

APPLICATION FORM

1. MODALITY

SICOM (Site of Importance for Bat Conservation)

2. NAME PROPOSED

Complete name: Kueba di Watapana Abbreviated name: Watapana

3. APPLICANT'S INFORMATION

Name of PCM responsible: PPRABC

Country: Islands of Aruba, Bonaire and Curaçao

Name and email of coordinator: Fernando Simal e-mail: fernando.simal@wildconscience.com *Authors of the proposal*:

Fernando Simal. WILDCONSCIENCE BV. fernando.simal@wildconscience.com Jafet Nassar. Instituto Venezolano para la Investigación Cientifica. jafet.nassar@gmail.com **Date of application**: December 8th, 2012

4. JUSTIFICATION

Mark appropriate requirements:

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Criterion 1. The area/site contains species of conservation interest at national or regional level (includes threatened and nearly threatened species in red lists of countries, species in IUCN Red List, endemics, migratory, rare, Data Deficient, important role in ecosystem functioning, species with small or restricted distributional ranges, or species present in their limit of distribution).



Criterion 2. The area/site contains roosts with one or several species of conservation interest and used temporarily or permanently, or during a significant part of their life cycle, as in the case or maternity roosts or sites of aggregation for migration (includes a system of caves, specific roosts such as buildings, roofs, among others).

Criterion 3. The area/site contains high species richness, independently of threat level.

Mark threats that apply:

	Threat 1. Habitat loss.
x	Threat 2. Roost destruction and disturbance.
	Threat 3. Human-bat conflicts and emergent diseases.
	Threat 4. Indiscriminate use of toxic substances.
	Threat 5. Emergent threats (wind farms, invasive species, white-nose syndrome).
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Justification summary:

The Island of Bonaire possess a system of more than 150 natural caves, but only five of them are known to be used as diurnal and maternity roosts by the five species of cave-dwelling bats reported for this island. The Curaçaoan Long-nosed bat (Leptonycteris curasoae) uses all five, but only two of them are used by the Ghost-faced bat (Mormoops megalophylla). Leptonycteris curasoae is one of the two nectar-feeding species responsible for pollination and seed dispersal of columnar cacti in Aruba, Curaçao and Bonaire. This species has been classified as Vulnerable in the IUCN Red List of Threatened Species. Both L. curasoae and M. megalophylla depend on caves as diurnal roosts. Altogether, these attributes reflect clearly the great importance of providing special protection to the caves used by these species. Of the two maternity roosts shared by both species, Kueba di Watapana has demonstrated to be the most important, because it contains one of the largest colonies of pregnant and lactating females of L. curasoae during the reproductive period. Unfortunately, this cave is outside the limits of the protected areas on Bonaire. Its designation as SICOM will contribute to set the basis for adequate management plans and a protective legislation that secures the integrity of this roost and the colonies of L. curasoae and M. megalophylla present in them. The most positive direct impact of this SICOM will be the protection of gravid females of L. curasoae and their newborns. Finally, its designation as a SICOM will complement the AICOM already created.

5. MAIN SPECIES TO PROTECT



(Photo: Jesús Molinari)

Leptonycteris curasoae Miller, 1900 Curaçaoan Long-nosed Bat (Phyllostomidae, Glossophaginae)

Distribution:

Distributed in arid and semiarid zones and dry forests in Colombia, Venezuela and the Caribbean Netherlands.



Conservation status

Venezuela status: "Vulnerable A2c" (Nassar, 2008). Global status: "Vulnerable A2c" (Soriano and Molinari, 2008). Curaçao status: "Endangered" (Petit et al., 2006) Aruba status: "Critically Endangered" (Bekker, 1999) Bonaire status: Not defined

Comments

Leptonycteris curasoae is a mid-size bat, elongated rostrum, small ears, short leaf-nose, and short light-brown fur. Feeding habits include nectar, pollen and fruit from different plant families associated with dry ecosystems (Cactaceae, Agavaceae, Bombacaceae, Moraceae, Sterculiaceae). From these plants, cacti and agaves are their main food sources (Martino *et al.*, 2002; Nassar *et al.*, 1997; Petit 1995, 1997). It is a gregarious species, which congregates in colonies from a few thousands to tens of thousands individuals (Cole and Wilson, 2006). Diurnal roosts are hot caves, with some ventilation and indirect sunlight. This species flies long distances above the sea, among the ABC Islands and mainland (Venezuela), and different sources of evidence also suggest that it migrates seasonally to mainland (Simal et al., 2015; Fleming and Nassar, 2002; Newton *et al.*, 2003; Sánchez and Cadena, 1999).

