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Is the Forest Half-Empty or Half-Full? The Role of Conucos in Providing Bushmeat in the Gran Sabana, Venezuela

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Abstract

Overexploitation of bushmeat in tropical forests has increased in recent years, creating debate about the sustainability of current hunting rates. The Empty Forest hypothesis predicts that current hunting rates in tropical forests can lead to a widespread loss of biodiversity and a reduction in vertebrate abundance. Alternatively, the Garden Hunting hypothesis states that heterogeneous agroforestry landscapes can maintain similar species richness as pristine forests, but with species composition dominated by savannah related species. Here, we combined camera trap surveys and interviews to Pemón indigenous communities in the Gran Sabana to examine the generality of Empty Forest hypothesis. We fitted occupancy models and MANOVA to assess how important are human activities (indigenous farming and hunting activity), and landscape characteristics (forest cover and fragmentation) to explain wild-life occupancy, and changes of species composition across landscape. Consistent with Garden Hunting hypothesis predictions, we found higher occurrence of savannah related herbivores in habitat with medium disturbance than in unperturbed habitats. Evidence for decreasing predator's occurrence in perturbed habitats was mixed, with some species being attracted and other repelled by the human presence and agricultural activity. Although over-hunting reduces population density of targeted game species, the current scheme of resource use does not seem to produce a generalised pattern of defaunation. Mammal diversity seems to respond to amount and distribution of remaining forest cover, suggesting that deforestation has a larger impact than hunting. We discuss opportunities and challenges of implement land sharing approaches for landscape and wildlife management in complex landscape of high cultural and biological diversity.

Keywords: Camera traps, empty forest, garden hunting hypothesis, indigenous, shifting agriculture