A case of melanism in a population of the insular lizard *Podarcis hispanica atrata*

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In the essay the finding and some morphological characteristics of a melanic example of *Podarcis hispanica atrata* found on the Columbretes archipelago (Castellón, Spain) is described.
Key words: *Mediterranean islands, lizard, melanism, endangered, endemism, age.*

UN CASO DE MELANISMO EN UNA POBLACIÓN INSULAR DE LA LAGARTIJA. En este estudio se describe el hallazgo y algunas características morfológicas de un ejemplar melánico de *Podarcis hispanica atrata* encontrado en el arhipiélago de las islas Columbretes (Castellón, España).
Palabras clave: *Islas mediterráneas, lagartija, melanismo, en peligro, endemismo, edad.*

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In this paper I describe the finding and some morphological and behavioural characteristics of a melanistic individual of the lizard *Podarcis hispanica atrata*. This is an endangered lizard whose world range is restricted to the Columbretes islands (39° 54' N, 0° 41' E) (see details in Castilla & Bauwens, 1991b). These constitute an archipelago of small uninhabited islets of volcanic origin situated in the Mediterranean ca. 57 km off the coast of Castellón (province of Castellón, Spain). Both males and females show a great individual variability in the ventral colour and dorsal colour pattern. The latter ranges from pale uniform green to brownish-green with black reticulate spots (Castilla, L. Bauwens, in press).

This subspecies of lizard was described by Boscá (1916) on the base of a single individual that was brought

to him by a fisherman as a curiosity. The subspecific name *atrata* (Latin = dressed in black) refers to the black colour of that individual (Boscá, 1916). Since that date, however, no other melanistic individual has been seen or collected on the archipelago by herpetologists who made short-term visits to the islands in different periods (Eisentraut, 1930; Klemmer, 1961).

During the years 1984-1994 I have performed detailed studies of the lizards on Columbretes (see Castilla *et al,* 1987; Castilla & Bauwens, 1991a, 1991b; Castilla & Swallow, in press), during which I handled several hundreds of individuals, and closely observed many others. Despite my intensive sampling efforts, only a single melanistic individual was caught in May 1991 on the northern and highest (ca. 70 m) part of the island Columbrete Grande (Figure 1). Thus, the occurence of melanism seems to be an extremely rare event in *P. hispanica atrata.*

The melanistic individual was an adult male that had a coal bright uniform black colour, only the belly presented a black reddish coloration. This black coloration was darker than the black-greyish colour described for a melanistic individual of *Podarcis h. hispanica* found in the Iberian Peninsula (Pérez-Mellado, 1984). The single melanistic individual was observed throughout 1991-1994 and did not change his uniform bright black coloration. Hence, this must not be considered as a case of temporary melanism as described for turtles (Lovich *et al.,* 1990) and other vertebrates (see refs. in Sage, 1962), but instead, as a type of permanent melanism as defined in Lovich *et al.* (1990).

The body size (snout-vent length = 68.9 mm) and weight (8.86 g) of the melanistic individual was above the average recorded for adult male lizards in that population and year (Castilla L Bauwens, in press). In other species of reptiles, melanistic males attain a larger body size than normally coloured individuals (Lovich *et al.,* 1990). Upon its first capture, I estimated that the melanistic individual was at least two years old. The lizard was maintained temporarily in captivity during 1991. Afterwards, it was observed in the study area until October 1994, thus attaining an age of at least five years. No precise information is available on the age of other individuals from Columbretes. Nevertheless, data from a Portuguese population of *P. h. hispanica* indicate that the maximal age did not exceed three years (Caetano *et al.,* 1986). I suggest that the large body size of the melanistic lizard, and the reduced predation pressure on Columbretes (see in Castilla and Bauwens, 1991a,b) may have contributed to the advanced age (at least 5 years) attained by this individual.

The rare occurence of melanistic individuals has been observed in continental populations of other lacertid lizards. Some examples are *P. hispanica* (Pérez-Mellado, 1984) and *P. muralis* (Zuffi, 1986; Barbadillo and Sánchez-Herráinz, 1992). It has been suggested that melanism is relatively common at northern latitudes (Kuranova, 1989), as for example in the lacertids *P. muralis* (Bruno and Maugeri, 1971), *Lacerta vivipara* (Malkmus, 1976), and *L. agilis.* On the other hand, some insular populations of mediterranean lizards (e.g. *P. dugesii, P. lilfordi, P. pityusen-*

Fig. 1. Melanistic male of *Podarcis hispanica atrata* in the Mediterranean island Columbrete Grande (a) (A. M. Castilla) and detail of the head (b) (L.J. Barbadillo).
Fig. 1. Macho melànico de Podarcis hispanica atrata *en la isla Mediterránea de Columbrete Grande (a) (A. M. Castilla) y detalle de la cabeza (b) (L. J. Barbadillo).*

sis) consist entirely of melanistic individuals (Bischoff *et al.,* 1989; Pérez-Mellado, 1989; Cirer and Martínez Rica, 1990). In general, it has been suggested that conditions associated with insularity, either on oceanic islands or on restricted alpine habitats, could favour the apparition of melanistic forms.

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