinvasion by damaging invasive species has been greatly mitigated.

There are of course a number of other invasive species (predominantly plants and invertebrates) present on islands flagged for conservation translocations. Control and ultimately eradication, once technology allows, of some these other invasive species e.g., blackberry, will continue as part of the ongoing management of invasive species within Galapagos. However, as none of these invasives are extinction drivers for the species to be reintroduced, their presence is not considered an impediment to undertaking translocations. Restoring the ecological integrity of ecosystems and biodiversity in the Galapagos requires the implementation of multiple activities in tandem such as active restoration through conservation translocations and ongoing IAS biosecurity management and control—the latter to be funded under baseline cofinancing.

THEORY OF CHANGE

Figure 2 below presents a flow diagram indicating various scenarios for individual species and consequences for ecosystems following the removal of extinction drivers. As discussed in the previous section, foremost among these drivers is the presence of invasive species. Their island-level eradication, along with putting in place of effective biosecurity measures, enables various recovery / restoration pathways. For example, in cases where a species had been diminished in number, but not fully extirpated, recovery may take place without further intervention. In other cases, where island-level extirpation has occurred, but populations are found on neighboring islands, recolonization may take place, again without the need for additional action beyond the eradication.

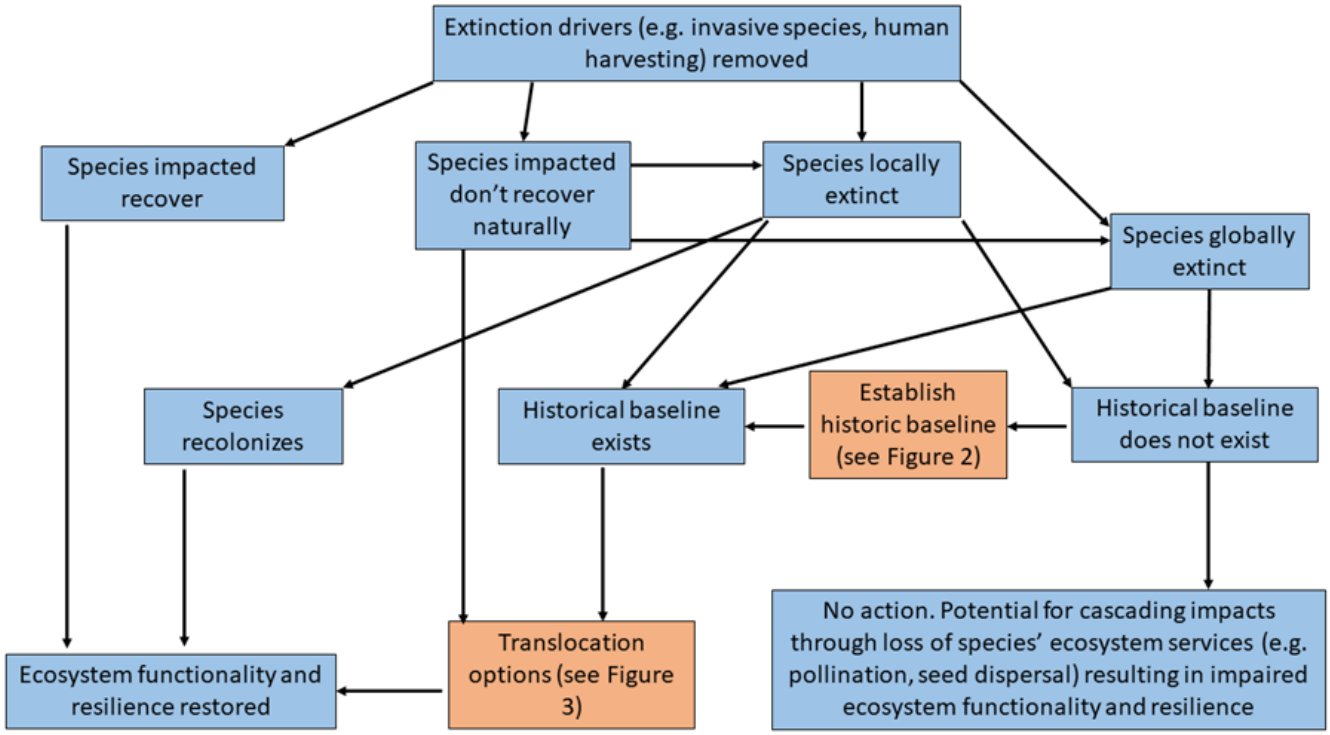

Figure 2: Overall project solution tree

The present project is designed to address situations where neither of the above scenarios is likely to take place within a reasonable time period and where, as a result, conservation translocation is seen as the most viable option for restoring individual Galapagos islands to as close as possible to pre-disturbance complements of species and levels of ecosystem functionality and resilience. Success will depend on the completion of several important steps, meant to maximize the probability of success while minimizing inherent risks. Risk reduction is closely linked to the removal of barriers, including information barriers related to uncertain historical baselines and technical barriers associated with restoring target populations.

The project will reduce risk through implementing actions (see orange boxes in **Figure 2**) to strategically shift the scenario from outcomes involving impaired ecosystem functionality towards functioning and resilient ecosystems. Movement towards island ecosystem-level restoration, as much as benefits for individual threatened species, will thus be a key end point and global benefit of the project.

The establishment of historical baselines of species will confirm which species are missing from which islands, providing a strategic roadmap for future reintroductions. **Figure 3** below illustrates the processes and sources of information that will be sought to build this knowledge base from which historical baselines for individual islands will be constructed.

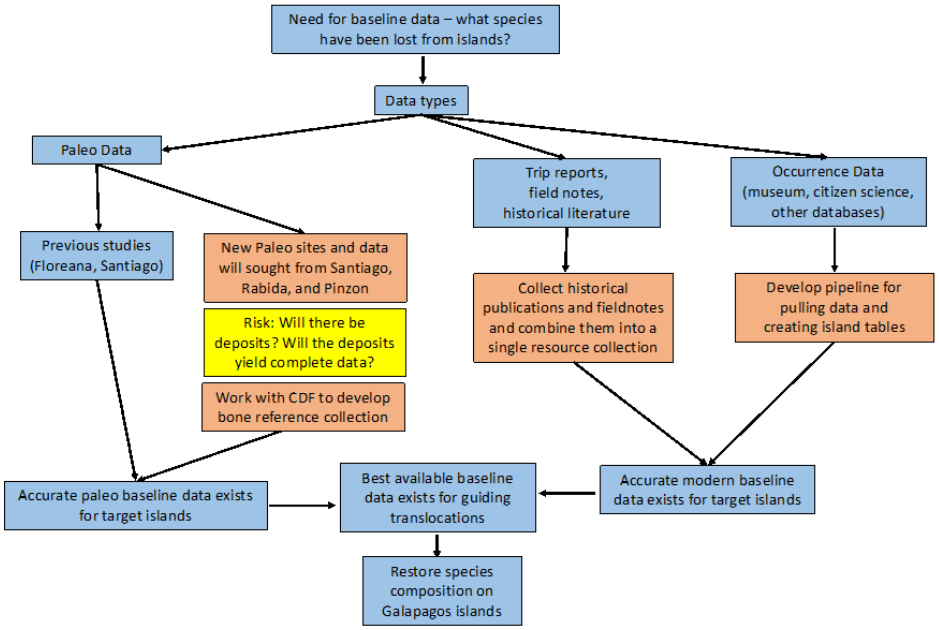

Figure 3: Establishing historical baselines. Key activity areas highlighted in orange

Once historical baselines are well understood and species translocations already agreed and planned—as is already the case for Floreana—actions for these islands can commence. **Figure 4** illustrates the four types of conservation translocations as defined by IUCN guidelines. This project will focus on the two population restoration translocation types in the orange boxes: reintroductions and population reinforcements.

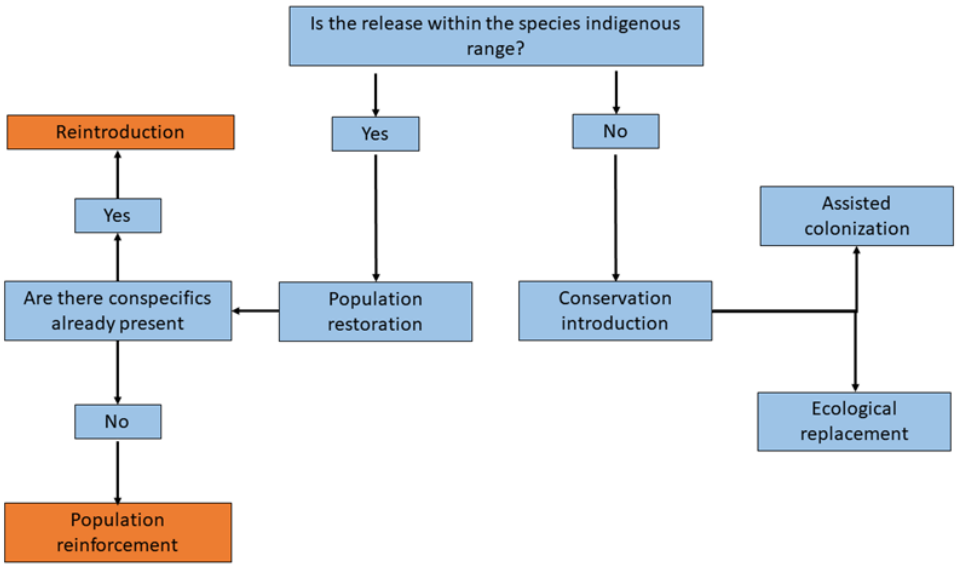

Figure 4: Four different conservation translocations according to the IUCN guidelines. This project will be undertaking translocations highlighted in orange boxes

A tentative list (subject to feasibility assessments and results from historical baselines) of conservation translocations is provided below in **Table 2**. All these species will benefit from, and have been identified for, conservation translocations on those respective islands. However, for any conservation translocation, best practice—following IUCN guidelines—recommends feasibility assessments are undertaken prior to any

translocation. These assessments map out the plan for a translocation and identify risks and other aspects that will impact upon the work e.g., the location(s) of source populations, disease risks, climate risk, logistics including transport, post-release monitoring needs.

