

Preliminary Survey on the Current Distribution of Primates in Belize

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PRELIMINARY SURVEY ON THE CURRENT DISTRIBUTION OF PRIMATES IN BELIZE

Siân S. Waters and Oscar Ulloa

Introduction

Black howler monkeys (*Alouatta pigra*) and Yucatan spider monkeys (*Ateles geoffroyi yucatanensis*) are the only non-human primate species found in Belize. Black howler monkeys occupy the most restricted range of any other species in the genus *Alouatta* (Wolfheim, 1983), and are listed as Endangered in the IUCN Red List (IUCN, 2006). The Yucatan spider monkey is listed as Vulnerable in the IUCN Red List (IUCN, 2006). Both species are threatened with ongoing habitat loss and degradation (IUCN, 2006). Howler monkeys are the focus of the Community Baboon Sanctuary Conservation Program in an area along the Belize River (Horwich, 1990) and have been reintroduced in the Cockscomb Wildlife Reserve (Horwich *et al.*, 1993). Data have been collected on black howler monkey group size and ranging behavior in two areas of Belize (Horwich *et al.*, 2001; Pavelka, 2003), but no countrywide survey of the species has taken place since the 1980s (Horwich and Johnson, 1986). Spider monkeys are vulnerable to habitat fragmentation because they occur

in low numbers, have low fecundity rates, and rely on ripe fruit, a patchily distributed food resource (Meffe and Carroll, 1994). Basic information on this species in Belize is lacking. A known area of spider monkey distribution in the Chiquibul protected area (comprised of the Chiquibul Forest Reserve and the Chiquibul National Park) is heavily frequented by illegal collectors of xaté palm leaves (*Chamaedorea* sp.). This activity has been prevalent since 1998 (Anon, 2005) and up to 1,000 illegal xaté collectors have been reported to camp and hunt in the area while harvesting the leaf (Friends for Conservation and Development, 2005). This must give cause for concern for the species even in a protected area.

Methods

We undertook a countrywide assessment of human/wildlife conflict among subsistence farmers in Belize from March to May 2006 (the results of which will be published elsewhere). As part of the survey we asked questions about the presence of howler monkeys, spider monkeys and Baird's tapir (*Tapirus bairdii*). The latter two species were chosen because they are amongst the first species to disappear from over-exploited forests (Bodmer *et al.*, 1997) and are, as such, more vulnerable to population fragmentation and eventual extinction. Black howler monkeys were included in the list because they often inhabit similar riparian habitat to that of the Baird's tapir. Using a structured questionnaire, we surveyed all districts of Belize for evidence of crop raiding by wild animals. The villages surveyed were all outside protected areas and were selected because they were predominantly dependent on subsistence agriculture. Villages and communities whose livelihoods depended on employment in intensive agriculture such as cattle ranching, and sugar cane, citrus and banana plantations were excluded. The questionnaire was administered at every sixth house in a village to a person who worked on his/her farm. The respondents' farms or gardens were typically situated outside the villages surveyed and were visited when possible. When the questionnaire was completed, and if the respondent had not already mentioned the species as a crop raider, the respondent was asked about the presence of primates and tapirs in the area. GPS locations for each species were recorded if presence was reported by at least two respondents independently of one another in the village surveyed or, if the animals were directly observed, or if howler monkey vocalizations were heard. Howler vocalizations could occur at any time of the day or night. Early morning walks were taken in all forests where the focal species were reported as occurring. A GIS map was generated from these data.

Results

A total of 168 people were interviewed during the survey and 14.9% reported that howler monkeys were present near their farms or gardens. Reports of the presence of black howler monkeys came from all districts except Corozal,

and these were verified in 43% of cases either by sighting or hearing the monkeys. The GIS map of these locations can be seen in Figure 1. Black howler monkeys were not reported as a crop raider by any of the survey respondents. This species was heard frequently in the watershed of the Temash River in southwestern Toledo and was also heard in undisturbed coastal forest in the southeast of Belize. Groups were also commonly reported and heard in the northern part of Cayo District where riparian forest is still common (Fig. 1). Spider monkeys were reported by respondents on seven occasions from three districts, including reliable reports from Orange Walk (Fig. 1) in the northwest of the country, where a group of about 10 animals was reported as living in a forest on the edge of a working quarry on the western border with Guatemala. A respondent in Toledo stated that a group of about eight spider monkeys raided his pineapple crop when it was ripe. All other reports of the species were recorded in Cayo District (Fig. 1).

Discussion

Neither primate species were reported as a serious crop raider in Belize. Unsurprisingly, black howler monkeys are widespread in the villages participating in the Community Baboon Sanctuary Conservation Program (Horwich, 1990). They also are present in the upper watershed of the Temash River in the southwest of Toledo District, where much of the forest was damaged by Hurricane Iris in 2001. Additionally, we believe our auditory detection of

a group in undisturbed coastal forest in the southeast of Belize is a new report for this species. This area of forest is presently undisturbed as the inhabitants of the nearby village rely on fishing for their livelihood. The groups reported from the upper Temash River and in Cayo District all occur in unprotected areas of forest increasingly utilized for logging and agricultural purposes. Reports of spider monkeys were less frequent and came from only three districts, Orange Walk, Cayo and Toledo, but the survey team was unable to verify their presence. This may be because there are fewer spider monkeys, and/or because spider monkeys are more difficult to locate because they are more quiet and wary. The spider monkey population in Belize needs further surveys on its areas of distribution, along with research on abundance, density, connectivity and demographics in order to determine appropriate conservation actions. This report on the distribution of both species of non-human primates in Belize is not meant to be definitive but is a useful first step in identifying populations outside protected areas that need active conservation management. These areas include the Cayo District for both species and the upper watershed of the Temash River in the southwest of Toledo District for black howler monkeys. These populations would benefit from closer scrutiny to ascertain their long-term sustainability and their suitability for a potential conservation effort involving local stakeholders. Although there are far fewer reports of the presence of spider monkeys, they may be more common than this survey demonstrates, particularly in Belize's extensive protected areas' network, but determining this will require further investigation.

