

CHAPTER 13

Finding Enrico: Protecting Andean Bears and their Habitat

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Packed with food for a week, tent, sleeping bags, and telemetry equipment, accompanied by a local guide named Alberto, two volunteers left the small village of Pucará in search of one of Ecuador's most elusive species, the Andean (or spectacled) bear. For more than five days, they had not received a radio signal from Enrico, one of six collared bears monitored by the Andean Bear Foundation (ABF). He could be anywhere within his estimated home range of 150 square kilometers (60 sq. m.) (Castellanos, "Andean Bear Project" 36). In search of Enrico's signal, the three weary walkers traipsed farther and farther into the cloud forest, a subtropical evergreen forest where fog usually sits down on the tops of trees and moss blankets the landscape. In this remote, high-altitude landscape, humans are limited to foot travel, aided only by machetes.

They were headed up to the *paramo* (high altitude grasslands). Camping at nearly 4,000 meters (13,000 ft.) would allow them to scan for radio signals in the finger-like valleys that spread out from every peak in the Andes, providing a better chance of catching Enrico's signal. The innumerable nooks, almost vertical mountainsides, and deep river basins of the cloud forest—all wrapped in a constant layer of mist—are an ideal home for Andean bears. Terrestrial radio telemetry is extremely challenging in this area, due to the complex topography, including very high altitudes and dense vegetation (Castellanos, "Andean Bear Home" 65). Signals often disappear into the forests and caverns, sometimes for weeks at a time, making research difficult, and demanding solid feet on the ground to manually collect data (Castellanos, "Andean Bear Home" 70).

As the two volunteers and their guide sweated and strained their way up the trail towards the open grasslands, they watched for claw marks on trees or scat along the trail, hoping for any sign of Enrico. They anxiously awaited the *paramo*, hopeful that they might hear the steady "Beep-Beep-Beep" of Enrico's collar.

Andean Bears and their Habitat

Andean bears are remarkably adaptable, at home in a damp cloud forest, dry desert lands, and high altitude grassland, they live throughout the Andes,

which run from Venezuela through Colombia, Ecuador, Peru, and Bolivia to northern Argentina (Castellanos, *Guía* 1). Because this bear's habitat reaches across political boundaries, the Andean bear is dependent on coordination and teamwork for survival.

Andean bears are easily identified by their spectacle-like markings—cream or brown areas around the muzzle and eyes that sometimes run down onto the chest. These markings vary widely and are unique to each individual—some have no markings whatsoever. Evolutionarily distinct, they are the last of the world's short-nosed bears—no other living bear species shares the Andean bear's characteristically short muzzle. Their closest relative was the giant short nosed bear (*Arctodus simus*), who went extinct approximately 12,000 years ago. The Andean bear is the only bear native to South America (Castellanos, *Guía* 2).

Though classed as carnivores, these bears are omnivorous and opportunistic, and in reality are largely vegetarian. In the Intag region of Ecuador (20,000 hectares outside the 204,429 hectare Cotacachi-Cayapas Ecological Reserve) and on the western slopes of the volcano, Cotacachi, scat analysis reveals that one particular bamboo species (locally called *suro*, *Chusquea spp.*) serves as this bear's primary food source. Bromeliads and various forest fruits are important for bears living in the cloud forest, and bears throughout their habitat unearth beetles, worms, insects, and very occasionally, small mammals (Castellanos, "Andean Bear Research" 25). They also love carrion.

Ecuador's wild lands are one of the most biologically diverse areas of the world—home to a whopping 16,000 plant species, 15 percent of the world's bird species, 6,000 butterfly species, and 138 endemic amphibians, and are one of the last refuges for species such as the ocelot (*Leopardus tigrinus*), Quichuan porcupine (*Coendou quichua*), pacarana (*Dinomys branickii*), cock of the rock (*Rupicola peruvianus*), laminated toucan (*Andigena laminirostris*), toucan barbet (*Semnornis ramphastinus*), and Andean bears (*Tremarctos ornatus*) (Castellanos, "Andean Bear Home" 66). Habitats in Ecuador range from the rocky landscape of the Galapagos Islands through dry desert regions to the cloud covered, high-altitude mountains of the Andes. The high mountains, blanketed with forests and dotted with active volcanos, stretch eastward into some of the earth's most biologically diverse valleys, where massive rivers snake their way out toward the rich Amazon basin.

