

***Sigara (Halicorixa) mayri* (FIEBER, 1860) (Hemiptera: Heteroptera: Corixidae), a new species for Ukraine**

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ABSTRACT. *Sigara (Halicorixa) mayri* is a Ponto-East Mediterranean species but it has not been recorded previously in Ukraine. This study shows that *S. mayri* lives in most of southern Ukraine. Within this territory it can be classified as a rare species distributed mostly along the sea coast.

KEY WORDS: Heteroptera, Corixidae, *Sigara mayri*, Ukraine.

INTRODUCTION

Sigara (Halicorixa) mayri (FIEBER, 1860) is a Ponto-East Mediterranean species of the family Corixidae (Heteroptera, Nepomorpha). In Europe it has been found in Albania, Bulgaria, Greece, Italy, Romania, and European Turkey; in North Africa it inhabits Egypt, and in Asia Cyprus and Asian Turkey (JANSSON 1986, 1995; FENT et al. 2011; AUKERMA 2013). *Sigara mayri* has never been recorded in Ukraine to date (cf. PUTSHKOV & PUTSHKOV 1995).

MATERIAL AND METHODS

The materials were collected in the course of field trips during 2008–2012 and supplemented by data from the collections of V. DYADICHKO and M. CHERTOPRUD. The material of the author's collection is deposited in the Ukrainian Scientific Centre of Marine Ecology, Odessa. The aquatic bugs were collected using a Balfour-Browne hand net or

a hydroentomological drag (DYADICHKO 2008), as well as modified fish-traps. Light traps were also used, but no specimens of *S. mayri* were collected using them. The specimens were identified according to JANSSON (1986).

RESULTS

Sigara mayri was found at the eight sites characterised below (Fig. 1). A total of about one hundred males were found. All these biotopes *S. mayri* inhabits together with the widespread, closely related species *S. (Halicorixa) stagnalis pontica* JACZEWSKI, 1961, but the abundance of *S. mayri* was much lower. As it appears impossible to distinguish between the females of these two species, I focus on the male specimens only.

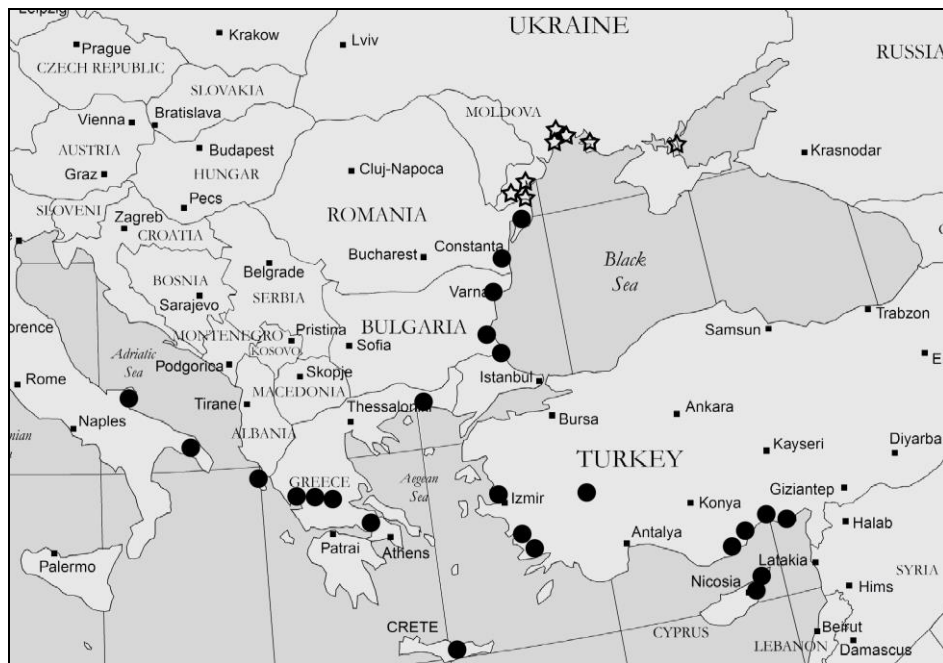


Fig. 1. The distribution of *S. mayri*. Legend: circles – previous records (according to JANSSON 1986 and FENT et al. 2011); asterisks – new records (for a description of the sampling localities in Ukraine, see below).

