

ANDEAN BEAR RESEARCH PROJECT IN THE INTAG REGION, ECUADOR

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I am conducting a research project on the Andean bear (*Tremarctos ornatus*) in the Intag region of Ecuador, on the western slopes of the volcano Cotacachi. Intag encompasses about 20,000 hectares, and is part of the Cotacachi-Cayapas Ecological Reserve's buffer zone, which covers 204,429 hectares. Main bear habitats are: cloud forest, upper montane forest and grass paramo -flat highlands. The forests of the Intag region are among of the last refuges of endangered native flora and fauna species of northwestern Ecuador, such as the spotted cat (*Leopardus tigrinus*), porcupine (*Coendu quichua*), and pacarana (*Dinomys branickii*), among others. Due to logging and the conversion of natural forests to agriculture and pasture for livestock, the landscape has become fragmented.

This project has two phases. The first one began in 1999 and was completed in July of 2001. During this period, I recorded 616 bear signs, 250 of which consisted of hair samples. Analysis of these samples demonstrated a low index of genetic variability of the bear population in Ecuador ($H = 0.27$). In 143 feces samples found, 39.8% of them contained only a bamboo species locally called suro, *Chusquea* spp, and 13.2% were a mixture of suro and fruits. Suro is available all year and appears to be the bear's main food resource in the region. Among 137 marked trees, 45% were on a type of cedar, *Brunelia* sp. Their bark was almost completely stripped off, which could cause them to fall down prematurely, opening clearings, and thus promoting the natural regeneration of the forest. I found 63 feeding signs, 74% of them were suro and 22% remains of bromeliads. It is possible that bromeliads are the second source of fiber in the Andean bear's diet, after suro. Ten (10) nests on the ground and three (3) tree nests were found. They may be related to feeding behavior, physical wellbeing, and places of vigilance (guarding post). Finally, I directly observed bears four (4) times in the forest and in cornfields, and they did not make any attempt to attack me, confirming the timid and elusive behavior of this species. I have written some articles about these signs.

The second phase of the research began in the September 2001. The goal is to determine the habitat use and home range of the Andean bear, in order to propose conservation and management alternatives for the bear population in the Intag region. Between this date and May 2003, six (6) wild Andean bears were captured and radio-collared (2 males and 4 females), named 'Ezequiel', 'Panchito', 'Marjory', 'Porraca', 'Dolores' and 'Amanda', respectively. They were captured in 'Iznachi' traps, designed by myself, and baited with cow feet. The time needed for trapping was extensive because of the lack of funding and personnel to monitor the traps. In March 2002, I lost contact with a sub-adult female, 'Marjory' because the battery in her collar was drained. In October 2003, a second radiocollared adult bear 'Ezequiel', was lost because he removed his radio-collar. He was able to do so because the cotton-polyester spacer disintegrated

prematurely. For this reason, I do not recommend the use of spacers in future captures of adult male bears.

Radio-tracking male bears is more difficult than tracking the females because they travel long distances over rough terrain in a short time. To track males on foot in the same way that the females are tracked is virtually impossible. For this reason, I used a motorcycle to travel more quickly. However, there are inaccessible places in the region where the signal is lost easily. In order to avoid losing effort and valuable information we would like to use GPS collars for male bears.

Preliminary home range calculations, using 95% minimum convex polygon estimate, show average home ranges of 66,62 km² for males (n=2) and 14,37 km² for females (n=4). Females have well defined, stable and overlapping home ranges. Males use some movement corridors, especially along ravines. Habitat use results are not yet available since we require a high resolution satellite image to complement data analysis, and our funds are insufficient to purchase such an image.

In March 2004, we captured two (2) additional adult male bears, named "Jaime" and "Juanito". Currently we are radio tracking six (6) bears with the help of volunteers with the NGO Fundación Espíritu del Bosque (FUNDEBO). During the corn season of 2004 (April through July), we hope to capture two more bears completing the capture of ten bears (2 lost and 8 tracking) in the Intag region. To prevent conflicts when the bears raid cornfields, we hope to initiate a damage compensation program, focused primarily on the poorest farmers.

As part of our partnership with local communities, we are supporting their desire to give the next generation a chance to escape poverty by sending volunteer teachers to three local schools. Communities have been overwhelmingly appreciative, the children are enthusiastic learners, and the volunteers have enjoyed warm welcomes. In addition to giving children an opportunity to learn and continue their education past the elementary level, this has also provided a secondary benefit to the bear research. Communities have become very supportive of our goals and are joining our efforts to prevent further deforestation of the area and help save this endangered species.

We hope to present further results of this project at the Sixteenth IBA International Conference, 2005.

This project would not be possible without the help of my field assistants Gustavo Tapia, Alberto Tabango and over 20 FUNDEBO volunteers. My field research has received financial support from the Wildlife Conservation Society-Ecuador, International Association for Bear Research and Management (IBA) and volunteers.