Comparing data of different survey methods for sustainable wildlife management in hunting areas: the case of Tarangire–Manyara ecosystem, northern Tanzania

Author(s)
Fortunata Msoffe
Fatina A. Mturi
Valeria Galanti
Wilma Tosi
Lucas A. WautersGuido Tosi

Abstract
Cost–benefit considerations of wildlife monitoring are essential, particularly, in areas outside national park boundaries, where resources for conducting wildlife censuses are scarce, but that, at the same time, are subject to high pressure for wildlife utilization, such as hunting. Large mammal survey data from various sources were collated and analyzed to investigate which methods are best suited for monitoring purposes at low cost in the Tarangire–Manyara ecosystem, northern Tanzania. Our results indicate that primary data (from aerial and road transects counts) that involve direct species observations, although sometimes very expensive, are required for establishing the status of the target species in terms of density or population size. Concomitantly, secondary data from various sources, such as interviews, hunting quota, and damage reports, obtained over wide areas and over longer periods of time, can provide important information on presence/absence and distribution of species within an area. In addition, the study revealed that hunting quotas set did not correlate with species abundance/numbers from the primary data surveys for most of the large mammals hunted within the ecosystem. For a better conservation and management of wildlife, in particular with respect to the forthcoming formation of Wildlife Management Areas, we propose an integrated approach to wildlife monitoring using primary and secondary data sources through the involvement of local people's knowledge.

Keywords
Hunting quota Large mammals Survey methods Tarangire–Mayara ecosystem Wildlife Management Areas