Potential harmful impacts of climate change will thus be considered as part of the feasibility assessments and will be mitigated through translocation planning and post-release monitoring. As noted above, climate change models predict an increase in precipitation within the archipelago, similar to what has been observed during recent El Niño events. This may assist the establishment of new invasive species in Galápagos by creating optimal conditions for reproduction, particularly in dry environments. It may also increase the prevalence of infectious diseases carried by biological vectors, such as mosquitoes and flies, which are affected by availability of water.[1][29]

Post-release monitoring is a critical component that enables the project to assess the efficacy of a translocation, guide management interventions and address unexpected threats and issues. It is important to note that species translocations rarely consist of a single translocation event but instead involve multiple translocations over several years to establish a strong self-sustaining base population. Thresholds for undertaking further translocations and specific management interventions are identified as part of the feasibility assessment process. In this way, all aspects of a translocation are considered, appropriate measures put in place and individual translocations *prioritized* as necessary.

Feasibility assessments will be undertaken during the first year of the project and will be used to obtain final sign off from the management authority, i.e., Galapagos National Parks. Should the feasibility assessments highlight any potential issues for a particular species, these can subsequently be investigated and addressed. In the unlikely event that one of the proposed species translocations is not deemed to be suitable in the short-term, for example, due to further specific habitat restoration being required prior to a translocation being undertaken, then an alternative species -> island translocation will be undertaken. Plans will likewise consider management requirements to assure sustainability over a longer timeframe than that of the project, as well as the potential need for multiple release events in order to ensure a self-sustaining population.

As detailed in **Table 1**, there are several extirpated bird species known from the six target islands, and the historical baseline work will likely identify additional ones. Whilst Little vermillion flycatcher is known to be absent from several islands, including Floreana and Santa Fe, it is proposed to initially undertake a population reinforcement of the Santa Cruz population for several reasons. Due to their insectivorous diet flycatchers are notoriously difficult to hold in captivity. This poses a different set of challenges for translocations compared to Darwin's finch species which would normally be caught and held in captive conditions for up to week prior to release or soft released from established aviaries. As such, specific procedures for this species will have to be developed and trialled. Undertaking such an activity on Santa Cruz will facilitate logistical support and flexibility whilst these procedures are being refined due to the infrastructure (both logistical and personnel) in place on-island.

Table 2: Tentative list of proposed conservation translocations to be undertaken under this project

Island	Species	IUCN Red List status[2][30]	Translocation type

Island	Species	IUCN Red List status[2]30	Translocation type
Santa Cruz	Little vermillion flycatcher	Vulnerable	Population reinforcement
Floreana	Floreana mockingbird	Endangered	Reintroduction
Floreana	Floreana racer*	Near Threatened*	Reintroduction
Floreana	Large ground-finch	Least Concern	Reintroduction
Pinzon	Woodpecker finch	Near Threatened	Reintroduction

*Currently described and assessed as *Pseudalsophis biserialis* which includes San Cristobal population but Floreana racer is a distinct sub-species *P. biserialis biserialis* and is currently undergoing taxonomic revision

Figure 5 consists of a map of the Galapagos Islands, showing the locations of project interventions under Components 1 and 2.

Restoring Ecological Integrity of Protected Areas of Galapagos, through strengthening capacities for traslocations of birds and snakes.

Component 1: Establishment of historical baselines: Santa Fe, Rabida, Pinzon, and Santiago islands

Component 2: Conservation translocations: Floreana, Santa Cruz, Pinzon

Figure 5: Component 1 and 2 locations

By actively undertaking conservation translocations, guided by experienced conservational professionals working closely with staff from DPNG and other institutions, the technical skills and knowledge of local staff in small bird and snake translocations will be developed. This will help remove some of the technical barriers around species translocation programs, building a base of technical capacity within Galapagos that can be used for future species translocations across the archipelago.

Global Environmental Benefits

Globally, islands are some of the most important sites for biodiversity harboring approximately 20% of the Earth's biodiversity despite contributing only 6.7% of land surface area.[3][31] They are also the most threatened. Nearly 50% of IUCN Red List threatened species and 75% of known extinctions since the European expansion around the globe, including 94% of all known bird extinctions, are from islands. As such, islands are at the forefront of global conservation efforts.

Removal of extinction drivers, such as invasive species, enables the degraded species populations and habitats to be restored. For many species, this will only be achieved through undertaking conservation translocations to restore lost populations or reinforce those which have been depleted to a point where natural recovery will be long, slow, and/or uncertain.

This project will build the evidence base for island species conservation translocations practice and implementation, acting as a framework for future translocations within Galapagos and as reference for actions globally. Within Galapagos, populations of at least five species across three islands, including two IUCN Red List globally threatened species—Floreana mockingbird (*Mimus trifasciatus*) and Little vermillion flycatcher (*Pyrocephalus nanus*)—will be restored or enhanced through conservation translocations. It is further anticipated that, as a result of these species restorations, the process of restoring the ecosystems of the corresponding islands will also be advanced significantly.

PROJECT COMPONENTS, OUTCOMES AND OUTPUTS

The project includes three components and associated outcomes, which are described below. Additional details regarding activities needed to achieve the individual outputs is presented in **Annex 3** below.

Component 1: Establish historical baselines to guide conservation translocations

Outcome 1: Historical evidence of species presence guides conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands

Indicator 1: Availability of reliable historical baselines of species presence for individual Galapagos islands

Outcome Target Historical evidence has been compiled to guide conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands

Outcome 1 will bring together as much data as possible to provide the best available evidence for the island species compositions prior to various human impacts. Three primary data types will be compiled: 1) historical literature including from early sailors and expedition field notes, 2) vouchered occurrence data (from museum records and citizen science databases), and 3) paleontological data from at least two of the focal islands. Some of these datatypes have been available previously but are in dispersed localities and not easily searched or analyzed. The project will gather these data together and ensure that they are digitized and centrally located or linked in order to enable their use by this and future projects. Data on island baselines will thus help to drive restoration projects and translocations so that each Galapagos island can ultimately be rewilded to its full complement of pre-human species diversity.

Output 1.1: Historical literature, field notes and other sources identified, a bibliography produced, and relevant evidence for species presence compiled into a database, for at least the islands of Santa Fe, Rabida, Pinzon, and Santiago.

Indicator 1.1: Accessibility of historic literature, logs and field notes containing information on historical presence of vertebrates

Target 1.1: Relevant historical literature, ships logs, and exploration field notes are identified and located, and available contents are published as appropriate, potentially in scientific publications or on internet sites that are searchable and where notes and logs can be downloaded, searched, or linked.

Historical literature includes published scientific papers, but also ships' logs and field notes of early travelers and explorers. To some degree, this work has been mapped out by a variety of historians working on the Galapagos[4]32; however, some sources such as unpublished field notes have not been compiled, and these will be the focus. Identifying key archival unpublished material and getting this scanned will be prioritized and where possible, optical text recognition will be used to index and create searchable text. Another priority will be identifying and locating field notes and logs from the expeditions and voyages that spent the most time on the target islands. Published material will be brought together into a single archive when copyright permissions allow, and will have links to other published materials, to enable thorough collections of historical literature to be leveraged in support of vertebrate occurrence on the focal islands.

Output 1.2: Occurrence data from museum collections and other sources are compiled and searched for records.

Indicator 1.2: Accessibility and use of historical museum data demonstrating vertebrate occurrence to help guide conservation translocations.

Target 1.2: A dataset of occurrence data created for existing museum and citizen science data supporting baseline vertebrate occurrence in historical time for four focal islands.

In the last two decades, most museums with vertebrate collections have been working to digitize their collection data and to provide those data through online search portals. In addition, data aggregators such as Ornis, Manis, HerpNet, VertNet, and GBIF have been working to pull these data together, so that a single search by species or by location can efficiently retrieve data from across multiple institutions and collections. Today, most large international collections have fully digitized their bird, mammal, and herpetofauna collections, creating exciting new opportunities for gathering, updating, and validating historical occurrence data.

In order to address barriers to accessing the above data for conservation decision-making, museum data will be gathered from a variety of sources, pooled into a single data table, and organized by modern taxonomic names and modern place names. These will then be used to establish tables documenting the numbers, dates, and types of evidence available for the baseline occurrence of vertebrate species on the focal islands.

Output 1.3: Sub-fossil bearing caves are identified, excavated, and material recovered from at least 2 islands.

Indicator 1.3: Availability and use of fossil and subfossil evidence to help guide conservation translocations.

Target 1.3: Collections of fossils and subfossils are recovered from paleobiological sites on at least 2 islands and stored at appropriate museums (e.g., Charles Darwin Foundation).

Many early extinctions may not be documented in the historical record because they were caused by human introduction of rats, goats, and other mammals before researchers conducted faunal surveys. Paleobiological excavations by Steadman and others have documented the importance of paleo data for reconstructing pre-human faunas for Floreana[5]33. Thus, in order to help document the baseline occurrence of native species on islands such as Santa Fe, Pinzon, Rabida, and Santiago, the potential for fossil bearing deposits of target islands will be identified and attempts will be made to excavate material from promising caves from at least two of these islands.

Output 1.4: Skeletal reference collections are created or compiled and subfossil material classified to species.

Indicator 1.4: Availability of reference material to guide future paleobiology work in the Galapagos and Paleo-occurrence data to guide species translocations for focal islands.

Target 1.4: Complete skeletal reference collections exist and a representative sample of subfossil material classified to species for at least 2 focal islands.