The ecosystems used by this species in northern South America and the Caribbean islands are among the most threatened in the region, with high conservation priority. Specific threats to L. curasoae include: 1) presence in one of the most threatened habitats in the region, 2) gregarious habits, which make them easily detectable and susceptible of being destroyed or disturbed, 3) dependence on food plants not legally protected and susceptible of massive removal for urban developments and agriculture, and 4) reproduction dependent on maternity caves, where newborns are very vulnerable to any cave disturbance. On Aruba Island, observations by J.M. Nassar indicate that the colonies of this species, historically, have been exposed to intense anthropogenic pressure. One of the main natural roosts used by the species, Tunnel of Love, was managed for several years as a recreational site. This activity restricted the colony of L. curasoae to a small chamber close to one of the entrances, and exposed it to stress with every visit of tourists. The other colony of this species, known for several years in Aruba Island, is located in an abandoned mine (Wela Mine), guite vulnerable to vandalism. On the Island of Bonaire, several caves are used by this species as diurnal and maternity roosts: Orizjan, KueBa Raton, Pos di Watapana and Spelonk. Together, they provide roost to several thousand bats. Specific measures to protect the colonies in these caves are in progress.





(Photo: Jafet M. Nassar)

Mormoops megalophylla Peters, 1864 Ghost-faced bat (Mormoopidae)

Distribution

Its distribution ranges from Mexico to El Salvador, Colombia, Venezuela, Ecuador, Peru, Caribbean Netherlands and Trinidad.

Conservation status

Global status: Least Concern Bonaire status: Not defined

Comments

Mormoops megalophylla (Mormoopidae) is a medium-size mormoopid bat, with rounded rostrum, wellmodified ears, like radar antennae. Dorsal fur has long and lax hair that changes color with the age (grey when young and sub-adults and brown-orange when adult). Its feeding habits include medium and large size nocturnal moths. It is of gregarious habits, congregating in colonies of hundreds and thousands. It prefers hot caves, using the darkest chambers. This species can be found in a wide spectrum of habitats, from arid and semiarid lands to wet tropical forests.

The main threat to this species at global and local level is cave destruction and disturbance, because it is very sensitive to noise and human activity inside the caves. On Aruba Island, for example, we have observed newborns abandoned on the ground in areas where tourists have free access. In caves in the Paraguaná Peninsula, Falcón, Venezuela, we have observed dying and dead individuals of *M. megalophylla* on the ground of caves (JM Nassar, pers. obs.), suggesting poisoning with toxic chemicals (e. g., pesticides).

6. LIST OF SPECIES PRESENT IN THE AREA

FAMILY PHYLLOSTOMIDAE SUBFAMILY Glossophaginae Glossophaga longirostris Leptonycteris curasoae

FAMILY VESPERTINILIONIDAE Myotis nesopolus



FAMILY MORMOOPIDAE Mormoops megalophylla

7. AREA LOCATION



Location of Bonaire Island in South Caribbean



Satellite image of Bonaire showing the location of Kueba di Watapana

Geographic coordinates of the entrance of the cave North: 12°7′35.22 **West:** 68°16′30.83



8. GENERAL DESCRIPTION OF THE AREA

Kueba di Watapana is a cave established on a karst formation in the southern portion of Bonaire. The dominant vegetation is surrounding the cave is spiny scrubs. It is a hot cave with four main chambers, one entrance, 85 m of halls, 5 m of floor unevenness and presence of water in the deepest chamber. During the rainy season, all the floor can remain inundated for several days with a water depth of 20 cm. The cave is located approximately 400 m from the Flamingo International Airport, less than 100 m from an industrial deposit of sand and stone for construction, and 330 m from a residential area. Its proximities to all these disturbed sites makes it quite vulnerable to anthropogenic disturbance. There is evidence indicating human activity in a close by cave where people practice cave diving.

9. INVOLVED ACTORS

STINAPA Bonaire

It is the NGO responsible of the management of national parks on Bonaire. Its role will be the creation and execution of a management plan for the proposed SICOM.

Caribbean Office of the Ministry of Economy Affairs, Agriculture and Innovation (RCN)

Since October 10th, 2010, the Island of Bonaire is a municipality of Holland. This entity represents the Dutch Government in the island. Its environmental powers and attributes include the signature of international treaties such as Ramsar, SPAW and CITES; however, it does not participate in the management of natural resources at local level. This office of the ministry administrates financial resources that in the future could be used to manage and protect this SICOM.

