

ON THE DIVERSITY OF IRANIAN LEECHES (ANNELIDA: HIRUDINEA)

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Abstract - Some provinces of Iran were investigated with respect to their aquatic invertebrates during two expeditions. Results of investigating the systematics of leeches (Annelida: Hirudinea) are presented in this paper. Twelve species of leeches are recorded, four of which are new for the country.

Key words: Hirudinea, leeches, Iran, new records, faunistics

UDC 595.143(55):591.9

INTRODUCTION

In 2003 and 2005, the second author carried out two expeditions in Iran. The first included Kerman, Mazandaran, Markazi, Esfahan, Yazd, Hamedan, Chahar Mahal, and Bakhtiari Provinces, while the second was in the Provinces Khorrasan, Markazi, Lorestan, Kermanshah, and Mazandaran (Fig. 1). The leech fauna of Iran is poorly known (Benike, 1940; Lukin, 1976; Sawyer, 1986), and special identification keys for the region are missing (A. A. Gholami/Tehran, pers.

comm.). However, in view of the geographical location of Iran, a very rich fauna of leeches should be expected.

For each of the species collected, the new locality records are given, followed by the global pattern of distribution. In addition, taxonomic notes are provided for some species.

MATERIAL AND METHODS

Leeches were collected by hand or with pincers from the underside of roots and stones in the water, as well as on the banks. The collected leeches were first transferred into 10 % ethanol, after which they were washed to remove the mucus and preserved in 70 % ethanol. The material is deposited in the authors' collections.

RESULTS AND DISCUSSION

Glossiphoniidae Vailant, 1890

1. *Helobdella stagnalis* (Linnaeus, 1758)

Material examined: Khorrasan Province, river near city of Kalat (ca. 36°58'N 59°45'E), ca 1900 m a.s.l., 05.06.2005, leg. V. Pešić, three specimens; Markazi Province, Ashtian to Arak road (ca. 5 km after Ashtian, ca. 34°34'N 50°01'E), ca. 1800 m a.s.l., 21.06.2005, leg. V. Pešić, five specimens; Markazi Province, Aman Abad spring on Anjedan road before village of Aman Abad (5



Fig. 1. Map of the study area in Iran.

km to Aman Abad village, ca. 33°55'N 49°48'E), ca. 1700 m a.s.l., 22.06.2005, leg. V. Pešić, one specimen.

Distribution: Holarctic.

2. *Hemiclepsis marginata* (O. F. Müller, 1774)

Material examined: Mazandaran Province, city of Nowshahr (37°17'N 50°07'E), pond, 6 m a.s.l., 15.06.2005, leg. V. Pešić, three specimens.

Distribution: Palaearctic.

3. *Placobdella costata* (Fr. Müller, 1846)

Material examined: Mazandaran Province, city of Nowshahr (37°17'N 50°07'E), pond, 6 m a.s.l., 20.07.2003, leg. V. Pešić, one specimen.

Distribution: *Placobdella costata* is a Mediterranean species that ranges eastwards to the Ukraine and is found in Greece, Turkey, and the Levant to the southern part of the Arabian Peninsula (N e s e m a n n and N e u b e r t, 1999).

Haemopidae Richardson, 1969

4. *Haemopsis sanguisuga* (Linnaeus, 1758)

Material examined: Yazd Province, Sumgroh, 50 km from Abrakoh, spring, 06.08.2003, leg. V. Pešić, one specimen.

Distribution: Palaearctic species. According to N e s e m a n n and N e u b e r t (1999) its distribution in the Middle East is unknown. New for Iran.

Hirudinidae Whitman, 1886

5. *Hirudo* sp.

Material examined: Mazandaran Province, city of Nowshahr (on the Caspian sea, 37°17'N 50°07'E), pond, 6 m a.s.l., 18.06.2005, leg. V. Pešić, four specimens.

Remarks: *Hirudo* sp. is a new species. The description by T r o n t e l j and U t e v s k i (2005) is in press. This leech will be named *Hirudo orientalis*. New for Iran.

6. *Limnatis nilotica* (Savigny, 1822)

Material examined: Kerman Province, stream in village of Sirch, 50 km E of Kerman (30°12'N 57°34'E), 24.07.2003, leg. V. Pešić, one specimen.

Distribution: *L. nilotica* is a circum-Mediterranean species. Further, there are records from the Ukraine and

the Crimean Peninsula, the Near and Middle East, the Arabian Peninsula and East Africa (N e s e m a n n and N e u b e r t, 1999).

