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## REPATRIATION OF TWO CONFISCATED BLACK HOWLER MONKEYS (*ALOUATTA PIGRA*) IN BELIZE

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### Introduction

The Belize Ministry of Natural Resources formally approved the establishment of the Wildlife Care Center of Belize (WCCB) in October 1996. Located within Monkey Bay Wildlife Sanctuary (MBWS), the WCCB's goals are:

1. Maintain confiscated wildlife and evaluate suitability for re-release.
2. Explore suitable options for non-releasable wildlife.
3. Conduct Monkey Bay National Park habitat surveys and post-release wildlife monitoring, for example, see Clark and Brockett, 1999.
4. Research, develop and document rehabilitation techniques for this location.
5. Provide training opportunities for Belizean students and conservation personnel.
6. Collaborate with governmental and non-governmental organizations on public awareness programs.
7. Publish data in relevant scientific journals.

In February 1998 the Conservation Division of the Forest Department of Belize confiscated an eight-month old, female black howler monkey (*Alouatta pigra*). She was in the possession of a private individual residing in the Cayo District. Fed a market diet with limited veterinary care and obviously humanized, she was presented to the WCCB at five pounds and in surprisingly good health. She was immediately placed in a small holding pen and allowed out for exercise three times daily. In March 1998 an estimated eight-month old male was similarly acquired, originating from the Belize District. This animal was fed rice, powdered milk, fruit and occasional native browse. He was of reasonable weight at five pounds, but was lethargic and displayed chronic diarrhea. This animal was maintained in visual proximity of the newly acquired female. Both animals accepted market produce and native browse immediately.

The pair were gradually introduced over a period of several days of visual and limited physical contact, and only after fecal checks proved negative. Diet consisted of various market and native fruits and approximately 35 native browse species cut and presented three times daily by the first author. Over time fruits were reduced, but never eliminated, to induce browse foraging.

Based upon the methodology of the howler translocation from CBS to Cockscomb (Koontz *et al.*, 1994), two negative TB tests were conducted three months apart. Chemical tranquilization with Telazol (Tiletamine/Zolazepam, 100 mg/ml, Fort Dodge Animal Health, Fort Dodge, Iowa, USA) was administered the second time to permit a thorough examina-

tion and to insert a permanent metal identification ear tag. Radio collaring was not an option due to the size of the animals. Fecal samples were performed periodically throughout the fifteen months of captivity with all but one sample proving negative. Ascarids were found in one sample and treatment with Pyrantel (pyrantel pamoate, Pfizer, Inc., US Animal Health Operations, 235 E. 42<sup>nd</sup> Street, New York, NY) cleared the condition. Weights were monitored throughout the captive phase. Early on, the male was found to have suffered a break of the left tibia, thought to have been caused by his poor diet. Full use of the limb was eventually regained. Botfly infestations are relatively common in wild populations and generally do not result in problems. Both animals were treated with Ivermectin (Ivomec, 10 mg/ml, Merck AgVet Division, Merck & Co., Inc., Rashway, New Jersey, USA) when larvae counts reached 5 per animal. In December 1998 the male presented an approximately 40% hair loss, thought to be attributed to botfly bites. Skin scrapings were negative and the scratching eventually subsided with treatment of Prednisone (Prednisolone, Merck, Sharp and Dohme, Division of Merck and Co., In., West Point, Pennsylvania, USA).

### Pre-release Training

In September 1998 the animals were moved to an enclosure to encourage native browse foraging, exercise and to dehumanize. This enclosure contained native trees, surrounded by 137 meters of electrified nylon mesh measuring one meter in height (Fast-Fence Net, WV Fence Corporation) and charged by solar-power. A small holding-cage measuring 1.8 x 1.8 x 2.4 m was placed inside to allow supplemental feeding and aid in recapture. Supplemental feedings were gradually restricted. Containerized water was available continuously, although animals were observed early on drinking off leaves and from tree crotches. A swath was kept clear surrounding the charged fence for a distance of five meters. This containment method has proved effective for howlers, which are not adept jumpers and do not brachiate. The animals were conditioned to a clicker to signal feeding with the presumption that predictable entering of the feeding cage would aid in recapture. Furthermore, clicker training would help to locate the animals once released. A total of 300 observational hours were conducted during the survival training portion of this program.

