

First report of adult *Podarcis siculus*
(RAFINESQUE-SCHMALTZ, 1810)
predation by *Tarentola mauritanica*
(LINNAEUS, 1758)

Information is scarce concerning geckos feeding on vertebrates such as small lizards, birds and mammals (GARDNER & JASPER 2012; YANG et al. 2012; BUCOL & ALCALA 2013) and refers mainly to large gecko species such as *Gekko gekko* (LINNAEUS, 1758) (AOWPHOL et al. 2006), *Eublepharis macularius* (BLYTH, 1854) (HENKEL et al. 2000; BONKE et al. 2011) or *Rhacodactylus auriculatus* (BAVAY, 1869) (SNYDER et al. 2010). However, these species feed largely on invertebrates, the frequency of predation on vertebrates increasing only occasionally, known especially in captivity.

The Moorish Gecko, *Tarentola mauritanica* (LINNAEUS, 1758), is a medium-sized, robust gecko that is found in various natural and anthropogenic habitats of the Circum-Mediterranean region (MELLADO et al. 1975; MARTÍNEZ-RICA 1997; HÓDAR & PLEGUEZUELOS 1999; HÓDAR 2002; SINDACO & JEREMCENKO 2008). It is basically nocturnal, but also seen basking and foraging during daytime (SCHLEICH et al. 1996; GUARINO & PICARIELLO 2006). Moorish Geckos are insectivorous in principal and forage widely or adopt an ambush strategy to obtain prey (SEVA 1988; GIL et al. 1993; PÉREZ-MELLADO 1994; HÓDAR et al. 2006). Several studies thoroughly analyzed the diet composition of this species in different areas of its range (CAPULA & LUISELLI 1994; GIL et al. 1994; HÓDAR & PLEGUEZUELOS 1999; HÓDAR et al. 2006). Depending on the gecko's age, season and prey availability, its prey items include arthropods (chiefly Araneae, larval and adult Lepidoptera and Coleoptera, Diptera and Onyscidae) of appropriate size. The few reports on predation of vertebrates by *T. mauritanica*, however, exclusively relate to juvenile saurian prey. In the Iberian Peninsula, sporadic cases of predation on *Podarcis lilfordi* (GÜNTHER, 1874) (SALVADOR 1979), *Podarcis hispanicus* (STEINDACHNER, 1870) (FRANCO 1980) and *Hemidactylus turcicus* (LINNAEUS, 1758) (GONZÁLEZ DE LA VEGA 1988) juveniles are reported; according to

VACHER & DENIEZ (2010) the diet of *T. mauritanica* includes young *Podarcis liolepis* (BOULENGER, 1905) and *H. turcicus*, and RIEPPEL (1981) adds *Podarcis siculus* (RAFINESQUE-SCHMALTZ, 1810) to the prey of *T. mauritanica*. The rare observations of lizard predation by *T. mauritanica* include cannibalism (GONZÁLEZ DE LA VEGA 1988), however, all above instances represented attacks on young individuals of relatively small size.

On September 7, 2013, while sampling a population of *T. mauritanica* near Vernole (40°21'00.73" N, 18°20'11.63" E, Apulia, Italy) at night and temperatures of about 20 °C, the authors caught by hand an adult male located above a lighted lamp. Immediately after capture, the gecko regurgitated a large prey, already dead, starting with the tail first; it was identified as *Podarcis siculus*. Biometric measurements, as well as pictures (Figs. 1, 2) were taken. The Moorish Gecko was an extraordinary large male, 84.7 mm in snout-vent-length (SVL) (head length: 22.3 mm, tail length: 87.1 mm), whereas, the Italian Wall Lizard was a female of 52.9 mm SVL (head length: 12.9 mm, length of broken tail: 13.2 mm). The overall length of the lizard captured and swallowed by the gecko (66.1 mm), actually accounted for about 78 % of the entire SVL of the gecko. Surprisingly, subtracting the gecko's head length, as the lizard had already been ingested, the prey, although slightly bent, must have occupied almost the entire body of the Moorish Gecko. Predation may have occurred late in the afternoon, when the diurnal activities of both species can overlap (MARTÍNEZ-RICA 1974; HEATWOLE 1976; AVERY 1978; RIEPPEL 1981; GIL et al. 1994; APREA et al. 2011).

