



## Environmental Awareness Group (EAG):

Supporting collaboration for the restoration of Redonda Island, Antigua and Barbuda

### EAG

CASE STUDY #4: Innovation and best practices in marine and coastal governance and management by civil society in the Caribbean

This case study aims to enhance knowledge about innovations and best practices currently being utilised by civil society organisations (CSOs) and their partners in the Caribbean that can be applied to support conservation, restoration and sustainable use of coastal and marine resources in marine protected areas (MPAs) and marine managed areas (MMAs). It has been developed under the regional project ‘Powering Innovations in Civil Society and Enterprises for Sustainability in the Caribbean (PISCES) which is being funded by the European Union EuropeAid programme and is being implemented over a three-year period (2017 to 2020). PISCES is taking place in 10 countries: Antigua and Barbuda; The Bahamas; Dominica; Grenada; Haiti; Jamaica; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; and Trinidad and Tobago.

## Introduction



*Redonda island is the uninhabited third island in the state of Antigua and Barbuda. Before the Redonda Restoration Programme started, the island ecosystem was severely degraded. CREDIT: Ed Marshall*

The Environmental Awareness Group (EAG) is a non-governmental organisation (NGO) based in St. John’s, Antigua and Barbuda. It was established in 1988 out of the concern of residents for the country’s environment and natural resources. The EAG aims to have a society informed and empowered to appreciate and sustainably use Antigua & Barbuda’s natural resources. The organisation is the island’s oldest environmental NGO and is considered as the national expert on the management of Alien Invasive Species and island restoration. The EAG has successfully implemented the Antigua Sea Turtle

Project and the Offshore Islands Conservation Programme (OICP), which have been successful in safeguarding endemic and endangered plant and animal species and their associated habitats.



The Redonda Ground Lizard (*Pholidoscelis atrata*) is endemic to Redonda and found nowhere else on Earth. CREDIT: Jeremy Holden

Redonda is the mysterious uninhabited third island in the state of Antigua and Barbuda. The island is surrounded on all sides by tall cliffs, ranging up to 400 metres above sea level, and is separated by deep water from the islands of Nevis, Montserrat, and Antigua. Redonda supports 1% of the world's population of Brown Boobies (*Sula leucogaster*) and is also home to large populations of Masked Boobies (*Sula dactylatra*), Red-footed Boobies (*Sula sula*), and Magnificent Frigate birds (*Fregata magnificens*). Thanks in part to its isolation, the island is also a refuge

for rare reptiles. At least three critically endangered endemic lizard species have evolved: the Redonda ground lizard (*Pholidoscelis atratus*), the Redonda tree lizard (*Anolis nubilus*) and an as-yet unnamed dwarf gecko (*Sphaerodactylus sp.*). These are all listed as Critically Endangered and are found nowhere else in the world.

Despite the imposing cliffs, humans introduced domestic goats onto Redonda. Black or ship rats also colonized the island, having first reached the Caribbean as stowaways on ships from Europe. Redonda has largely remained uninhabited by humans, however, except between 1860 and the 1920s, when the island was mined for seabird guano by the American Phosphate Company. Much like they have done elsewhere in the world, the rats and goats contributed to the deforestation and desertification of Redonda and are blamed for the extinction of the endemic skink and iguana, as well as the extirpation of the Antiguan burrowing owl on the island. By 2012, the ecosystem was so severely degraded that even the feral goats were starving to death.

The EAG's dream to restore Redonda to an ecologically healthy condition began to take shape in 2010 which was borne of the work of the OICP. The Government of Antigua and Barbuda (GOAB) identified this island to be of high ecological value and recommended that it be designated as Protected under the Sustainable Island Resource Management Zoning Plan (SIRMZP). Together, the EAG, the GOAB and an international NGO partner, Fauna & Flora International (FFI) sought backing of local stakeholders to support Redonda's restoration. During this critical time of awakening and maintaining the interest of stakeholders, studies were conducted to confirm Redonda's ecological condition, and to determine the feasibility of restoring this remote island.

The three partners worked towards making the restoration a reality. In 2016, the GOAB decided to remove the non-native mammals from Redonda with the goal of "significant recovery and regeneration of threatened species and habitats on Redonda ... [to be] ... a source of national pride... [that] directly informs and inspires other Caribbean nations to eliminate harmful invasive species." Following this approval and the successful bid to raise funds to restore the island, the Redonda Restoration Programme (RRP) was formalised and began the seemingly impossible task of returning the island to its previous ecological state.



Redonda Restoration Programme has allowed the Redonda ecosystem to regenerate naturally in a few short years. CREDIT: Steve Freeland

In 2016, the first phase of the RRP was the relocation of the goats to mainland Antigua. It was decided that it would be most humane for the small herd of long-horned goats of Redonda (*Capra hircus*) to be captured and airlifted to mainland Antigua where they were placed under the care of the Ministry of Agriculture. Next, an estimated 7,000 rats (*Rattus rattus*) were eradicated by a team of local and international volunteers from Redonda in 2017 over a period of 2 months using a combination of ground-based, cliff, and aerial drops. In June 2018, the 1-year verification of rat-free status was confirmed for Redonda. Following the eradication, biosecurity monitoring for the presence of Invasive

Alien Species is completed once every quarter by a team of government and NGO volunteers.

