



**2017 SMITHSONIAN COURSE
MANAGEMENT, REHABILITATION AND CONSERVATION OF ANDEAN BEAR
Historic Sanctuary of Picchu, Aguas Calientes, Perú
20-23 of March 2017**

Coordinators and Instructors:

**Jose Purisaca, Lucero Dongo, Carmen Soto
Inka Terra Association**

**Representative of Historic Sanctuary of Picchu
Servicio Nacional de Áreas Naturales Protegidas, Peru**

**Francisco Dallmeier, Craig Saffoe, Don Neiffer, Erin Kendrick, Sara Colandrea
Smithsonian National Zoo and Conservation Biology Institute**

Introduction

The Andean Bear is endemic to the Tropical Andes and is the only extant species of bear in South America. The Andean bear population is predicted by IUCN to decline by more than 30% within a 30-year window. Habitat loss continues at a rate of 2-4% per year, and the level of exploitation is thought to be high in many portions of the range. Andean bears are omnivores, feeding mainly on vegetative material such as fruits and succulent plants, and occasionally meat. Activity patterns range from strictly diurnal for wild bears in Bolivia to mixed diurnal and nocturnal for reintroduced bears in Ecuador. Information on reproduction in this species is limited. Management plans to reduce bear-human conflicts have been developed in several countries together with monitoring programs. Andean bears are listed on Appendix I of CITES and are protected through national legislation in each range country.

The Machu Picchu Historic Sanctuary (SMH) is Peru's most visited natural protected area. Declared a Natural and Cultural Heritage to Humanity, the sanctuary protects archaeological complexes, as well as biodiverse ecosystems and many species of conservation concern such as the Andean bear. The SHM is located in Machu Picchu district, Urubamba province, Cusco department. It stretches over an area of 32,592 hectares (80,537 acres), with impressive Inca archaeological complexes, sites, monuments and an incredible cloud forest. In addition to being a protected area, the Machu Picchu the natural and archeological complex was declared a Mixed World Heritage (natural and cultural) by UNESCO in 1983. Machu Picchu is considered as one of the new 7 Wonders of the Modern World. The Inka Terra Association (ITA) and the Servicio Nacional de Areas Naturales Protegidas (SERNANP), manage the INKATERRA Machu Picchu Spectacled Bear Project. This is an effort designed to recover bears that have been affected by human impact and reintroduce them into the natural habitat.

The overarching goal of this second workshop on Andean bear management and conservation is to bring together staff from organizations in Peru that are responsible for managing captive Andean bears

and rescue programs for the purpose of building relationships through the exchange of knowledge, experience, and expertise.

Schedule

The schedule of activities is subject to change to adapt to weather conditions and animal needs.

We welcome workshop participants to give 15-minute presentations on their Andean bear work as information and learning for all workshop participants.

Instructors: Sara Colandrea, Francisco Dallmeier, Erin Kendrick, Miluska Machicado Figueroa, Don Neiffer Craig Saffoe, Carmen Soto, Inkaterra Andean bear keepers

Sunday 3/19/2017

- Afternoon arrival of participants to Aguas Calientes, Peru
- Before dinner meeting with all participants and instructors for introductions and to provide summary and expectations for workshop

Monday 3/20/2017

Day Objectives:

- Overview of operant conditioning and Andean Bear animal training laboratory
- Evaluation of Captivity Enclosure Design and Utilization and Captive Propagation
- Overview of Andean Bear nutrition, feeding strategies, and enrichment
- Proper use for dart handling, loading, and delivery laboratory
- Review of plan for upcoming anesthetic laboratory with one of the captive Andean bears
- Participants 2-4 presentations

Introduction. Positive reinforcement training has been proven to improve animal welfare while decreasing risk to staff and animals during a variety of husbandry and medical procedures. This workshop will introduce participants to using this amazing tool. Participants will meet at the “captivity” enclosures located adjacent to main lodging area for Inkaterra Machu Picchu Pueblo Hotel. The session will start with a demonstration of the use of operant training techniques on one of the bears housed at the facility. The class will receive information regarding the “hows” and “whys” of training and a few volunteers will be asked to assist with demonstrating training techniques. Following this demonstration, the class will take part in a “walking” evaluation of the two “captivity” enclosures during which time discussions will take place regarding recommended changes to the existing design with a focus on maximizing flexibility for husbandry, medical, and breeding purposes. Where breeding is concerned, recommendations on how to utilize these enclosures once design changes are implemented will also be discussed. Following this portion of the laboratory, participants will return to the classroom for further instruction on operant training including hands-on introduction to some of the common training tools.

6:45 –7:00 AM. Participants assemble at Inkaterra conference room

7:00 AM. Participants and instructors depart for bear captivity facilities

7:15 – 8:00 AM. Demonstration of operant training techniques with two bears in captivity areas

8:00 – 9:00 AM. Walking evaluation of the two captivity enclosures during which time discussions will take place regarding recommended changes to the existing enclosures with a focus on maximizing flexibility for husbandry, medical procedures, and breeding. Captive breeding techniques discussion.