### Release Methodology

Published behavioral, ecological and translocation data helped to develop criteria supporting the highest expectation of survivorship for this program (Brockett, unpubl. obs.; Brockett *et al.*, in press; Ostro *et al.*, in press; Ostro *et al.*, 1999; Silver *et al.*, 1999; IUCN, 1995a; IUCN, 1995b; Horwich *et al.*, 1993; Horwich and Lyon, 1990; Griffith *et al.*, 1989; Neville *et al.*, 1988; Horwich and Johnson, 1986; Horwich, 1983; Haarthorn, 1982; Konstant and Mittermeier, 1981). Criteria included:

1. Minimum of two familiar and unrelated animals will be released together for predator avoidance, sociality, foraging success and observation conspicuousness.

2. Animals must be behaviorally sound, physically adept and able to identify natural food sources.
3. Veterinarian supported health screenings including fecal floats and TB negative. Identification markers must be apparent for observational follow-up.
4. At least one animal must be two or more years old. Wild individuals disperse at that age.
5. The re-release area must be protected, have habitat capable of supporting howlers and be of low howler population density. An acclimatization period must be maintained in a natural setting minimizing human dependence and contact.
6. Soft-release methodology must be employed.

### Release

In May 1999 the howler pair were relocated to a pre-selected wild release site located deep within MBNP. They were placed in a 2.4 cubic meter holding cage and fed favored fruits and native browse three times per day for a total of four days to acclimate to the new location. Some human contact was maintained to ensure a reasonable prediction of re-entry into this cage if necessary.

On Day four within MBNP, the animals were released during early morning. They immediately ran along the ground for approximately 10 m before heading up into trees. Maintaining continual visual or auditory contact with each other, within five minutes they located a native fruit tree. Three hours post-release, the animals were enticed back into the holding cage with the clicker, fed fruits and locked in overnight. This scenario was repeated for two additional days when, on the third day, they refused to re-enter. Supplemental feedings were offered three times per day. The animals refused altogether the browse presented. An increasing reluctance to accept more than one fruit feeding or to descend below 2.4 m of the ground quickly became apparent. Within fourteen days of release they became unresponsive to the clicker.

### Behavioral analysis

Post-release data were collected from sunrise to sunset daily on behavior and ranging. Approximately 150 field-hours were documented between 30 May and 8 July 1999. A follow-up paper will be drafted documenting comparative behavior pre- and post-release. During Week five, a wild adult male joined the pair and remained in immediate proximity for 14 days. The rainy season began in earnest and flooding of the site made further access impossible. Within 14 days, the rains subsided and re-contact was attempted. On three separate occasions vocalizations were heard, yet the animals were not observed. After cutting and mapping new trails to the presumed location of the vocalization, re-contact was not confirmed. On 16 October, three unrelated howlers were observed, an adult male and female with one juvenile male. The next day this trio was observed in proximity of the repatriated pair. However disappointing it was to have missed this group formation, follow-up observations determined that this newly formed group of five animals has maintained habitual contact.

## Discussion

It is believed that neither of the confiscated howlers had been with conspecifics for two-three months prior to introduction. The immediately successful introduction appears to be a result of an age-specific response. The primary author observed similar-aged, yet unfamiliar wild animals interacting, while adults of each group looked on. Eight months old is perhaps an ideal age for introductions. Additionally, these animals were probably juveniles rather than infants upon initial capture judging from their acceptance of a natural diet and the demonstration of appropriate predator responses. As of this writing, additional release candidates have been relocated to the WCCB. Primate surveys in surrounding areas of MBNP are planned.

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## ATTEMPTED PREDATION ON A WHITE-FACED SAKI IN THE CENTRAL AMAZON

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During a survey of primates in a 100-ha isolated forest fragment, a crested eagle (*Morphnus guianensis*) attacked a young female white-faced saki (*Pithecia pithecia*). The forest fragment is one of the reserves of the Biological Dynamics of Forest Fragments Project (BDFFP) located about 80 km north of Manaus, Amazonas, Brazil. This area of the central Amazonian basin is upland terra firme moist forest (Bierregard *et al.*, 1992). Six primate species, *Ateles paniscus*, *Alouatta seniculus*, *Cebus apella*, *Chiropotes satanas*, *Pithecia pithecia*, and *Saguinus midas* are in the reserve area, but only groups of *A. seniculus*, *P. pithecia*, and *S. midas* inhabit this 100-ha reserve (pers. obs). Potential avian predators of monkeys observed in the reserve area include *Harpia harpyja*, *M. guianensis*, and *Spizeatus ornatus* (Cohn-Haft *et al.*, 1997).

At 11:07, while conducting a primate survey, about 30 meters from the edge of the reserve, I observed a *P. pithecia* group. I counted three individuals; an adult male, an adult female, and a smaller female. The male was on a large horizontal branch