

Kick-off projects to restore nature on St Eustatius

The ministry of Economic Affairs finances five nature projects on St. Eustatius. These projects aim to restore nature by raising more nature awareness, control the number of invasive rats, restore coral reefs, control erosion and control roaming animals.

The projects fall under the Nature Fund which aims to maintain and sustain the nature in the Caribbean Netherlands. This is urgent because the nature on the islands faces some serious challenges. Examples for St Eustatius (Statia) are roaming animals, dominant invasive plant and animal species, erosion and a lack of awareness from the Statian community about the socio-economic importance of nature. Proposals were submitted to the Ministry of Economic Affairs by the Island Government of Statia. Currently five projects received funding. After 'Roaming Animals' which already started in 2013, the other four projects started recently. The duration of these new projects is one to two years and the implementation is a close cooperation between the Caribbean Netherlands Science Institute (CNSI), St Eustatius National Parks (STENAPA), the Eastern Caribbean Public Health Foundation (ECPHF), the Directorate Economy and Infrastructure and various stakeholders on the island.

Raise public awareness

Started on October 1st, 2016!

The progress of this project is of major importance, since it paves the way for other nature projects by raising awareness. Raised awareness should create a mind shift in the community towards a sustainable relationship with nature. When the local community sees the link between a nature plan and their own interests, such as economic benefits, they will more likely support it. Therefore, an important spin-off of the project is successful and effective implementation of any nature plan or policy.

The allocated subsidy makes it possible to organise information and awareness raising campaigns. These campaigns cover a broad spectrum of issues, such as invasive species, keynote species, roaming animals, erosion and biodiversity. But also, the personal relationship people have with nature, the economic value of nature, sustainable development and the importance of nature in general.

In-depth information workshops will be organised for different stakeholder groups in the community to learn more about the nature of the island. Other sessions with interaction with the general public, will focus more on the emotional relation people have with nature. Special attention will be given to educate children about nature, since they represent the future population of the island and it also targets their parents. Showplaces and sanctuaries for iconic species, such as Statia Morning Glory and the Lesser Antillean Iguana, make the people more aware of their importance. These places are supported by underwater and nest webcams for real-life images of the diverse marine life and the Red-billed Tropicbird.

Control the number of rats

Started on February 1st, 2017!

Rats pose significant threats to the island by jeopardising biodiversity. The island's biodiversity may significantly be affected by rats threatening the native species by competition and predation, habitat modification, ecosystem functioning disruption, transmission of diseases and changing trophic dynamics. For example, island camera traps on Statia have caught rats preying on eggs of the Red-billed Tropicbird. A decline of the island's biodiversity has various negative effects. It affects ecosystem products and services (such as fresh water and food), and indirectly livelihoods and income.

Rats also pose a major threat to public health as they can carry potential pathogens which pose a direct risk to human and animal health. For example, the bacterial disease leptospirosis, which poses a serious threat in the region, is not adequately documented. Through a collaboration with Ross University School of Veterinarian Medicine in St. Kitts, a component of this work will investigate pathogens that rats in Statia are carrying. Knowing about potential pathogens can be used to raise community awareness about reducing the numbers of rats on the island.

To restrict the negative consequences, the number of rats should be decreased. This, combined with implementing a sustainable rat control program, forms the overall objective of the project. Essentials are a good understanding of rat ecology on the island, a baited poison program and community empowerment. The community empowerment component can be partially supported by the nature awareness project.

Nature Fund projects overview

- **Roaming Animals:** 2013 - 2017
- **Nature Awareness project:** October 1st, 2016 through September 30st, 2018
- **Rats Control project:** February 1st, 2017 through January 31st, 2019
- **Coral Restoration project:** February 1st, 2017 through January 31st, 2019
- **Anti-Erosion project:** Starts as soon as possible

Restore coral reefs

Started on February 1st, 2017!

This project will support the coral restoration project (Restoration of Ecosystem Services and Coral Reef Quality: RESQ) financed by the European Union through the BEST 2.0 Programme which started in May 2016. The RESQ project is carried out by Wageningen Marine Research in cooperation with the St. Eustatius National Parks Foundation (STENAPA), Nature Foundation St. Maarten, Saba Conservation Foundation and the Turks & Caicos Reef Fund. Aim of both coral restoration projects is to grow resilient corals in nurseries to restore the damaged reefs. Robust and fast growing coral fragments are grown in nurseries and used for restoration and the resilience is monitored by genomic techniques. The new and restored coral reefs provide a good habitat for fish and invertebrates contributing to a sustainable income for the local communities. Johan Stapel, Director of the Caribbean Netherlands Science Institute (CNSI), says "Our Coral Restoration project will be updated to the current situation where the results of the RESQ project till now will serve as a start".

Related research to artificial reefs

Beside these two projects, University of Applied Sciences Van Hall Larenstein is also working on a coral reef restoration project: Artificial Reefs on Saba and Statia (AROSSTA). The project will start the first of April and has a duration of two years. Van Hall Larenstein works together with STENAPA, Saba

Conservation Foundation (SCF), CNSI, Wageningen Marine Research, diving school Golden Rock and NuStar Energy. The project is partly financed by SIA, part of the Netherlands Organisation for Scientific Research (NWO), through a RAAK subsidy. SIA stimulates universities of applied sciences to do research for and together with the work field.

Researchers and students of the BSc program Coastal and Marine Management study the functionality of different types of artificial reefs. While the Nature Fund and RESQ coral restoration projects grow coral fragments, and attach them to the reef, AROSSTA has a different approach. "In our project, we focus on increasing the three-dimensional structure on the reef, creating shelter and suitable substrate for corals, sea urchins and fish", says Alwin Hylkema, project leader of AROSSTA. "If the artificial reefs, made from volcanic stone, function well, coral recruits will naturally start to grow on the structures." The researchers in AROSSTA are also involved in the other coral related projects on the island, so there is a good knowledge transfer between the different projects. In the future, an artificial reef could possibly be kick-started by attaching nursery grown coral to it. But first the researchers will determine the natural recruitment and growth of coral on artificial reefs made from volcanic stone. The main research question is whether the artificial reefs can contribute to the recovery of nearby coral reefs. If this is the case, artificial reefs could be used on a larger scale to restore the coral ecosystem and increase fish productivity.

Reduce the amount of erosion

Will start as soon as possible

The ministry of Economic Affairs has approved to finance a project to counter erosion, but the starting date is not yet established. "Currently, a project timeline is being made together with the executors on Statia", says Stapel. Aim of the project is to reduce erosion of sediments into the coastal waters surrounding the island, caused by rain and water runoff. Sediment and associated nutrients run-off impacts coral reefs by clouding shallow waters and cause eutrophication, which promotes algal growth and in turn blocks sunlight. Improved drainage systems on the island and water catchment areas could reduce the water runoff and related erosion. In addition, this water could be used for other purposes, such as agriculture.

(Sources)

<http://www.wur.nl/nl/project/RESCQ-Restoration-Ecosystem-Services-and-Coral-Reef-Quality.htm>

Johan Stapel, CSNI

Alwin Hylkema, Van Hall Larenstein

Teresa Leslie, Eastern Caribbean Public Health Foundation