Status of the Caracal in Protected Areas in South-western Turkey

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Although the caracal *Caracal caracal* is probably endangered in Turkey, knowledge of its status and distribution runs from none to a wide range of assumptions. The species has been considered 'quite uncommon' since the 19th century, while only a few animals have been detected or captured in 3-4 locations all over the country during the 20th century (Kumerloeve 1986, Serez 1990, Massetti 2000, Ozkurt *et al*. 2003).

We present here the initial results of the first systematic survey of carnivores in the key biodiversity area AKD 018 - Güllük Dağı in south-western Turkey, focusing on the caracal. This survey is the most intensive photo-trapping effort undertaken in Turkey so far.

Study area

The study area included Termessos N.P. (67 km^2), Buke Research Forest (25 km^2) and Duzlercami Reserve (50 km^2). The area is considered one of the most important areas in Turkey for larger mammals. Lynx L*ynx lynx*, caracal and even the Anatolian leopard *Panthera pardus tulliana* were reported to occur in the region, but these reports are unsupported by field data (Ulrich & Riffel 1993, Massetti 2000, Can 2001).

Methods

We used a baited line-triggered camera trap system. The triggering device was a pressure plate connected to a simple automatic camera through an electric wire buried in the ground. Bait consisted of pieces of meat attached 1.8 – 2 m above the triggering mechanism.

In the field, cameras were placed in highly suitable areas that presented the highest probability of being used by resident animals on trails and trail intersections and near water sources, as the region is quite dry during the summer season. The cameras were maintained in the field on average for 38 days (range 32–87), considerably longer than the minimum of 28 days required for the detection of carnivore species in low densities (Zielinsky *et al*. 1995).

The trapping polygon with buffer area measured a total of 173 km^2 and 102.5 km^2 respectively, and consisted of 27 camera-trapping stations that were in position during two periods: early July – end of August 2005, and mid-October – end of December 2005, for a total of 1024 camera-days. We calculated the buffer zone by using data (1.5 km)

from female caracals from South Africa obtained from high density caracal population areas (Avenant & Nel 1998). The distance between cameras was on average 1.0 km (0.3–2.6 km), resulting in a density of 0.26 cameras/ km^2.

To compute a relative abundance index for each species (Tab.1), detections were summed up for all camera photo traps over all days, multiplied by 100 and divided by the total number of camera trap days (Sarmento *et al*. 2004). Due to the use of meat bait and the type of camera trigger, the analysis was considered only for carnivores and wild boars.

Results

Besides wild boars, we detected three carnivore species, all of them at very low densities (Table 1): red fox *Vulpes vulpes*, badger *Meles meles* and caracal. Thus the only felid discovered was the caracal. Three different individuals (title photo, Fig. 1) were recognized at two different places in the north-western part of the study area. We had no recaptures despite the intense trapping effort, resulting in a minimum density of 1.73 caracals /100 km^2 (trapping polygon = 173 km^2). In one location an adult male and female were found sympatrically.

Table 1. Camera-trapping data for the area of Termessos N.P. and surrounding protected areas in south-western Turkey. Ns = number of positive camera stations, Nd/100 d-c = number of detections per 100 camera-days, RAI = relative abundance index.

Species	Ns	Nd/100 d-c	RAI
Wild boar	13	2.34	30.46
Red fox	4	0.58	2.34
Badger	2	0.19	0.39
Caracal	2	0.29	0.58

Discussion

The low caracal density is attributed to the low densities of prey occurring in the study area, namely rodents, lagomorphs, small ungulates and ground birds (Krystufek & Vohralik 2001, own unpubl. data). This small caracal occurrence is most probably isolated since it has been surrounded by high mountains, large urban areas and an intensively used landscape (goat grazing and farmland).



Fig. 1. One of the adult caracals recorded in the study area (Photo G. Giannatos).

No signs of the presence of lynx or leopards were detected in the study area. It seems unlikely that the few lynx reported by foresters, professional hunters and locals to occur in the cedar forests more than 60 km south-west of the study area could have reached Güllük Dağı. They would have to cross barren high mountains and extensive alpine areas occupied during the summer by nomad shepherds and their large dogs and covered in winter by heavy snow. Additionally, there are only very few lynx occurring in the whole region.

The leopard was unknown to all local people, hunters and national park personnel interviewed during the study, and all agreed that the big cat went extinct a long time ago.

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