

## Primer registro de cleptoparasitismo de meloncillo a águila imperial ibérica

First report of Kleptoparasitism of Spanish imperial eagle by Egyptian mongoose

Marco Ansón<sup>1,2</sup>

1. Ideas Medioambientales, C/ San Sebastián 19, 02005 Albacete, España. [paleomarco@yahoo.es](mailto:paleomarco@yahoo.es)

2. Centro de Estudios Animales, Ctra. de Canillas, 28043 Madrid, España.

The Egyptian mongoose *Herpestes ichneumon* (Linnaeus, 1758) is a small carnivore from the Iberian fauna, being the only mongoose occurring in Europe. Although historically it was thought to have been introduced by humans into the Iberian Peninsula, more solid conclusions based on genetic data support a natural colonisation scenario (Gaubert *et al.* 2011). On the other hand, other authors have proposed a multiple introduction hypothesis (Barros *et al.* 2021). Hence, the Egyptian mongoose would be one of the latest additions to the guild of Iberian predators, during the predator guild remodelling taking place amidst the Pleistocene/Holocene transition. The species occupies a wide range from Africa to the Middle East, with notable regional differences in behaviour depending on the location and coexisting with different predators in each place (Kingdon 2013, Palomares 2020).

Egyptian mongoose is sympatric with different predator species within their ecological communities, where the species may have to share existing food resources with other predators. On average however, the species' potential for food stealing behavior has been described as low (Ferreiro-Arias *et al.* 2021). Their encounters with other species may depend on their hours of activity. Egyptian mongooses are usually active during the day (Palomares & Delibes 2000), which contrasts with the activity of the remaining Iberian carnivores species. However, this period coincides with the Spanish great eagle's active hours (Soutullo *et al.* 2006).

Egyptian mongooses are known as opportunistic foragers, catching the easier or more abundant prey within reach. Lagomorphs are important prey for mongooses, it has been hypothesized that Egyptian mongoose prey more on rabbits *Oryctolagus cuniculus* (Linnaeus, 1758) than Iberian hares *Lepus granatensis* (Rosenhauer, 1986) because the greater size, escape speed, strength and non-fossorial habits of hares (Delibes *et al.* 1984, Rosalino *et al.* 2009). Although cooperative foraging and hunting behaviour has been previously proposed by some authors who argued that the rudimentary sociality of this mongoose could be applied to cooperative hunting (Delibes *et al.* 1984), cooperative food stealing was never before recorded.

In this scenario, the relationships between the mongoose and other sympatric members of the predator guild are not fully understood. There have been many publications on this species social system and foraging behavior (Ben-Yaacov & Yom-Tov 1983, Estes 1991, Palomares & Delibes 1993, Kingdon 2013) all of them showing different conclusions depending on the study sites. This may be due to the wide distribution of the species and the different environmental conditions to which it is subjected to in each locality.

Researchers have previously reported cooperative mobbing by banded mongooses *Mungos mungo* (Gmelin, 1788) with the apparent goal to rescue pack members from eagle predation (Rood 1983). Other social mongoose like meerkats *Suricata suricatta*

(Schreber, 1776), are known for mobbing different predators. Meerkats do it to protect their cubs, to chase away potential predators and to be coordinated in the face of a potential risk (Graw & Manser 2007). But cooperative kleptoparasitism by Egyptian mongoose had never been reported until now.

This note confirms the cooperative behavior of Egyptian mongooses, which are seen mobbing a Spanish imperial eagle *Aquila adalberti* Brehm, 1861, to steal its prey. The sighting occurred in late winter on a plot of land about 13 km east of the city of Toledo. The location of this study is a mixed habitat of scrubland, grain fields and stream vegetation. This hunting ground is within the territory of a reproductive pair of Spanish imperial eagle and their offspring.

A subadult Spanish imperial eagle was spotted emerging from the stream trees in flapping flight approximately at 11.00 h. The eagle was chasing an Iberian hare *Lepus granatensis*. The eagle chased the hare into the

short cereal crop. When the eagle swooped down close to the ground trying to catch the hare, an Egyptian mongoose appeared in the tree line. Then, more mongooses appeared and they started following both eagle and hare. The hare ran in a zigzag manner attempting an escape, all while the eagle tried to swoop down followed by five mongooses on the ground. At the sixth attempt the hare was caught by the eagle on the ground, after the prey found any escape route blocked by tall thistles and plants that thrive out of the crops. Three coordinated mongooses approached the zone and after a very quick harassment the eagle took flight. The mongooses then rapidly took the stolen prey and cooperatively moved it into the tall grasses. Parts of this sighting were photographed and filmed from a car (Fig. 1).

Sighting records on the intraspecific and interspecific behaviors of Egyptian mongoose are rare, but crucial to understand mongoose's role and position in trophic networks. This paper highlights the need to enhance our



**Figure 1.** Sequence of images of the Spanish imperial eagle and Egyptian mongooses chasing and competing for the hare. Pictures ordered in sequential frames.

knowledge of the behavioral ecology of this widespread mongoose species, as it uncovers a behavior unknown until now.

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