Boletín de la Sociedad Entomológica Aragonesa (S.E.A.), nº **53** (31/12/2013): 285–287.

ABOUT THE BIOLOGY AND IBERIAN DISTRIBUTION OF *IROCHROTUS MACULIVENTRIS* (GERMAR, 1839) (HEMIPTERA: HETEROPTERA: SCUTELLERIDAE)

Manuel Baena

Departamento de Biología y Geología, I.E.S Trassierra, Avenida Arroyo del Moro, s/n, 14011 Córdoba (España) –tiarodes@gmail.com

Abstract: The Iberian distribution of *Irochrotus maculiventris* is updated with bibliographical records, photographs found on the Internet and collected material. All the information about its biology, host plants, life cycle, elevation range and predators is gathered.
Key words: Hemiptera, Heteroptera, Scutelleridae, *Irochrotus maculiventris*, distribution, host plants, Iberian Peninsula.

Sobre la distribución ibérica de *Irochrotus maculiventris* (Germar, 1839) (Hemiptera: Heteroptera: Scutelleridae)
Resumen: Se actualiza la distribución ibérica de *Irochrotus maculiventris* mediante la recopilación de las citas bibliográficas, registros fotográficos en Internet y el estudio de material de colección. Se recopila toda la información sobre su biología, plantas hospedadoras, ciclo de vida, distribución altitudinal y predadores.
Palabras clave: Hemiptera, Heteroptera, Scutelleridae, *Irochrotus maculiventris*, distribución, plantas huéspedes, Península Ibérica.

Introduction

Irochrotus Amyot & Serville, 1843 is a small genus of the family Scutelleridae restricted to the old world. The main area of distribution of the genus is the Palaearctic region where it is represented by eleven species (Göllner-Scheiding, 2006). Two species are known in North-Eastern India (Bengal) and one extends his distribution to several countries of the Ethiopian region. The Eastern Palaearctic species have been revised by Kerzhner (1976) who has laid the foundation of the modern knowledge of the genus.

In the West Mediterranean region live three species: the Maghrebian endemism *I. excisus* Reuter, 1900 recorded in Algeria, Morocco and Tunisia (Reuter, 1900; Vidal, 1950; Dusoulier & Carapezza, 2013), the rare Moroccan endemism *I. maroccanus* Vidal, 1950, and the holomediterranean element *I. maculiventris* (Germar, 1839).

In this work the Iberian distribution of *I. maculiventris* is updated and notes of his biology and host plants are provided.

Iberian distribution of *I. maculiventris*

I. maculiventris have a typical Mediterranean distribution living in some European countries: Spain, Italy, Croatia, Bulgaria, Macedonia and Greece, in North Africa: Algeria, Libya and in the European and Asiatic regions of Turkey (Göllner-Scheiding, 2006). Recently has been found in South-Eastern France about a single and old specimen of the collection of the Natural History Museum of Geneva (Dusoulier & Carapezza, 2013).

In the Iberian Peninsula the species have been recorded in several places of central, eastern and southern regions of Spain.

LITERATURE RECORDS: Alicante: Villena (Ribes & Sauleda, 1979), Salinas, Santa Pola, (Ribes, 1986); **Ciudad Real**: El Montecillo, entre Pozuelo y Almagro, (Fuente (J.Mª), 1920); **Castellón***: Sierra del Toro (Horváth, 1917), (*Horváth assignned this locality to the province of Cuenca but we have not been able to find the place in this province); **Jaén**: Linares (Fuente (J.A), 1973); **Madrid**: Madrid, (Bolívar & Chicote, 1879); Montarco (Fuente (J.A), 1973); **Málaga**: Ronda, Sierra de las Nieves (Vela & Bastazo, 1986); **Murcia**: Murcia, (Horváth, 1917); Cartagena, (Fuente (J.A), 1973); **Zaragoza**, Pina de Ebro, (Ribes *et al*., 1997); Los Monegros, (Dusoulier & Carapezza, 2013).

