

Rediscovery of *Armiger crista* (Linnaeus, 1857) (Gastropoda Planorbidae) in Algeria

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ABSTRACT

Armiger crista (Linnaeus, 1758), a holarctic freshwater gastropod, has been rediscovered in Algeria. It was found in a small lake whose malacofauna was almost exclusively palearctic/holarctic. This aquatic environment is probably unique in the Maghreb, where cold-climate faunal elements are rapidly disappearing due to global warming. Monitoring of the site and study of other groups is highly recommended.

KEY WORDS

Armiger crista; endangered palearctic gastropods; global climate change; southern limit.

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INTRODUCTION

Armiger crista (Linnaeus, 1758), type locality: marshes in Germany, is a holarctic freshwater/α-oligohaline pulmonate gastropod, belonging to the family Planorbidae. The Maghreb and Ethiopia constitute in Africa the southern limit of its range (Van Damme, 1984; Brown, 1994). In the last decades it has only been recorded from a few sites, namely at Ifrane, Lake Hachlaf and the Ben Smim springs in the Middle Atlas in Morocco (Ghamizi, 1998) and from a well at Jandouba, north-west Tunisia (Khal-loufi & Boumaiza, 2007).

In Algeria, it was considered as possibly extinct (Van Damme & Ghamizi, 2010; Van Damme et al., 2010), not being recorded anymore since the 19th Century, when Bourguignat (1864) listed it as *Planorbis crista* and *P. imbricatus* (= *P. crista*), from the Mediterranean region between Mostaganem and Constantine (see also Lallemant, 1881).

Subfossils shells have been found in the southern part of the country at Hassi-Dehin and the Ahaggar Mountains (Sparks & Grove, 1961; see also: Thomas 1884: 50–51, tableau synoptique and Pal-lary, 1901: 160).

In July, 2020, during an inventory survey of the malacological fauna of Algeria, specimens of *Armiger crista* were found in a small lake near Tizi-Ouzou.

MATERIAL AND METHODS

Sampling was carried out in the region of Tizi-Ouzou, about 100 km east of Algiers (Algeria). The site is a natural lake, shallow, with a length of 80 meters and a width of 30 meters, it is rich in vegetation and animals occupying this habitat, located at an altitude of 460 meters with coordinates 36°48'14"N, 4°00'35"E (Fig. 1).

The samples (Fig. 2), a dozen specimens of *Armiger crista*, were taken with a hand net (0.5 mm-mesh size). The shell shows regular transverse ridges extending beyond the main curve of the shell. It is translucent, yellow-brownish in colour and has had a maximum diameter 1.83–2.19 mm.

Other additional species were found in this place, such as *Hippeutis complanatus* (Linnaeus, 1758), *Bulinus truncatus* (Michaud, 1829), *Ferrisia californica* (Rowell, 1863), *Musculium lacustre* (O.F. Müller, 1774), and *Planorbis planorbis* (Linnaeus, 1758).

DISCUSSION AND CONCLUSIONS

Since the late 19th Century little field-work has been carried out on the freshwater malacofauna of Algeria. Nonetheless, it is evident that, due to the ever intensifying and unsustainable human use of surface waters, many of these have disappeared or become devoid of aquatic life since that time. In addition, increasing ambient temperatures and extended periods of drought, due to climate change,

have in the last decades aggravated this ecological decline (Oualkacha et al., 2017). In all Maghrebian countries, the freshwater gastropod fauna in general has severely suffered, but in particular the palearctic-holarctic species, whose range's southern limit was situated in northern Africa and the Levant. These are presently vanishing all over their historical southern range (Seddon et al., 2014).

The discovery in Algeria of a standing surface water, where *H. complanatus* L. was found (Glöer & Ramdini, 2019), harboring not only *Armiger crista*, considered as endangered, but harboring a mollusc community consisting almost exclusively of holarctic molluscs, *Bulinus truncatus* excepted, is of substantial scientific importance. It indicates that such aquatic relict environments still exist in the Maghreb, though having become extremely rare. It is therefore highly recommended that the small lake in question should be protected, considering its ecological uniqueness and that a monitoring program should be set up to track changes in abiotic and biotic (e.g., molluscs) parameters over time in function of global warming trends in the Maghreb.



Figure 1. Small lake near Tizi-Ouzou (Algeria).

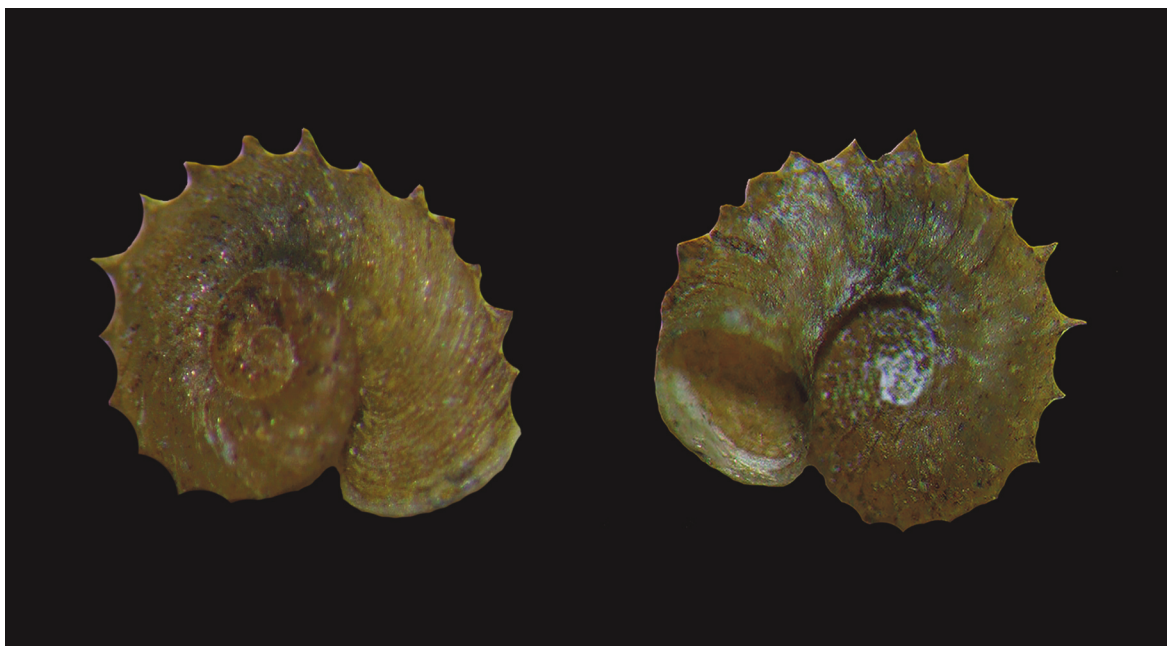


Figure 2. *Armiger crista* from Tizi-Ouzou (Algeria), maximum diameter 1.94 mm.

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