To efficiently sort through paleo-bone collections and identify these at the level of species or genus, a reference collection is required. Some materials already exist in the Charles Darwin Foundation (CDF) collections, but where materials are missing or incomplete, these will be augmented, where possible, with new collections. CDF and other institutions can currently gather salvage specimens with existing permits, and such specimens may suffice for many vertebrate species or genera. Additional permission will be sought from the Galapagos National Park to collect and prepare osteological specimens of common representatives of important genera. Working with CDF, gaps in reference material will be identified and remedial measures

taken. Where collecting is not feasible, the possibility of getting donations of reference material from large skeletal collections outside of the Galapagos will be explored.[6]34

Component 2: Conservation translocations of locally extinct and/or threatened bird and snake populations

Outcome 2: Five populations of locally extinct and/or threatened birds and snakes restored through conservation translocations

Indicator 2: Number of populations of locally extinct and/or threatened birds and snakes being restored through conservation translocations

Outcome Target: Five populations of locally extinct and threatened birds and snakes being restored through conservation translocations, with at least 50% of translocated species established and breeding

By the end of the project, conservation translocation plans will have been implemented for at least five species on three islands. As a result, the extinction risk for two IUCN globally threatened species— Endangered Floreana mockingbird and Vulnerable Little vermillion flycatcher—will have been reduced and the ecological integrity of three islands improved through the translocation of missing species. DPNG capacity, in terms of technical knowledge and skills in relation to small bird and snake translocations and post-release monitoring, will have been enhanced, creating in-country technical capacity to undertake future conservation translocations of these species' groups.

Several species have already been identified and agreed for reintroduction onto Floreana and several identified as missing from two other islands (Pinzon and Santa Fe). Two island populations of Little vermillion flycatcher (Santa Cruz and Santiago) have been identified as potentially benefitting from population reinforcement translocations. In addition, further species for reintroductions to islands may be identified during the assessment and establishment of historical baselines (Component 1).

For all bird and snake species identified as potential conservation translocations, the feasibility of such translocations will be assessed, and, if feasible, translocation plans subsequently developed. These plans will be developed in accordance with IUCN translocation guidelines and in conjunction with key stakeholders and implementing agencies. The plans will set out all logistical and technical requirements, both of the translocation and of post-release monitoring.

Given the logistical and technical needs for each translocation and the optimal timings for implementation likely being similar, a timetable for all planned translocations across the timeframe of the project (and beyond) will be produced. This will enable the limited resources (principally transport and personnel) to be made available as needed for each translocation.

Translocations will be implemented by teams made up of experienced practitioners (both international and local) and local DPNG staff. In this way, DPNG staff will develop skills and experience in undertaking translocations, building on skills developed by several staff in the course of finch mitigation work, i.e., captive holding as a risk management measure, on Floreana. Post-release monitoring will be undertaken for all translocations to assess success against pre-identified targets and to inform ongoing management.

Output 2.1: Conservation translocation plans are developed for at least four locally extinct birds and one locally extinct snake.

Indicator 2.1: Number of conservation translocation plans developed for birds and snakes

Target 2.1: Four bird and one snake conservation translocation plans developed

For all proposed species, translocations plans will be developed by key implementing partners and stakeholders in conjunction with DPNG, taking into consideration the IUCN translocation guidelines. Each plan will assess key criteria related to the potential translocation and assess its biological, social and logistical feasibility. Key criteria to be assessed will include:

- Setting targets: each translocation plan will have a series of targets set against which progress can be monitored and assessed.
- Site suitability: assessing whether proposed island/site is suitable for proposed species e.g., habitat quality, food availability, nesting sites. If required assessment surveys will be undertaken to confirm these
- Founding population: identifying where the source population will be from (i.e., which island, which population) and numbers required.
- Methodology: how individuals will be caught, transported, and released. This will be dependent on species and biology. Numbers of and key personnel required will be identified as part of this.
- Disease management: what potential diseases need testing and / or treating for prior to translocation. In this project, this is particularly relevant to bird translocations to ensure diseases are not transferred between islands and to maximize health and welfare of individuals being translocated.
- Post-release monitoring: a crucial aspect of any translocation to ensure it can be properly assessed against the plans proposed targets. Depending on the translocation this may require actions prior to release e.g., attaching a sub-set of individuals to be released with radio trackers.

Translocation plans for Floreana mockingbird, Floreana racer and Little vermillion flycatcher are already under development and will be completed during Year 1 of the project.

Output 2.2: Four bird and one snake conservation translocation plans are implemented

Indicator 2.2: Number of bird and snake conservation translocation plans implemented

Target 2.2: Four bird and one snake conservation translocation plans implemented

Translocations should be implemented at the optimal time of year to maximize success. For the majority of the species being translocated, this optimal window will likely be the same, i.e., during the non-breeding season. An overall timetable of translocations will be developed to map out the scheduling of translocations throughout the project period (and beyond) to ensure the requisite logistical and technical requirements are available for each, including transport and skilled personnel. This may mean that more translocation plans are developed than can be implemented during this project's timeframe due to logistical, as well as financial, constraints. Leveraged cofinancing will be sought for implementation of any remaining plans.

Nascent timelines have already been developed and agreed for the suite of reintroductions to Floreana through the 2022 stakeholder workshop. Steps for each translocation will be determined during the planning but general steps will include:

- Capture: individuals for translocation will be caught from the source population in numbers and sex ratio (usually 1:1) determined in the planning phase.

- Transport: individuals will be held in appropriate facilities e.g., small quarantine cages and transported to the island and site of release by appropriate means. This may be for example by boat or by helicopter depending on species and source / release sites.
- Release: the release methodology of individuals at the translocation site will be determined during the planning phase. This could be either 'soft-release' (where individuals are held in a temporary captive setting for a period of time before release to the wild or released into a temporary enclosure) or 'hard-release' (individuals released directly into the wild).
- Monitoring: individuals will be monitored throughout the translocation process from capture to release and post-release (see Output 2.3). Monitoring is key to ensure that animal welfare standards are met and that individual animals remain in a healthy and fit state to be released.

Output 2.3: Monitoring confirms establishment and breeding of translocated populations

Indicator 2.3: Percentage of populations established and breeding

Target 2.3: >50% of populations established and breeding

A key element of any translocation is post-release monitoring. Monitoring plans will be developed as part of each translocation plan. Plans will be guided by the specific goals and targets of each individual species translocation and proportional to the scale of the translocation. All post-release monitoring will aim to assess whether translocated populations establish and subsequently breed (demographic monitoring). Other aspects that may form part of the monitoring plan include: behavioral monitoring; resource (e.g., food, nesting) availability and habitat monitoring (ecological monitoring); genetic diversity (genetic monitoring) and assessing local communities' perceptions (social monitoring). Crucially post-release monitoring will inform ongoing management of the translocated populations, such as, whether further translocations are required; additional management requirements such as habitat management to improve population viability; and areas requiring further specific research.

Component #3: Sustainability, knowledge, monitoring and evaluation

Outcome 3: Sustainability and knowledge are enhanced through capture of lessons learned and monitoring and evaluation

Indicator 3: Knowledge and lessons learned from translocations shared with national and international conservation communities

Outcome target: Five translocations are evaluated with knowledge and lessons learned widely shared through various mediums with national and international conservation communities

This project will generate a wealth of information to act as a reference for future ecological rehabilitation projects utilizing conservation translocations within Galapagos and internationally. This component will ensure that all translocations undertaken through this project are effectively monitored, adaptively managed and delivered in a timely and cost-effective way. Monitoring will also enable the capture of necessary information and experiences that will be needed in order to evaluate the effectiveness of each translocation and to draw lessons for application to future actions.

To improve the effectiveness of conservation actions, it is essential that lessons – both successes and failures – are shared with peers and the wider conservation communities. An international workshop involving conservation practitioners will be held in Year 3 of the project to review translocations undertaken within Galapagos to date to discuss and identify key lessons from these. This information will be made available to the international conservation community so that it may inform similar conservation translocations being undertaken or planned across the globe. Additionally, the project will seek to publish findings and results from project activities in relevant media such as peer-review journals like Conservation Evidence.

Output 3.1: International rewilding workshop to evaluate conservation translocations and share knowledge

Indicator 3.1: Number of workshops held

Target 3.1: One international workshop

A 3-day international workshop will be held in Galapagos to review the successes and lessons learnt from conservation translocations undertaken in the archipelago. This will include those undertaken during this project as well as those done previously in Galapagos covering all taxa. The workshop will be for c.30-40 people, predominantly from Galapagos but also key international collaborators.

The output will be a workshop report summarizing key achievements and successes, failures and barriers to success and opportunities and recommendations for future conservation translocations within Galapagos. This will serve as an information resource for conservation practitioners within and outside the archipelago.

Output 3.2: Effective management of knowledge, based on learning and dissemination of project lessons and innovations

Indicator 3.2: Specific technical lessons captured and disseminated for application in subsequent translocations

Target 3.2: Three concrete lessons learned and available for replication.

The project provides opportunities to build knowledge for conservation translocation, both for novel species and in assessment of historical baselines to help guide those translocations. Key thematic areas in which learning and innovations will be sought include the following (with additional ones possible):

- Conservation translocations for a social bird species: Floreana mockingbirds are social birds living in family groups. Successful translocation of this species will involve moving whole groups rather than individuals as done with other species. This is a novel dynamic and will provide useful information for conservation translocations of similar species globally.
- Conservation translocations of flycatcher species: Translocations of flycatcher and flycatcher-type species, such as the Little vermillion flycatcher, are logistically challenging due to the difficulty of maintaining individuals in captivity for any length of time (due to their feeding requirements and behavior). Knowledge built during this proposal will help inform future translocations, both in Galapagos and globally, of threatened flycatcher species.
- Conservation translocation of snakes in Galapagos: The project plans to undertake the first conservation translocation of a snake species in Galapagos, with the reintroduction of the Floreana

racer to Floreana Island. This will build capacity and knowledge, particularly around release strategy and post-release monitoring for this taxon within country.

