Short communication

An evidence of asp viper (*Vipera aspis*) consumption by a western European hedgehog (*Erinaceus europaeus*) on Elba Island (Italy)

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Abstract - We report a record of consumption of an asp viper by a western European hedgehog. The observation took place in Elba Island, providing the first evidence for Italy and, to our knowledge, only the second ever in support to previous anecdotal accounts.

Key words: island, mammal, predation, snake, Tuscany.

Riassunto - Evidenza del consumo di un aspide (*Vipera aspis*) da parte di un riccio europeo (*Erinaceus europaeus*) all'Isola d'Elba (Italia).

Qui riportiamo il consumo di un aspide da parte di un riccio europeo. L'osservazione è avvenuta all'Isola d'Elba e risulta essere la prima per l'Italia nonché, secondo le nostre conoscenze, la seconda in assoluto a sostegno di precedenti testimonianze aneddotiche.

Parole chiave: isola, mammifero, predazione, serpente, Toscana.

The western European hedgehog *Erinaceus europaeus* Linnaeus 1758 (Mammalia, Erinaceomorpha) is one of the three hedgehog species of the western Palearctic and its range covers western Europe (including the British Isles), Fennoscandia and northern/central European Russia (Bolfiková & Hulva, 2012; Aulagnier *et al*., 2013; Wilson & Mittermeier, 2018); moreover, it is present as an introduced species in New Zealand (Roberts, 2011; Bolfiková *et al*., 2013; Jones, 2021), Azores and in several small islands of Europe (Jackson & Green, 2000; Wilson & Mittermeier, 2018).

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As for the Italian area, *Erinaceus europaeus* is present throughout the peninsula, in the major islands and in several smaller islands, including Elba and Pianosa (Amori *et al*., 2008; Aulagnier *et al*., 2013; Angelici *et al*., 2009). In Elba Island (Fig. 1), this species is well documented for the last centuries and it is considered as a native species (Vesmanis & Hutterer, 1980), which naturally colonized the island during one of the last glacial periods, thanks to a permanent connection to the mainland (Bossio *et al*., 2000). None of the key reviews of the modern fauna of Pianosa reported on occurrence of the western European hedgehog, suggesting a recent introduction from Elba Island (Lanza, 1970; Iannucci *et al*., 2019).

Fig. 1 - Map of Italy. The red arrow points to the Elba Island. / Mappa d'Italia. La freccia rossa indica l'Isola d'Elba. (Google Earth. Data SIO, NOAA, U.S. Navy, NGA, GEBCO. Image Landsat / Copernicus).

Erinaceus europaeus is mainly but not exclusively crepuscular/nocturnal and it is considered a solitary generalist predator, although primarily an insectivore, its diet is broadly omnivorous (Reeve, 1994; Roberts, 2011; Canalis, 2012; Aulagnier *et al*., 2013).

Among its prey, the scientific literature mentions invertebrates (insects, arachnids, earthworms, and molluscs), small vertebrates (amphibians, reptiles, small rodents, and nestlings), eggs, carrion, seeds and fruits (Campbell, 1973; Locatelli & Paolucci, 1998; Jackson & Green, 2000; Gaglio *et al*., 2010; Roberts, 2011; Aulagnier *et al*., 2013; Rautio *et al*., 2016). Excluding documentation of lizard and skink consumption for the allochthonous *E. europaeus* population of New Zealand (Jones *et al*., 2005; Spitzen - van der Sluijs *et al*., 2009; Jones & Norbury, 2011), the consumption of reptiles by the whole *Erinaceus* genus is only scarcely reported in the literature with rather dated testimonies (e.g. Kalabukhov, 1928; Popov, 1960; Schoenefeld & Yom-Tov, 1985).

Accordingly, also the predation on snakes is only generically indicated [i.e. on *Vipera aspis* (Linnaeus 1758) (Günther, 1996; Joger & Stumpel, 2006; Salvador, 1998); on *V. latastei* (Boscà 1878) (Valverde, 1967); on *V. berus* (Linnaeus 1758) (Janssen, 2014; Andrén & Nilson, 1981)] and does not consist of precise records deriving from analysis of faeces, stomach contents or direct observations. In some sources, predation on snakes is even mentioned as "legendary" (Herter, 1965; Yalden, 1976; Amori *et al*., 2008). The only exceptions seem to be two photos of snake consumption, a *Malpolon monspessulanus* (Hermann 1804) from Spain and an asp viper from France, published in Wilson & Mittermeier (2018).

Here we report a second evidence of *Vipera aspis* consumption by a European hedgehog, the first from Italy.

On 20th April 2021, at 7.12 pm, one of the authors (W.C.) observed and photographed a Western European hedgehog eating a dead snake (Fig. 2) in the hamlet of Chiessi (Marciana, Elba, coordinates: 42°45'29'' N, 10°06'55'' E, WGS 84, 43 m a.s.l.). The hedgehog was then left undisturbed to continue its meal only to be rechecked at 7.30 pm and was still seen to be feeding. Based on the morphology, the snake was an adult male *Vipera aspis francisciredi* (Laurenti 1768), which is the only viper among the five snake species on the island (Corti *et al*., 2006; Di Nicola & Vaccaro, 2020; Di Nicola *et al*., 2021).

Fig. 2 - A hedgehog consuming an asp viper on Elba. / Un riccio che consuma un aspide all'Elba. (Photo/foto: Walter Costa).

The observation began while the hedgehog was already feeding on the viper, which lay lifeless and showed evident injuries, especially on the head and behind the neck. These wounds could be due to predation or, more likely, to a previous accident (e.g., killing by man). Hence, it is not possible to know if this represents predation or carrion consumption.

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