The present observation is the first case report of *T. mauritanica* predated an adult, although medium-sized, lacertid. Mean SVL and head length was remarkable (SVL: 73.4 mm, head length: 18.8 mm, N = 18) in this Moorish Gecko population, with the longest male measuring 93.6 mm in SVL (relative head measures, length: 23.2 mm, width: 16.3 mm, and height: 11.0 mm). Considering the large mean body size of this *Tarentola* population, these old males are likely to hunt larger prey than males do in other populations or areas.

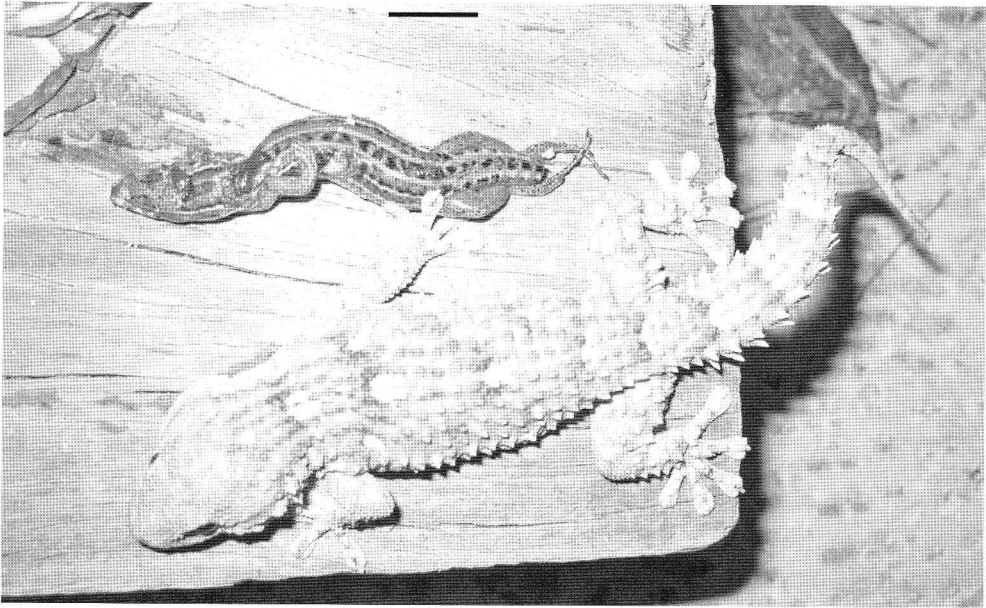


Fig. 1: The adult female *Podarcis siculus* (RAFINESQUE-SCHMALTZ, 1810) (above) regurgitated by a big male of *Tarentola mauritanica* (LINNAEUS, 1758) (bottom) near Vernole (Apulia, Italy). Scale bar: 1 cm.

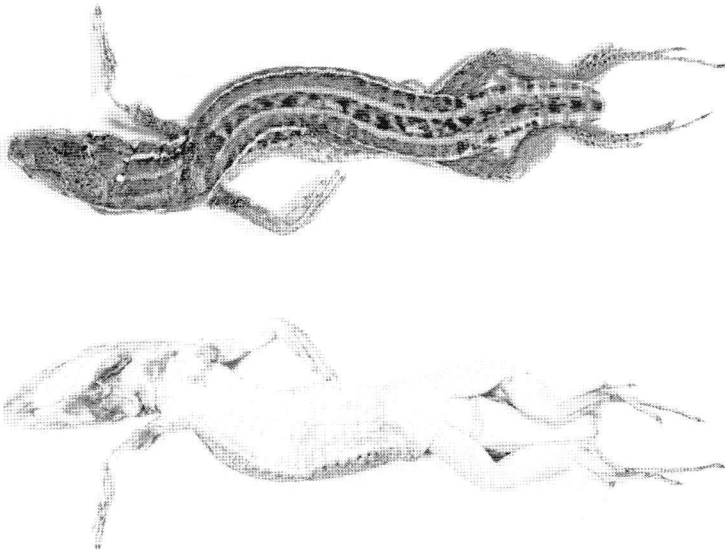


Fig. 2: Dorsal and ventral view of the adult *Podarcis siculus* (RAFINESQUE-SCHMALTZ, 1810) predated by *Tarentola mauritanica* (LINNAEUS, 1758). Scale bar: 1 cm.

