APPLICATION FORM

1. MODALITY

SICOM (Site of Importance for Bat Conservation)

2. NAME PROPOSED

Complete name: Pos di Antoin di Bakuna
Abbreviated name: Pos di Antoin

3. APPLICANT'S INFORMATION

Name of PCM responsible: PPRABC
Country: Islands of Aruba, Bonaire and Curaçao
Name and email of coordinator: Odette Doest e-mail: odette@vetdoest.com
Authors of the proposal:
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Date of application: October 20th, 2018

4. JUSTIFICATION

Mark appropriate requirements:

[x] **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).

[x] **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).

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. In the case of *Natalus tumidirostris* and *Myotis nesopolus,* Pos di Antoin is the only one. Additionally, this cave is the most important maternity roost known on Bonaire for *Glossophaga longirostris* and it is also used by all the species of cave-dwelling bats recorded on Bonaire. Its certification as SICOM will become crucial to support and reach the goal of changing its designation status in the Zone Planning to "Natural Area" and/or "Protection Zone-Cave", in addition of providing this roost with adequate legislation and management plans for its protection. Besides this, its certification will complement the AICOMs and SICOMs already certified on the ABC islands.

5. MAIN SPECIES TO PROTECT

(Photo: Jafet M. Nassar)

***Natalus tumidirostris* Miller, 1900**
Funnel-eared bat
(Natalidae)

Distribution
South American distribution, covering low lands of Colombia, Venezuela, Guiana, Suriname, French Guiana, Trinidad, and the Lesser Antilles (Gardner 2008, Tejedor 2011). Reported for Aruba (Bekker, 1999).

Conservation status
Global status: Least Concern (Dávalos *et al.* 2016).
Bonaire status: Not defined.

Comments
The main threat to this species at global and local level is destruction of maternity and diurnal roosts and disturbance of colonies due to unregulated visits to caves. If associated with karstic surroundings, it can be Vulnerable (Dávalos *et al.* 2016). Due to its insectivorous condition, it is susceptible of intoxication by pesticides. In the Red List of Aruba, authored by Bekker (1996), this species was classified as "Critically Endangered" for the island. The basis for that classification was presence under 1% of sampling events and

population decline above 75% since 1960.

They are small-size bats, with forearm length between 27 and 45 mm; wings, posterior limbs and tail elongated; very small eyes and large funnel-shaped ears, which confer this bat its common name. Its fur is long, smooth and lax, varying from brownish-gray to bright brownish-yellow. It is an insectivorous species, mainly ingesting lepidoptera and diptera. Its flight is slow but agile, captured with difficulty using mist nets, it mainly inhabits dry forests, arid and semiarid lands. It is frequently found in wet caves, many times associated with other species of mormoopid bats. Because it is mainly dependent on the habitats and caves described, their conservation is of the essence to protect this species.

(Photo: Fernando Simal)

***Myotis nesopolus* (Miller, 1900)**
Myotis from Curaçao, Brown Bat
(Vespertilionidae)

Distribution
Its distribution range includes northeastern Venezuela and the Islands of Bonaire and Curaçao (Simmons 2015). It is also found in northwestern Colombia (Muñiz G. and Mantilla-Meluk 2012, Solari *et al.* 2013). In 2011, the first record of this species for Aruba Island was reported (Fernando Simal, unpublished data).

Conservation status
Global status: Least Concern (Solari 2016).
Bonaire status: Not defined

Comments
The Brown bat is an insectivorous species of small size (3-5 gr). It mainly feeds on small-size insects that captures in the air in dry forests and open areas in semiarid zones. It roosts primarily in caves, forming small colonies. In general, there is a lack of knowledge about the dynamics of insular and inland populations of this species, including population size and population trends.

Main threats to this species at global and local level are related to destruction of maternity caves, disturbance of colonies, and destruction and degradation of dry forests. Due to its insect-feeding habits, this species is

susceptible to poisoning with pesticides.

Population trends are unknown, but population decline is unlikely at present. Despite its restricted distributional range, this species is relatively common; however, on the ABCs, habitat loss is a significant threat linked to touristic and residential developments.

(Photo: Mariana Muñoz-Romo)

***Glossophaga longirostris* Miller, 1898.**

Miller's Long-tongued bat

(Phyllostomidae, Glossophaginae)

Distribution

South American distribution, covering Colombia, Venezuela, Guyana, Brazil, Trinidad, and the Netherlands (Gardner 2008).

