

Spectacled bear conservation in Colombia: Collaboration across boundaries

By Rhianna Hohbein

Spectacled bears are South America's only bear species. They are endemic to high elevation zones across the northern Andes (Bolivia, Ecuador, Peru, Colombia, and Venezuela) where they reside in shrub ecosystems known as páramo and Andean cloud forest. Due primarily to habitat loss and increasing levels of human-bear conflict, the spectacled bear is considered by the International Union for the Conservation of Nature to be "vulnerable" to extinction. Undoubtedly, the successful conservation of this species will require the efforts of numerous agencies and organizations. In Colombia, their known range crosses the jurisdictional boundaries of 22 different "autonomous regional corporations"—the primary entities responsible for implementing conservation policy in the country.

These corporations have no mandate to coordinate their efforts with one another despite the extent to which they may share populations of spectacled bears across their jurisdictional boundaries. Fragmented management such as this can have negative effects on the abilities of the organizations to implement actions at the scales required. However, voluntary collaboration could help these organizations overcome the negative effects of fragmented management. My research investigated the degree to which these autonomous entities voluntarily coordinated their spectacled bear conservation efforts with one another, with Colombia's National Park Service (Parques Nacionales Naturales), and with nongovernmental organizations and whether these voluntary interactions accounted for probable spectacled bear movement across jurisdictions in the Colombian Andes.

Research Approach

This research required an interdisciplinary research approach and ultimately drew on methods from social network analysis, ethnography, and spatial analysis.

Social Network Analysis and Ethnography: I interviewed 70+ conservation practitioners across Colombia about their efforts to conserve the spectacled bear and their communication ties to other organizations and agencies. These data allowed me to 1) construct a "social network" which mapped the connections between and among the

Significance

- We constructed the first model of landscape connectivity for the spectacled bear in Colombia. This model can be a valuable decision-support tool for conservation practitioners working with scarce ecological data.
- Building and maintaining inter-institutional collaborations are time-intensive efforts. Our results help inform where cross-boundary coordination would be most beneficial for ensuring connectivity for spectacled bears across the Colombian Andes, allowing practitioners to be strategic with their networking.
- Our research highlights how nongovernmental organizations can play a pivotal role in improving communication among jurisdictional agencies.
- The outcomes of this research contribute to our understanding of which types of governance arrangements are most beneficial for achieving different conservation objectives. Much of the prior research on environmental governance has focused on the sustainable use of economically valuable renewable resources (such as timber and fisheries). Conversely, this case study focused on a threatened species entangled in issues of human-wildlife conflict and is thus a unique contribution to this literature and provides important insights for threatened species conservation.

most important agencies and organizations in Colombia working to conserve the species; and 2) better understand the context within which these organizations were working, including the challenges faced by conservation practitioners and the culture of collaboration in this community.

Spatial Analysis: I used current information about habitat preferences of spectacled bears to construct a model of landscape connectivity across the Colombian Andes. Landscape connectivity models such as this help delineate those areas in the landscape that are most conducive to movement for the species for which they are developed. Thus, I was able to use this model to identify where spectacled bears were most likely crossing the jurisdictional boundaries between the regional autonomous corporations.

Integrative Component: I overlaid the social network analysis with the model of landscape connectivity to identify whether cross-jurisdictional landscape connectivity was matched with inter-institutional communication.

Results

Very few of the autonomous regional corporations communicated or coordinated their efforts with one another, resulting in much of the predicted spectacled bear movement being unmatched by inter-institutional communication (see Figure 1). Interview data suggest that the lack of communication at these boundaries had several negative effects on the conservation of this species. Perhaps most notably, practitioners believed that complaints about spectacled bear depredation events (i.e., the killing of cattle) that occurred in these border zones were less likely to receive attention from either authority; a lack of institutional response was directly tied by interview respondents to an increased probability for spectacled bears to be killed in retaliation by locals. Challenges to collaboration were numerous; many practitioners believed that spectacled bear conservation was characterized by an unusual degree of competition and excessive “egos”. Connections between corporations were relatively rare; they were far more likely to coordinate their efforts with nongovernmental organizations or the Colombian National Park Service. These other entities frequently served as intermediaries between otherwise disconnected corporations in the social network, and thus increased the likelihood that information could flow between them. Nongovernmental organizations, in particular, seemed troubled by the lack of coordination between the corporations, and several were intentionally working to generate communication channels between these entities.

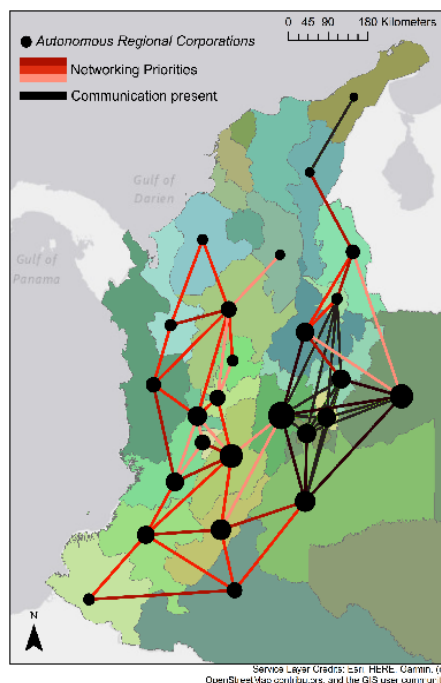


Figure 1. Depiction of the degree to which communication among the autonomous regional corporations matched probable Andean bear movement. Corporations connected by red lines shared habitat critical to Andean bear movement but did not communicate with one another about the species. Deeper shades of red indicate a higher priority for future networking based on shared Andean bear connectivity.

Conclusions

Colombia’s autonomous regional corporations infrequently coordinated their efforts for spectacled bear conservation with one another. In other words, the current environmental governance structure has not fostered the development of voluntary coordination among these state entities, leading to inconsistent and disjointed efforts across the spectacled bear range. My research suggests that nongovernmental organizations may be critical in encouraging greater communication and coordination among these agencies. However, the culture of competition within the spectacled bear conservation network (along with other challenges, such as overburdened staff) may likely continue to hinder collaborative efforts. Other incentives may need to be put into place to foster broader coordination. The Ministry of the Environment and Sustainable Development, the centralized agency responsible for developing national environmental policy, is likely the only authority in Colombia that would be capable of providing such incentives.

Acknowledgments

This research was funded by the National Geographic, the International Association for Bear Research and Management, the Graduate School at UGA, the Integrative Conservation PhD Program, and Warnell School of Forestry and Natural Resources.



Rhianna Hohbein is a PhD Candidate in Integrative Conservation and Forestry and Natural Resources at the University of Georgia. Her interests lie at the intersection of wildlife conservation and environmental governance. She can be reached at rrh32906@uga.edu.