Output 3.3: Project monitored and evaluated

Indicator 3.3: Evaluation reports

Target 3.3: One final evaluation report

The project will be subject to ongoing monitoring through an adaptive management framework by the Executing Agency (Jocotoco Conservation Foundation) and Component Leads (Component 1 California Academy of Sciences, Component 2 Durrell Wildlife Conservation Trust, Component 3 Jocotoco Conservation Foundation). Quarterly project reviews will be undertaken to identify areas where activities are being delayed, reasons for this and identify and put in place appropriate mitigation measures. A final project evaluation report will be produced at the end of the project period.

Table 6 below describes gender-specific actions and considerations related to individual project outputs.

Table 6: Gender actions and issues, by project output

Output	Actions, by project output
Overall	• Include gender equality standards in the TOR of all operational support staff. • Insert gender and social inclusion standards in all project staff/ consultants' ToRs to ensure that they identify and integrate practical actions to respond to gender-differentiated issues and their implications for women and men • Incorporate gender dimensions into training packages
Output 1.1: Historical literature, field notes and other sources identified, a bibliography produced, and relevant evidence for species presence compiled into a database, for at least the islands of Santa Fe, Rabida, Pinzon, and Santiago.	• Ensure women's participation in the compilation work
Output 1.2: Occurrence data from museum collections and other sources are compiled and searched for records	• Ensure women's participation in the compilation of occurrence data
Output 1.3: Sub-fossil bearing caves are identified, excavated, and material recovered from at least 2 islands	• Ensure women's participation in the field surveys
Output 1.4: Skeletal reference collections are created or compiled and subfossil material classified to species	• Ensure women's participation in the creation of reference collections and classification work
Output 2.1: Conservation translocation plans are developed for at least four locally extinct birds and one locally extinct snake.	• Fully integrate women in the process of developing translocation plans
Output 2.2: Four bird and one snake conservation translocation plans are implemented	• Ensure participation by women rangers in the field work and on-the-job training activities
Output 2.3: Monitoring confirms establishment and breeding of translocated populations	• Include women in the development and implementation of monitoring plans

Output	Actions, by project output
Output 3.1: International rewilding workshop to evaluate conservation translocations and share knowledge	• Ensure robust participation on the part of women researchers and practitioners
Output 3.2: Effective management of knowledge, based on learning and dissemination of project lessons and innovations	• Involve women in developing a series of knowledge products, including reports, briefs, and infographics, highlighting key findings and lessons learned • Ensure full coverage of women's issues and related sustainable development opportunities within the knowledge products to be created by the project
Output 3.3: Project monitored and evaluated	• Analyze and report gender-sensitive project data to project staff, stakeholders, and donors, including mid-term and final evaluations, annual reviews, and ad-hoc reports as needed • Ensure full representation by women in regular project management meetings to review M&E data and identify and implement corrective actions as needed • Use M & E processes to incorporate and assess gender issues

Consistent with the need to ensure gender mainstreaming throughout the project, the Results Framework has been modified to indicate the specific number of women and men directly benefitting from the project, which is also consistent with GEF-7 Core Indicator 11. Compliance with the required outputs and standards of the GEF gender policy will be subject to independent external auditing to be explicitly referenced in the Project Operations Manual, in all Subsidiary Agreements between CAF and the project's Executing Agencies, and in the Terms of Reference for the Terminal Evaluation of the project.

The project will strive to include men and women in stakeholder workshops. Professional facilitators who will lead stakeholder workshops will be experienced in using techniques to actively provide a voice to women. It is expected that women will be underrepresented in training opportunities offered to park rangers, as most park rangers in the DPNG are men. The project cannot change government hiring practices, but it will provide opportunities for women who participate to be heard and to feel safe and involved. The project will also offer additional leadership training for female park rangers engaged in control and surveillance trainings, with the goal of improving their participation and role in decision-making.

Stakeholder participation under each of the components may be summarized as follows:

- Component 1: This work will require the help of many outside experts and consultants, many of whom are stakeholders in their own right. We would like to develop reference bone collections that can stay in the Galapagos, so will work closely with the Charles Darwin Foundation (and potentially the Galapagos Science Center) for this work. To gather historical data, we will work with collections and collections data and archives worldwide, which will require contacting each and determining what materials are available and how to make them most efficiently available. For work on various islands, we will require a close partnership with the Galapagos National Park in order to both find and develop paleobiology sites, as well as permission to do the work.

- Component 2: The development of translocation plans for individual species or group of species (Output 2.1.) will follow IUCN translocation guidelines, and involve stakeholder engagement and consultations specific to each translocation. This will include working with relevant experts on each species. Implementation of all translocations will be undertaken in collaboration with staff from DPNG. In addition, specific translocations and post-release monitoring, will be undertaken with the involvement of various institutions including Charles Darwin Foundation and Island Conservation to ensure sufficient capacity. On both inhabited islands (Floreana and Santa Cruz) local communities are key stakeholders and will be engaged in relevant translocations.
- Component 3: Component 3's rewilding workshop will provide an opportunity for stakeholder engagement, including reporting back to stakeholders on results achieved, receiving feedback on projects implemented and future proposed projects including those that may have been identified by constructing historical baselines in Component 1. All of the stakeholders identified above, along with a range of experts and specialists from around the world, will be invited to participate.

Knowledge management is a central focus of Component 3 of the project. **Table 8** below presents the project's knowledge management plan

Table 8: Knowledge management plan, by output and activity

Output	Activity	Timing	Budget	Implementation & communication strategy
Output 3.1 International rewilding workshop	3.1.1 Workshop activity planning	Y3	$41,153	• International rewilding workshop for c.30-40 people held in Galapagos to review successes and lessons learned from previous conservation translocations in archipelago. • Workshop report will be published detailing lessons from review. Report will be disseminated to all participants and key stakeholders and organizations and will be publicly available through a partner or associates' website. • Workshop communications will be via blog and social media.
	3.1.2 Workshop held	Y4, Q1		
	3.1.3 Workshop report written and disseminated	Y4, Q2-3		
Output 3.2: Effective management of	3.2.1 Annual collation of key knowledge	Y2-4, Q1		• Quarterly project partner meetings to assess progress and

Output	Activity	Timing	Budget	Implementation & communication strategy
knowledge, based on learning and dissemination of project lessons and innovations	developed and lessons learned		$22,425	identify key knowledge developments and lessons learned, to be collated in annual project reports • Internal project management reviews, based on lessons learned, will lead to adaptive management of project activities. • Identification of information appropriate for wider dissemination • Comms will be internal, via disseminated meeting minutes and project reporting
	3.2.2 Identification of appropriate knowledge dissemination platforms e.g., online database, peer review publications	Y2-3		• Identifying appropriate platforms and methods to disseminate broadly • List of knowledge dissemination platforms and targets • For internal project dissemination only.
	3.2.3 Knowledge and lessons learned from project disseminated through knowledge platforms	Y4		• Translating knowledge and lessons from Component 1 and 2 into appropriate materials for dissemination • Deliverables will depend on platform but could include: peer-review papers; submissions to Conservation Evidence; conference and symposium presentations; and online databases • Comms will engage relevant publications supported by social media, news items on partner websites, press releases. Sharing of all outputs with key stakeholders and organisations

[1] Jiménez-Uzcátegui, 2019, op cit.

[2] IUCN 2023. The IUCN Red List of Threatened Species. Version 2022-2

[3] Fernandez Palacios et al. 2021. Scientist's warning - The outstanding biodiversity of islands is in peril. Global Ecology and Conservation. Vol 31 e01847

[4] SLEVIN, J. R. 1959. The Galápagos Islands: A history of their exploration. *Occasional Papers of the California Academy of Science,* 25**,** 1-150.

[5] Steadman, David W. Holocene Vertebrate Fossils from Isla Floreana, Galapagos. Smithsonian Contributions to Zoology, number 413, 103 pages, 25 figures, 4 plates, 12 tables, 1986.

[6] For example, the osteological collections made by the University of Wisconsin Zoological Museum in the 70's, 80's and 90's by Elizabeth Pillaert or using digital CT scanned as reference (from material from CAS and other collections).

Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this project, including financial management and procurement. If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

The co-executing agencies will be Jocotoco Conservation Foundation (JCF) and the DPNG. The project builds upon the long- term working collaboration between DPNG and JCF. **Figure 6** presents the project execution organization chart.