Conservation status

***Global status*:** Data Deficient (Tavares and Soriano 2008).

Bonaire status: Not defined

Comments

This is a small-size species, although it is the largest of the three recognized for the genus. It has short brownish to greyish fur, lighter in the ventral surface, prominent interfemoral membrane, and the tail extends in it 1/3 to 1/2 of its total length. It has an elongated rostrum compared to the other species in the genus, with dark short and rounded ears. Feeding habits include nectar, pollen, fruit, and occasionally insects (Soriano *et al.* 1991). It is common in areas with loose and low vegetation in arid, semi-arid and sub-humid zones in northern South America, near water bodies. It congregates in small colonies in caves, stone cracks, abandoned wells, and abandoned buildings. For this species, human constructions are of particular importance as an alternative to natural roosts.

Even though it is more common than *L. curasoae*, it shares some common threats with that species: 1) habitat exposed to human intervention, 2) gregarious habits, and 3) land conversion of dry forests.

6. LIST OF SPECIES PRESENT IN THE AREA

FAMILY PHYLLOSTOMIDAE
  SUBFAMILY Glossophaginae
Glossophaga longirostris

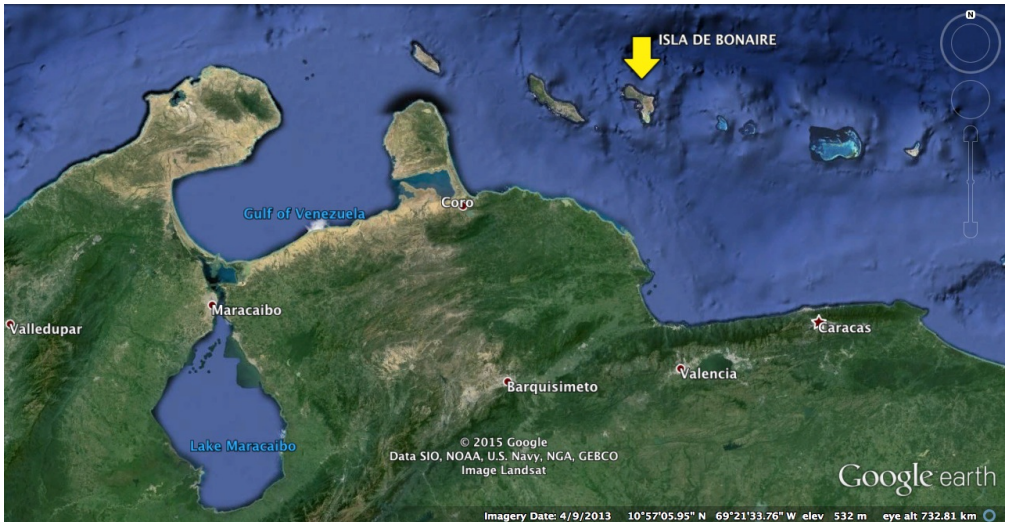
Leptonycteris curasoae

FAMILY VESPERTINILIONIDAE
Myotis nesopolus

FAMILY MORMOOPIDAE
Mormoops megalophylla

FAMILY NATALIDAE
Natalus tumidirostris

7. AREA LOCATION



Location of Bonaire Island in South Caribbean

Satellite image of Bonaire showing the location of Pos di Antoin

Geographic coordinates of the entrance of the cave
North: 12.122978° **West:** -68.220547°

8. GENERAL DESCRIPTION OF THE AREA

The Island of Bonaire contains a system of natural caves that probably exceeds 150 caverns. However, investigations conducted during the last eight years, including identification of diurnal roosts, suggest that only one of the known caves is used as diurnal and maternity roost by *Natalus tumidirostris* and *Myotis nesopolus.*

Pos di Antoin is a cave located in the karst formation in the southeastern part of the island. It is a hot cave with only one entrance at ground level. The cave contains a single semicircular chamber, 40-50 m depth, with a 4-5 m height vault-shape roof. Presence of water at the entrance seems permanent, with an estimated depth of 20 cm. A set of concrete steps allows access to this part of the cave. After the flooded area, there is a muddy area and many natural stone formations (e. g., pillars, stalactites and stalagmites). The mixed colony of *N. tumidirostris* and *M. nesopolus* is found immediately behind these formations.

