

29TNG28 ETRS89; ~100 msnm) un macho adulto de tritón ibérico (*L. boscai*) que mostraba una coloración amarilla clara por todo el cuerpo. Este individuo carecía de diseño de manchas oscuras dorsales y ventrales, sin los puntos negros característicos de esta especie. La coloración del ojo era rojiza con la línea horizontal oscura característica de la especie (Figura 1).

Los individuos leucísticos presentan tonalidad clara en el cuerpo pero no en los ojos, que presentan la coloración habitual. Sin embargo, los individuos albinos

presentan los ojos de color rojizo debido a los capilares sanguíneos (Mitchell & Mazur, 1998). Por lo tanto, parece claro que en este caso nos encontraríamos ante un ejemplar albino de *L. boscai*.

Este ejemplar se encontraba en una pequeña represa, en un ambiente dominado por repoblaciones de pinos y eucaliptos con pequeñas manchas de caducifolias autóctonas, junto a un grupo de más de un centenar de ejemplares de su misma especie de coloración normal y alrededor de medio centenar de ejemplares adultos de *T. marmoratus*.

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## A report of leucism in the north african fire salamander *Salamanca algira* (Caudata: Salamandridae)

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**Fecha de aceptación:** 18 de noviembre de 2020.

**Key words:** aberrant, amphibians, colorations, Morocco, urodele.

**RESUMEN:** Durante una expedición nocturna en la península Tingitana el 6 de diciembre de 2019, fue encontrado un espécimen de *Salamanca algira* Bedriaga, 1883 con anomalía de coloración que representa el primer caso conocido de leucismo en la especie.



**Figure 1:** a) Leucistic specimen of *Salamandra algira tingitana* from Tingitana Peninsula, Morocco. Head detail, dorsolateral view, and b) dorsal view of the same individual.

**Figura 1:** a) Especimen leucístico de *Salamandra algira tingitana* de la península Tingitana, Marruecos. Detalle de la cabeza, vista dorsolateral y b) vista dorsal del mismo individuo.

Literature of abnormal or uncommon colorations occurring in amphibians is extensive (Werner, 1893; Smallcombe, 1949; Brame, 1962; Campagna, 1973; Dubois, 1979; Dyrkacz, 1981; Bechtel, 1995; Mikulicek *et al.*, 2001; Pabijan *et al.*, 2004; Spadola and Insacco, 2010; López and Ghirardi, 2011; Modesti *et al.*, 2011; Toledo *et al.*, 2011; Keely & Maldonado, 2013; Jablonski *et al.*, 2014). However, classifying aberrant or unusual chromatic colorations in vertebrates are sometimes a confusing matter, as some terms have been used for naming different mutations or have been differently defined (Romero and Tiria, 2017). For example, both leucistic and albino specimens can lack dark (totally or partially) general body pigmentation (melanophores), but their diagnosability is controversial. Whereas Lunghi *et al.* (2017) considered leucistic specimens those with a normally pigmented eyes and albinos those lacking eyes' dark pigmentation (usually resulting in a red pupil appearance), Rivera *et al.* (2001) classified leucism as those aberrations in which yellow or orange pigmentation are not visible, with usually dark or blue eyes, in contrast to the albinos, which could present yellow-orange body pigmentation and red pupils. Thus, the

nomenclature of some amphibians' phenotypic forms, such as these colour-based anomalies, should be regarded with caution.

The genus *Salamandra* is known to be one of the most phenotypically variable among the amphibians of western Palearctic (Speybroeck *et al.*, 2016). Although several types of colour anomalies have been reported in the genus, most of them are based on captive observations of *Salamandra salamandra* (Linnaeus, 1758) (Klewen *et al.*, 1982; Rivera *et al.*, 1994; Palau i Soler, 1999; Benavides *et al.*, 2000; Salvador and García Paris, 2001; Boada *et al.*, 2012; Sparreboom 2014; Beukema *et al.*, 2015; Seidel & Gerhardt, 2016; Lunghi *et al.*, 2017). By contrast, there is little information about colour anomalies in *S. algira*. This species is the only representative of the genus *Salamandra* Garsault, 1764 in North Africa, where it is considered a Palearctic relict (Bons & Geniez 1996). It occurs discontinuously from the Tingitana peninsula in Morocco to the Annaba region in eastern Algeria (Bogaerts *et al.*, 2013; Escoriza & Ben Hassine 2019). As typically displayed by most of the species of the genus, *S. algira* presents an enormous intraspecific phenotypic variability, showing different pigmenta-

tion designs (Donaire & Bogaerts, 2003; Beukema *et al.*, 2013; Donaire & Bogaerts, 2016; Escoriza & Ben Hassine, 2019; Martínez del Mármol *et al.*, 2019). Recently, Seidel & Gerhardt (2016) compiled several cases of the different uncommon colouration patterns in the genus, including the first colour aberration for *S. algira*, which was tentatively considered as an axanthic specimen. Another two cases of strange colorations are reported from Tetuan with apparently partial hypomelanism (Bok, 2017; Speybroeck, 2020). To our knowledge, no additional published reports on *S. algira* deals with aberrant colorations. We herein describe an additional case of colour anomaly in *S. algira* that represent the first case of leucism in the species.

During a nocturnal expedition in the Tingitana Peninsula on the 6<sup>th</sup> of December 2019, under a non-raining weather but high environmental humidity as typically reported for the

area (Escoriza & Ben Hassine, 2014; Donaire & Bogaerts, 2016), a leucistic specimen of *S. algira* was found actively wandering at 1:00 h approximately (Figure 1a). The specimen was characterized by (1) the absence of yellow-orange pigments, (2) the partial lack of body melanophores, and (3) deeply pigmented eyes. This hypomelanistic report could be tentatively considered as a case of leucism. The reduction of dark pigmentation uncovers the arrangement of the granular (venomous) glands along the vertebral dorsal axis and between the lateral grooves of the body (Figure 1b). In the same place two more specimens were found: one completely melanistic and another with a few large irregular yellow-orange elongated blotches in the dorsal area. Specimens from this described population belong to *S. algira tingitana*, which also represent the most phenotypic variable subspecies within *S. algira*.

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## Primer registro de población reproductora de *Lissotriton boscai* en hábitat hipogeo

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**Fecha de aceptación:** 19 de octubre de 2020.

**Key words:** Amphibian, *Triturus*, Troglóxene, Tunnel, Urodeles.

La presencia de anfibios en hábitat hipogeos como cuevas y túneles no es una novedad, se han registrado diferentes citas de anfibios en este tipo de medios. Algunos de ellos han sufrido un proceso evolutivo que los ha llevado a

la adaptación troglomórfica a ambientes subterráneos, como el troglóbulo *Proteus anguinus* o el género *Hydromantes*, en Europa.

Sin embargo, en cuanto a anfibios troglóxenos (presentes ocasionalmente), no son tan frecuen-