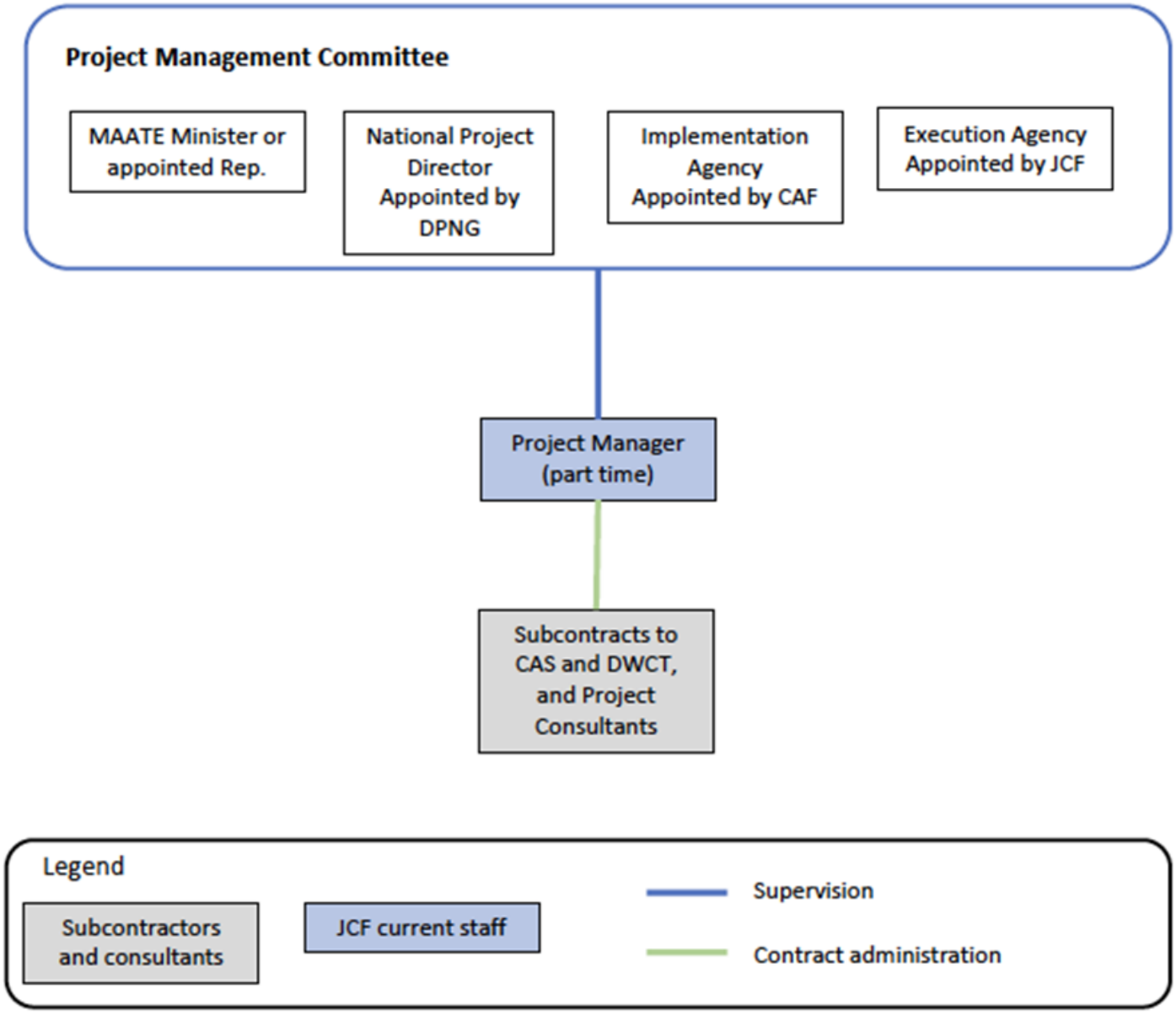

Figure 6: Project organization chart

The project will be implemented over a period of 48 months.

The DPNG will be responsible at the highest level for ensuring project execution and management, including the monitoring and evaluation of project interventions, achieving project outcomes (both funded by GEF and through co-financing), and the effective use of GEF resources.

MAATE, in coordination with DPNG, has requested that Jocotoco Conservation Foundation be responsible for executing technical, administrative and financial actions. For this purpose, DPNG will sign a letter of agreement with Jocotoco Conservation Foundation (JCF) prior to project implementation.

As co-executing agency, JCF will receive project-specific GEF funding from CAF as implementing agency, based on the approved project document and annual workplans/budgets. Thus, JCF will undertake the execution of the project, which implies the ability to manage and administer the day-to-day activities. This includes responsibility for managing the timely delivery of project outcomes and outputs and for appropriate

use of funds, for procurement and contracting of goods and services. CAF will supervise the proper use of funding and compliance with GEF rules and CAF procurement policy.

California Academy of Sciences (CAS) will act as executing partner within Component 1. For this purpose, JCF will sign a sub-grant with CAS for executing aspects of Component 1. This sub-grant will reflect the terms of JCF's contract provisions as an executing agency under contract to the CAF implementing agency. CAS currently holds the single largest collection of Galapagos scientific specimens of any institution in the world, dating back to the late 1800s. All CAS vertebrate collection data are fully digitized and available online, and the organization has been a leader in its efforts to digitize and democratize scientific collection data. They currently have multiple collaborative agreements and projects with partners in the Galapagos.

Durrell Wildlife Conservation Trust (DWCT) will act as executing partner within Component 2. For this purpose, JCF will sign a sub-grant with DWCT for executing aspects of Component 2. This sub-grant will reflect the terms of JCF's contract provisions as an executing agency under contract to the CAF implementing agency. DWCT are recognized global leaders in species reintroductions and translocations, especially of highly threatened and island species. Over the last 50 years, DWCT has undertaken successful species translocations for numerous reptile and bird species including: Round Island boa and Telfair's skink (Mauritius); Mangrove finch (Galapagos); Saint Lucia whiptail (Saint Lucia) and Madagascar pochard (Madagascar). On Floreana, DWCT has led in recent years on finch mitigation activities and on developing feasibility assessments for passerine reintroductions.

The project organization structure includes: a Project Management Committee (PMC); a National Project Director, and; a Project Manager. Details regarding each of these are provided in the CAF project document.

Will the GEF Agency play an execution role on this project?

If so, please describe that role here and the justification.

N/A

Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing (max. 500 words, approximately 1 page)

The project will closely coordinate and share lessons with other conservation translocation projects as well as other projects, particularly in the Galapagos, that are focused on laying the groundwork for conservation translocation through eradication of invasives species, biological control of *Philornis* and blackberry, etc. The following projects in particular will be important targets for coordination:

- GEF project 9410. Strengthening national and regional capacities to reduce the impact of Invasive Alien Species on globally significant biodiversity in the Pacific.
- GEF project 9282. Safeguarding biodiversity in the Galapagos Islands by enhancing biosecurity and creating the enabling environment for the restoration of Galapagos Island ecosystems.
- Darwin Initiative project 29-003. Improving livelihoods and protecting biodiversity on Floreana Island, Galápagos. Runs till March 2025 with a focus on mitigation (non-target species and livestock) during

island rodent eradication and post-eradication monitoring. Provides co-funding for DWCT's Conservation Biologist technical specialist who will be intrinsic to development and implementation of bird translocations.

In the case of all other initiatives, DPNG will be the lead coordinating entity, as they provide permits and serve as focal points for other entities working in the Galapagos

Core Indicators

Indicator 1 Terrestrial protected areas created or under improved management

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0	761844	0	0

Indicator 1.1 Terrestrial Protected Areas Newly created

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0	0	0	0

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)

Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
0	761844	0	0

Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
Galapagos National Park	187	National Park		761,844.00			75.00		

Indicator 3 Area of land and ecosystems under restoration

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0	21500	0	0

Indicator 3.1 Area of degraded agricultural lands under restoration

Disaggregation Type	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 3.2 Area of forest and forest land under restoration

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	21,500.00		

Indicator 3.3 Area of natural grass and woodland under restoration

Disaggregation Type	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 3.4 Area of wetlands (including estuaries, mangroves) under restoration

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		79		
Male		161		
Total	**0**	**240**	0	**0**

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

- Core Indicator 1.2: Terrestrial protected areas under improved management effectiveness – 761,844 ha. Galapagos National Park as a whole will benefit from the project actions.
- Core Indicator 3: Area of land and ecosystems under restoration – 21,500 ha. (Floreana - 17,300 ha, Santa Fe – 2,400 ha, Pinzon – 1,800 ha). This is the combined area of the three islands where conservation translocations will take place.
- Core indicator 11: Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment – 240 beneficiaries, representing the current population of Floreana Island (148) and the number of DPNG staff who are expected to benefit from the project's capacity building efforts (92). Gender breakdown of the beneficiaries is 161 men and 79 women.

Risks to Project Implementation

Summarize risks that might affect the project implementation phase and what are the mitigation strategies the project will undertake to address these (e.g. what alternatives may be considered during project implementation-such as in terms of delivery mechanisms, locations in country, flexible design elements, etc.). Identify any of the risks listed below that would call in question

the viability of the project during its implementation. Please describe any possible mitigation measures needed. (The risks associated with project design and Theory of Change should be described in the "Project description" section above).

The risk rating should reflect the overall risk to project outcomes considering the country setting and ambition of the project. The rating scale is: High, Substantial, Moderate, Low.

Risk Categories	Rating	Comments
Climate	Moderate	According to climate change prediction models for Galapagos, a key change will be an increase in precipitation. Increased precipitation is characteristic of El Niño years, during which land birds in Galapagos show increased breeding. In general, terrestrial species in Galapagos benefit from wetter conditions due to an increased abundance of food leading to increased breeding, as observed in land birds during El Niño years where there is increased precipitation. However, wetter conditions will also increase the likelihood of disease and parasites and the opportunities for invasive species to take hold. All translocated species will have monitoring plans implemented so that impacts associated with climate change and other factors can be assessed.
Environment and Social	Low	Introducing novel or new disease strains into existing island populations: Each translocation plan will assess the disease risk associated with the translocation as part of the feasibility assessment. Most known diseases, such as avian malaria, have already spread across the archipelago. Where appropriate, disease screening

		will be undertaken prior to translocation in order to ensure any potential risks are minimized. Source populations negatively impacted (e.g., reduced population viability) by translocation: Potential impacts will be assessed as part of the feasibility studies undertaken for each translocation. Where necessary, Population Viability Analysis will be undertaken to assess likely impact of removal of individuals from a potentially vulnerable source population. Translocated populations have undesirable impacts on local ecology: All species proposed for translocation are native to that island and therefore highly unlikely to have any negative ecological impacts. Post-release monitoring will help identify any such impacts and guide adaptive management decisions. Translocations fall below internationally accepted standards of animal welfare: Potential animal welfare impacts will be assessed as part of feasibility studies. Conservation translocations will follow best practice from other similar translocations, will be led by experienced avicultural practitioners and will have veterinary support to monitor stress levels of individual animals
Political and Governance	Moderate	Ecuador has been relatively stable politically, with democratic changes of administrations. Projects in

		Galapagos continue to be implemented even with administration changes and have been highly successful, therefore risks are low. In terms of governance, the project is employing structures, including a Project Management Committee (PMC), similar to those used successfully by previous projects
Macro-economic		n/a
Strategies and Policies	Moderate	Strategies employed by the project are based on well-established international, national and sub-national policies related to recovering species, restoring habitats and preventing biodiversity loss. These include well-established and tested IUCN Guidelines on translocation, which in fact increases the likelihood of project success.
Technical design of project or program	Low	Risk of failure of one or more translocation plans: Each translocation plan with have set goals and targets and appropriate post-release monitoring in place to assess success and identify issues. Translocations will be undertaken at the appropriate time of year to maximize success. Most translocations require multiple release events. Additional management requirements such as Philornis control or habitat management, needed to increase viability of translocated populations will be identified during the plan development and implemented

		in parallel with the translocation
Institutional capacity for implementation and sustainability	Moderate	The risk has been taken into account; experienced practitioners are being brought in to advise on technical aspects of the project, while simultaneously building capacities of local partners, namely DPNG and local NGOs.
Fiduciary: Financial Management and Procurement	Low	Jocotoco Conservation Foundation is familiar with, and experienced in, implementing CAF's policies. It is currently a co-executing agency for Costa Rica's GEF project 10752, and Ecuador's GEF project 10807, for both of which CAF is the implementing agency. In addition, staff involved in the day-to-day management of project resources will be trained in CAF's procurement policies and in procurement planning during and after the Project's Inception.
Stakeholder Engagement	Moderate	Most of the relevant islands are uninhabited. In the case of Floreana, members of JCF's team, previously with Island Conservation, have been working closely and collaboratively with the community on Floreana Island since 2012, including holding a multi-actor and multisectoral workshop on 11-13 July 2023 to determine which species to be reintroduced to Floreana Island, their sequence and considerations.