This cave is located within the limits of an abandoned plantation, surrounded by a thorny forest with evident vegetation degradation caused by presence of exotic herbivores. In the years when the plantation was active, this cave was used as an important source of freshwater for cattle, agriculture and human consumption. The cave is still in private property. In the Zoning Plan of Bonaire, approved in the current legislation and implemented since October 2010, this cave is inside the zone designated as “Agricultura” (Agriculture),

overlapped with an impact buffer zone of a Ramsar wetland (Lac Bay). Its recognition as SICOM will represent an important technical background to assign the cave to category "Área Natural" (Natural Area) and/or "Zona Protección-Cueva" (Protected-cave Zone), which will provide this bat roost with a legal framework for its protection and management. In addition, its designation will complement the AICOMs and SICOMs already certificated in the ABCs.

9. INVOLVED ACTORS

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.

Wildlife Conservation, Science and Education (WILDCONSCIENCE BV)
It is an environmental consultancy company created in 2014 on Bonaire Island. It offers services of research, monitoring, and environmental education to governmental agencies and NGOs involved in management and conservation of natural resources. Recently, WILDCONSCIENCE BV received funds from the Dutch Government to support the first phase of the project "Bonaire Cave and Karst Nature Reserve", which has as central goal the creation of a natural reserve containing a significant proportion of the caves present in Bonaire. For this purpose, WILDCONSCIENCE BV follows IUCN's Category IV Guidelines. This application to designate Pos di Antoin as SICOM and its certification are part of the first phase of this project.

The Caribbean Speleological Society (CARIBSS)
CARIBSS was legally established on Bonaire in June 2016 by a group of professionals that share the passion for cave exploration. The society's vision is that the caves of the Caribbean and the natural values present in them be recognized and valued by all residents and visitors of the island. With five primary approaches (exploration, conservation, cultural heritage, recreation and exploitation), the society has 33 active members at present. Together with the Insular Government of Bonaire and WILDCONSCIENCE BV, CARIBSS is the third organization working in the Bonaire Caves and Karst Nature Reserve project. Since its official foundation, CARIBSS is also the host organization of the PPRABC.

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, for instance by commissioning to WILDCONSCIENCE BV the implementation of the Bonaire Caves and Karst Nature Reserve project.

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.

10. PLANNED ACTIONS FOR CONSERVATION, EDUCATION AND RESEARCH

Conservation

The first step towards the conservation of this SICOM will be to propose the local government a change of its category in the Zoning Plan. Our proposal will be based on the bats' cave use dynamics along the year, location of each species' colony in the cave, and the reproductive phenology of each species. In addition to this, we plan to build a cave gate and appropriate signalization.

Communication and education

The importance of Pos di Antoin SICOM and the results of seven months of work invested by WILDCONSCIENCE, CARIBSS and the Insular Government of Bonaire in this cave will continue being communicated through the media: official communications by the insular government, TV and radio programs, newspaper press releases, and the social networks of WILDCONSCIENCE BV, CARIBSS, and DCNA.

Research and monitoring

Monitoring of bats' cave use dynamics is being conducted, including data collection on species composition, reproductive condition, and collection of fecal samples to examine potential sources of pollution in the bat's diet.

11. CITED LITERATURE

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12. ANNEXED MATERIAL (SITE PHOTOS)

Pos di Antoin 01. Harp trap at the entrance of Pos di Antoin cave (Photo: Yago Rodríguez, 2015)

Pos di Antoin 02. Thorny forest as background near the cave entrance at Pos di Antoin. A mist net complements the function of the harp trap. (Photo: Sophie Zeegers, 2018)

SUMMARY DATA

1.- Complete name of proposed site: Pos di Antoin di Bakuna

2.- Abbreviated name of proposed site: Pos di Antoin

3.- Location: Bakuna, Island of Bonaire, Dutch Caribbean

4.- Main conservation value: Only known maternity roost on Bonaire Island for *Natalus tumidirostris* and *Myotis nesopolus* and the most important natural maternity roost for *Glossophaga longirostris.*

5.- Geographic coordinates at entrance:
North: 12.122978° **West:** -68.220547°

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

7.- Dominant vegetation type: Thorny forest, 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 nesolpolus*
- *Natalus tummidirostris*

SPACE RESERVED FOR RELCOM

SICOM Pois di Antoin di Bakuna

CÓDIGO: S-ABC-003

Date of approval: December 13th, 2018

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

Author: Fernando Simal and Jafet M. Nassar