

On the Presence of the European Medicinal Leech *Hirudo medicinalis* Linnaeus, 1758 (Annelida: Hirudinea) in Romania

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Abstract. An isolated, but persistent population of the European medicinal leech *Hirudo medicinalis* Linnaeus, 1758 is reported from the “Mestecănișul de la Reci” Natural Reserve (ROSCI0111, Covasna County), representing the first confirmed record of this species in Romania. Information regarding habitat characteristics, main diagnostic features and protection status of the species is presented.

Key words: *Hirudo medicinalis*, *Hirudo verbana*, Romania, distribution, conservation management.

Six species of medicinal leeches (*Hirudo* spp.) are currently recognized worldwide, all of them with Palearctic distribution: the European medicinal leech *Hirudo medicinalis* Linnaeus, 1758, the North-African “dragon” or “trout leech” *Hirudo troctina* Johnson, 1816, the Mediterranean medicinal leech *Hirudo verbana* Carena, 1820, the Korean blood-sucking leech *Hirudo nipponia* Whitman, 1886, the Persian or Georgian medicinal leech *Hirudo orientalis* Utevsky & Trontelj, 2005, and the recently described *Hirudo sulukii* Saglam, Saunders, Lang & Shain, 2016 (Utevsky & Trontelj, 2005; Utevsky et al., 2010; Saglam et al., 2016). Although the medicinal leeches are characterized by great intraspecific colouration variability, the species can be readily distinguished by the colouration pattern (Hechtel & Sawyer, 2002; Utevsky & Trontelj, 2005; Saglam et al., 2016). In spite of being one of the best-studied invertebrate species, information on quantitative ecology of medicinal leeches in the wild is still very limited (Elliott & Kutschera, 2011; Kutschera & Elliott, 2014).

In Romania, all previous reports of medicinal leeches referred to as *H. medicinalis* (Scriban, 1904, 1910, 1915; Epure, 1944; Cristea & Manoleli, 1977). Scriban (1904, 1910) even mentioned the occurrence in Romania of five colour varieties of *H. medicinalis* (*serpentina*, *tesselata*, *signata*, *communis* and *nigrescens*). In spite of this, recent studies (Gagiu, 2010; Fermaș & Cristofor, 2013; Surugiu, 2015) revealed that in Romania all populations belong to *H. verbana* only.

However, on the 3rd of July 2016, two individuals with a pigmentation pattern, typical of *H. medicinalis*, were collected from a small eutrophic swamp in the “Mestecănișul de la Reci” Natural Reserve (45.82287°N, 25.9266°E; ROSCI0111; Covasna County). The repeated sampling, on the 10th of July 2016, provided additional five adult and two juvenile specimens. All collected specimens are deposited in the collection of the “Grigore Antipa” National Museum of Natural History, Bucharest, Romania (MGAB ANN 002) and in the author’s personal collection.

The habitat where *H. medicinalis* were collected is situated at an altitude of 534 m a.s.l. The estimated surface area of the swamp is of 604 m², the depth is

less than 0.5 m, and the substrate is muddy. Emergent vegetation is represented by broadleaf cattail (*Typha latifolia*) and rush (*Juncus* sp.), whilst the submerged plants were represented by European white water lily (*Nymphaea alba*), frogbit (*Hydrocharis morsus-ranae*), and common duckweed (*Lemna minor*) (Fig. 1). On the second sampling occasion, the following environmental parameters were recorded in the field: 21.6°C for water temperature, 7.10 for pH, 0.75 mg.l⁻¹ for dissolved oxygen concentration (8.5% saturation), 68.9 µS.cm⁻¹ for conductivity, and 39.2 mg.l⁻¹ for TDS (measured with a portable CONSORT C535 Water Quality Meter).

Adults of *H. medicinalis* measured 74.0–78.5 mm long, 11.0–11.5 mm wide and with the posterior sucker diameter (PSD) of 6.5–7.5 mm; young leeches were 39.0 mm long, 5.0–6.0 mm wide, and 3.5–4.0 mm PSD. The individuals are characterized by two sharply delimited pairs of longitudinal red stripes interrupted by metamericly arranged black, drop-like markings on generally olive-green to brown dorsal background and by irregularly distributed black spots on yellow to light greenish ventral side (Fig. 2).

Thus, in Romania, there are present two species of medicinal leeches: the common *H. verbana* and a much rarer *H. medicinalis*. As suggested by Utevsky et al. (2010), in Romania, *H. medicinalis* seems to be restricted to the deciduous arboreal zone (in this case a birch forest), while *H. verbana* prefers steppe landscapes.

Distribution: confirmed records for the occurrence of *H. medicinalis* are from United Kingdom, Denmark, southern Norway, Sweden, Finland, France, Belgium, the Netherlands, Luxembourg, Germany, Poland, Lithuania, Latvia, Estonia, Belarus, Russian Federation eastward to the southern Ural Mountains and probably as far



Fig. 1 – Habitat of *Hirudo medicinalis* at the “Mestecănişul de la Reci” Natural Reserve.



Fig. 2 – Dorsal (in the left) and ventral (in the right) pigmentation pattern of *Hirudo medicinalis* from “Mestecănișul de la Reci” natural reserve (scale lines 10 mm apart).

as the Altai Mountains, Switzerland, Austria, Hungary, Czech Republic, Slovakia, Ukraine, Slovenia, Croatia (Utevsky et al., 2010; Elliott & Kutschera, 2011) and Romania (new record).

Wild populations of the European medicinal leech are threatened in most of the European countries as result of wetland habitats alteration and loss, global decline of amphibian populations, abandonment of traditional grazing practices (troughs are now used instead of ponds for the watering of farm animals) and extensive over-collecting for medical purposes (Utevsky et al., 2010; Elliott & Kutschera, 2011; Kutschera & Elliott, 2014). *H. medicinalis* is currently classified as NT category (“near threatened”) in the IUCN Red List (Utevsky et al., 2014), included in Appendix III of the Bern Convention (Council of Europe, 1979), in Appendix II of the CITES (1979; ratified by National Law No. 69/1994) and in Annex Va of the Habitats Directive (Council Directive 92/43/EEC). *H. medicinalis* from “Mestecănișul de la Reci” Natural Reserve is believed to represent a boreal-continental relict population. Though this small population seems to be viable due to the presence of juvenile medicinal leeches, rich amphibian host populations (*Pelophylax lessonae*, *Rana arvalis*, *Triturus cristatus*) and obvious evidence that the habitat is frequented by cattle for the watering (banks of water presented numerous footprints), it is critically endangered because marshes and ponds within the protected area are menaced by gradual drying out. Thus, further regular monitoring of this population is necessary to envisage effective conservation actions for this rare species in Romania.

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