north island
SEYCHELLES

NORTH ISLAND
SUSTAINABILITY

NORTH ISLAND
ECOLOGY & ENVIRONMENT

WHAT IS THE NOAH'S ARK PROJECT?

North Island was purchased with the goal of restoring the unique biodiversity of the Seychelles to the island, by reintroducing endemic species that had become locally extinct or brought to the verge of extinction previously, due (directly or indirectly) to human impact. Recognising the opportunity to contribute and to marry sustainability and ecotourism, North Island immediately embraced a comprehensive rehabilitation and conservation plan that was soon dubbed "the Noah's Ark project." From the onset, there was, however, no doubt as to the high costs this would involve. The vehicle to generate the required funds was an ecotourism venture to be constructed on the island in an environmentally responsible way.

WHY WAS THE ISLAND IN NEED OF RESTORATION?

It is a well-known fact that the fragile ecology and the unique endemism of so many islands have been substantively and often irreversibly damaged by humans. Many islands of the Seychelles, unfortunately, are no exception. Even before colonialists settled permanently on the inner granitic islands in 1756, visiting ships of early traders had already harvested local animals and plants and brought in, some purposely and others accidentally, alien species. Some of these flourished and became pests, surviving to the detriment of the endemic fauna and flora.

North Island's original fauna and flora, for instance, suffered tremendously after the European black rat, an arboreal rodent, came to the island with visiting boats. In 1826, Madame Beaufond turned the island into a thriving coconut plantation and a fruit, vegetable and spices farm, bringing in several alien plants and domestic animals. Copra continued to be harvested until 1970. In 1976, the farm was abandoned but coconut trees, rats and numerous other introduced species continued multiplying and thriving.

WHAT DOES ISLAND REHABILITATION MEAN AND HOW IS IT DONE ON NORTH ISLAND?

A. RAT ERADICATION: A SUCCESS STORY

In the early 1990s, a delegation of scientists visited the Seychelles and evaluated several islands for their potential for rehabilitation. North Island was ranked as fifth most suitable, but the Government lacked the necessary funds to go ahead with rat and cat eradications and restoration of the vegetation, essential requirements prior to any possible reintroduction of endemic and/or indigenous species.

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In 1997, the island was bought with the intention of restoring its biodiversity with funds generated by an eco-friendly resort they planned to construct. Construction subsequently began in 2002. In 2003, eradication plans were implemented and feral domestic animals (cats, cows, pigs and chickens), survivors for the abandoned farm, were successfully removed from the island. The black rat eradication was also started as part of the rehabilitation project. This first rat eradication attempt, however, was unsuccessful.

In 2005, North Island became a co-funding partner in an FFEM-funded project (Fonds Français pour l'Environnement Mondial, a French conservation fund). This project, managed by the local conservation organisation ICS (Island Conservation Society), aimed to restore biodiversity in the Seychelles. In September 2005, New Zealand eradication expertise combined with a large-scale poisoning operation, both on the ground as well as by helicopter, finally led to the successful eradication – a huge milestone in our island rehabilitation.

Getting rid of the rats was a remarkable achievement, but remaining rodent-free has proven to be possibly an even greater challenge due to its ongoing nature. Despite the choice not to build a jetty, boats and barges offloading cargo daily continue to pose a risk of accidentally introducing alien invader animals once more.

- Stringent alien invader avoidance procedures have therefore been set in place, which have been rigorously implemented from September 2005 onwards, such as:container fumigations and re-fumigations, and cargo checks at supplier ends and on Mahé;
- boat/barge loading procedures on Mahé, from where vessels depart, and baiting of all vessels destined to beach at North Island;and
- unloading procedures on North Island's beach, including the use of a rodent-proof trailer and rodent-proof room where cargo gets rechecked.

With these measures in place, care for our island's precious indigenous wildlife has become part of our daily lives!

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B. VEGETATION REHABILITATION: CHANGING A PLANTATION BACK INTO AN INDIGENOUS FOREST

From 2002 onwards, at the same time as the above animal invader eradications, intensive vegetation rehabilitation was carried out, as a prerequisite for the implementation of the final goal of the project, namely the introduction of rare endemic species.

