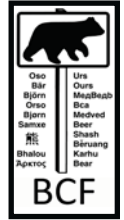


# Biological Research

## Community Engagement and Training Are Keys to Successful Landscape-scale Andean Bear Camera-trap Study



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As part of an IBA R&CG cosponsored project, research biologists from the New York Cooperative Fish and Wildlife Research Unit at Cornell University, US Geological Survey (USGS), Wildlife Conservation Society (WCS), and Consortium for Sustainable Development of the Andean Ecoregion (CONDESAN) conducted a 5-day workshop in northern Ecuador to train residents from local communities and regional biologists. The purpose of the workshop was to train participants as field technicians to implement a landscape-scale camera-trap study of Andean bears (*Tremarctos ornatus*). The specific objectives of the workshop were to promote conservation education, enhance local capacity and conservation skill sets, and ensure quality and consistency in data collected during the study.

The workshop was held in July 2016 at a community-based tourism facility in Yunguilla, Ecuador, where participants stayed in the homes of local families high in the cloud forests of the northern Andes Mountains. Future technicians participated in classroom units on Andean bear ecology, orienteering, camera trap operation, capture-recapture methods and study design, and data collection standards. There were also hands-on training sessions with equipment including practical exercises familiarizing participants with maps, compasses, and GPS units to be used during the project, and 3 field days where we began implementing the study and installing camera trap stations as a group to enforce consistency in methods.

The workshop was essential to the success of the study in many ways. The general design of the study was intended to collect spatial capture-recapture data over a large extent (875 km<sup>2</sup>), requiring both coarse spacing to allow adequate coverage of the area, but also smaller spacing to allow for multiple detections of individuals across space as the bears move through different habitats. However, because of the landscape-scale approach and the rugged terrain, it was not possible to efficiently sample such a large area with a small traditional field team rotating through camera checks across all sites. Instead, we initiated a local community site approach, overlaying the study area with a coarse grid and identifying local residents and communities interested in taking responsibility for the camera stations within each grid cell. Because workshop participants possessed excellent knowledge of the areas they were assigned, they were able to help collaborators to refine the general study design, identifying best places to macro-site general camera station locations based on geography, trail access, and relationships with landowners. In addition, this approach allowed the trained technicians to take ownership of the camera stations they established and checked, increasing personal and community investment in the success of the study. The workshop also allowed for local technicians to establish bonds with each other and with collaborators and broadened many personal experiences. Although all participants live in the study area, most had never seen many of the other regions. From a view point north of Yunguilla, in the center of the study area, participants concluded the last field day taking in the beauty and expanse of the study area and proudly pointing out the different areas where cameras would be placed, demonstrating not only their commitment to the project, but also to each other as a collective team with a common goal. The success of the workshop provides a model for future studies as researchers tackle increasingly important questions at the appropriate landscape-scale.



Dana Morin



Galo Zapata-Rios

(left) Instructor Dana Morin (Cornell University) and technician Diana Sulca (Cambugan) work on an assignment during a hands-on, practical lab on cartography and orienteering at the training workshop, July 2016, Yunguilla, Ecuador. (right) Diana Paredes (Wildlife Conservation Society) teaches Galindo Parra and Raul Torres (Yunguilla) to input waypoints in their GPS.