

Oliveira, C., Zanetoni, C. & Zieri, R. 2002. Morphological observations on the testes of *Physalaemus cuvieri* (Amphibia, Anura). *Revista Chilena de Anatomía*, 20: 263-268.

Zaracho, V.H., Céspedes, J.A. & Álvarez, B.B. 2005. Aspectos reproductivos de Anfibios de las provincias de Corrientes y Chaco, Argentina. *INSUGEO, Miscelánea*, 14: 417- 426.

On a case of cannibalism in *Malpolon monspessulanus*

Ernesto Recuero, Gonzalo García-Martín & Mario García-París

Museo Nacional de Ciencias Naturales (CSIC). Cl. José Gutiérrez Abascal, 2. 28006 Madrid. C.e.: erecuero@mncn.csic.es

Fecha de aceptación: 6 de febrero de 2010.

Key words: intraspecific predation, cannibalism, *Malpolon monspessulanus*.

RESUMEN: El día 2 de mayo de 2006 encontramos un ejemplar adulto de *Malpolon monspessulanus* muerto en una carretera en la provincia de Cuenca, España, con otro ejemplar de menor tamaño contenido en el interior de su estómago. Los casos de canibalismo descritos para esta especie son esporádicos y parecen consecuencia de una estrategia trófica eurífaga y oportunista típica de esta especie.

Intraspecific predation, defined as the process of both killing and eating individuals of the same species at any stage of their life cycles (Polis, 1981; Martínez-Solano, 2001), is not a rare phenomenon among the Animal kingdom, that, despite the humanist point of view, should be considered as normal and natural behaviours that in some cases can play its rule in the species' evolutionary paths, influencing, or influenced by, life history traits, population dynamics and selective pressures (Fox, 1975; Polis, 1981).

Among reptiles in general, and snakes in particular, most cannibalism reports come from

europyphagous or typically ophiophagous species. In these cases cannibalism appears in low frequencies but as part of normal feeding behaviour, in which animals can consider usually smaller conspecifics as potential preys (Polis & Myers, 1985).

In the evening of May 2nd 2006, an adult specimen of *Malpolon monspessulanus* was found killed on a road near Buciegas, Cuenca, Spain. In a closer examination of the animal another dead adult, but younger *M. monspessulanus* was found sticking out from the other's opened gut (Figure 1). The cannibal specimen was 92 cm long, while the ingested one was smaller, with an estimated length of 62 cm (a small part of its body was missing). Considering that tail represents in average a 24% of the total length in this spe-



Figure 1. *Malpolon monspessulanus*, cannibal and prey specimens as found killed on a road near Buciegas, Cuenca, Spain.

Figura 1. Ejemplares caníbal y presa de *Malpolon monspessulanus* como fueron encontrados muertos en una carretera cerca de Buciegas, Cuenca, España.

cies (Pleguezuelos, 2003) and applying a specific relationship between snout-vent length and body mass (Gil & Pleguezuelos, 2001) we estimate that biomass of the preyed animal represented a 32.6% of that of the cannibal.

Cannibalism in *Malpolon monspessulanus* has been reported by different authors (see Pleguezuelos, 1998), always with low incidence in the diet composition of the species. This species is an opportunistic euryphagous predator whose diet composition is often determined by prey availability (Díaz-Paniagua, 1976; Pleguezuelos, 1998). In most areas studied, lacertid lizards represent by far the main group of preys, followed by small mammals, birds and arthropods (Valverde, 1967; Díaz-Paniagua, 1976; Vericad & Escarré, 1976; Pleguezuelos, 1998). There are ontogenetical changes on the diet of *Malpolon monspessulanus*, with a more diversified prey range among large, adult specimens (Valverde, 1967; Díaz-Paniagua, 1976). Díaz-Paniagua (1976) reports that in snakes below one year old the totality of their diet was based on reptiles, while in snakes between 15-20 years old reptiles represented only 44.4% of the diet composition, which was completed with birds and mammals (27.8%

each). Ophiophagy is not common among *M. monspessulanus* in any of the age classes considered in the mentioned studies, but is regularly reported and includes several species of colubrids (Pleguezuelos, 1998). In this context, we can assume that the few reports on intraspecific predation are consequence of the euryphagous nature of this species, in which snakes represent a marginal part of the diet composition. Cannibalism cases, in accordance with the generalizations made by Polis (1981) about size and age influence on intraspecific predation, seem to be more common among large adults of *M. monspessulanus*, as can be inferred from Valverde (1967) or Díaz-Paniagua (1976), although in our report the cannibal specimen is still a young adult far from the species' largest size, sometimes close to two meters long (Pleguezuelos, 1998).

ACKNOWLEDGEMENTS: Thanks to the constructive comments of the anonymous referee. This observation was made along field data collection of Coleoptera (Meloidae) for the grants CGL 2004-04680-C10-10/BOS and CGL2007-64621/BOS of the Spanish "Ministerio de Ciencia e Innovación".

REFERENCES

- Díaz-Paniagua, C. 1976. Alimentación de la culebra bastarda (*Malpolon monspessulanus*; Ophidia, Colubridae) en el S. O. de España. *Doñana, Acta Vertebrata*, 3: 113-127.
- Fox, L.R. 1975. Cannibalism in natural populations. *Annual Review of Ecology and Systematics*, 6: 87-106.
- Gil, J.M. & Pleguezuelos, J.M. 2001. Prey and prey-size selection by the short-toed eagle (*Circus gallicus*) during the breeding season in Granada (south-eastern Spain). *Journal of Zoology*, 255: 131-137.
- Martínez-Solano, I. 2001. *Lacerta monticola* (Iberian rock lizard): cannibalism. *Herpetological Bulletin*, 75: 30-32.
- Pleguezuelos, J.M. 1998. *Malpolon monspessulanus* (Hermann, 1804). 408-427. In: Salvador, A. (coord.), Ramos, M.A., et al. (eds.), *Fauna Iberica*, vol. 10. Museo Nacional de Ciencias Naturales. CSIC. Madrid.
- Pleguezuelos, J.M. 2003. Culebra bastarda – *Malpolon monspessulanus*. In: Carrascal, L.M. & Salvador, A. (eds.), *Enciclopedia Virtual de los Vertebrados Españoles*. Museo Nacional de Ciencias Naturales, Madrid. <<http://www.vertebradosibericos.org/>>. [Consulta: 12 junio 2009].
- Polis, G.A. 1981. The evolution and dynamics of intraspecific predation. *Annual Review of Ecology and Systematics*, 12: 225-251.
- Polis, G.A. & Myers, C.A. 1985. A survey of intraspecific predation among reptiles and amphibians. *Journal of Herpetology*, 19: 99-107.
- Valverde, J.A. 1967. Estructura de una comunidad de vertebrados terrestres. *Monografías de la Estación Biológica de Doñana*, 1: 1-218.
- Vericad, J.R. & Escarré, A. 1976. Datos de alimentación de ofidios en el levante sur ibérico. *Medierránea*, 1: 5-33.