9:00 – 9:45 AM. Break

9:45 – 10:45 AM. In depth discussion on captive breeding techniques that have led to multiple successful copulations and subsequent births at the Smithsonian's National Zoo.

10:45 AM – Noon. Developing an appropriate training routine for desired behaviors: equipment and techniques.

Noon – 1:15 PM – Lunch

Introduction. Proper nutrition is a cornerstone of a sound preventive health program, both for the welfare of the individual animal as well as the success of any captive breeding program. During this portion of the workshop participants will receive both general guidelines on an approach to animal nutrition as well as specific recommendations for Andean bears with a consideration for the food items and nutrients available for use in the region. In addition to a balanced diet that meets the energy needs of the bears, presentation is extremely important. Instructors for this section of the workshop will provide examples on how to foster foraging behavior and utilize food as enrichment, which benefits both the physical and psychological health of the bears. Using food for training purposes will also be discussed. After a short break participants will take part in a hands-on demonstration of dart loading and safe darting and gun handling practices. This practicum will be followed by a discussion on the anesthetic event planned for the next morning so that all staff and participants are aware of what is expected. If time allows, an open question and answer period will take place whereby participants can discuss breeding recommendations or any of the other topics covered previously.

1:30 – 2:30 PM. Nutrition Lecture by Erin Kendrick: feeding strategies, diet review and design, including training, medical vector, and enrichment foods. Specifics on Ursid nutrition and recognizing time limitations. What we know about Andean bear diet in the wild and its translation to a captive diet. Inkaterra diet analysis overview.

2:30 – 3:30 PM. Body Condition Scoring (BCS) lecture by Erin Kendrick. Theory behind BCS application and utility and limitations in a captive setting with exotics species, apply principles to multiple species as examples, discuss Ursid scoring specifically.

3:30 – 3:45 PM – Break

3:45 – 4:15 PM – Overview of immobilization procedure planned for Wednesday.

4:15 – 5:30 PM – Lab dart preparation and darting laboratory

Tuesday 3/21/2017

Day Objectives:

- To conduct Andean Bear Immobilization, examination, and handling laboratory
- To conduct a “train the trainer” behavioral lab using cuys
- Participants 2-4 presentations

Introduction. Full immobilization of Andean bears may be necessary for the purpose of addressing injury or disease concerns, routine health assessment, or reproductive evaluation. In addition, transporting bears to and from the wild (rehabilitation bears, human/agricultural conflict bears), between locations within a facility, or between partner facilities often requires immobilization for both logistical and safety considerations. In this laboratory participants will observe and assist with immobilization of one of the captive Andean bears. Best practices in terms of animal handling, monitoring, and sample collection will be discussed and demonstrated. Prior to anesthetizing the animal, job responsibilities will be assigned to staff as well as a portion of the participants. For safety reasons, many of the participants will need to observe from outside of the enclosure. However, an attempt will be made to rotate all participants into the enclosure during a portion of the examination. In addition to a full veterinary assessment of the bear, body condition assessment will be performed with the technique demonstrated to participants. Depending on the duration of the procedure and the depth of anesthesia obtained, palpation and body scoring of the bear may be performed by interested participants. During recover of the bear the group will be able to quietly discuss the procedure and field questions.

6:45 – 7:00 AM. Participants assemble at Inkaterra conference room

7:00 AM. Participants and instructors depart for captivity area

7:30 – 8:30 AM. Anesthesia Induction and Assignment of Roles and Responsibilities. Overview and re-affirmation of safety protocols, concerns and expected actions.

8:30 – 10:30 AM. Physical examination, diagnostic sampling, weighing, body score assessment, and transport/manipulation exercises on anesthetized bear. Where deemed safe and logistically possible, participants will assist with procedure.

10:30 AM – Noon. Anesthetic’s recovery period for Andean bears and open discussion on procedure.

2:00 – 4:00 PM. Instructors would like to conduct a “train the trainer” lab using cuy raised on property. This lab would involve each student being assigned an individual cuy to work with. Participants will attempt basic training techniques on previously untrained cuy in an attempt to elicit a response from the animals. Instructors will walk amongst the participants giving guidance and advice on how individual students can strengthen their training skills.

4:00 – 5:30 PM. Participants will be given an introductory look at the large semi-freedom/captivity enclosure. Instructors will conduct a brief preliminary discussion about how this enclosure is currently used. This is a lead in discussion to the bigger discussion scheduled for tomorrow.

5:30 PM. Walk back to Inkaterra; Participants presentations.