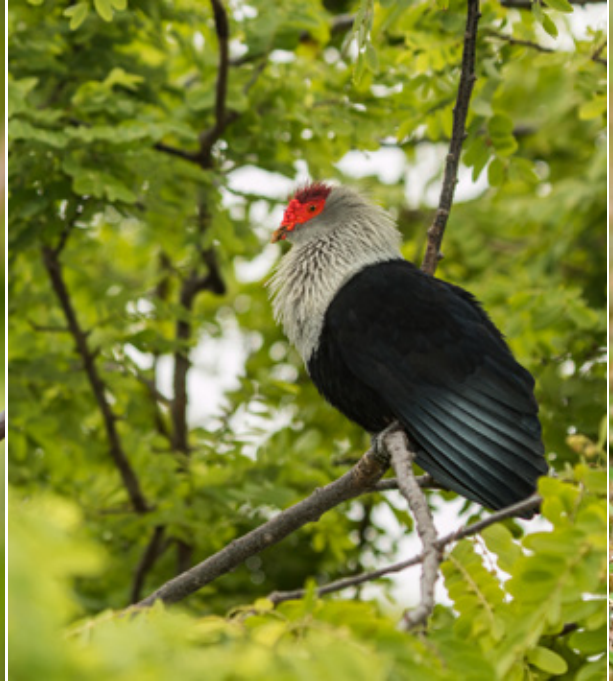
With very little information on the original vegetation available, scientific research was done to identify alien species and to determine which native species were to be reintroduced.

Initially, seeds and cuttings of native plants were supplied by Mahé and Silhouette (North Island's nearest neighbour). But soon the island set up its own nursery, which was to expand as a hugely successful project, so that still today planting out is continuously sustained by new propagations in this nursery.

Over the years, North Island has built a strong partnership with the Biodiversity Center on Mahé (a section of the Botanical Gardens) which has supplied us with large numbers of seeds and cuttings of species not yet present or not yet seeding on North Island, whilst simultaneously the quantity of nursery material sourced on the island has gradually increased. Recommendations from a South African expert, ETH (Swiss Federal Institute of Technology, Zürich) and PCA, the local Plants Conservation Action Group, were compiled into a vegetation management plan in 2005, which North Island continues to update. This detailed document prescribes, per identified zone, which alien species have to be removed, how and when, and with which native species they need to be replaced.

Initially, priority was given to clearing the plateau and planting around the guest areas. In 2005 and 2006, intensive rehabilitation shifted to West Beach (including the coastal fringe), the valley along the road to West Beach (palm forest) and fig forests on the plateau. Since 2009, clearing weeds and alien trees and subsequent planting of native seedlings has also started on the granite hill areas, a challenging task because of the difficult access. Over the years, the different needs of the overall island ecosystem have become better understood, through experience and involvement of specialists of other disciplines, which has allowed for increased complexity of the vegetation management plan. Experiments with new rehabilitation techniques are being done hand in hand with international and local botanical experts.

Over the last five years, over 20 000 indigenous and/or endemic plants have been planted out; today, almost 30% of the total surface of the island (201 hectares) has benefited from a degree of rehabilitation.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C. (RE)INTRODUCTIONS OF ENDANGERED ENDEMIC SPECIES

1 - BIRD (RE)INTRODUCTIONS AND POPULATION RESTORATIONS

The Seychelles is classed as an Important Bird Area (IBA) by Birdlife International and contains two Endemic Bird Areas: the Aldabra Atoll and the Granitic Islands. 12 endemic bird species are found on the Granitic Islands; most are classed as Endangered and four were classed as Critically Endangered at the onset of the FFEM Project in 2005.

In 2006, the Seychelles White-eye was classified as a Critically Endangered small land bird species (BirdLife International, 2000), with a world population estimated at around 400 individuals, present on only three different islands. Part of the government's recovery programme for this precious species was to transfer some birds to other islands to better ensure its survival.

North Island's hard work towards its rehabilitation was rewarded in August 2006, when the Ministry of Environment and Natural Resources chose North Island and Cousine Island as hosts for the introduction of Seychelles White-eyes. Preferred habitat for the Seychelles White-Eye is broad-leaf woodland rich in leaf invertebrates and berries, the main food sources for the species. Clearing substantial surfaces of coconut trees and other invasive exotic trees and plant species and replacing them with suitable native plant species has therefore been essential as preparation for the introduction of Seychelles White-eyes to North Island.

With the assistance of the local NGO ICS (Island Conservation Society) and the resident ornithologist affiliated to the Natural History Museum of Paris, 25 White-eyes were successfully transferred from Conception to North Island in July 2007, in so doing, fulfilling another milestone in our rehabilitation. Ongoing post-introductory monitoring by local partners has confirmed that not only do the survival rates of the introduced birds remain high, but that they have been reproducing extremely well and have an excellent fledgling survival rate. In 2018, the population size was estimated to be between 134 and 152 birds. The same year, North Island contributed 17 Seychelles White-eyes alongside 25 birds from Fregate Island to help establish another population in the Seychelles on Grand Soeur.

