

## GENUS *Geocoris* FALLÉN (HETEROPTERA: LYGAEIDAE) IN SERBIA AND ADJACENT REGIONS

LJILJANA PROTIĆ

Natural History Museum in Belgrade, Njegoševa 51, 11000 Belgrade, Serbia  
E-mail: ljilja.protic@gmail.com

### Abstract

Genus *Geocoris* is represented in Serbia by nine species: *Geocoris (Geocoris) arenarius* (Jakovlev), *Geocoris (Geocoris) ater* (Fabricius), *Geocoris (Geocoris) dispar* (Waga), *Geocoris (Geocoris) grylloides* Linnaeus, *Geocoris (Geocoris) lapponicus* (Zetterstedt), *Geocoris (Geocoris) lineola* (Rambur), *Geocoris (Geocoris) megacephalus* (Rossi), *Geocoris (Geocoris) pallidipennis* (Costa) and *Geocoris (Piocoris) erythrocephalus* (Lepelletier & Serville). *Geocoris (Geocoris) pallidipennis* (Costa) is a new species for the fauna of Serbia.

KEY WORDS: *Geocoris*, Heteroptera, Lygaeidae, Serbia

### Introduction

Genus *Geocoris* is represented in Palaearctic by three subgenera: *Eilatius* Linnavuori from Asia with the species *Geocoris chloroticus* Puton also in the Iberian Peninsula; subgenus *Geocoris* Fallén with 45 species in Palaearctic, 10 species in the Balkans and 8 species in Serbia; and subgenus *Piocoris* Stål with 7 species in Palaearctic and 1 species in the Balkans and Serbia.

This paper presents the results of a review of specimens of *Geocoris* in the collections of the Natural History Museum. The review shows the presence of nine species in Serbia: *Geocoris arenarius* (Jakovlev) (known only from literature data), *Geocoris ater* (Fabricius), *Geocoris dispar* (Waga), *Geocoris grylloides* Linnaeus, *Geocoris lapponicus* (Zetterstedt) (specimens from Serbia in the National Museum of Bosnia and Herzegovina in Sarajevo), *Geocoris lineola* (Rambur) (known only from literature data), *Geocoris megacephalus* (Rossi), *Geocoris pallidipennis* (Costa) and *Geocoris erythrocephalus* (Lepelletier & Serville).

## Material and Methods

A list was made of all specimens of the genus *Geocoris* Fallén from the collections of the Natural History Museum collected from 1924 to 2011. Species of the genus *Geocoris* Fallén are included in the following collections:

Study Collection of Heteroptera

Collection of Heteroptera by Nikola Kormilev

Collection of Insects by Zoran Gradojević

Collection of Insects by Petar Novak

Collection of Insects from the Institute for Plant Protection (stored at the Natural History Museum in Belgrade)

The list includes 644 studied specimens of the genus *Geocoris* Fallén. Following is a list of collectors of species of the genus *Geocoris* in the Natural History Museum (in the "Results" their names are represented by initials):

AS - Aleksandar Stojanović

DF - Dr. Feige

DM - Dr. Michalk

DS - Dragiša Savić

GM - Gabor Mesaroš

GN - Guido Nonveiller

JS - Jovan Stančić

KS - K. Schmidt

LjP - Ljiljana Protić

NK - Nikola Kormilev

PN - Petar Novak

SJ - Stephan Judd

TT - Trajče Trajkovski

VM - Vladimir Martino

ZG - Zoran Gradojević

## Results

The following text includes a list of species from the genus *Geocoris* Fallén in various entomological collections of the Natural History Museum, as well as a list of references important for determining the range of these species and their distribution in Serbia.

*Geocoris arenarius* (Jakovlev, 1867)

The collections of the Natural History Museum still do not include any specimens of this species. The only data on its distribution in Serbia are references by HORVÁTH (1897), citing two localities in northern Bačka: Palić and Horgoš.

*Geocoris ater* (Fabricius, 1787)[*Geocoris ater albipennis* Fabricius, 1803]

## Study collection of Heteroptera

Novi Bečej: Slano Kopovo 01.05.1988. 1♀ leg. GM; Beograd: Vinča 03.09.1997. 1♀ leg. AS; Novi Beograd 08.07.2010. 1♀ leg. AS (PROTIĆ, 1986, 1986a, 1987a).

