
The making of an ecological trap: Are elephants attracted by recently deforested areas?

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Résumé

Deforestation and forest degradation are major causes of wildlife decline in tropical ecosystems. The conversion of mature forest to fields by shifting cultivation leaves behind fallow land with secondary vegetation. Paradoxically, some species like the African elephant (*Loxodonta africana*) may be attracted by secondary regrowth that provides abundant forage in comparison with mature forests. We hypothesised that deforestation around protected areas may constitute an ecological trap for elephants by attracting them towards human communities and cultivations thus aggravating Human Elephant Conflict.

The study was conducted in Gile National Reserve, Zambezia, Mozambique (16°30' S 38°30' E), an unfenced protected area including a core area of 2861 km² and a buffer zone of 1671 km² located within a belt of deciduous miombo woodland that straddles the Zambezia Province. Deforestation in and around the reserve has been monitored by remote sensing from 1990 to 2016. About 60 elephants remain in Gile National Reserve. Five individuals were equipped with GPS satellite collars, three in October 2014 (2 cows and 1 bull) and two in June 2016. To test our hypothesis, we modelled resource selection functions using the GPS data.

Elephants spend about half of their time in the core area, and half in the buffer zone where most of the deforestation occurs. Elephants neither prefer or avoid pristine forest habitats that are used according to availability. They avoid areas cleared before 1990, have no preference for areas cleared between 1990 and 2005 and prefer areas cleared since 2005. The areas elephants prefer most were cleared between 2010 and 2013.

Deforestation for illegal logging and agriculture at the edge of Gile National Reserve may act as an ecological trap for elephants that appear to be attracted by the regenerating vegetation thus increasing Human Elephant Conflict and the risk of poaching of an endangered population.

Mots-Clés: deforestation, habitat selection, elephant, Miombo forest, agriculture, human wildlife conflict

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