Acknowledgments

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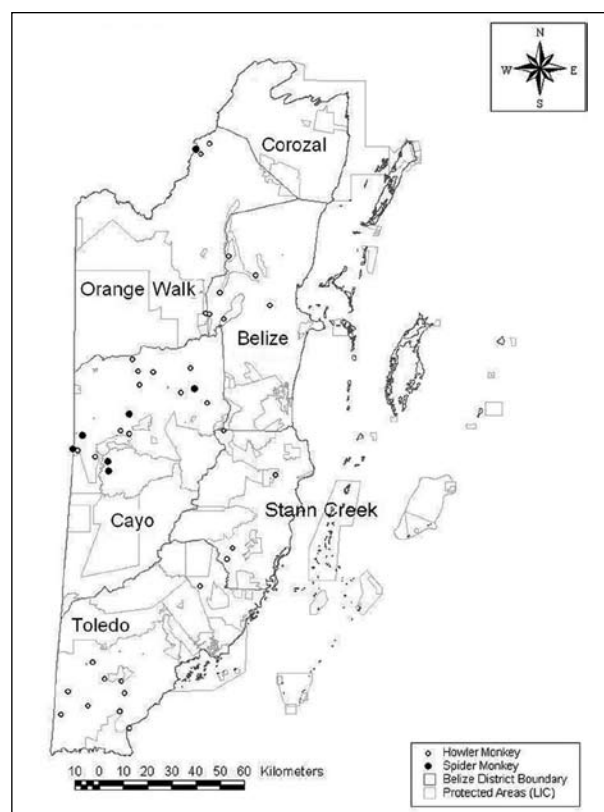


Figure 1. GIS map showing the distribution of black howler monkeys and spider monkeys in Belize.

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- Piñalito Provincial Park in Misiones, Argentina (Di Bitetti, 2004), and *A. palliata* and *Alouatta seniculus* in northwestern Colombia (Hernández-Camacho and Cooper, 1976). Here we report for the first time a clearly sympatric occurrence of the two howler monkey species *Alouatta sara* and *A. caraya*.

Study area and Methods

The Río Yacuma is a small tributary of the Río Mamoré, approximately 10 km upstream of the village of Santa Rosa (14°10'S, 66°52'W, Fig. 1). The Río Yacuma flows through the alluvial plain of the Río Mamoré at an elevation of approximately 150 m a.s.l. Heavy floods during the rainy season transform the region into a vast swamp. Mean annual temperature is 26°C, and mean annual precipitation is approximately 1,800 mm (Montes de Oca, 1997; Navarro and Maldonado, 2002). The region is part of the biogeographic sector of the Moxos lowlands, characterized by tree savannahs and Várzea forests along the watercourses (Navarro and Maldonado 2002). Observations were made during a boat trip between April 10 and 12.

Results and Discussion

In April 2006, while travelling northeast of the city of Rurrenabaque in the Beni Department in northern Bolivia (Fig. 1), we observed two distinct howler species, *A. caraya* and *Alouatta sara* (taxonomy following Groves, 2001), foraging and resting in close proximity (at a minimum distance of approx. 100 m and in the range of vision of each other on the bank of a river). The two species were clearly distinguished by the different coloration of the fur (black in male and yellowish in female *A. caraya*, red in *A. sara*). Presumably, the Río Yacuma is not a natural barrier to the dispersal of the *Alouatta* species as both species were seen in the gallery forest on the left and right bank of the river. Water levels decline considerably during the dry season, probably enabling the howler monkeys to cross the river. Groups of *A. caraya* were observed three times. The observations included: an adult male and an adult female; an adult male and two adult females, one carrying a baby; and three adult females with a male. *Alouatta sara* was seen two times. Once we observed a group of three individuals—two adult males and an adult female— foraging in a *Cecropia concolor* tree. On another occasion, we saw a single adult male of *A. sara* resting in the tree canopy. Several minutes of howling of *Alouatta* groups were heard repeatedly in the morning and in the late afternoon on both sides of the river.

In Bolivia, *A. caraya* has been observed at two localities in the Santa Cruz Department and at various localities in the Beni Department including the mouth of the Río Yacuma. Distributional notes on *A. sara* in Bolivia include localities in the Beni, Cochabamba, La Paz, Pando, and Santa Cruz departments. There have been no reports for the central Beni or Río Yacuma region, though (Anderson, 1997). Both *Alouatta* species observed are assessed as Least Concern on

SYMPATRIC OCCURRENCE OF *ALOUATTA CARAYA* AND *ALOUATTA SARA* AT THE RÍO YACUMA IN THE BENI DEPARTMENT, NORTHERN BOLIVIA

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Introduction

Sympatry of two species belonging to the same genus occurs rarely in Neotropical primates. It has been observed regularly for *Cebus apella* and *Cebus albifrons* (Terborgh, 1983), and for *Saguinus fuscicollis* and *Saguinus* sp. (Heymann and Buchanan-Smith, 2000). In both cases, the species occupy different ecological niches, through the use of different forest strata or individual foraging strategies. For species of the genus *Alouatta* there are several limited cases of sympatry, for example *Alouatta palliata* and *Alouatta pigra* in Tabasco, Mexico and at the southern Belize-Guatemala border (Horwich and Johnson, 1986), *Alouatta caraya* and *Alouatta guariba* in southern Brazil (Júlio César Bicca-Marques, pers. comm.) and the El