WEB RECORDS: In the web http://faluke.blogspot.com.es/ there are photographs taken in Almería: El Ejido, 30-X-2011, by Francisco Luque. In the web Biodiversidad Virtual there are photos of the species from Murcia and Toledo. In Murcia the photographs have been made by David Molina at Mazarrón, under stone in a zone with dry grasses with *Asparagus albus* and *Opuntia* sp. In Toledo the species was photographed by Abel López (we could not find the particular locality) in plants of *Elymus repens* (Antonio Pujadas det.).

MATERIAL COMMUNICATED: François Dusoulier kindly has informed me the capture of material of the species in the province of Zaragoza. He has found one male specimen at Laguna de la Playa, 20-VI-2011, around 9,5 km. South from Bujaraloz along A-2105 road.

MATERIAL STUDIED: Albacete: Hellín, Los Generales, 25.IX.1989, 2 exs., 590 m. J. L. Lencina leg. et col. **Granada**: Baza, IV.2009, 1 ex., under stone, J. C. Martínez leg. (col. Baena); Baza, Barranco del Espartal, 7.XII.05, 1 ex., 22.XII.05, 1 ex., trapped in webs of *Eresus cinnaberinus* (Olivier, 1789), F. Sánchez-Piñero leg. et col.; Puebla de Don Fadrique, Puerto de Almaciles, 30.VI.1985, 5 exs., 1160 m., in grass at sunseet, J. L. Lencina leg. et col.; **Jaén**: Sierra Sur, Valdepeñas, Casabermeja, Cerro de la Horca, 1050 m., 7.VII.2013, 6 exs., A. Castro Tovar leg., on road ditches on

Aegilops neglecta, 14.VII.2013, 2 exs., on road ditches under plants of *Aegilops neglecta* M. Baena leg. (all col. Baena); Villarrodrigo, Arroyo del Capitán, 9.VI.1994, 1 nymph, 750 m. J. L. Lencina leg. et col.; **Murcia**: Jumilla, Sierra del Buey, 5.IX.1981, 1 ex., 760 m., buried in sand of fossil dunes under plants, J. L. Lencina leg. et col.

The figure 1 shows the Iberian distribution of the species with all the available data. This figure has been elaborated with the free software DivaGIS and using the program Google Earth to obtain the coordinates of the localities.

Host plants of *I. maculiventris*

The Table I gather all the host plants recorded for the genus *Irochrotus* in the literature and our personal observations. Only three families of plants have been recorded as host of the genus: Asteraceae, Chenopodiaceae and Poaceae. The old record of *Anabasis aphylla* (Chenopodiaceae) for *Irochrotus caspius* Jak. (Reuter, 1900), also compiled by Kirkaldy (1909) and Stichel (1960) has not been confirmed by modern authors and must to be considered accidental. Probably is the same for the modern record of *Carduus pycnocephalus* in Turkey (Gözüaçik & Fent, 2012), this plant is only a member of the community of ruderal plants where live *I. lanatus*. Nearly all the recent records given by different authors show that the true host plants of the genus *Irochrotus* are several genera of the family Poaceae. Two species, *I. lanatus* and *I. turanicus*, causes noticeable damage to wheat grass on natural pastures (Yesembekova, 2012).

Only two grasses have been mentioned associated with *I. maculiventris*, *Ammophila arenaria* (Ribes, 1986) and *Poa* sp. (Dursun & Fent, 2010), to which must to be add *Elymus repens* and *Aegilops neglecta*. *Aegilops* is a new host for *Irochrotus*.

Ecology of *I. maculiventris*

The collection data and the few observations of the species in Spain suggest that it is a summer species with only one annual generation. The adults appear in spring (April), lay eggs in the following months and the adults of the new generation appear approximately in mid June (nymph V on 9th June) and early July, passing the winter as adults. The life cycle seems similar to *I. lanatus* in Ukraine (Putshkov, 1961). The species may be found in several habitats: sandy areas near the sea shore, sandy soils, ruderal zones, dry grasslands and dry places with gypsum and clay loams.