Other		n/a
Financial Risks for NGI projects		
Overall Risk Rating	Moderate	The project was caracterized as Low Risk Please see annex K

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Explain how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this. (max. 500 words, approximately 1 page)

The project is aligned with Objective 1 of the GEF-8 biodiversity focal area strategy, "to improve conservation, sustainable use and restoration of natural ecosystems.

Key project elements in line with Programming Directions include:

- The project takes place within an area of (high) global biodiversity significance
- It takes advantage of "opportunities to restore areas to ensure the persistence of globally significant biodiversity."
- It supports "cost-effective restoration activities that improve the status of biodiversity [and are part of integrated landscape management approaches.]"

With regards to the GEF-8 emphasis on mosaic landscapes, it is worth noting that the project site covers three Galapagos Islands, two of which are uninhabited and fully protected. However, the third island, Floreana, with its approximately 150 inhabitants, represents a mosaic landscape, whereby a portion of the island—namely a small town and highland farm areas—are outside of the strictly protected Galapagos National Park area. Given that translocated species released in Floreana will be likely to spread across the entire island, a landscape approach to long-term management will be necessary.

The project will contribute to several higher level national and international objectives and commitments of the Government of Ecuador. These include:

- Convention on Biological Diversity: Kunming-Montreal Global Biodiversity Framework 2030 Target 4: Threatened species are recovering, genetic diversity is being maintained and human-wildlife conflict is being managed
- GEF-8 Programming Strategies: The project will support the goal of the GEF-8 Biodiversity focal area strategy, which is "globally significant biodiversity conserved, sustainably used and restored," with the emphasis in this case on restoration. It will support Objective 1 of the strategy: "To improve conservation, sustainable use, and restoration of natural ecosystems." While the project is not part of the ecosystem restoration IP, it will contribute to the achievement of that IP and to the UN Decade on Ecosystem Restoration.
- United Nations Sustainable Development Goals: Target 15.5—halt the loss of biodiversity

- Ecuador's National Development Plan (2017-2021): Objective 3 — Guarantee the rights of nature for current and future generations

- Ecuador's National Biodiversity Strategy and Action Plan (NBSAP) (2015-2030): Ecuador's NBSAP aims to deliver 19 results, of which the project will contribute most directly to the following: (i) Result 14. Ecuador implements comprehensive measures to prevent the extinction of wildlife and priority cultivated species and (ii) Result 16. Ecuador restores degraded habitats in order to increase the resilience of ecosystems and their capacity to provide essential goods and services for the good living of the population and the change of the productive matrix.

- Galapagos Protected Areas Management Plan: The plan includes actions related to ecosystem restoration, to which the project will contribute. The plan emphasizes that restoration actions should be conducted not only for species conservation, but for recovering ecosystem integrity and resilience. Strategy 1.1.1.3. is a high priority within the plan, and states "Restore species that have disappeared or have highly reduced populations".

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed during Project Preparation as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

1) Does the project expect to include any gender-responsive-measures to address gender gaps or promote gender equality and women's empowerment?

Yes

If the project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision-making; and/or

Yes

Generating socio-economic benefits or services for women.

2) Does the project's results framework or logical framework include gender-sensitive indicators?

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during Project Preparation as required per GEF policy, their relevant roles to project outcomes has been clearly articulated in the Project Description (Section B) and that a Stakeholder Engagement Plan has been developed before CEO endorsement.

Yes

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain)

Private Sector

Will there be private sector engagement in the project?

And if so, has its role been described and justified in the section B project description?

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

Yes

Please provide overall Project/Program Risk Classification

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted.

Yes

Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate and these benefits translate in supporting the achievement of global environmental benefits (GEF Trust Fund) or adaptation benefits (LDCF, SCCF). This section identifies the direct beneficiaries from the project.

Socio-economic benefits are expected to include:

- Tourism: Restoration of bird and reptile species onto islands such as Santa Cruz, Floreana and Santa Fe represents an added draw for tourists visiting those islands—particularly vermillion flycatcher, Floreana mockingbird and racer.
- Seed dispersal: Restoration of passerines to inhabited islands, i.e., Floreana, can aid dispersal of seeds improving ecological integrity

The project's main direct beneficiaries are:

- *Galapagos National Park Directorate (DPNG) staff*: Staff will benefit from improved skills and abilities to perform their tasks with respect to implementing conservation translocation, including recovering species threatened with extinction.
- *Charles Darwin Foundation (CDF) and Research Station*: Collections will be developed as bone reference for future paleo work in the Galapagos, and paleo collections on the islands will be developed and maintained. CDF and DPNG staff will gain experience and expertise in conducting paleobiological research.
- *Galapagos Island residents*: Local residents of the Galapagos will benefit from enhanced local environmental services associated with ecosystems in the process of being restored on multiple islands.
- *Tourism sector service providers and their clients*: Visitors to the Galapagos Islands will benefit from an enhanced experience of the archipelago's unique biological diversity. Multiple endemic and threatened species will be able to be viewed in areas where they are now absent.

The number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment is 240 and includes 161 men and 79 women

ANNEX A: FINANCING TABLES

GEF Financing Table

Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional / Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant($)	Agency Fee($)	Total GEF Financing ($)
CAF	GET	Ecuador	Biodiversity	BD STAR Allocation : BD-1	Grant	1,834,862.00	165,138.00	2,000,000.00

Total GEF Resources ($)		**1,834,862.00**	**165,138.00**	**2,000,000.00**

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

false

PPG Amount ($)

PPG Agency Fee ($)

GEF Agency	Trust Fund	Country/ Regional / Global	Focal Area	Programming of Funds	PPG($)	Agency Fee($)	Total PPG Funding($)
Total PPG Amount ($)					**0.00**	**0.00**	**0.00**

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total($)
CAF	GET	Ecuador	Biodiversity	BD STAR Allocation	2,000,000.00
Total GEF Resources ($)					**2,000,000.00**

Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
BD-1-1	GET	1,834,862.00	14,000,000.00
Total Project Cost ($)		**1,834,862.00**	**14,000,000.00**

Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Galapagos National Park Service	In-kind	Recurrent expenditures	11,315,000.00
GEF Agency	Development Bank of Latin America (CAF	Grant	Investment mobilized	1,000,000.00
Civil Society Organization	Durrell Wildlife Conservation Trust	In-kind	Recurrent expenditures	645,000.00
Civil Society Organization	California Academy of Sciences	In-kind	Recurrent expenditures	350,000.00
Civil Society Organization	Jocotoco Foundation	In-kind	Recurrent expenditures	690,000.00
Total Co-financing ($)				**14,000,000.00**

Please describe the investment mobilized portion of the co-financing

CAF is currently developing a Sustainable Logistic Roadmap for Galapagos, which is going to have a pipeline of projects for improving equipment and infrastructure of Ports in the inhabited islands of the Archipelago and a new & improved biosafety system. CAF will finance the execution of the of the Roadmap with Ecuador´s government.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Date	Project Contact Person	Phone	Email
Project Coordinator	10/12/2023	Mauricio Velásquez	593994804007	mvelasquez@caf.com
GEF Agency Coordinator	10/14/2023	René Gómez-Garcia	59896181288	rgomezgarcia@caf.com

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name of GEF OFP	Position	Ministry	Date (Month, day, year)

María Irene Shuldt	International Cooperation Director- GEF Operational Focal Point	Ministry of Environment, Water and Ecological Transition	11/20/2023

ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document.

