Additional Material

Ecosystem services

Social values

Ruins of an old indigo dye extraction system were discovered in the area. The natural dye was extracted from a plant, the Indigo shimaron (*Indigofera suffruticosa*), an economically important plant once blue dyes were rare. Ruins of the old Fort Sint Michiel and wall are still present in the area. The saliña of Sint Michiel was used for salt extraction in the past and saltpans are still present (F Mercelina, Uniek Curaçao, pers. comm.).

The area is used for recreational purposes (hiking, biking, camping), but also for educational guided tours. It is considered of scenic value by the local population of the nearby town of Sint Michiel. The resources of the area are mostly exploited by the Chinese community through the harvesting of marine organisms in the saliña of Sint Michiel (F Mercelina, Uniek Curaçao, pers. comm.).

Current scientific research and facilities:

Relatively extensive research has been conducted by staff and visiting scientists of the Carmabi Foundation in the past decades. Carmabi Foundation has for instance carried out surveys on the presence of certain vegetation types, White-tailed deer, butterflies and the rare endemic Curaçao Barn owl which nests in the limestone cliffs. Inventories of waterbirds and terrestrial birds, as well as fishes, have been carried out by the Zoological Museum of the University of Amsterdam since 2006.

Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

The area is managed by Uniek Curaçao. This nonprofit organization's goal is to maintain and improve the physical and social environment of the island and secure the livability of Curaçao for both locals and visitors. Uniek Curaçao's mission is to promote the island in the most ecological and sustainable way. They prepare educational tools such as information booklets, videos and presentations and also offer guided tours in the area. Once designated as a Ramsar site, this area will be included in Uniek Curaçao's educational and public awareness programs.

Current recreational and tourism:

Recreation is mostly focused on hiking and mountain biking.

Bibliographical references

- Bak RPM (1975) Ecological aspects of the distribution of reef corals in the Netherlands Antilles. *Bijdr Dierk*, 45: 181-190.
- Beers CE, de Freitas J & Ketner P (1997) Landscape ecological vegetation map of the island of Curaçao, Netherlands Antilles. Publications foundation for scientific research in the Caribbean region. No. 138. Amsterdam, The Netherlands. 51pp.

Boekschoten B (1982) Geology, general introduction. STINAPA, 23: 22-24.

BirdLife International (2011) Important Bird Areas factsheet: Malpais-St Michiel, Curaçao. Downloaded from http://www.birdlife.org_on 28/12/2011.

Bokma W (1972) Malpais, toekomstig vogelreservaat op Curacao? STINAPA report 6: 31-36.

- Cuppens M & Vogels J (2004) Characterization of foraging areas of the Caribbean Flamingo *Phoenicopterus ruber* on Curaçao (Netherland Antilles): the relationship between abtiotic factors, food abundance and flamingo density. Neijmegen: Radboud University/CARMABI. (Unpublished thesis).
- Debrot AO (1999) A conservation assessment of an open connection between saliña of Rif-St. Marie and the sea. CARMABI report, 12 pp.
- Debrot AO & de Freitas JA (1991) Wilderness areas of exceptional conservation value in Curaçao, Netherland Antilles. *Nederlandse Commissie voor Internationale Natuurbescherming, Meded*, 26: 1-25.
- Debrot AO & de Freitas JA (1999) Avifaunal and botanical survey of the Jan Thiel lagoon conservation area, Curaçao. CARMABI (Unpublished report).
- Debrot AO & Wells J (2008) Curaçao. In: Wege D & Anadon V (eds) Important Bird Areas in the Caribbean: key areas for conservation: 143-149. Cambridge, U.K.: BirdLife International.
- De Buisonjé PH (1974) Neogene and Quaternaty geology of Aruba, Curaçao and Bonaire. Uitgaven Natuur Wetenschappelijke Studiekring Voor Suriname en de Nederlandse Antillen, No. 78, Utrecht.
- Delaney S & Scott D, eds. (2006) Waterbird Population Estimates, Fourth edition. Wageningen: Wetlands International.
- de Haan D, Zaneveld JS (1959) Some notes on tides in Annabaai harbour, Curaçao, Netherlands Antilles. *Bull Mar Sci Gulf Carib.* 9: 224-236.
- Henriquez PC (1962) Problems relating to hydrology, water conservation, erosion control, reforestation and agriculture in Curaçao. Uitgaven van de Natuurwetenschappelijke Werkgroep Nederlandse Antillen No. 14, Curaçao, Netherlands Antilles. 54 pp.
- Husson AM (1960) De zoogdieren van de Nederlandse Antillen. Uitgaven van de Natuurwetenschappelijke Werkgroep Nederlandse Antillen No. 12, Curaçao, Netherlands Antilles, 168 pp.
- Kristensen I & Hulscher-Emeis TM (1972) Factors influencing Artemia populations in Antillean islands. Stud. Fauna Cur. Caribb. Isl. 39:87-111.
- Meteorological Services of the Netherlands Antilles and Aruba (2008) Climatological report 2008. Retrieved from www.meteo.an on 10/01/2012.
- Prins TGP, Roselar K(CS) & Nijman V (2005) Status and Breeding of Caribbean Coot in the Netherlands Antilles, *Waterbirds*, 28(2): 146-149.
- Nijman V (2010) The Importance of Small Wetlands for the Conservation of the Endemic Caribbean Coot Fulica caribaea. Caribbean Journal of Science, 46(1): 112-115.
- Raffaele H, Wiley J, Garrido O, Keith A & Raffaele J (1998) Birds of the West Indies. Christopher Helm, London. S.O.V.O. (1983)
- Spalding MD et *al.* (2007) Marine ecoregions of the world: bioregionalization of coastal and shelf areas. *Bioscience*, 57(7): 573-583.
- Strawbridge J & Sybesma J (1989) The Curaçao Underwater Park management guide 1990-1995. *STINAPA*, 96 pp.
- Voous K H (1982) Straggling to islands—South American birds in the islands of Aruba, Curaçao, and Bonaire, South Caribbean. *Journal of the Yamashina Institute for Ornithology*, 14: 171-178.
- Voous KH (1983) Birds of the Netherland Antilles. Second edition. Walburg Pers, Zuphten.
- Voous KH (1985) Additions to the Avifauna of Aruba, Curaçao, and Bonaire, South Caribbean. Ornithological Monographs, 36: 247-254. Wells J & Debrot AO (2008) Bonaire. In: Wege D & Anadon V (eds) Important Bird Areas in the Caribbean: key areas for conservation: 95-102. Cambridge, U.K.: BirdLife International.
- Wells J & Debrot AO (2008) Bonaire. In: Wege D & Anadon V (eds) Important Bird Areas in the Caribbean: key areas for conservation: 95-102. Cambridge, U.K.: BirdLife International.