PhD Dissertation
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Defense Date and Time: July 22, 2020, 1:00-4:00pm
Defense Location: WebEx
Title: ASSESSING THE DRIVERS AND IMPLICATIONS OF HUNTING PRESSURE IN AN INDIGENOUS AMAZONIAN COMMUNITY

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ABSTRACT

Unsustainable hunting is one of the biggest drivers of biodiversity loss in the Amazon Basin. Hunting is multifaceted and its effects are influenced by culture, economics, and the local ecosystem and environment. In this dissertation, we used a multidisciplinary approach to develop a thorough understanding of hunting in a Maijuna indigenous community in the northeastern Peruvian Amazon. First, we assessed the cultural and economic motivations for hunting and found that hunters consistently preferred to hunt the paca (*Cuniculus paca*) and collared peccary (*Pecari tajacu*) over other species, and that preference was likely driven by economic incentives. These species were highly likely to be sold when they were killed, regardless of a family's household size or the weight of the carcass. The beliefs and preferences of individual hunters also influenced prey selection; for example, several hunters chose not to hunt primates. Hunters exhibited territorial behavior in relation to their hunting zones, where each family only hunted in a specific, unique zone. We suggest that these territorial tendencies, combined with differences in prey selection, could create refuges for some species across the landscape.

Next, we used hunting pressure data measured using interviews to assess the accuracy of distance-based proxies for hunting pressure, which are commonly used in biological models

to evaluate the impacts of hunting on mammal populations. We used three different proxies (distance from the community, major access points, and hunting camps) to create a spatial model that explained 58% of deviation in measured hunting pressure data. We compared interview data with a subset of hunts that were followed by an observer and found that hunters were typically within 1km of accuracy in reporting their hunting locations, and that data from land-based hunts were slightly more accurate than canoe-based hunts. We used interview data to create a spatial measure of the spread of hunting pressure, then evaluated the minimum interviewing effort needed to capture the variation in hunting spread. We found that at least 7 months of interviewing were needed if all hunts were captured, and between 9 and 10 months were needed if 75% of hunts were captured. Our spatial model can be used in biological models that evaluate the impacts of hunting on animal populations where ground-truthed data is too expensive or difficult to obtain. We suggest that interviews are an accurate, efficient method for gathering data on hunting pressure where ground-truthed data is needed.

We used camera trapping methods at 80 mineral licks in the Sucusari River Basin to evaluate the impacts of hunting pressure on mammal behavior. We used a series of models to assess two different measures of perceived risk: visit duration at the mineral lick and temporal avoidance of hunters. While visit duration and activity times at licks varied, we did not find any significant evidence that mammal behavior at mineral licks changed in response to hunting pressure. We suggest that hunting pressure in Sucusari may not be high enough to stimulate a behavioral response from game species, or that hunters' abilities to target game spatially and temporally mask any behavioral adaptations that may be occurring. Since mineral licks are key resources for hunters, predators, and many prey species, we suggest that further research needs to be done to evaluate how hunting pressure impacts interactions between mineral licks and the species that commonly visit them.