## Heteroptera collection of Nicholas Kormilev

Kruševo 11.10.1938. 1♂ 1♀ leg. NK; Suva reka: Studeničane 27.08.1938. 1♂ 2♀ leg. NK.

The specimens determined in this collection as *G. ater albipennis* Fabricius were collected in the following localities: Skoplje 09.05.1937. 1♂, 22.05.1938. 1♂ leg. NK; Bitolj 22.08.1937. 1♀ leg. NK (PROTIĆ, 1987a).

## Collection of insects by Petar Novak

Skoplje 07.07.1937. 1♂ leg. PN; Aeken, Elba (without a date) 5♂ 2♀ leg. DF; Pakoštan: Vrana 1♂ 05.11.1940. leg. PN (NOVAK & WAGNER, 1951).

## Collection of Insects from the Institute for Plant Protection

Ramsko-Golubačka Peščara: Kisiljevo 29.03.1954. 1♂ JS.

References for cited localities in Serbia: FIEBER (1844), FRIVALDSZKY (1877), HORVÁTH (1903), DIVAC (1907), KORMILEV (1928/29), CSIKI (1940), ŽIVOJINOVIĆ (1950), MANCINI (1953), PETRIK (1958), JUDD (correspondence, 1989).

*Geocoris dispar* (Waga, 1839)

## Heteroptera collection of Nicholas Kormilev

Mariabesuyö 29.09.1935. leg. DF (damaged abdomen).

## Collection of insects by Zoran Gradojević

Deliblatski Pesak 12.09.1954. 1♀ leg. ZG.

References for cited localities in Serbia: FIEBER (1844), JUDD (correspondence, 1989).

*Geocoris grylloides* Linnaeus, 1761

## Study collection

Deliblatski Pesak: Kravan 14.07.1988. 1♂ leg. LjP.

Aken (Germany) 02.08.1908. 1♀ leg.?

## Heteroptera collection of Nicholas Kormilev

Bad Schmiedeberg: Reinharz (Germany) 31.07.1931. 1♀ leg. DM; Bellinchen na Odri (Poljska) 13.09.1935. 1♂ leg. DM; Hopfenberg (Germany) 10.08.1938. 2♀ leg. DM.

## Collection of Insects by Zoran Gradojević

Deliblatski Pesak: Dolina 06.08.1952. 2♀; 04.07.1953. 1♂; 28.07.1954. 1♂ leg. ZG.

## Collection of Insects by Petar Novak

Fürth, Bayern (Germany) 24.07.1926. 3♂ 1♀ leg. KS.

Reference for cited localities in Serbia: HORVÁTH (1897).

*Geocoris lapponicus* (Zetterstedt, 1838)

Bela Palanka 1894. leg. M. Hiif. This specimen is stored in the Entomological Collection of the National Museum of Bosnia-Herzegovina.

References for cited localities in Serbia: PROTIĆ (1985).

*Geocoris lineola* (Rambur, 1842)

[*Geocoris erythrophthamus* Reuter, 1880]

The collections of the Natural History Museum still do not include any specimens of this species. The data on its distribution in Serbia are included in the paper by REUTER (1880), citing the results by Dr KRUEPER about the presence of this species in the Balkan Peninsula. PÉRICART (1998) also cites Belgrade as a collecting site. REUTER (1880) mentions in the same paper that the species *Geocoris erythrophthamus* Reuter is also present in the Balkan Peninsula.

*Geocoris megacephalus* (Rossi, 1790)

[*Geocoris siculus* Fieber 1844]

Study collection

Kladovo 16.06.1987. 1♀ leg. LjP; Baba mt. (Macedonia) 29.02.1988. 1♂ leg. TT.

Heteroptera collection of Nicholas Kormilev

Skopje: Vodno 700 m 06.06.1935. 1♀ leg. NK; Skopje 27.03.1938. 1♂ leg. NK; Novi Dojran 28.05.1937. 1♂ leg NK; Prilep 09.10.1938. 1♀ leg NK.

