

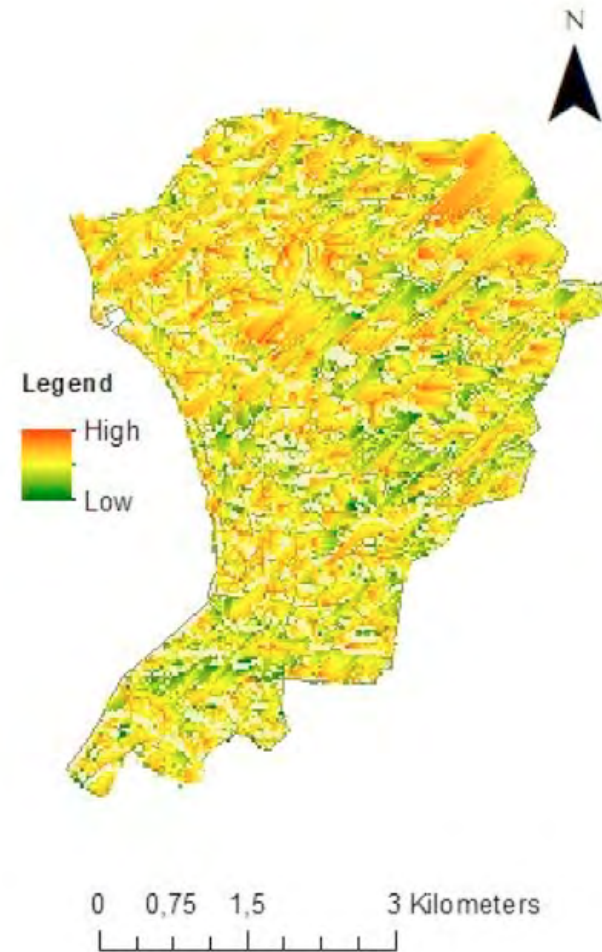
Erosion around Kralendijk, Bonaire

Nick Roos, Master student VU (Vrije Universiteit Amsterdam)

On Bonaire there is a big problem with erosion. In areas with sparse vegetation, intense rainfall events can loosen the soil material, after which it is transported away towards the ocean by rainwater flowing over the surface. Not only causes this a loss of fertile soil, it also has negative consequences for aquatic life and plants along the coast, such as the coral reefs of Bonaire and the species which depend on them. On top of that, scuba diving and snorkeling is an important tourist attraction in, for instance, the capital of Kralendijk where erosion is relative high.

Erosion of soil can be influenced by many factors, such as the infiltration rate of the soil and the vegetation cover. Many human activities, such as deforestation, overgrazing by goats and urbanization affect these factors, and thus the erosion. A low capacity of the urban drainage system and poor spatial planning compound these effects.

An three year-project to reduce Bonaire's erosion problem, improve water management and restore some of Bonaire's natural areas is currently in progress thanks to funding by the Ministry of Agriculture, Nature and Food Quality through the Nature Fund. The "Combating Erosion and Nature Restoration" project started at the end of 2016 and will end in October 2019. It is led by Bonaire Agri and Aqua Business NV (Sherwin Pourier), Wayaká Advies (Jan Jaap van Almenkerk) and coordinated by the Island Government, Directorate of Spatial Planning and Development.



Hotspot erosion map Kralendijk, Bonaire
(Roos, 2018)



Photo by: © Nick Roos

The Vrije Universiteit (VU) and Universiteit van Amsterdam (UvA) are teaming up with partners from Bonaire (Wayaká Advies) to do research into these erosion issues. Nick Roos, a MSc Hydrology student at the VU, examined the causes of erosion by determining the most important soil and hydrologic characteristics of different land types around the capital of Kralendijk. In the picture he is measuring how thick the layer of deposited soil is in the Saliña di Vlijt. This appears to be 50 cm in some areas. This is fertile soil that flowed from higher areas into the Saliña during heavy rainfall and is testimony to the magnitude of the erosion issues in the area. Using his measurements, he developed a hotspot map indicating which areas probably constitute most to the erosion.

His research is a start to determine where action could be taken to reduce erosion and gives input for the type of measure that may be suited for such an area. Most promising measures, are the reduction of paved areas and overgrazing. New methods (e.g. permeable asphalt and more vegetation) are doable and cost friendly ideas to achieve the goal of increasing infiltration in paved areas. Overgrazing is a problem that could be solved by controlling areas for grazing. By fencing off more areas from goats, sheep and donkeys, grazing pressure on multiple areas is reduced. Therefore allowing vegetation to grow and reduce soil erosion. (Roos, 2018).



Overflow of Saliñas di Vlijt directly to the sea after heavy rainfall.

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