The altitudinal range varies from the sea level in Almeria until the 1400 m in the Sierra de las Nieves at Malaga (Vela, 1984). *I. maculiventris* is part of the diet of *Eresus cinnaberinus.*

Acknowledgements

I am especially grateful to Francois Dusoulier by the communication of the material collected by him in Zaragoza and for his comments and corrections to the manuscript.

Also I am very grateful to all the friends and colleagues that provided material, help, information, papers, that have allowed write this work: Javier Blasco, Alejandro Castro, Leopoldo Castro, José Luis Lencina, Francisco Luque, Juan Carlos Martínez, David Molina, Francisco Sánchez Piñero, José Miguel Vela and Perizat A. Yesenbekova.

Bibliography

BABICHEV, N.S. & N.N. VINOKUROV 2011. Contribution to the Heteroptera fauna of Khakasia and Krasnoyarsk Territory. *Proceedings of the Russian Entomological Society*. *St. Petersburg*, **82**: 29-41. (In russian)

BRAUN-BLANQUET, J. & O. DE BOLOS 1957. Les groupements végetaux du bassin moyen de l'Ebre et leur dynamisme. *Anales de la Estación Experimental del Aula Dei* **5(1-4)**: 1-266.

BOLÍVAR, I. & C. CHICOTE 1879. Enumeración de los Hemípteros observados en España y Portugal. *Anales de la Sociedad Española de Historia Natural*, **8**: 147-186.

DURSUN, A. & M. FENT 2010. Systematische und faunistische Untersuchungen über die Überfamilie Pentatomoidea (Insecta, Heteroptera) aus dem Kelkit-Tal der Türkei. *Linzer biologische Beitrage*, **42(1)**: 587-598.

DUSOULIER, F. & A. CARAPEZZA 2013. Sur trois espèces de Scutelleridae rarissimes ou nouvelles pour la faune de France (Hemiptera Heteroptera Pentatomoidea). *L'Entomologiste*, **69 (4)**: 249-252.

FUENTE, J. A. DE LA 1973. Revisión de los Pentatómidos ibéricos. Familia Scutelleridae Leach, 1815, con adiciones *y* correcciones a un trabajo anterior. *Boletín de la Real Sociedad Española de Historia Natural (Biología)*, **7**: 235-270.

FUENTE, J. Mª. DE LA 1920. Hemípteros de la provincia de Ciudad Real no citados como de la Península Ibérica en el Catálogo de Oshanin de 1912. *Boletín de la Real Sociedad Española de Historia Natural*, **20**: 315-321.

GÖLLNER-SCHEIDING, U. 2006. Family Scutelleridae Leach, 1815 - shield bugs. pp. 190 -227. In Aukema B. & Rieger C. (eds.) *Catalogue of the Heteroptera of the Palaearctic region. Volume 5: Pentatomorpha II.* The Netherlands Entomological Society, Amsterdam. 550 pp.

GÖZÜAÇIK, C. & M. FENT 2012. The investigations on fauna of Scutelleridae (Hemiptera) family in Southeastern Anatolia Region. *Býtký Koruma Bültený*, **52(4)**: 313 -323. (in Turkish)

HORVÁTH, G. 1917. *Heteroptera palaearctica nova vel minus cognita*. I. *Annales Musei Nationalis Hungarici,* **15**: 365-381.

KERZHNER, I. M. 1976. New and little known Heteroptera from Mongolia and surroundings regions of the URSS. III. *Nasekomie Mongolie*, **4:** 30-86. (in Russian)

KIRKALDY, G. W. 1909. *Catalogue of the Hemiptera (Heteroptera) with biological and anatomical references, lists of food plants and parasites*, etc. Vol. I. Cimicidae. Berlin, xl + 392 pp.

PUTSHKOV, V.G. 1961. Shield-bugs (Hemiptera, Pentatomoidea). *Fauna of Ukraine* **21**: 1-338 (in Ukrainian).

REUTER, O.M. 1900. *Heteroptera palaearctica nova et minus cognita descripsit.* I. *Öfversigt af Finska vetenskaps-societetens förhandlingar*, **42**: 209-239.