ANNEX C: Project results framework

Project objective	To restore the ecological integrity of Galapagos National Park by strengthening knowledge and capacities while implementing conservation translocations of locally extinct and/or threatened birds and snakes
Indicators	GEF core • **Terrestrial protected areas** created or under improved management (hectare) • Area of **land and ecosystems under restoration** (hectare) • People benefiting from GEF-financed investments **disaggregated by sex** (count) Project outcome • Availability of reliable historical baselines of species presence for individual Galapagos islands • Number of populations of locally extinct and/or threatened birds and snakes being restored through conservation translocations • Knowledge and lessons learned from translocations shared with national and international conservation communities
Targets	GEF core • 761,844 ha of terrestrial protected areas under improved management • 21,500 ha of land and ecosystems under restoration • 240 beneficiaries, including 161 men and 79 women Project outcome • Historical evidence has been compiled to guide species reintroductions for Santa Fe, Rabida, Pinzon, and Santiago islands • Five populations of locally extinct and/or threatened bird and snake populations being restored through conservation translocations, with at least 50% of translocated species established and breeding • Five translocations are evaluated with knowledge and lessons learned shared through various mediums with national and international conservation communities

Project Outcomes and Indicators	Baseline	Target at the end of the project	Outputs and Indicators
Component #1: Establish historical baselines to guide conservation translocations			
Component 1: Establish historical baselines to guide conservation translocations **Outcome 1:** Historical evidence of species presence guides conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands ***Indicator 1:*** Availability of reliable historical baselines of species presence for individual Galapagos islands ***Outcome Target*** Historical evidence has been compiled to guide conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands	Historical evidence has only been systematically compiled with a goal to guide conservation translocations of species for Floreana Island	Historical evidence has been compiled to guide conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands	**Output 1.1: Historical literature, field notes and other sources have been identified, a bibliography produced a and relevant evidence for species presence compiled into a database, for at least the islands of Santa Fe, Rabida, Pinzon, and Santiago.** **Indicator 1.1:** Accessibility of historic literature, logs and field notes containing information on historical presence of vertebrates **Target 1.1**: Relevant historical literature, ships logs, and exploration field notes are identified and located, and available contents published as appropriate, potentially in scientific publications or on internet sites that are easily searchable and where notes and logs can be downloaded, searched, or linked. **Output 1.2: Occurrence data from museum collections and other sources are compiled and searched for records**. **Indicator 1.2:** Accessibility and use of historical museum data demonstrating vertebrate occurrence to help guide conservation translocations **Target 1.2:** A dataset of occurrence data created for

Project Outcomes and Indicators	Baseline	Target at the end of the project	Outputs and Indicators
			existing museum and citizen science data supporting baseline vertebrate occurrence in historical time for four focal islands. **Output 1.3: Sub-fossil bearing caves are identified, excavated, and material recovered from at least 2 islands**. **Indicator 1.3:** Availability and use of fossil and subfossil evidence to help guide conservation translocations. ***Target 1.3:*** Collections of fossils and subfossils are recovered from paleobiological sites on at least 2 islands and stored at appropriate museums (e.g. Charles Darwin Foundation). **Output 1.4: Skeletal reference collections are created or compiled and subfossil material classified to species.** **Indicator 1.4:** Availability of reference material to guide future paleobiology work in the Galapagos and paleo-occurrence data to guide species translocations for focal islands. **Target 1.4:** Complete skeletal reference collections exist and a representative sample of subfossil material classified to species for at least 2 focal islands.

Project Outcomes and Indicators	Baseline	Target at the end of the project	Outputs and Indicators
Component #2: Conservation translocations of locally extinct and/or threatened bird and snake populations			
Outcome 2: Five populations of locally extinct and/or threatened birds and snakes are restored through conservation translocations ***Indicator 2:*** Number of populations of locally extinct and/or threatened birds and snakes being restored through conservation translocations ***Outcome Target:*** Five populations of locally extinct and threatened birds and snakes being restored through conservation translocations, with at least 50% of translocated species established and breeding	At least 18 populations of birds and snakes across 8 islands are locally extinct.	Five populations of locally extinct and threatened birds and snakes being restored through conservation translocations.	**Output 2.1: Conservation translocation plans are developed for at least four locally extinct birds and one locally extinct snake** ***Indicator 2.1:*** Number of conservation translocation plans developed for birds and snakes ***Target 2.1:*** Four bird and one snake conservation translocation plans developed **Output 2.2: Four bird and one snake conservation translocation plans are implemented** ***Indicator 2.2:*** Number of bird and snake conservation translocation plans implemented ***Target 2.2:*** Four bird and one snake conservation translocation plans implemented **Output 2.3: Monitoring confirms establishment and breeding of**

Project Outcomes and Indicators	Baseline	Target at the end of the project	Outputs and Indicators
			translocated populations ***Indicator 2.3:*** Percentage of populations established and breeding ***Target 2.3:*** >50% of populations established and breeding

Project Outcomes and Indicators	Baseline	Target at the end of the project	Outputs and Indicators
Component 3: Sustainability, knowledge, monitoring and evaluation			
Outcome 3: Sustainability and knowledge are enhanced through capture of lessons learned and monitoring and evaluation ***Indicator 3:*** Knowledge and Lessons learned from translocations shared with national and international conservation communities ***Outcome target:*** Five translocations are evaluated with knowledge and lessons learned shared through various mediums with national and international	Limited knowledge and experience related to bird and snake conservation translocations within Galapagos	Five translocations are evaluated with knowledge and lessons learned shared through various mediums with national and international conservation communities	**Output 3.1: International rewilding workshop to evaluate conservation translocations and share knowledge** **Indicator 3.1**: Number of workshops held **Target 3.1**: One international workshop **Output 3.2: Effective management of knowledge, based on learning and dissemination of project lessons and innovations** **Indicator 3.2**: Specific technical lessons captured and disseminated for application in

Project Outcomes and Indicators	Baseline	Target at the end of the project	Outputs and Indicators
conservation communities			subsequent translocations **Target 3.2**: Three concrete lessons learned and available for replication **Output 3.3**: **Project monitored and evaluated** **Indicator 3.3**: Evaluation reports **Target 3.3:** One final evaluation report

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount ($)		
	Budgeted Amount	Amount Spent To date	Amount Committed
Total	**0.00**	**0.00**	**0.00**

ANNEX E: PROJECT MAP AND COORDINATES

Please provide geo-referenced information and map where the project interventions will take place

Location Name	Latitude	Longitude	GeoName ID
Floreana Island	-1.27511	-90.48654	3,652,696

Location Description:

Floreana Island

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Santa Cruz Island	-0.74717	-90.31342	3,652,764

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Santa Fe island	-0.8178	-90.0587	3,651,428

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Pinzon island	-0.61093	-90.3539	3,653,087

Location Description:

Activity Description:

Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.

Restoring Ecological Integrity of Protected Areas of Galapagos, through strengthening capacities for traslocations of birds and snakes.

Component 1: Establishment of historical baselines: Santa Fe, Rabida, Pinzon, and Santiago islands

Component 2: Conservation translocations: Floreana, Santa Cruz, Pinzon

ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

Attach agency safeguard screening/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts.

Title

ANNEX F -ESSS

ANNEX G: BUDGET TABLE

Please explain any aspects of the budget as needed here

Please See Annex G

GEF FUNDED BUDGET		Responsible executing entity	Project budget by component (in USD)					
Category	***Comments/Justification***		C 1	C 2	C 3	M&E	PMC	Total
Salary and Benefits Local	Jocotoco Project Management	Jocotoco Foundation					70,000	**70,000**
Salary and Benefits Local	Project Coordinator	Jocotoco Foundation				35,000	35,000	**70,000**
Salary and Benefits Local	Research Specialist	Jocotoco Foundation		34,000				**34,000**
Salary and Benefits Local	Wildlife veterinarian	Jocotoco Foundation		120,960				**120,960**
Salary and Benefits Local	Conservation translocations manager	Jocotoco Foundation		150,000				**150,000**
Salary and Benefits Local	Technical assistant	Jocotoco Foundation		92,400				**92,400**
Salary and Benefits Local	Finance manager	Jocotoco Foundation					25,000	**25,000**
Total Personnel Salaries and benefits			**-**	**397,360**	**-**	**35,000**	**130,000**	**562,360**
Auditing fees	*Project Financial Audit*	Jocotoco Foundation					20,000	**20,000**
Translation	*Translation of reports*	Foundation					2,500	**2,500**
Consultant fees	*Independent terminal examination (CAF co-finance)*	Jocotoco Foundation						-
Consultant fees	*Consultant for Advising on Conservation Translocations*	Jocotoco Foundation/DWCT		80,000				**80,000**
Total Professional Services			**-**	**80,000**	**-**		**22,500**	**102,500**
Meals/ catering	*PMC meeting 1 face to face per year*	Jocotoco Foundation					1,000	**1,000**
Domestic airfare	*Travel between GPS and Quito*	Jocotoco Foundation			570	4,000		**4,570**
Hotel/ Lodging	*Trips to Quito or GPS for project related work*	Jocotoco Foundation			2,040	1,000		**3,040**
Meals/ catering	*Trip to Quito or GPS meals*	Jocotoco Foundation			240	2,000		**2,240**
Domestic airfare	*International rewilding workshop*	Jocotoco Foundation			6,500			**6,500**
Hotel/ Lodging	*International rewilding workshop*	Jocotoco Foundation			16,000			**16,000**
Meals/ catering	*International rewilding workshop*	Jocotoco Foundation			18,653			**18,653**
Domestic airfare	*Trips to/from Floreana or other islands*	Jocotoco Foundation/DWCT/ CAS	50,000	50,000				**100,000**
Hotel/ Lodging	*Trips to Floreana*	Jocotoco Foundation/DWCT/ CAS		48,000				**48,000**
Meals/ catering	*Trips to field*	Jocotoco Foundation/DWCT/ CAS	30,000	30,000				**60,000**
Total Travel, Meetings and Events			**80,000**	**128,000**	**44,002**	**7,000**	**1,000**	**260,002**
External grants (sub-grants)	California Academy Sciences (CAS): Historic baselines,	CAS	350,000					**350,000**
External grants (sub-grants)	Durrell Wildlife Conservation Trust (DWCT): Reintroductions planning and implementation. Output 2	DWCT		495,000				**495,000**
External grants (sub-grants)	DPNG. Purchase 1 pickup truck and deliver to GPS	Jocotoco Foundation/PNG		65,000				**65,000**
Total Grants & Agreements			**350,000**	**560,000**	**-**		**-**	**910,000**
Total Equipment			**-**	**-**	**-**		**-**	**-**
Total GEF funded project costs			430,000	1,165,360	44,002	42,000	153,500	1,834,862

Five translocations are evaluated with knowledge and lessons learned shared through various mediums with national and international conservation communities. This is better described in component 3 of the Project proposal.

