SOME CONSIDERATIONS ON THE CONSERVATION STATUS OF THE GIANT FRUIT-EATING BAT, *Artibeus amplus* (Phyllostomidae: Stenodermatinae)

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SUMMARY

Artibeus amplus*, a Phyllostomid distributed in northern Neotropics, has been included in the 'Data Deficient' category both in Colombian and Venezuelan red lists, but in the 'Least Concern' category by the IUCN, even if its population trend is unknown. The potential range of suitable habitat recently reported for this bat species exceeds the extensions considered by the IUCN Standards and Petitions Subcommittee: 836,000km², mainly in the Guiana Shield (73.5%), with good overall forest connectivity. The remnant suitable habitat (26.5%), located in the mountain ranges in western and northwestern South America, although widely fragmented might be considered adequate for the surviving of this bat species, since recent evidence suggest high tolerance to human impact. In conclusion,* A. amplus *should be considered of 'Least Concern' both at global and national levels, with caution at local levels.*

Introduction

Artibeus amplus is a bat species described by Handley (1987) occurring at the Northern Neotropics, which recently has received attention from the systematic (Lim and Wilson, 1993; Lim *et al*., 2004), biogeographical (Lim *et al*., 2002, 2003; Ramoni-Perazzi *et al*., 2012) and ecological (Ruiz-Ramoni, 2010; Ruiz-Ramoni *et al*., 2011) points of view.

The conservation status of the species has not been evaluated in detail. Rodríguez (1998) and Rodríguez and Rojas-Suárez (2008), respectively, in Colombian and Venezuelan red lists, realistically included *A. amplus* in the 'Data Deficient' category, highlighting the lack of adequate information to make a direct or indirect assessment of its vulnerability based on its distribution or population status. On the other hand, the IUCN Red List of Threatened Species considers it as of 'Least Concern', even if its population trend is unknown (IUCN, 2012).

Discrepancies among national and global red lists regarding threat status are not uncommon (Brito *et al*., 2010). Thus, it must be considered that global assessments adequate best at large spatial or supranational levels, but that effective conservation efforts take place at national or local levels (Mace *et al*., 2008). In this note, we present some considerations and comments on the conservation status of this bat species both at global and local levels.

The IUCN Standards and Petitions Subcommittee (IUCN, 2010) accepts five quantitative criteria to evaluate if a given taxon belongs or not to a threatened category (Critically Endangered, Endangered or Vulnerable). One of these criteria is: "B. Geographic range size, and fragmentation, decline or fluctuations", which includes two subcriteria: B1. Extent of occurrence, and B2. Area of occupancy. For example, an extent of occurrence (B1) <20,000km², or an area of occupancy (B2) <2,000km², will list a given taxon as 'Vulnerable'.

Ramoni-Perazzi *et al*. (2012) recently predicted a potential range of suitable habitat exceeding 836,000km² in northern South America, using maximum entropy niche modeling, environmental covariates and museum records. This surface is, by far, greater than the ranges considered by the IUCN Standards and Petitions Subcommittee previously mentioned (IUCN, 2010), suggesting that this criterion does not support the inclusion of *A. amplus* as facing any threat level. Furthermore, most of the predicted suitable range of 614,000km² (73.5%), corresponds to the Guyana shield, which has good overall forest connectivity (Wade *et al*., 2003).

It is also important to consider that indirect evidence suggests that *A. amplus* may show some tolerance to habi-

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ALGUNAS CONSIDERACIONES SOBRE EL ESTADO DE CONSERVACIÓN DEL MURCIÉLAGO FRUGÍVORO GIGANTE, *Artibeus amplus* (Phyllostomidae: Stenodermatinae)