*Geocoris siculus* Fieber 1844

Heteroptera collection of Nicholas Kormilev

Skoplje 18.05.1932. 1♀; 04.05.1937. 1♀; 15.05.1937. 1♀; 06.08.1937. 1♀; 24.04.1938. 2♂ leg NK; Konjačka 20.07.1938. 1♂ leg NK; Ovče Polje 28.09.1940. (no specimens existing).

Collection of Insects by Petar Novak

Split 10.10.1935. 1♀; 10.06.1943. 1♂, Solin 04.09.1943. 1♀, 10.10.1943. 1♀ leg. PN.

*Geocoris pallidipennis pallidipennis* (A. Costa, 1843)

Study collection

Fruška gora: Sremski Karlovci 22.09.2009. 1♀ leg. DS; Novi Beograd 20.05.2011. 1♀ leg. AS.

Heteroptera collection of Nicholas Kormilev

Udovo 08.03.1937. 3♂ 3♀ leg. NK; Campi Flegrei (Italy) 25.10.1938. 1♂ 1♀ leg. DM.

Collection of Insects by Petar Novak

Crotone, Calabria (Italy) 10.12.1933. 1♀ leg. PN; Tetuan (Maroko) 17.11.1935. 1♂ leg. PN.

*Geocoris (Piocoris) erythrocephalus* (Lepelletier & Serville, 1825)

Study collection

Beograd: 18.07.1941. 1♀ leg. V. Martino; Gevgelija: Negorci 10.06.1950. 1♂ leg. GN; Čapljinina 22.05.1951. 1♂ 1♀ leg. GN; Split 28.09.1952. 1♂ leg. JS; Rakovica 11.08.1983. 1♀ leg. LjP; Beograd: Avala 26.06.1984. 1♀, 29.08.1997. 3♂ leg. LjP; Miroč: Stenišće 14.09.1984. 1♂ leg. LjP; Negotin: Kusjak 15.09.1984. 2♂ leg. LjP; Mali Štrbac: Ploča 15.06.1987. 2♂ 2♀ leg. LjP; Manastir Vratna: I kapija 16.06.1987. 1♀ leg. LjP; Beograd: Banovo Brdo 14.05.1994. 1♂ 1♀ leg. AS; Sopot: Đurinci 01.09.1995. 2♀, 13.10.1996. 2♂ leg. AS; Beograd: Topčider 01.05.1996. 1♀ leg. AS; Beograd: Beli Potok 05.06.1996. 1♂ 3♀ leg. LjP; Beograd: Makiš 28.07.1996. 2♂ 2♀ leg. AS; Beograd: Topčidersko Brdo 02.10.1996. 1♂, 08.10.1996. 1♂ leg. AS; Beograd: Vinča 03.05.1996. 4♀, 18.05.1997. 5♂ 5♀, 29.07.1997. 1♂, 30.07.1997. 1♀, 03.09.1997. 1♂ 1♀, 17.07.1999. 1♂, 24.06.2000. 1♂ 1♀ leg. AS; Kosmaj 16.08.1994. 2♂ 2♀,

