Conserving high-elevation grasslands in Peru is key to protecting Andean bears

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Examples of foraging sign left by Andean bears on terrestrial bromeliads in Peru. Clockwise from the top right: (a) juvenile Andean bear consuming a bromeliad at a camera station inside MNP; (b) characteristic observation of a vegetative P. leptostachya foraged by Andean bear; (c) a close up of the basal meristematic tissue that Andean bears feed on. Credit: Pilfold et al., 2024, *PLOS ONE*, CC-BY 4.0 (creativecommons.org/licenses/by/4.0/)

Andean bears carefully select the best foraging locations and plants to

maximize nutrition and avoid livestock, according to a study published December 18, 2024, in *PLOS ONE* by Nicholas Pilfold at the San Diego Zoo Wildlife Alliance in California, U.S., and colleagues.

Andean bears, also known as "spectacled bears" because of the white markings encircling their eyes, are endemic to the Andes. They are listed as vulnerable by the IUCN and are threatened by habitat loss, climate change, and conflict with humans.

Flowering plants called bromeliads form a major part of their diet, but little is known about their foraging behavior and feeding preferences across the mixture of cloud forest and grassland habitats within their range.

Researchers conducted surveys of two species of bromeliad (Puya leptostachya and Puya membranacea) in high-altitude grasslands, called "puna," in and around Manu National Park in Peru. They recorded the location of each plant and whether there was evidence of consumption by Andean bears (Tremarctos ornatus), through observations of dug up, partially eaten stalks, a characteristic feeding sign of the bears.

Trail cameras confirmed that Andean bears were present at the survey locations. However, the surveys showed that the bears were foraging in just 16.7% of available bromeliad patches. Andean bears were more likely to forage for bromeliads in the dry season when there were young, tender plants available, which are likely easier for them to digest and more nutritious.

The bears preferred to eat P. leptostachya plants growing on east-facing, steep slopes of puna grassland at the forest's edge. They rarely foraged for bromeliads outside the national park, where livestock like cattle are grazed.

The results suggest that Andean bears actively seek out bromeliads in locations where they feel safe from human disturbance. Although the bears avoided areas with livestock, they foraged in locations that had been grazed by livestock only a few decades ago. This behavioral flexibility may help them to regain lost territory quickly with help from targeted conservation measures.

High-altitude grasslands bordering cloud forest are key habitats for Andean bears and conservation managers should consider how livestock impact this important ecosystem, the authors say.

The authors add, "Using the largest collection ever of field data on the feeding behavior of Andean bears in high elevation grasslands, we found that the bears actively selected for specific food resources within the grasslands, indicating that these areas are of nutritional importance to the bears.

"We also found Andean bears strongly avoided areas with livestock impacts to the grasslands, but that the cessation of livestock keeping restored the grasslands into areas Andean bears prefer within a short timeframe."

More information: Andean bears (Tremarctos ornatus) display selective behaviors while foraging bromeliads (Puya spp.) in high elevation puna grasslands, *PLOS ONE* (2024). DOI: 10.1371/journal.pone.0314547

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