

Note and Record

Camera trap observation of crested rat (*Lophiomys imhausi*, Muroidea: Rodentia) in Belete-Gera montane rainforest, south-western Ethiopia

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Introduction

The humid highlands of south-west (SW) Ethiopia have the last remaining large forested area in the country (Groombridge & Jenkins, 2002). The climax vegetation is moist evergreen montane forest or 'Afromontane rainforest' (Demissew, Cribb & Rasmussen, 2004). Research in this area is mostly limited to Arabica coffee (*Coffea arabica*), which has its origin here (Sylvain, 1955). Still, the remaining natural forest has a high biodiversity and is recognized as a Key Biodiversity Area (KBA) within the Eastern Afromontane biodiversity hotspot (Mittermeier *et al.*, 2004).

Although biodiversity research is limited, interviews with local villagers living in these forests suggest a high diversity of large mammals (M. De Beenhouwer & J. Mertens Pers. Comm.). Therefore, camera traps were set up in a standardized manner to assess and compare mammals in the coffee forest, modified for coffee cultivation, with the natural forest, where human disturbance is limited to harvesting wild coffee and spices (Schmitt, 2006). Here, we discuss one exceptional observation, made by one of the camera traps (Video S1). The camera trap captured a crested rat (*Lophiomys imhausi*, Muroidea) on film. The crested rat is a rodent that is placed in a subfamily on its

own (Lophiomyinae) due to its unique morphology (Kingdon, 1997).

Materials and methods

The humid highlands of SW Ethiopia are characterized by a short rainy season from March to April and a long rainy season from June to October. The Belete-Gera forest, one of the last unfragmented (>100,000 ha) forest pieces in the country, is a forest priority area in the SW of Ethiopia (Fig. 1). Gera village, the largest villages in the area, is characterized by an average temperature of 18.4°C and yearly precipitation of 1783 mm.

Sixteen camera traps (Bushnell, BUTC8MCNVH, USA) were set up inside the forest from August 2014 till January 2015, with their GPS coordinates and habitat characteristics noted accordingly. Every 2 months, camera traps were relocated to a different place inside the forest (min. distance between cameras was 300 m). Eight camera traps were placed in coffee forest and eight in natural forest

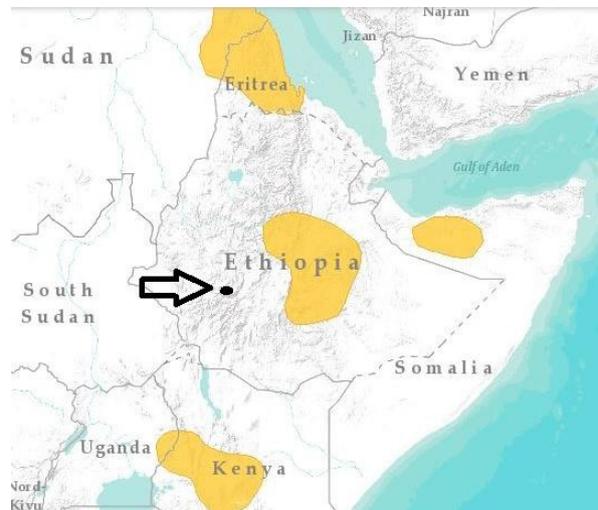


Fig 1 Current known range of the crested rat (*Lophiomys imhausi*) across the Horn of Africa and into East Africa. The yellow areas are the range of the species as approximated by the Schlitter & Agwanda (2008). The black area is the sighting in the Belete-Gera forest, October 2014

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resulting in 1252 camera trap days for each habitat. The camera trap recording the crested rat was placed in the natural forest, approximately 1.5 km from the forest edge (N 7°47'29", E 36°19'30") at 2076 m asl. The camera trap was set up on a fallen log (*Pouteria adolfi-friederici*) of 18 metres long. The slope of the area was approximately 22% and faced south. Dominant trees in the direct surroundings were *Pouteria adolfi-friederici*, *Prunus africana* and *Olea welwitschii*.

Results and discussion

The crested rat was captured on film for 30 s at 7 h16 pm on 14 October 2014 (Fig. 2). It is seen climbing slowly onto a log 40 min after sunset at approximately four metre distance from the camera trap (Video S1). This observation is remarkable for several reasons. Firstly, as far as we know, this is the first camera trap movie of a wild crested rat. Secondly, the geographical location where the animal was filmed was unknown for this species. The closest area of occupancy is approximately 285 km more to the east, across the Ethiopian Rift Valley (Fig. 1; Schlitter & Agwanda, 2008). Lastly, the habitat most similar to this observation, where this species is known to occur, is described as dry woodland and dry montane forest (Kingdon, 1997; Schlitter & Agwanda, 2008). Here, however, the species is found in Afromontane rainforest, with an

average rainfall of 1783 mm, expanding the known habitat range of the species.

Subsequent interviews with coffee farmers in the area have not revealed additional information as 100% of the interviewees (30 farmers) failed to identify the mammal on the movie. Most farmers referred to the rock hyrax (*Procapra capensis*), with whom they are known to coexist (Hanney, 1975). However, rock hyraxes were not recorded in the same forest. There are several possible explanations why this species was not yet known for this area and habitat (e.g. overlooked, recent colonizer, and habitat shift). It is supposed, however, that this species was not recorded yet due to the shy and nocturnal nature of the animal. Also, the aforementioned location is generally avoided by local people because the slopes are too steep.

Although the crested rat is rated as Least Concern on the IUCN Red list (Schlitter & Agwanda, 2008), it is an uncommon species with very few records in the wild. The absence of anthropogenic disturbance on these steep forest slopes might be positive for the survival of this species. It was not seen on camera traps in other locations within the forest.

This movie also confirms what is known of the behaviour of this mammal (Goldfinch, 1923; Kingdon, 1997). It moved slowly but climbed skilfully onto the log. Furthermore, it used its forepaws to handle and eat plant material. This observation stresses the importance of additional biodiversity research in this remote area, listed



Fig 2 Two screen shots of the crested rat (*Lophiomys imhausi*) on the log, from the video footage (Video S1)

as a KBA within the Eastern Afromontane biodiversity hotspot. Due to rising coffee consumption and higher coffee prices, natural forest is being rapidly replaced by coffee forest with strong consequences for forest plant diversity and the wild coffee gene pool (Aerts *et al.*, 2013; Hundera *et al.*, 2013; Aerts, Berecha & Honnay, 2015). The effect on mammals, however, has not yet been assessed.

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Supporting information

Additional Supporting Information may be found in the online version of this article:

Video S1. Footage of the Crested rat (*Lophiomys imhausi*) in Belete-Gera forest.