09.05.1996. 2♂, 26.08.1997. 5♂ 4♀, 06.06.1998. 5♂ 5♀, 18.07.1998. 4♂ 1♀, 15.08.1998. 5♂ 5♀, 10.05.2003. 1♂, 04.10.2003. 2♂ 1♀, 10.07.2004. 2♂ 2♀, 18.06.2005. 1♀, 02.08.2008. 3♂ leg. AS; Beograd: Košutnjak 20.04.1996. 1♀, 15.07.2004. 1♀ LjP; Beograd: Resnik: kružni put 18.05.1996. 5♀, 25.08.1996. 1♂ 1♀, 16.06.1997. 5♂ 5♀, 13.08.1997. 5♂ 5♀, 16. 05.1998. 1♂ 5♀, 26.08.2000. 3♀, 31.05.2003. 2♂ 2♀, 06.07.2003. 1♀, 27.09.2003. 2♂, 24.07.2004. 1♀ leg. AS; Beograd: Stepin gaj 22.06.1996. 1♂, 06.09.1997. 4♂ 5♀, 17.10.1998. 1♀, 30.04.2001. 1♂, 17.05.2003. 2♀, 26.05.2007. 2♂ 2♀, 23.07.2011. 1♀ AS; Beograd: Ada Ciganlija 19.04.1997. 1♂ leg. AS; Boljevci – Progar 17.05.1997. 1♀ leg. AS; Mala Moštanica: Šuma (forest) 13.09.1997. 5♂ 5♀ leg. AS; Grocka: Begaljica 10.05.1997. 3♂ 1♀, 09.08.1997. 5♂ 5♀, 09.09.1997. 5♂ 5♀, 26.09.1998. 5♂ 4♀, 15.04.2000. 1♂, 24.04.2004. 2♂ 2♀, 14.05.2005. 2♂ 2♀, 20.05.2006. 2♀ leg. AS; Beograd: Veliko Selo 08.07.2006. 1♀, 09.09.2006. 2♂ 1♀, 21.04.2007. 2♀, 09.06.2007. 2♂ 2♀, 28.06.2008. 1♂ 1♀, 01.05.2010. 2♂ 2♀, 21.05.2011. 2♂ 1♀ AS; Progar: Bojčinska Šuma (forest) 22.08.1997. 3♂ 5♀ leg. AS; Pinosava 24.05.1998. 1♀ leg. AS; Beograd: Vinča 10.05.1998. 2♂ 5♀ leg. AS; Boljevci: Crni Lug 31.05.1998. 3♂ 1♀, 07.07.1998. 1♀, 09.10.1999. 2♀ leg. AS; Ritopek 20.06.1998. 1♂ 3♀ leg. AS; Surduk 27.06.1998. 2♂ 1♀, 01.08.1998. 4♂ 2♀, 31.08.1999. 2♂ 2♀, 23.04.2000. 1♂, 20.09.2003. 1♂ 1♀, 06.05.2006. 1♂ 1♀, 02.06.2007. 2♂ 2♀, 14.07.2007. 2♂ 2♀, 06.09.2008. 1♀, 11.04.2009. 1♀, 03.07.2010. 1♀, 07.08.2011. 3♂ 1♀ AS; Mala Moštanica: Žuto Brdo 25.07.1998. 1♂ 1♀, 25.09.1999. 3♂ 4♀, 29.04.2000. 1♂ 1♀, 10.06.2000. 1♂ 3♀, 09.09.2000. 4♂ 2♀, 06.07.2001. 1♀, 22.06.2002. 2♀, 16.08.2003. 2♂ 1♀, 07.08.2004. 1♂ 3♀, 27.08.2005. 2♂ 2♀, 13.05.2006. 1♂ 1♀, 05.07.2008. 3♂ 1♀, 10.07.2010. 1♂ 4♀ AS; Popović 08.08.1998. 2♂ 5♀ leg. AS; Slankamen: Koševac 06.05.2000. 1♂ 2♀, 05.08.2000. 5♂ 5♀, 28.06.2003. 1♀, 28.04.2007. 3♀, 10.05.2008. 1♂ 3♀, 06.09.2008. 1♂, 28.08.2010. 2♂ 1♀ leg AS; Vrčin 12.08.2000. 5♂ 5♀, 05.05.2001. 2♀, 12.07.2003. 2♂ 2♀, 12.06.2004. 2♂ 2♀, 29.07.2006. 2♂ 3♀, 28.04.2008. 2♂ 2♀, 06.11.2010. 1♀ AS; Barajevo: lake 01.06.2002. 1♀, 23.08.2003. 2♂ 2♀. 07.07.2007. 2♂ 2♀ leg. AS; Topola: Božurnja 13.06.2002. 1♂ 2♀ leg. LjP; Grocka: Dražanj 15.06.2002. 1♂, 02.05.2003. 2♂ 2♀ leg. AS; Beograd: Avala: Čarapičev brest 03.06.2003. 1♂ leg. LjP; Rudnik: Gradovi 10.06.2003. 1♀ leg. LjP; Smederevska Palanka: Kiseljak 03.07.2003. 1♀ 1l LjP; Deliblatski Pesak: Devojački Bunar 07.06.2003. 1♂ 1♀, 09.08.2003. 1♀, 25.06.2005. 1♀, 19.08.2006. 3♂ 1♀ AS; Beograd: Slanci: Tapino Brdo 03.05.2008. 2♂ 3♀ leg. AS; Lazarevac: Stubički vis 19.07.2008. 1♂, 09.05.2009. 2♂ 2♀ leg. AS; Ljig: Kadina Luka 09.04.2010. 2♂ 2♀ AS; Krušedol 23.05.2009. 1♂ 3♀ leg. AS; Lazarevac: Stubica 12.06.2010. 1♂ 3♀ leg. AS; Ralja: Babe 17.07.2010. 2♀ AS; Maradić-Krušedol 03.08.2010. 1♂, 07.08.2010. 1♀ leg. AS; Topola: Banja 14.08.2010. 1♂ 3♀ AS; Sakule 21.08.2010. 1♀ leg. AS; Valjevo: Klanica 13.08.2011. 2♂ 2♀ leg. AS.