Ecuador, along with other South and Central American nations, is losing both forests and bears. Yet Andean bears are fundamental to healthy forest ecosystems. For example, Andean bears tear the bark from specific trees, eventually killing these trees, creating clearings throughout otherwise dense rainforests. This allows light to reach the forest floor, promotes seed germination, and encourages the growth of smaller trees (Castellanos, *Guía* 5). In addition,

as avid fruit-eaters and long-distance travelers, Andean bears “plant” fruit seeds throughout their habitat.

Threats

Despite their ecological importance, the Andean bear is one of the least studied in the *Ursidae* family (Castellanos, “Preliminary Results” 60). Furthermore, Andean bears are listed as vulnerable to extinction on the International Union for Conservation of Nature (IUCN) Red List (“*Tremarctos*”). Fewer than 20,000 Andean bears grace their natural habitat. Their greatest threats include habitat loss and fragmentation (which heightens human-bear conflicts, leading to yet more bear deaths), and illegal trade in bear body parts.

Habitat Loss and Fragmentation

Since the 1960s, thousands of acres of native forests in the Western Andes have been logged, leaving less than 8 percent of original forests, greatly diminishing bear habitat (Castellanos, “Andean Bear Home” 66). The primary reason that rainforests are logged is to graze cattle, or to plant crops to feed cattle. For example, more than 70 percent of the Amazon’s rainforests have been mowed down on behalf of animal agriculture (Oppenlander 22). New lands are plowed in Latin American countries largely for feed crops, “notably soybeans and maize” (*Livestock’s* 12). Soy and corn, for example, is planted where rainforests recently grew, and 80 percent of all soy is fed to farmed animals (Oppenlander 23). Those who accuse vegetarians and vegans of destroying forests miss a vital point: Soybeans are raised largely as a feed crop for farmed animals, implicating those who eat cheese and chicken, not those who eat tofu.

Visiting the Andes, it is impossible to ignore the vast swaths of logged land, now riddled with new roads (Castellanos, “Andean Bear Research” 25). In the Andes, deforestation rates between 2000 and 2008 were 0.63 percent (“Estimación” 1). With ever-increasing human populations, and our endless array of livelihoods—agriculture, mining, and oil extraction—less and less land remains for bears. Making matters worse, lands in this region are developed with limited or no oversight, leading to yet more deforestation and fragmentation. If this continues—and there is no indication that we are planning any change—Ecuador will lose half of its forests in just 75 years.

Isolated pockets of intact forest cannot maintain a wide-ranging, thinly dispersed species such as the Andean bear—isolation leads to inbreeding and disease. Consequently, protected areas are essential. In 2008, 19 percent of Ecuador’s land was protected, including 11 national parks, 10 wildlife refuges,

and 9 ecological reserves, but these protected lands include only a fraction of remaining Andean bear habitat, and are still vulnerable to poaching (Ministerio del Ambiente). For this reason, research conducted by the Andean Bear Foundation focuses on bear distribution and habitat use, with the hope of focusing conservation efforts in areas where there are more Andean bears.

Poaching

Poaching “is a serious threat” to Andean bear populations (“*Tremarctos*”). Ecuador’s adult bears are gunned down at an estimated rate of 70–120 bears annually, and this figure does not include cubs who are killed along with their mothers (or taken to be sold as pets, removing them from wild populations) (*Status* 180).