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RESUMEN

Artibeus amplus*, filostómido distribuido en el neotrópico septentrional, ha sido incluido en la categoría de 'Datos Deficientes' de las listas rojas colombiana y venezolana, pero en la categoría de 'Preocupación Menor' por la UICN, pese a que su tendencia poblacional es desconocida. El ámbito geográfico del hábitat potencial reportado recientemente para esta especie de murciélago excede las extensiones consideradas por la Subcomisión de Peticiones y las Normas de la UICN: 836.000km², principalmente en el Escudo Guayanés (73,5%), con buena conectividad global del bosque. El hábitat adecuado remanente (26,5%), ubicado en las montañas en el oeste y noroeste de Sudamérica, también puede considerarse adecuado para la sobrevivencia de esta especie de murciélago aunque esté ampliamente fragmentado, pues evidencias recientes sugieren tolerancia al impacto humano. En conclusión,* A. amplus *debe considerarse de 'Preocupación Menor' tanto a nivel global y nacional, pero con precaución a nivel local.*

ALGUMAS CONSIDERAÇÕES SOBRE O ESTADO DE CONSERVAÇÃO DO MORCEGO FRUTÍVORO GIGANTE, *Artibeus amplus* (Phyllostomidae: Stenodermatinae)

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RESUMO

Artibeus amplus*, filostomideo distribuído no norte da região Neotropical, foi incluído na categoria de 'Dados Deficientes' das listas vermelhas colombianas e venezuelanas, mas na categoria de 'Pouco Preocupante' pela IUCN, apesar do fato de que a sua tendência populacional é desconhecida. O âmbito geográfico do habitat potencial relatado recentemente para esta espécie de morcego excede extensões consideradas pela Subcomissão sobre as Solicitações e as Normas da IUCN: 836.000km², principalmente no Planalto das Guianas (73,5%), com boa conectividade global da floresta. O habitat apropriado restante (26,5%), também localizado nas montanhas a oeste e noroeste da América do Sul, pode ser considerado adequado para a sobrevivência desta espécie de morcego mesmo que ele é fragmentado em grande parte, a evidência recente sugere tolerância de impacto humano. Em conclusão,* A. amplus *deve ser considerado 'Pouco Preocupante' tanto em nível global e nacional, com cuidado a nível local.*

tat fragmentation and human activities. Ruiz-Ramoni (2010) studied the ecology of a colony of *A. amplus* roosting in Las Escaleras Cave near Pregonero, Tachira State, Venezuelan Andes (Figure 1), where bat killings (mostly common vampire bats *Desmodus rotundus*), garbage remains, bonfires and human fecal depositions, evidence a high recurrent human activity inside the cave.

The situation outside the cave does not match that expected for a tree-fruit consumer either, since the surrounding landscape is mainly covered by grassland with small patches of secondary forest surrounding rivers and creeks (Figure 1). According to Monasterio and Reyes (1980) this landscape is anthropogenic and was the result of the extensive substitution of the original woody vegetation (Seasonal Mountain Forest) decades ago by grasslands for livestock farming. In contrast, the interpretation of the SPOT 5 image from 01/29/2008 suggests that vegetation of the area is mainly of oligotrophic origin corresponding to that of an open savanna, specifically a Submicrothermic (9-12ºC) Tropophilus (600-1400mm)