The ultimate goal is to continue introducing as many of the 12 endemic Seychelles bird species as the island can support. North Island continues working closely together with the Ministry of Environment, Energy and Climate Change in this regard. We have already been considered for possible future introductions of the Seychelles Warbler, Seychelles Magpie Robin and Seychelles Paradise Flycatcher. Vital to further introductions is keeping the island rodent-free and proceeding with the vegetation rehabilitation, so as to answer the needs of the envisaged new inhabitants.

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Researchers continue monitoring the effects of the habitat restoration on invertebrates and plants to evaluate the increase in available food resources so as to allow more endemic species to be present.

The alien invader eradication has also proven to benefit native species already present in small numbers at the time of the purchase of the island, such as the Seychelles Blue Pigeon, Seychelles Sunbird and Seychelles Kestrel. Blue Pigeon, Seychelles Sunbird, Green-backed Heron and Moorhen numbers have increased substantially mainly due to increased breeding success, whereas seabird colonies (White-tailed Tropicbirds and Wedge-tailed Shearwaters) appear to be making very modest recoveries.

2 - REPTILES (RE)INTRODUCTIONS AND POPULATION RESTORATIONS

At the time of purchase of the island, only a handful of Giant Aldabran Tortoises were left on the island, including the well-known big males Brutus and Patrick. In 2003, North Island invited Seychellois to donate animals, and as a result 15 additional Giant Tortoises arrived on the island. In February 2008, Anonyme Island's donation of seven Giant Tortoises was eagerly accepted. After three weeks of quarantine on the island, the animals were subsequently released on the western plateau. Initial concern over the largest male, Harry, often sleeping on an unlit road, led to the decision to fit his shell with reflecting stickers to make sure that drivers would notice him. This only increased his celebrity amongst visitors!

From December 2005 to March 2006, 11 baby tortoises, estimated about a month old, were found. These babies were reared in captivity and, when large enough to be seen by drivers, released on the eastern side of the island from October 2008 to September 2009, watched by delighted guests. A few more babies have been found subsequently, but the reproductive rate remains low despite the removal of enemies such as rats and cats. In 2011, North Island received a further 38 tortoises (8 adults and 29 juveniles) from Silhouette Island. The current population is estimated to be between 80 and 100 individuals.

Following careful consultation with experts, a small secluded wetland was rehabilitated on North Island. Subsequently, 20 Seychelles Black Mud Terrapins were transferred to North Island from Mahé and Cerf Island in 2008. The project was run by North Island in collaboration with local partners ICS (Island Conservation Society), NPTS (Nature Protection Trust of The Seychelles), PCA (Plants Conservation Action Group), MENR's () Wetland Unit and ETH (), to establish a new breeding population of this endangered endemic sub-species on the island. The population is doing well, with over 50 new juveniles found in the latest season alone.

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The rat and cat eradications have also substantially benefited the survival rate of hatchlings of the Green (Endangered) and Hawksbill (Critically Endangered) turtle, both of which extensively use all the beaches of North Island as important nesting sites.

3 - OTHER ERADICATIONS

Indian Mynahs, alien to the Seychelles, are being eradicated on several islands, including North Island. Since its onset in 2006, this eradication has been very challenging. A second attempt commenced in 2016, which ultimately proved successful in February 2019, when it was believed the last Mynah was eradicated from North Island. There is risk of reinvasion from neighbouring islands, therefore the island needs to remain free of any sightings for a period of 12 months before it can be declared officially Mynah-free.

WHAT OTHER CONSERVATION EFFORTS AND RESEARCH ARE BEING CONDUCTED ON NORTH ISLAND, AND WHO IS MAKING THESE HAPPEN?

During the Protected Area Project (2011 – 2015) the rehabilitation aspect was driven and paid for by the Green Islands Foundation (GIF). Following the end of the project in June 2015, the island's rehabilitation and other conservation projects are being conducted and overseen by our Environment and Conservation Department which works closely together with the Landscape Department. The Environment Department also develops, updates, and implements the diverse biological monitoring programmes, joining with the Activity Centre's staff for the marine projects. Bi-annual marine monitoring is also conducted by members of GIF, Marine Conservation Society of Seychelles (MCSS) and Global Vision International (GVI).

All research projects with partners and visiting students are initiated and overseen by the Environment Department.

