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TEAM: a standardised camera trap survey to monitor terrestrial vertebrate communities in tropical forests

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Abstract

The Tropical Ecology Assessment and Monitoring network (TEAM) uses arrays of camera traps to monitor mammal communities in tropical forests across the globe. Repeated large scale camera trapping surveys are conducted according to a highly standardised protocol, which allows tracking the changing state of mammal communities and the drivers of those changes. This paper describes the TEAM camera trapping protocol and the Desk-TEAM tool for processing and archiving the vast amounts of images. We show how TEAM data can be used for quantitative comparisons across sites and for detecting abundance trends over years, using the Wildlife Picture Index. We argue that the standards employed by TEAM set an example for camera trap researchers worldwide who may currently see their studies as an isolated effort, even when they essentially have similar goals.

Introduction

Terrestrial mammals are a key component of tropical forest communities, providing important ecosystem functions. They influence vegetation in numerous ways, such as through seed dispersal, seed predation and herbivory, through redistribution of nutrients and physical alteration of the abiotic conditions, and by controlling abundances of primary consumers through predation (Dobson *et al*. 2006; Power *et al*. 1996). Larger species have an especially decisive role in the composition and structure of vegetation, which is apparent for example in forest–grassland transitions mediated by large herbivores (Olff *et al*. 1999).

Terrestrial mammals are also disproportionally affected by humans. Land use change and overexploitation threaten scores of mammal species – particularly species with low reproductive rates and large home ranges – and induce major shifts in the composition of mammal communities (Peres and Palacios 2007). In addition, climate change may have major and much broader impacts on terrestrial mammal communities. Synergistic interactions between land use change and climatic changes form the greatest threat to biodiversity (Brodie *et al*. 2012). This is problematic because direct and indirect responses of mammal communities to these factors co-determine the state of ecosystems and the services that ecosys-