1. Odessa Region, the vicinity of the town of Vilkovo, Danube drainage basin, 25.10.2008. Freshwater drainage channel about 10 m wide, max. depth 0.5 m, with a sandy and silty bottom. The vegetation consists of *Salvinia natans* (L.) ALL., *Lemna* spp., *Elodea canadensis* MICHX., and filamentous algae. V. DYADICHKO leg. – 1♂.
2. Odessa Region, the vicinity of Lake Sasyk, Danube Basin, 14.04.2012. A freshwater ditch up to 1 m deep, about 2 m wide, with a sandy bottom and vegetation consisting of *Elodea canadensis*, *Phragmites australis* (CAV.) TRIN. ex STEUD., *Carex* spp., *Batrachium* spp. and filamentous algae. Collected by the author – 5♂♂.
3. Odessa Region, Danube drainage basin, Stentsovsky reed beds, 14.04.2012. Shallow freshwater water body in reed beds, with a silty bottom, several km² in area; depth <1 m, mostly 0.2–0.5 m. The vegetation consists of *Phragmites* sp., *Iris* spp., *Scirpus* spp., *Phragmites australis*, *Typha* spp., *Lemna* spp., *Carex* spp. and *Chara* spp. Collected by the author – 3♂♂.
4. Odessa Region, the vicinity of the village of Krasnoselka. A stream flowing into the Kuyalnik Estuary. The stream is about 5 km long, the maximum depth is 1.2 m and the average depth is about 0.5 m. In the course of the year the current velocity varies strongly; in summer the stream dries up completely, with water remaining only in limnocene pools. The salinity varies during the course of the year, from freshwater in spring up to 4.5‰ in summer. The bottom is silty, in places with clay; the vegetation consists of *Chara* spp., filamentous algae, *Carex* spp., *Scirpus* spp., *Phragmites* sp., *Typha* spp., different Poaceae, *Lemna* spp., *Wolffia* sp., and Ranunculaceae n. det. Collected by the author. 3♂♂ were collected, 1♂ on 24.03.2011 and 2♂♂ on 10.04.2011.
5. Odessa Region, the vicinity of the village of Fontanka, 10.04.2011. A limnocene spring with the appearance of a ditch filled with a mixture of rainwater and groundwater. At the time of sampling the water was fresh. The bottom is clayey, in places with silt; depth up to 1.5–1.7 m, pH = 6.5–7.0. The vegetation consists of *Lemna* spp., filamentous algae and in places of *Chara* spp. Collected by the author – 1♂.
6. Odessa Region, the vicinity of the village of Koblevo, 16.10.2010. Intermittent coastal water pools on a bar between the Tiligul Estuary and the Black Sea. The area is 50–500 m², the depth at the sampling site is about 0.3 m, the water is fresh or brackish, the bottom of the pools is clayey, sandy or silty, the vegetation is poor and consists of *Carex* spp. and algae. Collected by the author. This was the only location where *S. mayri* was the dominant species. 32♂♂ were collected in a freshwater pool, and 40♂♂ in a brackish water pool (71% and 78% of the total abundance of Corixidae respectively).
7. Kherson Region, the continental part of the Kinburn Peninsula, the Dnieper Basin, 29.04.2007. Brackish ponds with an area up to several hundred m², with a sandy bottom

with some silty patches; the salinity varying during the year (8–20‰). The vegetation consists of *Phragmites australis*, filamentous and thalloid green algae. V. DYADICHKO leg. – 1♂.

8. Kherson Region, Arabat Spit. A hot spring consisting of a system of pools of different temperatures, from 40°C in the upper part to 25–30°C in the sampling location. The M. CHERTOPRUD collection. – 1♂.

DISCUSSION

This study shows that *S. mayri* lives in most of southern Ukraine; its area of distribution crosses the Dnieper and reaches at least the eastern part of the Kherson Region. It was found in different types of habitats – flood ditches and drainage channels, springtime water bodies, including hot springs, salty pools – but its abundance is usually rather low. This is why *S. mayri* in Ukraine can be classified as rare euryoecious species, not an obligatory halophilous but a halotolerant one. The only localities where *S. mayri* was the dominant species of aquatic Heteroptera were the brackish and freshwater pools near Koblevo village, on the bar between the Black Sea and the Tiligul estuary.

No data is available on the ecology of this species, except for the publication by JACZEWSKI (1961), who described all the species of the subgenus *Halicorixa* as halophilous, associated principally with sea coasts. It seems that in southern Ukraine the association with sea coasts is more pronounced in *S. mayri* than in another closely-related and widespread species of the same subgenus, *S. stagnalis pontica*. As we can see from the map (Fig. 1), all the sampling points where *S. mayri* was found are situated on the sea shore, in river mouths or estuaries, at most 20–25 km from the coastline. In more remote locations where *S. stagnalis pontica* is abundant, *S. mayri* was not found. *Sigara mayri* is a Ponto-East Mediterranean species, and the Ukrainian localities of this species lie near its northernmost range boundary: previously it had been found only south of 45°N; now the northern boundary has been extended to 46°50' N. In Ukraine the influence of sea air masses spreads inland for more than 60 km. It can be assumed that one of the factors determining the coastal distribution of *S. mayri* is the mild sea climate, especially in winter. Unfortunately, it is impossible to establish definitively whether the record of this species is due to its further migration to the north-east and colonisation of Ukraine, or to insufficient knowledge of the water bugs of this region. Water bugs were collected in southern Ukraine in the late 19th and the early 20th century by A. N. KIRICHENKO and by other collectors at his request (KIRICHENKO 1915a, 1915b – materials of the collection of the Institute of Zoology, Russia, studied by the author). The vicinity of Odessa were also studied, but *S. mayri* was been found among the materials collected at that time. V.N. GRAMMA and

A.G. SHATROVSKIJ did not find this species either during their studies of Heteroptera in the Chernomorsky reserve (Kinburn peninsula) in the 1970s and 1980s (GRAMMA 1987; GRAMMA & SHATROVSKIJ, 1992). The absence of records of this species may, of course, be due to its low abundance, but in my opinion, *S. mayri* has appeared in Ukraine *de novo*, in line with the general trend of the northward dispersal of southern species (GRAMMA 1974; NILSSON & HOLMEN, 1995; RYNDEVICH 2004).