During the nocturnal sampling, different invertebrates were detected in high numbers close to the lighted lamps and on the neighboring walls, thus constituting an easily available food resource for geckos. Nevertheless, these robust geckos seemed to be capable of acquiring their diet by catching lacertids and, most likely, also individuals of *H. turcicus*, that are smaller in size and occupy the same area at lower density.

Since phenomena like the one reported here are only infrequently observed in the wild, their frequency may be underestimated. Given the potential benefit derived from the high energy reward to the predator and the considerable ecological importance of competitive interactions and predation, pertinent investigations are badly missed and encouraged here.

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KEY WORDS: Reptilia: Squamata: Sauria: Phyllodactylidae, Lacertidae; *Tarentola mauritanica*, *Podarcis siculus*; Moorish Gecko, Italian Wall Lizard; feeding ecology, predation

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AUTHORS: Daniele PELLITTERI-ROSA (Corresponding author <masterfauna@unipv.it>¹⁾ & Cristiano LIUZZI²⁾ & Adriana BELLATI¹⁾

¹⁾ Department of Earth and Environmental Sciences, University of Pavia, Via Ferrata 9, 27100 Pavia, Italy

²⁾ Riserva Naturale dello Stato Le Cesine-Oasi WWF, I-73029 Vernole, LE, Italy

Supplementary distribution data of *Centrochelys sulcata* (MILLER, 1779), in northern Nigeria (West Africa)

The African Spurred Tortoise, *Centrochelys sulcata* (MILLER, 1779), is native to the southern border of the Sahara Desert and the Sahel, a transitional ecoregion of semiarid grasslands, savannas, and thorn shrublands found in the countries of Burkina Faso, Chad, Eritrea, Ethiopia, Mali, Mauritania, Nigeria, Senegal, Sudan, Niger, Central African Republic and Cameroon (TRAPE et al. 2012). Adults of this largest among all the mainland tortoises (ERNST & BARBOUR 1989) weigh 45-91 kg, but specimens heavier than 100 kg have been reported. Their diet consists of many types of grasses and plants rich in fiber and poor in protein (ERNST & BARBOUR 1989).

Despite its potentially wide range area across dry savannas in Africa, this species' distribution is comparatively little known and certainly highly fragmented (CADI et al. 2006). All its populations are reported to be declining (BRANCH 2008). It is possibly the first reptile species that has become extinct in Cameroon (CHIRIO & LEBRETON 2007);

in Nigeria the species is probably threatened with immediate extinction. As for West Africa, the authors are not aware of any locality where this species is still abundant, with most of the specimens detected being only occasionally encountered by scientists in the field. In Nigeria, it is known only from undefined localities of dry savannas situated in the northernmost territories at the border with Niger (VETTER 2005). In addition, it is certain that several of the specimens exported from Togo for the pet trade have been illegally collected in Nigeria (VETTER 2005).

IUCN (2012) considers this species as 'Vulnerable' (A1 cd), but the recent IUCN/SSC TFTSG workshop in Lomé, Togo (August 19-23, 2013), assessed it as 'Endangered', because of sound evidence that the population has declined, given the high rates of habitat loss which is going on in much of its range. The species is also reported to be in serious decline due to competition for food with domestic livestock (BRANCH 2008).

This note reports some recent records of the African Spurred Tortoise in northern Nigeria. The study was carried out during 2013 and 2014, mainly in the months of November to February. Tortoise presence was established based on random searches throughout northern Nigeria, mostly guided by interviews with local people reporting their own recent observations of these large distinctive tortoises. The observation sites were georeferenced (GPS Garmin CE-12), and on-site vegetation type was recorded. Detected tortoises were individually marked by notching a plate of their carapace.

Overall, the authors located seven sites of potential presence of the species in Nigeria, allocated to two distinct vegetation zones (zones no. II and III, Fig. 1; vegetation zones classified according to a map provided by the University of Texas at Austin; < http://www.lib.utexas.edu/maps/africa/nigeria_veg_1979.jpg >). In these seven localities, eight individuals were encountered, five captive adults, reportedly captured in the near surroundings, and three apparently free-ranging animals. Yet, not even the free-ranging individuals' membership to the wild population can be verified with certainty. These tortoises are frequent-