

## *Salamandra algira* (North African fire salamander): New distribution area in Algeria

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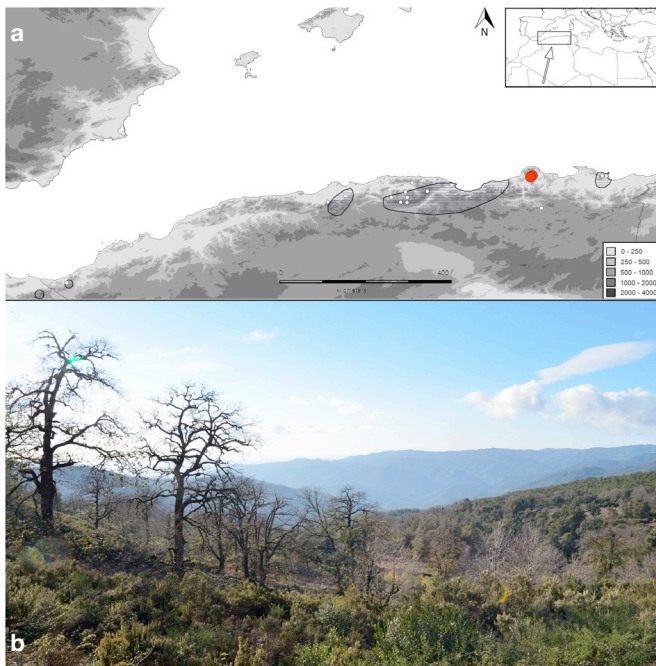
The North African salamander, *Salamandra algira* Bedriaga, 1883 is an endemic amphibian from northern Morocco and Algeria (Ben Hassine & Escoriza, 2014). It appears in isolated populations, some of them constituting distinct genotypes. The nominal subspecies is present in Algeria, since the neotype of *S. algira* was designated in Mont Edough (northeastern Algeria; Escoriza & Comas, 2007).

The first author to mention the presence of *S. algira* in Algeria was Poiret (1789), in his “Voyage en Barbarie ou lettres écrites de l’ancienne Numidie”. In this book he gave a short description of the species under the name “*Lacerta salamandra*”. Guichenot (1850) reported “*Salamandra maculosa*” (= *Salamandra algira* Bedriaga, 1883) to be very rare in the region of Oran. Guichenot (1850) stated that Colonel Levaillant found this species in Constantine. Lallemand (1867) describe it as a rare species in Algeria found in Oran, Kabylie, Bône (Annaba) and forest of Edough. Boulenger (1882, 1891) considered “*Salamandra maculosa* var. *algira*” to be localized in Algeria, but common in the sites where it appears. This author reported it from Algiers (Alger), and Bône (Annaba) and stated that other authors also recorded *S. algira* in Algeria: *S. algira* was also found in large numbers in Bône (Annaba) by Dr. Hagenmüller. Lataste and Lallemand collected several larvae from L’Arba (30 km south of Alger). Hanoteau and Letourneux founded *S. algira* in the forest of Akfadou (Kabylie), Fort National (Larbaâ Nath Irathen) and Bougia (Béjaïa). The last was confirmed subsequently by Dr. Boettger.

Olivier (1894) provided a similar list of records to that of Guichenot (1850), Lallemand (1867) and Boulenger (1891), but included Bugeaud (Seraïdi). Doumergue (1901) recorded this species in the extreme northwest of Algeria, in the mines de Rar-el-Maden, close to Montagnac. Pellegrin (1927) collected the citations previously described by Boulenger (1891) and Guichenot (1850). Seurat (1930) stated that this species was recorded by several naturalists in Bône, Forêt d’Edough, southern side of l’Haïser in Djurdura (at 980 m.a.s.l.) and the Atlas of Blida (at 1300 m.a.s.l.). Balozet reported the presence of salamanders in the Kabylie, in the region between Tikjda and Tizi n’Kouilal, at 1550 m.a.s.l. (Bons, 1972). More recent observations of *S. algira* in Algeria were reported within the previously

known range (Iboudraren et al., Bouali & Oneimi, 2005) and Seraïdi (Samraoui et al., 2012). Schleich et al. (1996), Salvador (1996), Escoriza et al., (2006) and Mateo et al., (2014) described the presence of *S. algira* in some of the historic sites. On the basis of these historical records and similarly to Morocco, the distribution of *S. algira* in Algeria seems to be discontinuous. *S. algira* populations are separated by long distances; in particular, those in the western core (around Oran) from the populations in the regions of Blida and Kabylie (Fig. 1). The historical records and the general distribution of the species in Algeria, according to the IUCN (2014), are shown in Fig. 1. In February 2013, the authors discovered larvae of *S. algira* in a previously unknown area of the species’ distribution in Algeria. In this region two breeding sites were found around the village of Zitouna, wilaya of Skidda, northeastern Algeria (36.92°N, 6.44°E and 36.90°N, 6.40°E; Fig. 1a). The climate of the region, according to Köppen–Geiger classification, is of the type dry-summer subtropical, with an annual average temperature of 15.5 °C, and average annual rainfall of 1231 mm, and classified as humid (Trabucco & Zomer, 2009; World climate database, 2014). The vegetation is mainly composed of meso-thermal broadleaf mixed oak forests dominated by *Quercus suber* and *Quercus canariensis*, along with a dense understory of shrubs and small trees (Fig. 1b). In both sites the larvae were located in temporary ponds. At the first site, located 297 m above sea level, we captured two specimens (an example is shown in Fig. 2) and at the second site, located 700 m above sea level, three specimens were found.

These records fill the void that existed between two main northeast Algerian populations, Kabylie (50 km to the west) and Mont Edough (110 km to the east; Fig. 1a). The newly discovered populations indicate that *S. algira* could be more widespread in Algeria than suggested by historical records, and the apparent discontinuity in its distribution could be due to insufficient survey effort. Suitable conditions for this species may exist in much of the northeast of Algeria, particularly in the coastal mountain ranges.



**Figure 1.** a) Distribution map of *Salamandra algira* Bedriaga, 1883 in Algeria. White dots, literature records. Shaded area, range according to IUCN (2014). Red dots, new records in the region of Skidda, northeastern Algeria. b) Habitat of *S. algira* around Zitouna. Mesic broadleaved forest of Algerian oaks *Q. canariensis*.



**Figure 2.** Prometamorphic larvae of *Salamandra algira*, found around Zitouna.

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