Heteroptera collection of Nicholas Kormilev

Beograd: Topčider 23.05.1941. 1♀ leg. NK.

Collection of Insects by Petar Novak

Sučurac 05.07.1924. 1♂ leg. PN; Mosor 26.05.1935. 1♂, 07.06.1937. 2♂ 5♀ leg. PN; Ragusa: Orašac (Dubrovnik) 13.05.1938. 1♂ leg. PN; Mavrovi Hanovi 29.06.1939. 1♀ leg. PN; Brač: Ložišće 09.08.1940. 2♂ leg. PN; Mosor: Debelo brdo 25.08.1940. 1♂ leg. PN; Vrana 05.11.1940. 1♀, 05.12.1940. leg. PN; Split 31.05.1938. 1♀, 18.06.1941. 1♀, 25.04.1942. 1♀, 02.05.1943. 1♂, 15.06.1943. 1♀, 05.08.1943, 05.10.1943, 12.06.1944. leg. PN; Kaštel Stari 29.06.1943. 1♂ leg. PN; Salona 19.06.1939. 2♀, 26.04.1943. 1♀, 10.06.1943 3♂ 4♀, 04.09.1943. 1♀ leg. PN; Šolta 30.07.1940. 1♀, 27.07.1941. 1♂, 07.06.1943. 1♂ 1♀, 14.06.1945. 1♂ 1♀ leg. PN; Nerežišće 29.06.1945. 1♂ leg. PN.

Collection of Insects from the Institute for Plant Protection

Mavrovi Hanovi 29.06.1939. 1♀ leg. PN; Split 08.05.1941. 1♀, 25.04.1943. 1♀ PN; Veliko Gradište 13.06.1954. 1♀ leg. JS; Štimlje: Crnoljevo 31.05.1972. 1♂ leg. ?.

Reference for cited localities in Serbia: HORVÁTH (1903), DIVAC (1907), CSIKI (1940), ŽIVOJINOVIĆ (1950), PROTIĆ (1986a), PROTIĆ (1987), PROTIĆ (1992), PROTIĆ (1994, 1994a).

Table I. Distribution of genus *Geocoris* in the neighboring countries. Abbreviations of country names: AL Albania, AU Austria, BH Bosnia and Herzegovina, CR Croatia, GR Greece, HU Hungary, MC Macedonia, RO Romania, RS Serbia, SL Slovenia.

