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## Escaping Insecurity through Increased Livestock Mobility – A Sustainable Strategy?

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### Abstract

The highly extensive animal husbandry system in southwestern Madagascar – characterised mainly by the keeping of mobile herds of zebu cattle and mostly sedentary flocks of small ruminants – is liable to several constraints such as seasonal water and forage shortage. In recent times, security issues, especially armed cattle rustling, are also gaining importance, reflecting the country’s political crisis since 2009. Local pastoralists are therefore forced to adapt their herd management by more frequently changing grazing grounds and modifying transhumance patterns. We aimed to determine the consequences of these changes both for the animals and the regional vegetation known for its high botanical endemism.

The study was carried out with herds from four selected villages on the Mahafaly Plateau and along the coastal zone around the Tsimanampetsotsa National Park. During November 2011 – April 2013, individuals from three flocks of cattle and three flocks of small ruminants in each village were fitted with GPS tracking units, recording their diurnal grazing movements and spatial distribution during three consecutive days in two-monthly intervals. Additionally, the animals’ activities were monitored by direct observation.

Results show a strong dynamic, especially in the seasonal movements, of cattle flocks that had not been expected to be that distinct at the beginning of the study. Herds were dislocated more frequently and, during their transhumance from the coast to the richer feeding grounds farther inland, moved back after shorter periods than originally reported by the herdsmen. At the same time, herds from the plateau which usually stayed extensively in their area, were increasingly moved to the coastal zone during the dry season to avoid security problems. The coastal pastures are thus exposed to an increased number of animals grazing nearly year-round on the relatively scarce vegetation, temporarily leading to extremely high grazing pressure and negative consequences for the abundance of preferred pasture plants. If insecurity prevails on the Mahafaly plateau, strategies such as plantation and systematic use of indigenous fodder plants in the coastal zone, and hay making on the vast but deserted plateau pastures, should be envisaged by local communities and supporting governmental and nongovernmental organisations.

**Keywords:** GPS tracking, grazing itineraries, Madagascar, transhumance