RIBES, J., J. BLASCO-ZUMETA & E. RIBES 1997. Heteroptera de un sabinar de *Juniperus thurifera* L. en los Monegros, Zaragoza. *Monografías de la Sociedad Entomológica Aragonesa*, **2**: 1-127.

RIBES, J. & N. SAULEDA 1979. Heterópteros de Alicante y zonas adyacentes. M*editerránea*, **3**: 123-158.

STICHEL, W. 1960-1962. *Illustrierte Bestimmungstabellen der Wanzen. II. Europa (Hemiptera-Heteroptera Europae)*. Volume 4, Heft 1. Pentatomorpha, Aradoidea. Martin-Luther, Berlin-Hermsdorf, 838 pp.

VELA, J. M. 1984. *Taxonomía y biogeografía de los Heterópteros Pentatomorfos de la Sierra de las Nieves (Málaga, Sur de España)*. Memoria de Licenciatura. Universidad de Málaga 249 pp., (Unpublished).

VELA, J.M. & G. BASTAZO 1986. Influencias biogeográficas en la fauna de heterópteros pentatomorfos de la Sierra de las Nieves (Málaga, España). *Actas VIII Jornadas Asociación española de Entomología,* **(Sevilla, 1986)**: 437-445.

Fig. 1. Iberian distribution of *Irochrotus maculiventris* (● = literature, internet and communicated records; Δ= the internet record from Toledo has been assigned to Toledo city due to the impossibility to find the concrete place; ■ = material studied).

Table I. Host plants of the genus *Irochrotus*

Species	Host Plant	Plant Family	Author
I.caspius Jakovlev, 1875	*Anabasis aphylla*	Chenopodiaceae	Reuter, 1900 Kirkaldy, 1909 Stichel, 1960
I.lanatus (Pallas, 1773)	*Elymus caninus*	Poaceae	Pallas, 1773 (recorded by Putshkov, 1961) Reuter, 1900 Kirkaldy, 1909
	Elymus sp.	Poaceae	Stichel, 1960
	Elytrigia trichophora *Elytrigia elongata* *Agropyron pectyniformis* *Agropyrum imbricatum* *Secale sylvestre*	Poaceae	Putshkov, 1961
	Carduus pycnocephalus *Secale montanum* *Lolium rigidum*	Asteraceae Poaceae Poaceae	Gözüaçik & Fent, 2012
	Secale sp. *Agropyrum* sp. *Elytrigia* sp.	Poaceae	Yesembekova, 2012
I.maculiventris (Germar, 1839)	*Salsolo-Peganion harmalae* alliance*		Ribes *et al.,* 1997
	Ammophila arenaria	Poaceae	Ribes, 1986
	Elymus repens	Poaceae	present study
	Aegilops neglecta	Poaceae	present study
	Poa sp.	Poaceae	Dursun & Fent, 2010
I.turanicus Kerzhner, 1976	*Secale* sp. *Agropyrum* sp. *Elytrigia* sp.	Poaceae	Yesembekova, 2012
	grasses	Poaceae	Yesenbekova & Homziak, 2013
I.sibiricus Kerzhner, 1976	upland pastures	Poaceae	Babichev & Vinokurov, 2011

* in this vegetal alliance there are several Poaceae that may be the host of the species (Braun-Blanquet & Bolos, 1957)

VIDAL, J. 1950. Hémiptêres de l'Afrique du Nord et des Pays circumméditerranéens. *Mémoires de la Société des Sciences Naturelles du Maroc*, **48**: 1-220.

YESENBEKOVA, P.A. 2012. The trophics relations of the insects (Heteroptera) of the sandy deserts of Kazakhstan. *Kaznu Bulletin, (Ecological Series)*, **1(33)**: 257-260. (in kazakh)

YESENBEKOVA, P.A. & J. HOMZIAK 2013. A comparison of species richness of the true bugs (Hemiptera: Heteroptera) among four desert types in Kazakhstan. *International Journal of Biodiversity and Conservation,* **5(3)**:135-159.