Annex G – Budget

GEF FUNDED BUDGET		Project budget by component (in USD)					Project budget per year (in USD)				
Category	***Comments/Justification***	**C 1**	**C 2**	**C 3**	**PMC**	**Total**	**YR1**	**YR2**	**YR3**	**YR4**	**TOTAL**
Salary and Benefits Local	Jocotoco Project Management				70,000	**70,000**	20,000	20,000	20,000	10,000	**70,000**
Salary and Benefits Local	Project Coordinator				35,000	**35,000**	8,750	8,750	8,750	8,750	**35,000**
Salary and Benefits Local	Research Specialist		34,000	35,000			17,250	17,250	17,250	17,250	**69,000**
Salary and Benefits Local	Wildlife veterinarian		120,960			**120,960**	30,240	30,240	30,240	30,240	**120,960**
Salary and Benefits Local	Conservation translocations manager		150,000			**150,000**	37,500	37,500	37,500	37,500	**150,000**
Salary and Benefits Local	Technical assistant		92,400			**92,400**	23,100	23,100	23,100	23,100	**92,400**
Salary and Benefits Local	Finance manager				25,000	**25,000**	6,250	6,250	6,250	6,250	**25,000**
Total Personnel Salaries and benefits		**-**	**397,360**	**35,000**	**130,000**	**562,360**	**143,090**	**143,090**	**143,090**	**133,090**	**562,360**
Auditing fees	*Project Financial Audit*				20,000	**20,000**		10,000		10,000	**20,000**
Translation services or fees	*Translation of reports*				2,500	**2,500**			1,000	1,500	**2,500**
Consultant fees	*Independent terminal examination (CAF co-finance)*					**-**					**-**
Consultant fees	*Consultant for Advising on Conservation Translocations*		80,000			**80,000**	20,000	20,000	20,000	20,000	**80,000**
Total Professional Services		**-**	**80,000**	**-**	**22,500**	**102,500**	**20,000**	**30,000**	**21,000**	**31,500**	**102,500**
Meals/ catering	*PMC meeting 1 face to face per year*				1,000	**1,000**	250	250	250	250	**1,000**
Domestic airfare	*Travel between GPS and Quito*			4,570		**4,570**	1,142	1,142	1,142	1,142	**4,570**
Hotel/ Lodging	*Trips to Quito or GPS for project related work*			3,040		**3,040**	760	760	760	760	**3,040**
Meals/ catering	*Trip to Quito or GPS meals*			2,240		**2,240**	560	560	560	560	**2,240**
Domestic airfare	*International rewilding workshop*			6,500		**6,500**			6,500		**6,500**
Hotel/ Lodging	*International rewilding workshop*			16,000		**16,000**			16,000		**16,000**
Meals/ catering	*International rewilding workshop*			18,653		**18,653**				18,653	**18,653**
Domestic airfare	*Trips to/from Floreana or other islands*	50,000	50,000			**100,000**	25,000	25,000	25,000	25,000	**100,000**
Hotel/ Lodging	*Trips to Floreana*		48,000			**48,000**	12,000	12,000	12,000	12,000	**48,000**
Meals/ catering	*Trips to field*	30,000	30,000			**60,000**	15,000	15,000	15,000	15,000	**60,000**

Total Travel, Meetings and Events		**80,000**	**128,000**	**51,002**	**1,000**	**260,002**	**54,712**	**54,712**	**77,212**	**73,365**	**260,002**
External grants (sub-grants)	California Academy Sciences: Historic baselines, including subfossils. Output 1.	350,000				**350,000**	90,000	110,000	110,000	40,000	**350,000**
External grants (sub-grants)	Durrell Wildlife Conservation Trust: Reintroductions planning and implementation. Output 2.		495,000			**495,000**	150,000	175,000	120,000	50,000	**495,000**
External grants (sub-grants)	DPNG. Purchase 1 pickup truck and deliver to GPS		65,000			**65,000**	65,000				**65,000**
Total Grants & Agreements		**350,000**	**560,000**	**-**	**-**	**910,000**	**305,000**	**285,000**	**230,000**	**90,000**	**910,000**
Total Equipment		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total GEF funded project costs		**430,000**	**1,165,360**	**86,002**	**153,500**	**1,834,862**	**522,802**	**512,802**	**471,302**	**327,955**	**1,834,862**

CAF Fees 9%						2,000,000					**2,000,000**
CO-FINANCING		**Co-financing by component (in USD)**					**Co-financing per year (in USD)**				
SOURCES OF CO-FINANCING	***NAME OF CO-FINANCIER***	**C 1**	**C 2**	**C 3**	**Project Management Costs**	**Total**	**YR1**	**YR2**	**YR3**	**YR4**	**TOTAL**
Recipient Government	DPNG	2,400,000	7,100,000	899,211	915,789	**11,315,000**					-
CSO	Jocotoco Foundation			548,141	141,859	**690,000**					-
CSO	Durrell Wildife Conservation Trust (includes other implementing partner co-finance)		600,000		45,000	**645,000**					
CSO	California Academy of Sciences (includes CDF/USFQ co-finance)	330,000			20,000	**350,000**					
Others	CAF	200,000	500,000	250,000	50,000	**1,000,000**					-
						-					-
						-					-
Sub Total Co-financing IN-KIND		**2,730,000**	**7,700,000**	**1,447,352**	**1,122,648**	**13,000,000**	**-**			**-**	**-**
Sub Total Co-financingIN CASH		**200,000**	**500,000**	**250,000**	**50,000**	**1,000,000**	**-**			**-**	**-**
Total Co-financing		**2,930,000**	**8,200,000**	**1,697,352**	**1,172,648**	**14,000,000**	**-**			**-**	**-**

Output Budget-ProDoc

Output	Output	Year				
		1	2	3	4	Total
Outcome 1- Historical evidence of species presence guides conservation translocations for Santa Fe, Rabida, Pinzon, and Santiago islands	Output 1.1: Historical literature, field notes and other sources identified and mined and evidence for species presence compiled for at least the islands of Santa Fe, Rabida, Pinzon, and Santiago	24,000	32,000			56,000
	Output 1.2: Occurrence data from museum collections and other sources are compiled and searched for records	32,000	24,000			56,000
	Output 1.3: Sub-fossil bearing caves are identified, excavated, and material recovered from at least 2 islands.	36,000	31,000	70,000	60,000	197,000
	Output 1.4 Skeletal reference collections are created or compiled and subfossil material classified to species..	18,000	43,000	60,000		121,000
	Total component 1	**110,000**	**130,000**	**130,000**	**60,000**	**430,000**
Outcome 2 - Five populations of locally extinct and/or threatened birds and snakes restored through conservation translocations	Output 2.1: Conservation translocation plans are developed for at least four locally extinct birds and one locally extinct snakes	58,000	58,000	36,000	36,000	188,000
	Output 2.2: 4 bird and 1 snake conservation translocation plans are implemented	282,340	232,340	199,340	129,340	843,360
	Output 2.3: Monitoring confirms establishment and breeding of translocated populations	26,000	36,000	36,000	36,000	134,000
	Total component 2	**366,340**	**326,340**	**271,340**	**201,340**	**1,165,360**
Outcome 3 - Sustainability and knowledge are enhanced through capacities developed, capture of lessons learned and monitoring and evaluation	Output 3.1 International rewilding workshop			22,500	18,653	41,153
	Output 3.2: Effective management of knowledge, based on learning and dissemination of project lessons and innovations	5,606	5,606	5,606	5,606	22,425
	Output 3.3: Project monitored and evaluated	5,606	5,606	5,606	5,606	22,425
	Total component 3	**11,212**	**11,212**	**33,712**	**29,865**	**86,002**
	Total Component Costs	**487,552**	**467,552**	**435,052**	**291,205**	**1,681,362**
	Project Management	35,250	45,250	36,250	36,750	153,500
	Total Project Costs: Component Costs plus Project Management	522,802	512,802	471,302	327,955	1,834,862

CAF IA Fees					165,138
Total including GEF Fees					2,000,000

Summary-ProDoc

Component	Year 1	Year 2	Year 3	Year 4	GEF	Cofinancing	Total
1	110,000	130,000	130,000	60,000	430,000	2,930,000	3,360,000
2	366,340	326,340	271,340	201,340	1,165,360	8,200,000	9,365,360
3	11,212	11,212	33,712	29,865	86,002	1,697,352	1,783,354
SubTotal	487,552	467,552	435,052	291,205	1,681,362	12,827,352	14,508,714
PMC					153,500	1,172,648	1,326,148
Subtotal Gef and Cofinancing					1,834,862	14,000,000	15,834,862
Implementation Agency Fees					165,138	-	165,138
Total inclouding fees					2,000,000	14,000,000	16,000,000
TOTAL (GEF and cofunding)					0.13	0.87	

M&E table in the Prodoc

M & E Activity	Responsibility	Estimated Budget (US$) (Excluding Project Specific Staff Time)	Time Frame
a. Inception Workshop (one day) to: produce Annual Work Plan; Discuss Project Operations Manual, Roles, Responsibilities, Decision-making Structures, Gender Action Plan, Financial Reporting and Project Progress Reporting; and Present Supervision Plan	• CAF • JCF & partners participate	Indicative Cost: **$3,000**	Within first 2 weeks of project start-up
b) Project Steering Committee Meetings (with formally prepared minutes and resolutions)	• CAF • JCF	Indicative Cost: **$6,000**	At least 3 meetings during the 30-month project cycle
c) Quarterly Financial Reports & SOEs	• JCF	Indicative	Within 30 days of each completed

		Cost: **$18,000**	month
d) Project Progress Reports	• JCF	Indicative Cost: **PMC cost**	Quarterly Reports due within 30 days after completed period.
e) External Final Evaluation	• CAF • JCF & partners participate	Indicative Cost: **$10,000** to be paid by **CAF co-financing** (Professional Fees and logistical costs of Consultant)	Within last month of project implementation
f) Terminal Report	• JCF	Indicative Cost: **PMC cost**	Within one month of the end of the project
g) Audits	• JCF	Indicative Cost: **$20,000** ($10,000 year 2 and year 4. Included in PMC)	Annual independent audits of JCF's finances will be available each July of the following year. CAF reserves the right to request a partial or complete audit at their cost at any time.
h) Monitoring Visit to Project Site and process of Terminal Review	CAF	Indicative Cost: $**5,000** to be paid by **CAF co-financing**	At least once during project cycle.
TOTAL INDICATIVE COST EXCLUDING STAFF TIME		**US$42,000 (GEF)**	