It is interesting to discuss the morphology of the right paramere of *S. mayri*. In the redescription of this species by JANSSON (1986), two types of the right paramere have been shown: the first with a straight upper margin and the second with a slight prominence centrally or marginally. All the specimens from Ukraine possess evident prominences (Fig. 2a), which makes it similar to those of *S. stagnalis* (LEACH, 1817), but the male palae of all these specimens are typical of *S. mayri* (Fig. 2b). It would be interesting to find out in the future whether the differences in parameres depend on the locality or on other factors.



Fig. 1. The right paramere (a) and male pala (b) of the Ukrainian specimens of *S. mayri*.

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REFERENCES

- AUKERMA B. 2013. Heteroptera. In: Fauna Europaea version 2.6. Internet: <http://www.faunaeur.org>
- DYADICHKO V.G. 2008. Ukrainian Patent № 36317 for useful model. Hydroentomological drag DHE. Appl. 16.04.2007, publ. 27.10.2008. (in Ukrainian)
- FENT M., KMENT P., ÇAMUR-ELIPEK B., KIRGIZ T. 2011. Annotated catalogue of Enicocephalomorpha, Dipsocoromorpha, Nepomorpha, Gerromorpha, and Leptopodomorpha (Hemiptera: Heteroptera) of Turkey, with new records. *Zootaxa* **2856**: 1–84.
- GRAMMA V.N. 1987. Seasonal changes of aquatic entomofauna of Chernomorsky reserve. In: V.P. VALISYEV (ed.) The 3rd Congress of the Ukrainian Entomological Society (Kanev, September, 1987). Abstracts. Ukrainian Entomological Society, Kiev, 49–50. (In Russian)
- GRAMMA V.N., SHATROVSKIJ A.G. 1992. Ecological-faunistic characteristics of aquatic insects (Hemiptera, Coleoptera) of Chernomorsky reserve. In: S.V. TARASHCHUK (ed.). Natural complexes of Chernomorsky state biosphere reserve: collection of articles. Naukova Dumka, Kyiv, 77–82. (in Russian)
- JACZEWSKI T. 1961. Notes on the geographical distribution of the subgenus *Halicorixa* WALT. with the description of a new subspecies (Heteroptera, Corixidae). *Bulletin de l'Académie Polonaise des Sciences, Ser. Biol.* **9**: 143–148.
- JANSSON A. 1986. The Corixidae (Heteroptera) of Europe and some adjacent regions. *Acta Entomologica Fennica* **47**: 1–94.
- JANSSON A. 1995. Family Corixidae LEACH, 1815 – water boatmen. In: B. AUKERMA, C. RIEGER (eds.). Catalogue of the Heteroptera of the Palaearctic Region. Vol. 1. Enicocephalomorpha, Dipsocoromorpha, Nepomorpha, Gerromorpha and Leptopodomorpha. The Netherlands Entomological Society, Amsterdam, 26–56.
- KIRICHENKO A.N. 1915a. Hemiptera-Heteroptera fauna of Kherson Province. *Notes of Novorossiysk Naturalists Society* **41**: 264–273. (in Russian)
- KIRICHENKO A.N. 1915b. Hemiptera – Heteroptera fauna of Veliko-Anadolskaja dacha and Mariupol experimental forest of Ekaterinoslav province. *Notes of Novorossiysk Naturalists Society* **41**: 247–263. (in Russian)
- NILSSON A. N., HOLMEN M. 1995. *Fauna Entomologica Scandinavica*, Vol. 32. The aquatic Adephaga (Coleoptera) of Fennoscandia and Denmark. 2. Dytiscidae. E.J. Brill, Leiden – New York – Köln.
- PUTSHKOV V.G., PUTSHKOV P.V. 1996. Heteroptera of the Ukraine: Check list and distribution. Ukrainian Academy of Sciences, Institute of Zoology & Russian Academy of Sciences, Zoological Institute, St. Petersburg.
- RYNDEVICH S.K. 2004. Fauna and ecology of aquatic Coleoptera of Belarus (Coleoptera: Haliplidae, Noteridae, Dytiscidae, Gyrinidae, Helophoridae, Georissidae, Hydrochidae, Spercheidae, Hydrophilidae, Hydraenidae, Limnichidae, Dryopidae, Elmidae). Technoprint, Minsk. (in Russian)

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