

**THREE ISLANDS, THREE ENTITIES,  
ONE NATURE MANAGEMENT ORGANIZATION**

# Nature in all its diversity

**From cloud forest and salt domes to coral pillars. Each of the three islands of Saba, St Eustatius and Bonaire not only has its own population, culture, language and administration, but the differences in their natural environments are just as big as those between the Wadden Sea and the hills of Limburg.**

**BY BAUD SCHOENMAECKERS AND MAARTJE SMEETS**

The diversity of natural wealth is as large as the cultural and administrative differences among the three islands. “But there is good collaboration in the area of nature management”, says Kalli De Meyer, the director of the Dutch Caribbean Nature Alliance (DCNA). “A good example for the administrative bodies of the islands”, she adds with a wink. DCNA is the umbrella organization of nature parks on the former Antilles and Aruba and it supports park management, promotes sustainable policy, and educates and instructs. Queen Beatrix is the patroness of the organization, which has been a beneficiary of the Postal Code Lottery since 2008.

## **No hands-off policy**

The nature parks on the three islands form a large source of income. More (nature) tourism results in more money, but the room for expansion is limited. De Meyer: “Tourists should be able to use the parks because that brings in money. But having more tourists puts more pressure on nature. We’re continually looking for a good balance. Operations have to be sustainable now so that we can still reap nature’s fruits in the long run.” Without dramatizing, she explains: “Coral has made room for hotels. Wastewater used to be discharged without being processed. Add to that a rise in the water temperature, and the coral become

sick or die. Once destroyed, they never return. The rainforest on St Eustatius where so many trees have been cut down – gone forever. So it’s important to safeguard the value of nature not only to retain biodiversity but also from an economic perspective.”

Economic growth has left its traces behind on Bonaire. De Meyer: “The sand from the dunes on Bonaire was once used for construction. A natural coastal defence, a dike made of coral, was dug up and the material was ground into sand for construction. Of course it must be possible to build, but import the construction materials. That’s





DOS WINKEL

The northern coast of Lac Bay, part of the Bonaire National Marine Park. Lac is a shallow bay with mangrove forests, creeks, a barrier reef and fields of sea grass where sea turtles feed. The Ministry of Economics, Agriculture and Innovation is studying how much this

area can bear now that tourism, erosion, sedimentation and cattle are increasing. A recovery plan for the mangrove forests is being created together with STINAPA. The WWF has allocated money to appoint a 'mangrove manager'.

more expensive now, but letting irreplaceable nature disappear will create higher hidden costs in the future."

#### Link

A legal framework and administrative regulations are essential for sustainable nature management and exploitation. "That's why we're happy that the Island Regulation on Nature Management has been effective since 1 September 2010 and that the Spatial Development Plan will soon be adopted by the administration of Bonaire," says Elsmarie Beukenboom, the director of the Bonaire National Parks Foundation, STINAPA. "Management and

protection are closely related. I think that the activities for users should take priority since they're paying customers." Because of a shortage of people and money, Beukenboom cannot do much in the area of nature preservation. Regulations have to be adjusted. "Bats live in our caves. The bats are protected, but the caves aren't. If the Spatial Development Plan is passed, I hope that both will be given 'protected' status. The bat is very important to the island because it is the only way in which cactuses are dispersed, and cactus are essential to the food chain. I'm not saying that tourists should no longer be allowed into the caves, but I want to know what the effects are.

**Of course it's more expensive to import construction materials, but letting irreplaceable nature disappear will create higher hidden costs in the future**

Policy can be made on the basis of scientific information. That applies to the management of the parks, both on land and underwater, on all three of the islands.”

### Climate change

The effects of climate change are already being felt. Both Bonaire and Statia have low-lying areas that cannot cope with the expected rise of the sea level from 0.18 to 0.59 m in the next century. According to Beukenboom, the rise is already visible on Bonaire; for the past few years, the road in the southern part of the island is under water for three months a year. “In the past, the road used to be flooded by rainwater, but now it’s salty seawater. The coral dike that once protected the southern area has disappeared. The land is low lying and its natural protection has vanished.” On both Bonaire and St Eustatius, the groundwater and many underwater springs are becoming saltier because of the rising sea level.