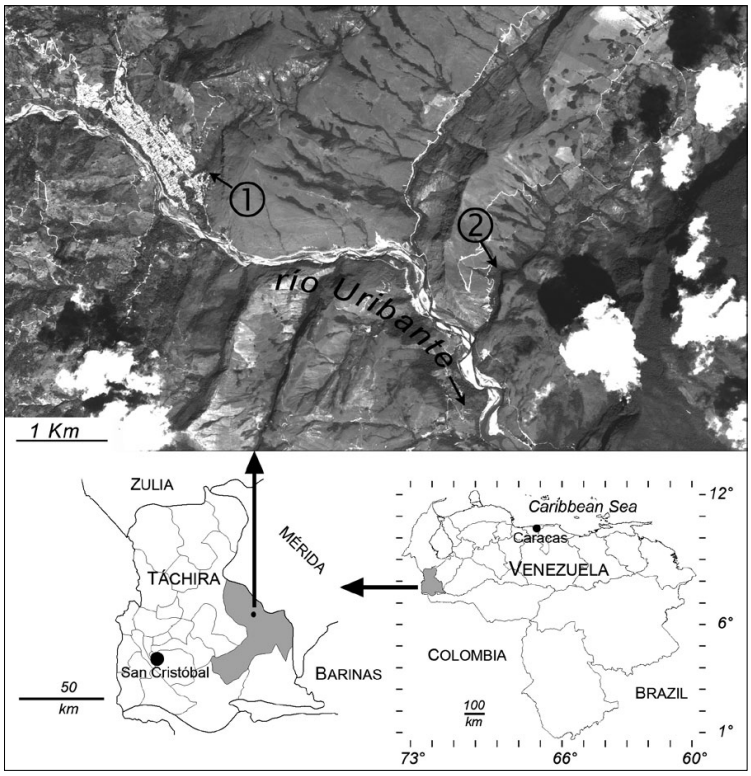

Figure 1. Location of Pregonero, in the Venezuelan Andes. Bottom-right: map of Venezuela highlighting Tachira State; bottom-left: map of Tachira State highlighting the Uribante Municipality and indicating the location of Pregonero area; top: satellite image of Pregonero area from SPOT 5 650-334 (01/29/2008). 1) Pregonero town; 2) Las Escaleras Cave.

TABLE I
RESULTS OF THE SUPERVISED CLASSIFICATION OF THREE SATELLITE IMAGES FOR AN AREA OF 20km RATIO FROM LAS ESCALERAS CAVE

	Disturbed	Savanna	Forest	Water
1987	70.7	19.4	9.0	0.9
1996	75.9	17.9	5.5	0.7
2008	81.2	15.0	2.8	1.0

Amounts represent the relative surface coverage of different landscape units.

Open Savanna (SASMT) (MARN 2000), being the largest patch of its kind in Venezuela.

A comparison of the results of supervised classifications from the aforementioned image with those resulting from LandSAT images from 1987 and 1996, resulted in a 21 years-span analysis of land cover and land use change at Las Escaleras area (Table I). From this, an increase of disturbed areas with a corresponding reduction of forest extension (from 70.7 to 81.2%, and from 9.0 to 2.8%, respectively, in 21 years) is remarkable.

The impact of forest fragmentation on tree-dwelling bats have been considered detrimental due to reductions in roost availability (Miller *et al*., 2003; Russo *et al*., 2010; Borkin *et al*., 2011), but probably less significant for cave-dwelling species such as *A. amplus*. In fact, the estimated size of the colony studied at Pregonero averaged 380 individuals (Ruiz-Ramoni, 2010), representing perhaps one of the biggest conglomerates of any *Artibeus* species reported.

The replacement of natural environments promoted by similar socioeconomic factors, as observed in Las Escaleras area, is a widespread phenomenon elsewhere in the Northern Andes, both in Colombia and Venezuela (Armenteras *et al.,* 2011; Portillo-Quintero *et al.,* 2012; Pacheco *et al*., 2014). On the other hand, the adaptability of *A. amplus* should be similar throughout its geographic range as observed in our study area. Therefore, we postulate that most of the ~221,000km^2 (26.5%) of the suitable habitat predicted by Ramoni-Perazzi *et al.* (2012), located in the mountain ranges in western and north western South America might be considered adequate for the surviving of this bat species, even if these forests have been widely fragmented by anthropogenic causes (Wade *et al*., 2003).

However, in spite of its tolerance to disturbance and habitat fragmentation, the future of *A. amplus* at Las Escaleras, and elsewhere in the Andes, is of guarded prognosis under the current trends of local habitat transformations, since more than 30% of the surface of forest remnants was lost between 1987 and 2008 (Table I).

In conclusion, *A. amplus* should be considered of 'Least Concern' both at national and at global levels, as the IUCN Red List of Threatened Species correctly does (IUCN, 2012). Even so, at local levels caution is required given the dramatic rates at which landscapes are being altered within the geographic range of *A. amplus*.

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