Wednesday 3/22/2017

Day Objectives:

- To have an overview of the Machu Pichu Sanctuary and the challenges and opportunities of Andean bear conservation in the region
- To assess and discuss best practices for large semi- freedom/captivity enclosures for successful management and potential re-introductions of Andean bears
- To discuss camera trapping techniques for Andean bear monitoring
- Participants presentations if time allows

6:00 – 10:00 AM. Individual tours to the Machu Pichu Sanctuary.

10:30 AM. Participants will take part in a “walking” evaluation of the large semi-captivity enclosure during which time discussions will take place regarding recommended changes to the existing design with a focus on maximizing flexibility for husbandry, medical, and breeding purposes, and re-introduction efforts. Potential use of the area as a seasonal breeding pen for wild bears that visit the facility and for pre-release conditioning, particularly of captive born cubs, will also be covered.

12:30 PM noon – Lunch

2:00 – 4:00 PM Discussion and demonstration on deployment of camera trap technology where both the semi-captive bears and free ranging bears are concerned.

Open forum discussion for participants who will depart on Thursday morning.

Mid-afternoon departure of participants from Aguas Calientes

Thursday 3/23/2017

Early departure of Instructors and rest of participants

Coordinators and Instructors

Jose Purisaca. General Manager at Inka Terra Association. Biologist from San Marcos University and has been committed to biodiversity conservation since 1980. He joined the INKATERRA group in 1991 and founded ITA (Inkaterra Association) in 2001 along with Mr. Jose Koechlin. Jose has extensive experience in ecotourism and has collaborated on projects with World Bank, United Nations and National Geographic Society.

Carmen Soto. Coordinator at Inka Terra Association in Machu Picchu Pueblo. Carmen has a bachelor's degree in Biology at San Antonio Abad del Cusco University, with studies in Ecology and Natural Resources. She is committed to the conservation of biodiversity since 1997. Carmen is currently a member of International Union for Conservation of Nature and Natural Resources (IUCN) and of the Committee of Management of the Historic Sanctuary of Machu Picchu.

Lucero Dongo, Volunteering and Community Development Coordinator at Inka Terra Association. Graduated in Tourism and Hospitality, has experience in management, organization and fieldwork, she aims to develop projects and events of social development and environmental education, also encourage the participation of researchers, students and volunteers who wish to collaborate and share the objectives of the institution.

Miluska Machicado Figueroa. Veterinarian in charge of the Andean Bears Conservation Area, graduated from Universidad Nacional del Altiplano. Miluska is specialized in Small Animal Clinic and Wildlife. She contributes with her experience and medical knowledge taking care of captive and semi-freedom Andean Bears at Machu Picchu.

Francisco Dallmeier, Director, Smithsonian Conservation Biology Institute's Center for Conservation and Sustainability. Dr. Dallmeier oversees research and conservation approaches for sustainable development and world-class professional and academic programs for conservation practitioners. Dallmeier has led dozens of national and international programs in wildlife and natural resources conservation and management worldwide and with a strong focus in Peru.

Craig Saffoe, Curator, Large Carnivores, Smithsonian National Zoological Park. Craig has been working with large carnivores (including Andean bears) at the Smithsonian's National Zoo for 22 years. In that time he has managed more than a dozen species of carnivores and lead teams in successfully breeding and producing several litters of offspring – including three litters of Andean bears. Craig has been an active instructor for zoo professionals on the topics of captive husbandry techniques, breeding management, exhibit design and safety for the past 11 years.

Don Neiffer, Chief Veterinarian, Wildlife Health Sciences, Smithsonian National Zoological Park. Dr. Neiffer oversees the clinical and pathology programs at the National zoo as they relate to the captive collection and free-ranging populations. Boarded in zoological medicine and trained in the One Health approach to problem solving, Neiffer has been involved with in-situ programs across a wide range of taxa in many countries including several in Latin America (Argentina, Chile, Mexico, and Peru).

Sara Colandrea, Animal Keeper at the Smithsonian National Zoological Park. Sara has worked at the Smithsonian's National Zoo for the past 7 years and has helped to train a wide variety of species. She is currently the lead keeper for Andean Bears and is working on two research projects with Andean bears that will hopefully provide groundbreaking insight into their reproduction and management.

Erin Kendrick, Clinical Nutritionist, Smithsonian National Zoological Park. Erin has been working in the zoo nutrition field for 10 years, starting at Saint Louis Zoo as a consultant for multiple American zoological parks. Currently, she is responsible for the nutrition management of the animal collection located at the National Zoo's Washington DC campus, including but not limited to review and formulation of all diets, assessment of nutritional status and body condition, cooperation with curatorial and veterinary staff on nutritionally-related clinical cases, conducting and supporting institutional research projects, and serving as an educator for public and professional groups.

Weather:

When traveling to the Peruvian Andes, expect frequent rain between November and March. Temperatures drop dramatically at night, thus one should always prepare warm clothes or jackets.