### Policy of adaptation

The expected extremes in precipitation and drought have immediate negative effects on water supplies and water quality. Since 2002 it has been warmer and drier on the islands. This in turn influences the



### A dangerous beauty: the lionfish

The lionfish, commonly referred to as the coral devil, comes from the Indian Ocean. It’s an invasive species that is threatening the biodiversity of the coral reefs. The lionfish has no natural enemies in this area. Each month the fish lay about 30,000 eggs, which are quickly carried further by the currents in the Caribbean. They eat large numbers of coral fish, which is decimating the rest of the fish population. And because of the ideal living conditions, the lionfish grows faster in Caribbean waters than its prey does. DCNA has asked people to catch and kill the fish and to report any sightings of the fish. A thorough approach to the problem is being put together.

growth of the mountain vegetation on Saba and Statia. Trees are impeded in their natural cooling process, which forms an immediate threat to the cloud forest on Saba. Changes in temperature and humidity will cause a number of tree types to die simply because they can’t grow any further. The number of storms and their inten-

sity is expected to increase by 66 percent. Coastal erosion, the sea’s encroachment on coral reefs and the disappearance of coastal ecosystems, mangrove forests and beaches where threatened sea turtles lay their eggs are the result. This threatens the revenues from tourism, which are so very important to the island inhabitants.

## Biodiversity on three islands



Coral

### Saba

The slopes of the 887-meter-high Mount Scenery are richly covered with ferns, lemon and banana trees, palms and orchids. The savannah at the bottom of the slopes ends in a tropical rainforest at the top. Nature on Saba is perhaps the best preserved on earth. The island has no beaches, but the underwater world is breathtaking. With thirty inspected diving locations Saba is one of the world’s top diving locations. The water is crystal clear, which gives a magnificent view of the various sorts of coral, the colourful sponges and the magical ‘pinnacles’ that rise like thin needles. This is the habitat of the stingray, the turtle and the nurse shark. Especially unique are the warm water springs, the mysterious lava tunnels and the lava rocks of the Ladder Labyrinth.

HANS LEIJNSE

## Climate change is already being felt: in recent years the main road between the harbour and Salina Vlijt has been under water for three months a year

The IPCC's predicted rise in water temperature between 1.4 and 3.2 degrees Celsius this century will increase the number of coral diseases, and coral will become bleached and die. Although not a lot is known about it yet, it is believed that there is a relation between coral bleaching and the acidification of seawater. Because of the increased levels of CO<sub>2</sub> in the atmosphere, the oceans are absorbing more CO<sub>2</sub>.

The rise in water temperature also leads to a decrease in oxygen in some parts of the ocean, which in turn leads to fish dying. Alterra, part of Wageningen University and Research centre, has been commissioned by the Ministry of Economic Affairs, Agriculture and Innovation to study the effects of climate change on the islands. In a preliminary publication, Alterra says that the islands can make adjustments in the areas of land use, zoning and nature management.

"We can't do anything about the causes of climate change, but we can make our islands robust," says De Meyer. One measure leads to fast results and serves more than one goal. Beukenboom: "Round up all of the wandering livestock on the islands and provide feed for the animals. The lack of feed is the reason that the animals wander freely on the islands. If we have a water purification plant, we can produce the necessary feed for livestock." (See also page 32, *From heath and forest to mangrove and coral.*)

The islands will become greener again if the grazing livestock are less free to roam. The microclimate will change and trees

will have the chance to grow. Groundwater will be better retained and erosion will decrease. Agriculture will have a sounder base upon which it can develop and the livestock will no longer eat up the mangrove forests, which form natural protection against the encroaching sea.

It's important to view the developments on the islands in relation to one another. By using local expertise and opportunities, the new Dutch municipalities can grow in a sustainable fashion. ■



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Brown pelican



MIRO ZUMRIK

### St Eustatius

St Eustatius is richly diverse both on land and underwater. Whereas Saba's underwater world is characterized by pillar coral, Statia has clumped coral. Sea turtles feed on the meadows of sea grass, and the threatened queen conch is another member of Statia's marine world. Birds like the brown pelican nest on the island. At the bottom of the volcanic crater there are threatened animals and plants such as the red-bellied racer snake and the Lesser Antillean iguana. The Statia Morning Glory, once thought to have disappeared, can also be found on the island.

HENKJAN KIEVIT



### Bonaire

With its mangrove forests and salt domes, Bonaire is completely different from the other two islands. This island has dry areas where many sorts of cactus feel at home. The bats that live in the caves disperse the cactus. The pink flamingo is an important symbol of the island, but parakeets and parrots are also common. Divers stare in wonder at the colourful coral reefs, and some of the beaches are nesting areas for sea turtles.

Mangrove forest