Remarks: The Iranian specimens of *Limnatis* are still assigned to *L. nilotica*. Probably, *L. nilotica* can be subdivided into several species in the future. First genetic investigations support this idea (P.Trontelj, pers. comm.). After the clarification the taxonomy of *Limnatis* the material from Iran will have to be verified once more.

Erpobdellidae R. Blanchard, 1894

7. Erpobdellidae spec.

Material examined: Lorestan Province, stream near Khorramabad, 24.06.2005, leg. V. Pešić, one specimen; Markazi Province, Cheshmeh Shater on Arak to Khomein road (8 km after Arak, ca. 34°08'N 49°45'E), ca. 1700 m a.s.l., 22.06.2005, leg. V. Pešić, three specimens; Markazi Province, Varcheh spring in Emamzadeh Varcheh village (in Arak to Khomein road, ca. 20 km to Khomein, ca. 33°49'N 49°55'E), ca. 1700m a.s.l., 22.06.2005, leg. V. Pešić, 1 specimen.

Remarks: These specimens of the family Erpobdellidae could not be identified to the species level. The annulation was not typical and resembled that of *Dina* and *Trocheta* in different body regions. The annuli showed a high tendency toward irregular subdivision. The unidentified Erpobdellidae with unclear annulation perhaps belong to a new species or are variations without taxonomic status. However, this problem remains to be for further studies if and when more material becomes available.

8. *Dina* sp.

Material examined: Markazi Province, city of Khomein, stream, 23.06.2005, leg. V. Pešić, one specimen.

Remarks: This specimen of the genus *Dina* could not be clearly assigned to any of the known species.

9. *Dina lineata concolor* (Annandale, 1913)

Material examined: Kerman Province, stream in village of Sirch, 50 km E of Kerman (30°12'N 57°34'E), 24.07.2003, leg. V. Pešić, two specimens; Markazi Province, Anjedan stream 20 km from Arak, 22.07.2003, leg. V. Pešić, one specimen; Kermanshah Province, Ab-Barik stream in village at Ab-Barik (34°50'N 48°20'E),

27.06.2005, leg. V. Pešić, one specimen.

Distribution: Known from the eastern Mediterranean region and in the Near East where it is abundant (Sawyer, 1986, Nese mann & Neubert, 1999). New for Iran.

10. *Dina lineata lineata* (O. F. Müller 1774)

Material examined: Kermanshah Province, Ab-Barik stream in village of Ab-Barik (34°50'N 48°20'E), 27.06.2005, leg. V. Pešić, one specimen.

Distribution: This species is known from the southwestern Mediterranean part of the Western Palaearctic. Ben n i k e (1940) records specimens from Western Iran resembling *Dina lineata lineata* (Nese mann & Neubert, 1999).

11. *Dina stschegolewi* (Lukin & Epshtein, 1960) sensu Nese mann, 1993

Material examined: Chahar Mahal and Bakhtiari Province, road from Saman to Farsan, Mike spring, 01.08.2003, leg. V. Pešić, one specimen; Esfahan Province, Mt. Pocan, village of Doto after Tiran, 30.07.2003, leg. V. Pešić, one specimen; Markazi Province, Eskan spring 30 km after city of Shahzand, 21.07.2003, leg. V. Pešić, one specimen; Markazi Province, Aman Abad spring 12 km from Arak (on Arak to Khomein road), 22.07.2003, leg. V. Pešić, one specimen; Markazi Province, Ghareh Chai stream 30 km after Tafresh city, 24.08.2003, leg. V. Pešić, one specimen; Lorestan Province, Darband stream in village of Darband (Azna to Dorood road, ca. 16 km from city of Azna, ca. 33°25'N 49°17'E), ca. 1800 m a.s.l., 23.06.2005, leg. V. Pešić, one specimen; Markazi Province, Aman Abad spring on Anjedan road before village of Aman Abad (5 km from that village, ca. 33°55'N 49°48'E), ca. 1700 m a.s.l., 22.06.2005, leg. V. Pešić, two specimens; Markazi Province, Cheshmeh Shater on Arak to Khomein road (8 km after Arak, ca. 34°08'N 49°45'E), ca. 1700 m a.s.l., 22.06.2005, leg. V. Pešić, three specimens.

Distribution: The distribution of *D. stschegolewi* in Europe is unclear, but in the Near East it is a common species (Nese mann, 1993). New for Iran.

