## Identifying hosts and host's answers to the enigmatic autochthonous leech Haemopis elegans (Hirudinea: Haemopidae).

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I: Hirudo medicinalis r: Hirudo verbana © A. Utevsky http://staging.enilsson.com/medres/

Theromyzon maculosum © C. Grosser

Parasitizing vertebrates others than fishes, i.e. blood-sucking, tissue-feeding or fluid-ingesting on living waterbound hosts, is known from only five Central European leech species: The presumptive allochthonous, exclusively sanguivorous medical leeches, *Hirudo medicinalis* and *H. verbana* (Hirudinidae), the autochthonous, ectoparasitic, rare European turtle leech *Placobdella costata* (Glossiphoniidae), and the autoch-

thonous, but endoparasitic duck leeches Theromyzon tessulatum and T. maculosum (Glossiphoniidae). European, non-troglobiontic taxa of the genus Haemopis (Hirudinidae) are considered to be macrophagous. Nevertheless, the family Hirudinidae is poly-paraphylic, and at least macrophagous feeding behavior is no helpful taxonomic criterion at all (5); thus, new parasitological enlightenments may be induced by some current observations of leeches violating endemic vertebrates.



Theromyzon tessulatum © http://i.pbase.com/g5/01/



In May 2005 a herpetological survey started in Carinthia; by chance some spawning toads being parasitized by leeches were detected. The outside appearance of one of the leeches did not match the ones of the endemic medicinal leeches, nor did the clinical picture implicate an emphatic case of straight blood-sucking. Thus, this leech was re-diagnosed by morphological and external criteria and it was assigned to the rediscovered and renovated Haemopid taxon *Haemopis elegans* (Moquin-Tandon, 1846) (1). This leech stuck on the toad unequivocally, penetrated the toad's skin marginally via a bite, causing a massive skin reddening and irritation; and a picayune after-bleeding circle became apparent when the leech was removed by force.

The Lanzendorfer Moor, the habitat of the leech, is a freshwater lake which



developed from a former dead-ice hole, located N 46°39`20``, E 14°27`23`` at 447 m above sea-level, with a water surface area of about 700 hectare. It is a rainwater-fed fen with a negligible flow-through, and, because it is a nature reserve, there are no cattle or fair game watering holes but a rich amphibian and water fowl fauna. Other leeches living therein are the ornithophagous Theromyzon tessulatum, Erpobdella octoculata, and Hirudo medicinalis (2). The leech taxon Haemopis elegans was not located and identified in Carinthia in a faunistic study in 1999 (4), an ascertainment consistent with the conclusive re-segregation of the species H. elegans from *H. sanguisuga* in 2004 (1).



Despite the eponymous species denomination "sanguisuga", all European members of the genus Haemopis are conventionally considered to be true predators, not parasites. Yet, macrophagous feeding behavior is no synapomorphic attribute of the family Hirudinidae (5), and the diet of *Haemopis elegans* is unknown (1). Due to a weaker shaped mouthpart compared to the one of the predacious H. sanguisuga, tissue- or blood-feeding of H. elegans was assumed (1), the original author even postulated sanguivory on homoiothermic vertebrates (3). Thus, attacking and assaulting toads seems to be a probable feeding behavior of this leech taxon – at least as a failed

## attempt of tissue feeding on an outsized prey.

Résumé: Herewith we report a case of an attack and of an injuring of a Common toad (Bufo *bufo*, Linnaeus 1758) by a recently rediscovered, enigmatic Haemopid leech taxon, *Haemopis* elegans (Moquin-Tandon 1846) - actually a member of a macrophagous leech genus. 

## References:

(1) Grosser, C. (2004): Haemopis elegans (Hirudinea: Haemopidae) - ein wiederentdecktes europäisches Egeltaxon. – Lauterbornia, Dinkelscherben; 52: 77-86. (2) Mildner, P. & Kofler, A. (1988): Zur Verbreitung von Egeln (Annelida: Hirudinae) in Kärnten und Osttirol. - Carinthia II, Klagenfurt; 178./98: 515-521. (3) Moquin-Tandon, A. (1846): Monographie de la famille des Hirudinees; Paris (J.-B. Bailliere), pp 448.

(4) Nesemann, H. (1999): Vorläufiges Verzeichnis der Egelartigen Gliederwürmer Kärntens Annelida: Hirudinea & Branchiobdellida). In: Rottenburg, T.

& Wieser, C. & Mildner, P. & Holzinger, W.E. (edt): Rote Listen gefährdeter Tiere Kärntens. - Naturschutz in Kärnten, Klagenfurt 15: 625 – 626.

(5) Siddall, M.E. & Phillips, A.J. (2009): Poly-paraphyly of Hirudinidae: many lineages of medicinal leeches. BMC Evolutionary Biology, London; 9: 246-256.