Species	AL	AU	BH	BU	CR	GR	HU	MC	RO	RS	SL
<i>Geocoris arenarius</i> (Jakovlev)						+	+		+	+	
<i>Geocoris ater</i> (Fabricius)	+	+	+	+	+	+	+	+	+	+	+
<i>Geocoris dispar</i> (Waga)		+			+				+	+	
<i>Geocoris grylloides</i> Linnaeus	+	+		+			+		+	+	
<i>Geocoris lapponicus</i> (Zetterstedt)		+						+		+	
<i>Geocoris lineola</i> (Rambur)	+		+	+		+				+	+
<i>Geocoris megacephalus</i> (Rossi)	+	+	+	+	+	+	+	+	+	+	+
<i>Geocoris pallidipennis</i> (A. Costa)	+		+	+	+	+			+	+	
<i>Geocoris (Piocoris) erythrocephalus</i> (Lepeletier & Serville)	+	+	+	+	+	+	+	+	+	+	+

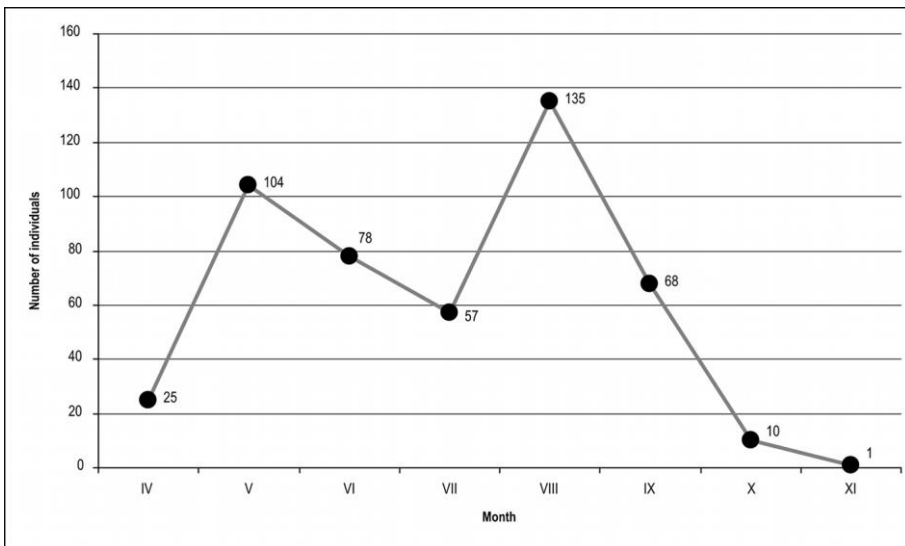


Figure 1. Number of specimens of *Geocoris erythrocephalus* (Lep. & Serv.) recorded in each month of the year.

## Discussion and Conclusions

Genus *Geocoris* is represented in Serbia by nine species. *Geocoris pallidipennis pallidipennis* (A. Costa) is a new species for the fauna of Serbia.

This paper presents the review of specimens of *Geocoris* spp. in the collections of the Natural History Museum: the Study Collection of Heteroptera, the Collection of Heteroptera by Nikola Kormilev, Collection of insects by Petar Novak, Collection of insects by Zoran Gradojević and Collection of insects in the Institute for Plant Protection. The taxonomic order was determined after the review, according to the modern Catalogue of Heteroptera in Palaearctic (AUKEMA & RIEGER, 2001).

Collections of the Natural History Museum include 644 specimens of the genus *Geocoris*. The species *Geocoris erythrocephalus* (Lep. & Serv.) has 574 specimens, by far the greatest number of specimens, while all the other species combined are represented with only 70 specimens. The greatest number of specimens from the collections of the Natural History Museum were collected in Serbia, followed by Macedonia and Dalmatia, while only a few of them originated in Germany, Poland, Italy, and Morocco.

Representation of certain species in neighboring countries is variable (Tab. I). Only three species were recorded in all the countries: *Geocoris ater* (Fabricius), *Geocoris megacephalus* (Rossi) and *Geocoris (Piocoris) erythrocephalus* (Lepelletier & Serville).

Specimens of *Geocoris megacephalus* (Rossi) in the collection by Nikola Kormilev from Macedonia were labeled as *Geocoris siculus* Fieber. According to the Catalogue of the Heteroptera of the Palaearctic Region (PÉRICART, 2001) this is a synonym for the species *G. megacephalus* (Rossi).

*Geocoris (Piocoris) erythrocephalus* (Lepelletier & Serville) spends the winter in the imago stage. In Serbia it was collected at 51 localities. Analysis of the seasons when specimens in collections of the Natural History Museum were collected has shown two peaks. One of these peaks is in spring (May), when the Heteroptera species have just left their winter shelters, and the second one is in late summer (August), when the new generation develops (Fig. 1).