Intrinsic to all work carried out by the Environment Department is the ongoing conservation awareness raising and environmental education amongst guests and staff, thereby ensuring the implementation of ecotourism in the truest sense. Presentations and guided walks/hikes for guests and lodge personnel, chats to interested guests and briefings during staff meetings, training of students and volunteers in field work/ research skills and producing write-ups for a local conservation magazine, the island's blog and newsletters are examples of platforms used.

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In order to achieve its environmental goals, North Island has forged several national partnerships. We work in close cooperation with several departments of the Ministry of Environment, Energy and Climate and the Botanical Gardens on Mahé. In 2005, North Island and ICS signed a Memorandum of Understanding (MOU) clarifying the parties' cooperation in the implementation of the FFEM-funded project "Rehabilitation of Island Ecosystems".

Partnerships with the local NGO GIF (Green Islands Foundation) for the GEF-funded project striving towards incorporation of private islands into the national protected areas system, and the MFF-funded Coastal Development and Ecosystem Modelling project respectively, has been captured in MOUs.

Further cooperation with other private islands, government departments and local and international NGOs and research institutions is maintained and expanded.

The Environment Department has a crucial role to play in fostering and maintaining the island's excellent relations with all these conservation partners.

Contributions to national programmes and databases, by observations and measurements made on North Island by the environment staff themselves, or by assisting conservation partners and by hosting scientific missions, include:

- Quantitative recordings of tracks, nest locations, tag deployment and resightings (movements), measurements of nesting females and information on nest hatching success of Green and Hawksbill Turtles, gathered during daily monitoring patrols, as partner in the national turtle monitoring programme. Contributions to overseas DNA material studies of turtle populations.
- Additionally, close cooperation with the resident chelonian expert has ensured successful active conservation interventions such as the transferring of threatened nests and restoration of beach fringe nesting habitat.
- Vegetation mapping and measurements of progressing rehabilitation from regular monitoring missions by PCA and ETH student assignments.
- Additionally, the nursery has been supplying other islands with modest quantities of native plants.
- Quantitative information on resightings (survival rates), territories, breeding success and behaviour of Seychelles White-Eyes through regular monitoring by ornithological partners.
- Information on resightings and behaviour of Black Mud Turtles and measurements of water levels in two wetland habitats, which has been shared with NPTS, ICS, MCSS and MENRT as little is known about the species' ecology.

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- Information on nesting frequency at White-tailed Tropicbird nests monitored.
- Reptile and bird point counts done by ICS to measure long-term effects of removal of rats.
- Information on terrestrial invertebrates from monitoring missions by NPTS, ICS and as part of a doctoral study.
- Species identifications (marine and terrestrial); uncommon bird and migratory bird observations are reported to the Seychelles Birds Records Committee (Sighting of a corncrake (Crex crex) on North Island in November 2014 was the 4th recorded sighting for the Seychelles. Subsequent sightings have included Common Quail (Coturnix coturnix), Common Snipe (Gallinago gallinago) was the 24th sighting in Seychelles and Western Honey Buzzard (Pernis apivorus) was the 8th sighting in Seychelles. (The photographing of a many-eyed snake-eel by our divers has been a first for the Seychelles and has been included as such in the database of the South African Institute for Aquatic Biodiversity).
- Information on habitat and species of crabs, gathered in cooperation with Nature Seychelles and the South African University of Stellenbosch during a short-term mission.
- Information on phylogeography and colonisation patterns of native geckos (short-term mission for a molecular study by researchers from the Centro de Investigação em Biodiversidade e Recursos Genéticos, Instituto de Ciências Agrárias de Vairão, Portugal).
- Geological information from samples taken during a short-term mission by researchers of the Norwegian Geological Survey and the University of the Witwatersrand, South Africa.
- Sightings of endangered Whalesharks, reported to the Marine Conservation Society of Seychelles.
- Sea temperature recording (participation a long-term Indian Ocean study).
- Information on the effects of seasonal weather patterns on sand movements as a partner in the former Ministry of Environment's beach profiling programme.
- Growth measurements in baby Giant Aldabran Tortoises, shared with other Chelonian experts.
- Meteorological measurements, shared with PCA and GIF.

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WHAT MAKES NORTH ISLAND AN ECO-FRIENDLY DESTINATION?

In line with Wilderness' goal to preserve nature through ecotourism, we uphold our long-term commitment towards restoration and conservation of the island's precious biodiversity whilst keeping our footprint minimal. Achieving our North Island Vision – "To connect our guests, the environment, the facilities and our staff" – is done by delivering unique experiences to our guests with minimal negative impact on the animals, plants or the natural habitat.