Local Farmers

When maize and pastures replace bamboo and bromeliads, human-bear conflicts are inevitable. Poaching is well documented across Andean bear range and “usually occurs when bears frequent either cornfields or grazing pastures” (*Status* 165). Across the Andean bear’s range, “agricultural activities are reducing suitable habitats and forcing bears to predate crops, such as corn, to survive” (*Status* 180). Making matters worse, maize is “not tended on a daily basis,” and is increasingly planted “in distant forest plots, away from the dwelling and protection of the gardener” (*Status* 177). It is therefore not surprising that “maize gardens are frequently and severely predated by bears,” creating economic hardship for poor farmers eking out a living on the edges forested lands (*Status* 177). As a result, many farmers have come to see the spectacled bear “as a pest,” and they are likely to shoot bears on sight (*Status* 180).

Bears are also “blamed for any cow killed or lost. Soon after a carcass is found, small hunting groups (2–3 people) are organized to go after any bears present. There are few accounts of people actually seeing a bear taking a cow” (*Status* 165). Despite this lack of concrete evidence, and despite this bear’s natural diet of greens, fruits, and carrion, bears continue to be blamed for killing any cattle found dead—and are immediately targeted for execution. It is disconcerting that, in the Cosanga region (northeast Ecuador), fifty-five “bear attacks” on cattle were reported between 2000 and 2002. (Three blameless bears were killed before the targeted bear was shot.) Similarly, the Northeastern Chaco region of Ecuador reported 17 cattle deaths that they blamed on bears in 2007, and in Ecuador’s northern Andes, 87 have been blamed since November 2009. (At least two innocent bears were killed in the northern Andes.) Although complaints usually revolve around cattle, bears have also been accused of killing sheep, horses, and donkeys (Castellanos, Laguna, and Clifford 17). It is likely

that bears—opportunistic scavengers who love carrion—are attracted to and feed on carcasses, and are thereby accused of killing cattle who are long dead. Additionally, bears are likely to return to finish off a carcass, giving farmers the impression that they have returned to predate cattle.

Part of ABF's mission is to work with local communities in order to help provide long term solutions to human-bear conflicts—real or imagined—as well as to explain the ecological importance of the Andean bear, and the ineffectiveness of killing bears to protect investments. ABF also suggests alternative solutions, most notably a change in where herds are fed and where crops are planted, and a change in how both are managed (Castellanos, Laguna, and Clifford 17). For example, trained dogs can protect herds and crops, or ranchers might switch to Brahman cattle—a breed on which no attacks have been reported (Castellanos, Laguna, and Clifford 18). Identifying and protecting the Andean bear's primary sources of sustenance—local plants—is a critical long-term solution, but requires more data to know what these food are, as well as documentation demonstrating a correlation between scarcity of wild forage and reported crop raids (Castellanos, Laguna, and Clifford 17). Once this information is collected, reforestation plans can strive to enhance fruiting trees and plants favored by bears.

While these suggestions, if implemented, are likely to help minimize human-bear conflicts, underlying causes remain—ongoing human expansion into and destruction of bear habitat. For those of us living in Europe and North America, we can help Andean bears (and ourselves) by choosing a plant based diet, which leaves forests where they belong instead of bringing cattle and soy to the area, and protecting South and Central America's wildlife habitat.

Illegal Trade in Bears and Bear Parts

Logging and subsequent settlements bring roads into habitat that was previously virtually impenetrable, providing access for poachers. Poachers hunt bears for various reasons, including profit: They sell bear body parts and/or cubs. "Although hunting is prohibited, bear parts are openly sold in rural markets" at least in some areas of Ecuador (*Status* 180). Some locals buy bear parts because they believe that these body parts have healing properties: "Bear fat is used to heal bruises and broken bones. The meat and baculi are used to enhance health and vigor" (*Status* 180). Other bear parts, such as skulls, claws, and hides are sometimes also sold in local markets (*Status* 180).