Species of the Lygaeidae family are phytophagous insects. Predatory Geocorinae are the exception. Geocorinae feed on various types of prey: insect eggs, aphids, mealybugs (Pseudococcidae), mites, cicadas, Heteroptera, small caterpillars, beetle larvae. In the applied entomology they are still insufficiently used in biological pest control. There are some studies in Turkey on the density of predators from the order Heteroptera, including two species of genus *Geocoris*: *Geocoris arenarius* (Jakovlev) and *Geocoris erythrocephalus* (Lepelletier & Serville). These species have influenced the decrease in population numbers of the thrips species *Frankliniella occidentalis* (ATAKAN & TUNÇ, 2010).

Scientists from Germany and The Netherlands (ALLMANN & BALDWIN, 2010) have concluded that, when caterpillars of *Manduca sexta* (Linnaeus) attack a tobacco plant, the leaf produces green leaf volatiles (GLVs). This modified cocktail of ingredients attracts Heteroptera species from the genus *Geocoris* that feed on eggs and young larvae of this butterfly, protecting the plant from caterpillar attacks.

*Geocoris* spp. may also feed on plant matter. They do not cause damage to host plants. As occasional herbivores they are susceptible to systemic insecticides. This ability to take plant food is connected to their evolutionary path as they were originally seed-feeding insects, but it also enables them to survive in the periods of low insect density. The omnivorous habit enables them to feed on diverse substrates and is used in biological control of pest species in cases of overpopulation.

