

SALAMANDRA SALAMANDRA (Fire Salamander). **PREDATION.** *Salamandra salamandra* is the most common terrestrial salamander in Europe. Its aposematic black-yellow pattern is associated with skin serous glands (Klewen 1991. *Die Landsalamander*, Tel 1. Ziemsen Verlag) which may produce serious toxic syndrome in occasional predators (Saracini 1981. *Proc. Congr. Hispano-Francés de Herpetología*. Jaca. Spain). Unlike other amphibians, this species remains almost completely absent from the diets of both carnivorous and omnivorous mammals. Here we report the predation of *S. salamandra* by an omnivorous ungulate, the wild boar (*Sus scrofa*).

An extensive study of the diet of the wild boar was carried out in the Montseny massif (NE Iberia, UTM 31T DG31), an area dominated by humid Submediterranean forest. The stomach contents of 53 wild boar (30 females and 23 males) obtained from hunting (1986–1990) were analyzed. Prey items were dried, identified under a binocular lens, and weighed. Although the diet was mainly vegetarian (96% dry mass), vertebrates appeared in 45% of contents and represented 2.13% of the biomass (Rosell 1998. Ph.D. Diss. Barcelona University). *Salamandra salamandra* was the only amphibian consumed, appearing in six stomachs (11%, 0.14% dry mass). One of them contained remains (skin and limbs) of three adult salamanders, the other five contained only one salamander each. Both male and female boars 1–4 years of age consumed salamanders (Rosell, unpubl. data) and lacked symptoms of poisoning.

Wild boar foraging involves moving rubbish, stones, and fallen trunks used as refugia by *S. salamandra*. Prey captured in such a way are usually animals which constitute a proportion (ca. 5% biomass consumed) that remains stable between individuals and populations (Massei et al. 1996. *Acta Theriol.* 41:307–320; Tucak 1996. *Zeitschrift für Jadwissenschaft* 42:165–172; Taylor and Hellgren 1997. *Southwest. Nat.* 42:33–39). Some anurans and the urodele *Pleurodeles waltl* were found in the diet of the wild boar population at Doñana, southwestern Spain (Garzón et al. 1984. *II Reunión Iberoamericana Cons. Zool. Vert.*, pp. 466–475). Moreover, unidentified American salamanders were eaten by European feral hogs in the Great Smoky Mountains, USA (Scott and Pelton 1975. *Proc. 29th Annual Conf. Southeast. Assoc. Game and Fish Comm.*, pp. 585–593). However, to our knowledge this is the first report of predation on *S. salamandra* by *Sus scrofa* although both species share most of their ranges in Europe.

Both consumption by several predators and repeated predation by the same individual rule out accidental ingestion with other prey. In NE Iberia, *S. salamandra* is especially abundant in humid forest areas such as Montesny (Llorente et al. 1995. *Atlas dels Amfibis and Reptiles de Catalunya i Andorra*. El Brau. Figures. Spain). Apparently, skin toxicity does not protect *S. salamandra* from predation by wild boar in such conditions. Alternatively, wild boars could be exploiting carrion of road-killed salamanders, which are observed active in large numbers after rain in some parts of the study area (pers. obs.). This is unlikely, at least in this case, because the wild boars were killed in sectors with few roads and low traffic density. Although salamander contribution to the diet of this ungulate is low, this may have been one of the main causes of mortality for adult *S. salamandra*. It is also noteworthy that some adult *S. salamandra* have been found in Montesny killed, but not ingested, by the American mink (*Mustela vison*), an accidentally introduced species (Arrizabalaga, pers. comm.).

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