Due to a growing international market for bear gallbladders (used for traditional Chinese medicines), Andean bear body parts are also sold abroad, posing a major threat to bears (*Status* 173). In Ecuador, "farmers living adjacent to Cotacachi–Cayapas and Cayambe–Coca reported that Asian merchants

offered economic rewards for bear gallbladders. ... In December 1992, a Korean offered farmers US \$150 (five times the minimum monthly salary) for a bear gallbladder and US \$10–15 for each paw" (*Status* 190). With so much money at stake, it is increasingly difficult to protect South American bears.

The Andean Bear Foundation

The Andean Bear Foundation (ABF), founded in 2005 by Ecuadorian biologist Armando Castellanos, has brought international attention to Andean bears. ABF's purpose is three-fold:

- research (with intent to learn more about this relatively unknown species),
- rehabilitate and release captive bears, and
- raise local and international awareness regarding the ecological importance and plight of Andean bears through education and outreach (Castellanos, *Andean*).

Research

ABF sends volunteers out in the field with guides to collect data. Research at ABF focuses on bear activity patterns and home ranges (via radio and satellite telemetry). Between 2001 and 2006, researchers and international volunteers captured, radio collared, and released twelve Andean bears (six females and six males) (Castellanos, "Andean Bear Project" 36). Like Alberto and the two volunteers traipsing through the Andes with backpacks and tracking equipment in search of Enrico, many volunteers help to record information from collared bears collected at specific sites at regular intervals.

Preliminary results suggest an average home range of 150 km² (58 sq.m.) for males and 34 km² (13 sq.m.) for females (Castellanos, "Andean Bear Project" 36). Females have well-defined, stable, but overlapping home ranges, often with multiple females in a particular valley, while males travel long distances to maximize mating potential. Tracking studies indicate that the highest levels of activity are early mornings and late evenings (Castellanos, "Andean Bear Project" 36). ABF keeps a close eye on any change in bear behavior that seems related to human encroachment, focusing research efforts on areas with high incidences of human-bear conflicts.

Rehabilitation and Release

Among volunteers, rehabilitation and release are likely the most popular ABF task. Those lucky enough to work in rehabilitation and release have the opportunity to work directly with Andean bears.

Bubu was the sixteenth bear to be rehabilitated and released by ABF. Orphaned as a cub, he was rescued and sent to a zoo in Ecuador until funds could be raised for rehabilitation and release. Once transferred to ABF, he was placed in a remote sanctuary in Cotopaxi National Park, 120 km (75 miles) outside Quito, where human contact would be minimal. Special permission was required to travel through the park gate and onward, where roads disappeared amid vast grasslands, and the snowy volcano, Cotopaxi, loomed above. White painted stones, the only road markers, led the way to Yanahurco, a 26,000 hectare (approx. 60,000 acre) private hacienda (estate), where Bubu would be rehabilitated for release.

Keepers offered enrichment activities to teach Bubu how to survive on bamboo (*Suro*), bromeliads, forest berries, and worms. To a trained eye, it was clear that Bubu would thrive in the wild. He responded readily, keeping the ABF team on their toes in search of new, creative ways to imitate foraging in the wild in order to challenge this smart bear. Keepers hung and buried food around his enclosure, and hauled in full-sized bromeliads in the hope of teaching Bubu the work necessary to extract the plant's soft center. They also fed Bubu extra—he needed to gain weight before release, providing a cushion against any rough aspects of the transition from captivity to wildlands. Finally, the ABF rehabilitation and release team began to locate some method by which to transport Bubu to the far reaches of Llanganates National Park for release. This final objective proved the hardest.

ABF worked for almost a year to secure transport for Bubu. Fueled by petitions from the international community, ABF ultimately engaged the Army of Ecuador to transport Bubu—a helicopter would be perfect. Due to unpredictable weather, the necessity of a remote release, and Bubu's size, only a few helicopters could handle the mission. When transport was finally secured, and weather was favorable, a helicopter carried Bubu to Llanganates National Park, one of only a few parks in Ecuador where he would have limited human contact. While heartbreaking to watch this vibrant bear disappear into the forests of Llanganates, every bear counts. Releasing Bubu back into his native habitat was the ultimate success for all who hope to save South America's Andean bears, for all who work with ABF—and for Bubu.