Remarks: L u k i n and E p s t e i n (1960) described *Dina stschegolewi* from the Crimea as a leech without longitudinal black lines. The description by Nese mann (1993) and Nese mann & Neubert (1999) mentions three dark longitudinal stripes (one pair of paramedian stripes and one median

stripe) on the dorsal surface as being characteristic. Specimens with this coloration are common in the Near and Middle East. Nese mann (1993) assigned them to *Dina stschegolewi* because the locus typicus is in the aforementioned region. However, it is more likely that they belong to a new species.

12. *Erpobdella octocolata* (Linnaeus, 1758)

Material examined: Kermanshah Province, Ab-Barik stream in village of Ab-Barik (ca. 34°50'N 48°20'E), 27.06.2005, leg. V. Pešić, two specimens; Khorrasan Province, Akhlamad (ca. 36°40'N 58°57'E), waterfall, ca 2000 m a.s.l., 04.06.2005, leg. V. Pešić, two specimens; Lorestan Province, Darband stream in village of Darband (Azna to Dorood road, ca. 16 km from city of Azna, ca. 33°25'N 49°17'E), ca. 1800 m a.s.l., 23.06.2005, leg. V. Pešić, one specimen; Markazi Province, road to Khomein, spring stream, 22.06.2005, leg. V. Pešić, four specimens; Markazi Province, stream near city of Astaneh (Azna-Aligudarz connecting road, ca. 33°55'N 49°24'E), ca. 2400 m a.s.l., 23.06.2005, leg. V. Pešić, one specimen.

Distribution: This species is widespread in the Palaearctic region. New for Iran.

CONCLUSIONS

These new data are based on a rather small collection of leeches, but they allow an interesting insight into the leech fauna of the study area. The Iranian leech fauna belongs to the Palaearctic region and is characterized by the presence of European species (Sawyer, 1986). Most of the species found in Iran on these two expeditions are also recorded in Europe.

Sawyer (1986) subdivided the Palaearctic region into two zoogeographical zones: Boreal subregion and the Ponto-Mediterranean subregion. The Ponto-Mediterranean subregion is characterized by the following species: *Limnatis nilotica*, *Batracobdella algira* (Moquin-Tandon, 1846), and *Dina* sp. *Dina* is a very common genus in Iran and was dominant in material collected during the two expeditions (Table 1).

Our work on Iranian leeches demonstrates the presence of an interesting fauna, but one that is still incompletely documented. In future we can expect that faunistic inventories of stagnant and running waters in selected areas all over the Middle East region will yield a consid-

Table 1. Dominance of leeches in material collected during two expeditions in Iran in 2003 and 2005

Taxa	Number of individuals	Abundance
Glossiphoniidae	13	25,5%
<i>Helobdella stagnalis</i>	9	17,6%
<i>Hemiclepsis marginata</i>	3	5,9%
<i>Placobdella costata</i>	1	2,0%
Haemopidae	1	2,0%
<i>Haemopsis sanguisuga</i>	1	2,0%
Hirudinidae	5	9,8%
<i>Hirudo sp.</i>	4	7,8%
<i>Limnatis nilotica</i>	1	2,0%
Erpobdellidae	32	62,7%
Erpobdellidae spec.	5	9,8%
<i>Dina</i> Blanchard	17	33,3%
<i>Dina sp.</i>	1	2,0%
<i>Dina lineata concolor</i>	4	7,8%
<i>Dina lineata lineata</i>	1	2,0%
<i>Dina stschegolewi</i> sensu Neesemann	11	21,6%
<i>Erpobdella octoculata</i>	10	19,6%
	Σ 51	Σ 100%

erable increase in knowledge about the diversity of the leeches and their significance as ecological indicators of water quality. Naturally such studies should include taxonomical research with application of molecular genetic techniques.

Acknowledgements: We are grateful to Dr. Peter Trontelj (Ljubljana, Slovenia) for verifying the status of *Hirudo orientalis*, which has not yet been described.

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О ДИВЕРЗИТЕТУ ИРАНСКИХ ПИЈАВИЦА (ANNELIDA: HIRUDINEA)

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У току двије експедиције у Ирану одређене провинције су истраживане у погледу фауне водених бескичмењака. У раду су дати фаунистички резултати о иранским пијавицама. Дванаест врста је констатовано, од чега су 4 врсте: *Hirudo sp. nov.* (U t e v s k i and

T r o n t e l j , in press), *Dina lineata concolor* (Annandale, 1913), *Dina stschegolewi* (Lukin & Epshtein, 1960) sensu Neesemann, 1993 и *Erpobdella octoculata* (Linnaeus, 1758) по први пут регистроване за фауну Ирана.