The marine environment surrounding Redonda is largely unexplored, but with the conservation work taking place on the island, it was imperative to see the effects on the surrounding seas. The pelagic seascape provides an important feeding area for the large seabird population supported by the island, with Flying-Fish and Ballyhoo schooling in the waters around the island. Marine surveys conducted by the RRP team revealed large abundance and biomass of the Surgeonfish, which appear to be the primary herbivores around Redonda. Most sites had active apex predators (Sharks, Eagle rays) which indicates a high productivity of the reef system. In the 2018 expedition, a young colony of the Critically Endangered Elkhorn coral (*Acropora palmata*) was observed.

Additionally, attempts have been made to better understand the deeper waters around the island and on the northerly located “Coral Bank”. Coral Bank, as well as the nearer-shore coral reef and boulder habitats around Redonda, appear to be an important foraging area for the Critically Endangered Hawksbill Turtle (*Chelonia mydas*), due to the high prevalence of sponge. Humpback (*Megaptera novaeangliae*) and Pilot Whales (*Globicephala macrorhynchus*) have also been witnessed in Redonda’s waters, which is likely due to the deep waters found nearshore to the island.

## Overview of the innovation or best practice

In Antigua and Barbuda, protected areas often lack effective management and are typically under the purview of a government agency or ministry. The scope and objectives of the Redonda Restoration Programme (RRP) however, required a novel approach rather than a single entity with management responsibility. The scope and scale of the RRP demanded a logistical team responsible for day-to-day activities. The RRP was therefore developed as a collaboration between government, local NGOs and international NGOs including the Government of Antigua & Barbuda, Environmental Awareness Group (EAG), Fauna & Flora International (FFI), British Mountaineering Council, Global Wildlife Conservation, Wildlife Management International Ltd and Island Conservation, and received funding support from



Darwin Initiative through UK Government funding, National Fish & Wildlife Foundation, Betty Liebert Trust, Waitt Foundation, Caribbean Helicopters Ltd and Syngenta Crop Protection AG. A multistakeholder steering committee, which comprised representatives from government departments, statutory bodies, NGOs and private actors, was also established at the start of project implementation to provide oversight and technical advice during project implementation. Presently, the Redonda Steering Committee still provides advice and oversight on the management of Redonda.

## Key results achieved



An increase in abundance of *Ficus* trees means more nesting area for species such as the Magnificent Frigatebird and the Red-Footed Booby. CREDIT: Ed Marshall.

1. A 2019 assessment of vegetation and flora on Redonda revealed over 88 species of plants are on the island, a major improvement from the mere 17 species that were observed in 2011. Several new records for the island were found including a new *Ficus* tree, *Ficus nymphaeifolia*, a cactus *Hylocereus sp.* and a fern, *Cheilanthes microphylla*.
2. Within 24 months of invasive species removal, populations of at least two of the three lizard species have increased by more than three-fold and species of land birds and invertebrates, not seen in decades, have returned.
3. Terrestrial invertebrates in general - and beetles in particular - have increased by more than five-fold since 2017 on Redonda.
4. For the first time in centuries, a new generation of seabirds (including frigate birds, boobies and tropic birds) is growing in a predator-free environment.

## Lessons learned and recommendations

- Conduct conservation work that is considered priority under national policies and programmes, which allows for greater in-kind and technical support by the Government and other partners.
- Seek to partner with international NGOs that have a similar focus, so that they can encourage volunteers to assist with the work, thereby keeping cost of consultant fees low.
- Observe how the ecosystem can be fully rehabilitated by removing stressors instead of introducing new species to the ecosystem, as in the case of Redonda.

## Looking ahead

The next step for Redonda is establishing the island and its surrounding seas as a protected area under the Environmental Protection and Management Act (2019). Consultations with relevant government stakeholders are well-underway, a presentation was recently made to Cabinet, which gave approval for the designation. Further research into the reptiles, and the seabirds' ecology, foraging and breeding success are priorities within the proposed management plan. Further research into the impacts of the island restoration on the marine environment are planned. Even at this early stage, Redonda is a model for island restoration. It is sure to provide valuable lessons for other biodiversity conservation and climate resilience-building projects in the region.

## Useful references

Birds Caribbean (2018). Redonda Rebounded – Magical transformation spells brighter future for Redonda's wildlife. Available at: <https://www.birdscaribbean.org/2018/08/redonda-rebounded-magical-transformation-spells-brighter-future-for-redondas-wildlife/> Accessed on 18 August, 2019.

Department of Environment, Antigua and Barbuda (2018). Redonda, a dying island given a second chance at life: An update on the Redonda Restoration Project. Available at <https://environment.gov.ag/news-events#news/article/24> Accessed on 18 August, 2019.

Redonda Restoration Programme Facebook Page: <https://www.facebook.com/RedondaRestoration/>

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