Planning and Development Office of the public entity Bonaire (DRO and OLB).

The island government is responsible for the creation and implementation of the Nature Policy Plan, besides counseling the Insular Government on permits' approval of development plans and scientific research projects. It plays an important role regulating tourists' activities and research. This organization is key in the legal and physical protection of caves.

Dutch Caribbean Nature Alliance (DCNA)

It is a regional network formed by all the foundations involved in management of natural areas in the Dutch Caribbean. DCNA was established in 2005 with the mission of bringing financial support and assistance to organizations responsible for the management of protected areas in the Dutch Caribbean. Its mission is to collaborate with the local organizations to preserve biodiversity in the Dutch Caribbean and promote sustainable use of those areas. They also manage a fund trust aimed to cover the operational expenses of national parks in each island.

Aruba, Curaçao and Bonaire Bat Conservation Program (PPRABC)

The Aruba, Curaçao and Bonaire Bat Conservation Program is member of RELCOM since 2011. Like all RELCOM members, PPRABC works for the wellness of bats of the three islands, conducting activities of research, education and conservation.

ALIANSA di Naturalesa.

It is an NGO that congregates all the small environmental organizations of the island with the main goal of make civil pressure against governmental decisions against the environment. It is a reactive organization that would contribute to protect the caves and bat fauna of the island in case of official measures that could put in risk the integrity of the caves and their bats.



10. PLANNED ACTIONS FOR CONSERVATION, EDUCATION AND RESEARCH

Conservation

To change the designation of this site as 'Nature' in the Zoning Plan of Bonaire Island. To include Kueba di Watapana in the Caves and Karst Nature Reserve System once created on Bonaire or declare it Natural Monument. Create a normative to regulate the access to the cave.

Communication and education

Using the Environmental Education Unit of STINAPA Bonaire, to develop and execute education programs involving local people and schools. Communicate the importance of bats and caves to the Bonerian community using the local media (radio, tv and press). To improve the course for certification of cave tour guides expanding list contents and information on the bat fauna.

Research and monitoring

Capacity building to prepare local volunteers in cave bat monitoring.

11. CITED LITERATURE

Cole FR, Wilson DE. 2006. Leptonycteris curasoae. Mammalian Species No. 796: 1–3.

Fleming, T.H. and Nassar, J.M. 2002. Population biology of the lesser long-nosed bat *Leptonycteris curasoae* in Mexico and Northern South America. Pp. 283-305, In: *Columnar cacti* and their mutualists: evolution, ecology, and conservation (T. H. Fleming and A. Valiente-Banuet, eds.). University of Arizona Press, Tucson. Nassar, J. M., N. Ramírez, and O. Linares. 1997. Comparative pollination biology of Venezuelan columnar cacti and the role of nectar-feeding bats in their sexual reproduction. *American Journal of Botany* 84: 918–927.
Petit, S. 1995. The pollinators of two species of columnar cacti in Curaçao, Netherlands Antilles. *Biotropica* 27: 538-541.

Petit, S. 1997. The diet and reproductive schedules of *Leptonycteris curasoae curasoae* and *Glossophaga longirostris elongata* (Chiroptera: Glossophaginae) on Curacao. *Biotropica* 29: 214-223.

12. ANNEXED MATERIAL (SITE PHOTOS)

Photo 01. Aspect of the bat colony at Kueba di Watapana

Photo 02. Mist net at the cave entrance of Kueba di Watapana

SUMMARY DATA

1.- Complete name of proposed site: Kueba di Watapana

2.- Abbreviated name of proposed site: Watapana

3.- Location: Flamingo International Airport, Island of Bonaire, Caribbean Netherlands

4.- Main conservation value: Important maternity cave of the Curaçaoan Long-nosed bat (*Leptonycteris curasoae*) and diurnal roost of the Ghost-faced bat (*Mormoops megalophylla*).



5.- Geographic coordinates at entrance:

North: 12°7′35.22 West: 68°16′30.83

6.- Area surface (in hectares): N/A

7.- Dominant vegetation type: Spiny scrubs, Xeric Region South Caribbean

8.-List the five most important bat species in the site/area proposed (alphabetic order):

- Glossophaga longirostris
- Leptonycteris curasoae
- Mormoops megalophylla
- Myotis nesopolus



SPACE RESERVED FOR RELCOM

SICOM Kueba di Watapana

CÓDIGO: S-ABC-001

Date of approval: December 8th, 2011

Presented by: PPRABC (Programa pa Protehé raton dj' anochi).

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