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"Solidarity in a competing world — fair use of resources"

Caught in the Act – Assessment of Intensity and Spatial Variation of Cattle Intrusion by a Network of Camera Traps in Tsimanampetsotsa National Park, Madagascar

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Abstract

Population increase in Madagascar, especially in the surrounding of the Tsimanampetsotsa National Park in Southwest-Madagascar, in combination with the recent expansion of this park, has increased the local intensity of exploitation of natural resources. Since livelihood activities related to livestock keeping and the exploitation of forest resources are very important for the local population, we hypothesised that the intensity of livestock intrusion in the protected area for foraging purpose will be considerably high, in particular during the dry season, when foraging resources in adjacent rangelands get sparse. To quantify the intensity, timing and spatial variation in livestock utilisation of Tsimanampetsotsa National Park, we applied a network of camera traps. For a total period of five months during the dry season, thirty cameras were recording cattle movements along trails within the buffer and protected zone of the park. Throughout the study period (May – October 2014), 10'651 pictures of 4'943 animals and herders have been recorded by the camera traps, whereby pictures of 1'407 animals could be directly associated to accompanying herders. Sizes of animal groups recorded in consecutive photo captures ranged between one and 67 individuals. The similar ratio in movement directions into and out of the park of 48.3 % and 51.7 %, respectively, as well as the high percentage of records of free-ranging animals (71.5 %) indicate a more frequent use of the protected area for daily resource extraction than for traversing movements across the park for seasonal herd relocation. More than 19 % of all photo captures per month have been recorded inside the park's core zone, i.e. the area of strict protection, where theoretically any access and use of resources is forbidden by law. Applying spatial analysis, we were thereby able to map the most frequented livestock access trails into the park. The results of our study confirm that the pressure on the natural resources inside the protected area through herded and free-ranging cattle herds is substantial but shows a distinct spatial variability. Park management should particularly focus on the effective protection of easily accessible areas, where livestock intrusion was frequently recorded.

Keywords: Camera traps, cattle, intrusion, Madagascar

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