Education and Outreach

ABF recruits volunteer artists to paint murals in rural communities, and sends staff into the field to work with villagers, seeking to inform locals and mitigate human-bear conflicts. When a village in Northern Ecuador blamed bears for 25 cattle deaths in the course of a single year, ABF sprang into action.

Tensions were high when ABF staff arrived on the scene, but ABF ran a three part educational series for five communities in the area, including classes

catering to the needs of youth and classes designed for adults. Classes highlighted likely reasons for human-bear conflicts, and possible solutions. ABF suggested that villagers rethink pasture locations—especially new pastures. For example, vulnerability to bear attacks could be reduced by planning fewer (and/or eliminating) isolated, unmonitored fields, and by choosing not to place crops and farmed animals along forest borders. Proximity of forests and crops or grazing lands is a common denominator for most human-bear conflicts—most incidences are reported in fragmented bear habitat close to diminished forests. Additionally, farmers were encouraged to synchronize calving season with fruiting season to ensure an abundance of natural food sources for bears during a time when calves are most vulnerable. ABF also stressed the importance of immediately eliminating cattle carcasses in order to avoid attracting these opportunistic, carrion-loving scavengers (Castellanos, Laguna, and Clifford 17). Finally, by comparing the bear's diminished habitat with drought, ABF helped locals to empathize with Andean bears.

While on the job, volunteers also trek throughout remote regions of Ecuador on a daily basis, looking for bear signs and signals, activating and monitoring bear traps (set to catch and collar bears for research). Villagers meet volunteers on busses, or at the local market, and are amazed to learn that people travel from all over the world to work with and for Andean bears—a bear that lives around their villages but can be found on no other continent. Wherever they go, volunteers spread the message of ABF. Such encounters with foreigners tend to leave locals with a sense of national pride and heightened ecological interest. And of course ABF sends foreigners home with a much richer understanding of bears, and a strong commitment to their protection and preservation.

Tracking Enrico

Far from human civilization, three weary people climb from thick forests onto the windy *paramo*; one pauses to raise a telemetry antenna into the wind, slowly turning 360 degrees to scan for a signal. Each person tries to catch their breath while simultaneously struggling to hold silence, listening for a response from distant valleys. They gaze out over miles of rough grasses stretching down into forests—perfect bear habitat. Surely Enrico is out there somewhere?

Those working for ABF come to appreciate these shy, elusive forest residents, agile in the high forest canopy and able to find food even in desert regions. No price tag can be set on this fast diminishing species. Andean bears, ancient short-nosed bears—the last of their kind. Yet how can bears coexist with humans if we do not curb our population growth, and our tendency to sprawl

into surrounding wilderness? How can bears compete with modern guns and rich profits, whether profits from bear body parts or agriculture? If we care about the Andean bear, we must reduce our environmental footprint. Whether we live in Zurich or Quito, our lifestyle (especially what we choose to eat) affects wilderness and wildlife.

Where has Enrico gone? The three weary humans disappear into the stillness and quiet of the *paramo* as they listen hopefully for a response from Enrico in the remote river canyons below, that run outward in all directions. They can feel that deep fear, quiet inside them—fear that Enrico is gone and will never send a signal again. Will never climb trees or wade in a cool pool on a hot summer day, will never eat sweet fruits or have offspring. In the next moment the silence is broken. The monitor returns to life: Beep-Beep-Beep! The three tired travelers continue to hold their breath and listen—the only motion is the broad smiles that inadvertently spread between their rosy-red cheeks. Beep-Beep-Beep!

Somewhere in the distance, on the rugged slopes of the Andes, Enrico is quietly foraging through what remains of his habitat. ABF intends to do all that they can (and hopes you will join them) to ensure that Enrico—and his offspring—can always forage and foster cubs in remote, forested canyons, far from human homes, cattle, and guns.

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