After the purchase of the island, a detailed Environmental Impact Assessment (EIA) for the proposed development was carried out. The EIA recommendations fed into the lodge design and lodge management.

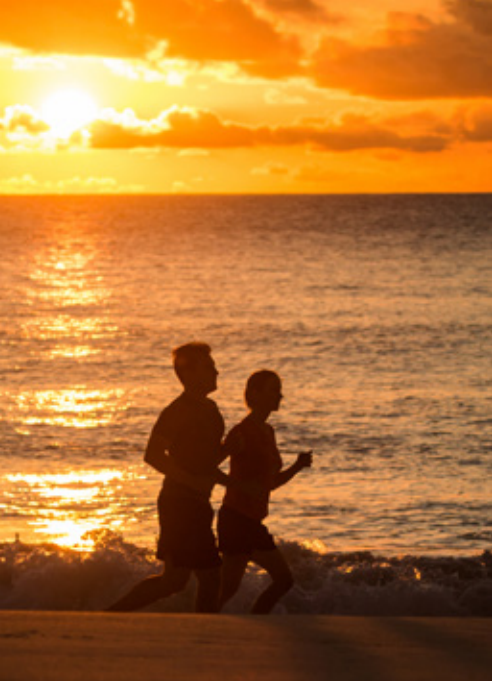
A range of Environmental Management Plans were developed (i.e. Construction Management Plan, Hazardous and Solid Waste Management Plan, Fire Management Plan, Fishing Management Plan and the Water Conservation Plan) and subsequently implemented up until today to ensure that daily activities are run in an environmentally correct manner.

A new Environmental Management Plan (2016-2020) has been written for North Island, funded by the GOS/UNDP/GEF project titled:

"Strengthening Seychelles' Protected Area System through NGO Management Modalities."

Environmental rules and procedures, ensuring minimal impact of the lodge on this island, include the following:

- Waste management: only organic solid waste is buried, at one designated area on the island. All other inorganic waste is shipped off to the Mahé landfill. In order to minimise our footprint on Mahé as well, waste is separated as per Mahé's recycling capacities. North Island has been actively participating in a workshop and meetings with conservation partners on Mahé to brainstorm on improved waste management.
- Brown and grey water is collected and treated in a bacteria-operated sewage treatment plant.
- Fresh water use is monitored (water levels and water quality) on a daily basis and the initial hydrology study was updated in 2009 to ensure that the aquifer would not be overused.
- North Island is one of the Green Turtle strongholds in the Inner Islands of the Seychelles, a privilege that requires special measures as this species nests at night (in contrast to the Hawksbill Turtle which lays during the day). Bright lights close to the beach are therefore minimised next to the restaurant area at East Beach and at West Beach Bar, bonfires are not allowed on the beach and blinds of villas are kept down to avoid disturbing Green Turtle egg laying and both species hatching. The presence of people on the island has put an end to turtle poaching on land.



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- All staff sign a code of conduct when taking up employment that includes several environmental rules. Staff inductions and subsequent refreshers during staff awareness raising activities ensure understanding of these rules.
- A "watch-but-do-not-touch" approach is strictly adhered to both on land as well as at sea, ensuring that wild animals are observed without disturbance.
- Turtles on the beach are guarded by trained staff who also assist guests and other staff members with unobtrusive observing. No animals are kept in captivity except for baby giant tortoises while they risk being undetected during lawn mowing.
- A marine code of conduct is strictly adhered to by guests and staff.
- Guests and staff are requested not to collect shells with large openings from the beach, so as to avoid competition with hermit crabs which use them as housing.
- The list of animals and plants that we prohibit from being purchased or caught for consumption is stricter than legally required (e.g. it includes sharks, billfish and fruit bats) as we wish to support long-term sustainable harvesting.
- Materials, used in construction and items for our boutique, are screened for their environmental correctness.
- We support the protection of the Takamaka tree in the Seychelles, and several of our large trees have been vaccinated against the deadly Takamaka wilt disease.
- Guest transport on the island is environmentally friendly: bikes and electricity-powered golf buggies. The introduction of renewable energy on the Island is being explored.
- No jetty has been constructed.
- The nature and use of chemicals and pest control products is strictly proscribed.
- Only low-impact activities are offered.

TO KEEP UPDATED ON OUR ENVIRONMENTAL ACTIVITIES,
PLEASE READ OUR BLOG
WWW.NORTH-ISLAND.COM/NORTH-ISLAND-BLOG

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