Anthropogenic effects on terrestrial mammal fauna in the eastern Amazon

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The so-called "forestry monocultures", which include eucalyptus and oil palm plantations, comprise a quite attractive financially option in tropical forests. But the suitability of the cultivation area overlaps with the distribution of many threatened vertebrate species. We investigate how Amazonian mammals have responded to the impacts of these economic activities. We also assess the intensity of these impacts by comparing them with low impact logging areas, primary and secondary forests at the eastern Brazilian Amazon. Using both Linear Transections and Camera Trapping methods, we quantify the general patterns of the mammal community. Considering the richness, abundance and composition of species, oil palm and eucalyptus plantations have been consistently depleted compared to adjacent primary forests, but the responses differed between functional groups. The high degree of dependence on the forest habitat was a common feature among mammals of both types of monoculture. Approximately 87% of all species detected in oil palm have not been recorded more than 1300 m from the edge of the forest. We draw a gradient of impact intensity between the studied habitats, where monocultures can be considered more impactful when compared to Low Impact Logging and Secondary Forest. In the case of both monocultures, we observed a significant loss of biodiversity. In the Low Impact Logging areas, we observed a probable change in the ability to detect some species in the short term. In the Secondary Forests, we observed a substitution of species, and a loss of integrity, represented by a change in species composition in relation to the Primary Forests. Our study reinforces the notion that monocultures are not biodiversity-friendly. Considering the expansion of these monocultures in the Amazon Forest, policies to encourage anthropogenic activities should envisage strategies to maintain large areas of forests and ecological corridors that allow greater permeability of monoculture areas to biodiversity.

Keywords: Palm oil monoculture, Eucalyptus monoculture, low impact logging, secondary forest, primary forest

Professional Biography

Ana Cristina Mendes de Oliveira has completed her PhD at the age of 29 years from the Federal University of Pará and postdoctoral studies from the University of East Anglia, UK, at the School of Environmental Science. She is a young Senior Professor at the Federal University of Pará, Brazil, where he has supervised more than 25 masters and doctoral students. She has been working at the Amazon Forest for 20 years, trying to understand all the responses of the mammals to the anthropogenic pressures and work for the conservation of the forest. She has been published more than 25 papers in her line of research and has been acting both in the academic environment and in the discussions and regional decision-making on biodiversity in the Amazon Forest.



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