## References

- ALLMANN, S. & BALDWIN, I.T., 2010. Insects Betray Themselves in Nature to Predators by Rapid Isomerization of Green Leaf Volatiles. *Science*, 27 August 2010, pp.: 1075-1078.
- ATAKAN, E. & TUŇÇ, I., 2010. Seasonal abundance of hemipteran predators in relation to western flower thrips *Frankliniella occidentalis* (Thysanoptera: Thripidae) on weeds in the eastern Mediterranean region of Turkey. *Biocontrol Science and Technology*, 20: 821-839
- AUKEMA, B. & RIEGER, CHR., 2001. Catalogue of the Heteroptera of the Palaearctic Region. Vol. 4, Netherlands Entomological Society, Amsterdam, 346 pp.
- CSIKI, E., 1940. Exploraciones zoológicas ab E. Csiki in Albania peractae. [Félszárnyúrovarok. Hemipteren. Csiki Ernő állatani kutatásai Albániában]. 17. A Magyar Tudományos Akadémia Balkán-kutatásainaktudományos Eredményei, Budapest 1: 289-315. [in Hungarian]
- DIVAC, N., 1907. Contribution to knowledge on Serbian hemipteran fauna. *Papers of the Zoological Institute, University in Belgrade [Radovi iz zoološkog instituta u Univerzitetu, Beograd]* 1(1): 4-14. [in Serbian]
- FIEBER, F.X., 1844. *Entomologische Monographien.- Abhandlungen der Königlichen Böhlichen Gessellschaft der Wissenschaft, Prag*, pp.: 279-414.
- FRIVALDSZKY, J., 1877. Adatok Temeseskraassimegyek Faunajához.- *Közlemenyek*, 13: 371-377. [in Hungarian]
- HORVÁTH, G., 1897. Fauna regni Hungariae.- *Animalium Hungariaehucusque cogitorum enumeratio systematica* 111. Arthropoda Ordo: Hemiptera. Budapest. [in Hungarian and Latin, bilingual]
- HORVÁTH, G., 1903. Szerbia Hemiptera - faunaja.- *Annales Musei Nationalis Hungarici*, 1: 3-28. [in Hungarian]
- KORMILEV, N., 1928-1929. Contribution to knowledge on Hemiptera-Heteroptera of Yugoslavia. *Acta Societatis Entomologicae Jugoslaviacae [Glasnik Jugoslovenskog entomološkog društva]*, 3-4(1-2): 79-91. [in Serbian]
- MANCINI, C., 1952-1953. Contributo alla conoscenza degli Emitteri Eterotteri dell'Albania. *Annalen des Naturhistorischen Museum in Wien*, 59: 176-196.
- NOVAK, P. & WAGNER, E., 1951. Beitrag zur Kenntnis der Hemipteren-Fauna Dalmatines (Hem.-Heteroptera). *Jahrbuch des Biologischen Institutes in Sarajevo [Godišnjak Biološkog instituta u Sarajevu]*, 4(1): 59-80. [in Serbo-Croatian]
- PÉRICART, J., 1998. Hémiptères Lygaeidae Euro-méditerranéens. *Fauna de France* 84; A, 468 pp.; B, 453 pp.; C, 487 pp., Paris.
- PÉRICART, J., 2001. Lygaeidae *In*: Aukema, B. & Rieger, Chr. (eds.): Catalogue of the Heteroptera of the Palearctic Region, Pentatomomorpha I. The Netherlands Entomological Society, Amsterdam, Vol. 4: 35-220.
- PETRIK, A., 1958. Entomofauna of Deliblato Sands. *Travaux des Musées de Voivodina [Rad Vojvodjanskih Muzeja]*, 7: 87-113. [in Serbian, with German s.]
- PROTIĆ, LJ., 1985. Heteroptera's collection of Hilf Moricz from Serbian Regional Museum of Bosnia and Herzegovina in Sarajevo. *Glasnik Zemaljskog muzeja (PN) NS*, 24: 153-161. [in Serbian, with English s.]
- PROTIĆ, LJ., 1986. The first contribution to the study of Hemiptera-Heteroptera fauna of the Deliblato Sands. *The Deliblato Sands Proceedings*, 5: 203-232. [in Serbian, with English s.]
- PROTIĆ, LJ., 1986a. Contribution to knowledge on Hemiptera – Heteroptera of sand dunes of Ram and Golubac (Ramsko-Golubačka Peščara, NE Serbia). *Bulletin of the Natural History Museum in Belgrade*, B(41): 57-87. [in Serbian, with English s.]
- PROTIĆ, LJ., 1987. Fauna of Heteroptera in SR Serbia and their representation in agricultural crops in vicinity of Belgrade. MSc Thesis (manuscr.), University in Belgrade, Faculty of Agriculture, 147pp. [in Serbian]
- PROTIĆ, LJ., 1987A. Hemiptera- Heteroptera Collection of Nicolas A. Kormilev in Natural History Museum in Belgrade. *Bulletin of the Natural History Museum, Belgrade, Special issue*, 35: 1-100.
- PROTIĆ, LJ., 1992. Materials for the Heteroptera fauna of North-Eastern Serbia. *Bulletin of Natural History Museum in Belgrade*, B(47): 193-245.
- PROTIĆ, LJ., 1994. Research of bug fauna (Heteroptera) in the orchards in Serbia. *Review of Research Work at the Faculty of Agriculture*, 39, 1: 7-20.



- PROTIĆ, L.J., 1994a. The second contribution to the knowledge of Heteroptera Fauna of the Deliblato Sands. In: Marinković, P. (ed): Zbornik radova o Deliblatskoj Peščari, Pančevo, 6: 241-248. [in Serbian, with English s.]
- REUTER, O.M., 1880. Notes additionnelles sur les Hémiptères-Hétéroptères des environs de Gorice (Illyrie). Revue d'Entomologie, 7: 57-61.
- ŽIVOJINOVIĆ, S., 1950. La faune des insectes du Domaine foresiter de Majdanpek. Monographie entomologique. Académie Serbe des Sciences, 160, 2: 211-225. [in Serbian, with French s.].

## РОД *GEOCORIS* FALLÉN (HETEROPTERA: LYGAEIDAE) У СРБИЈИ И СУСЕДНИМ ДРЖАВАМА

ЉИЉАНА ПРОТИЋ

### Извод

У раду су обрађени резултати ревизије примерака рода *Geocoris* у збиркама Природњачког музеја у Београду, који су сакупљени од 1924. до 2011. године. Обрађено је 644 примерака. После ревизије утврђено је да у Србији живи девет врста: *Geocoris arenarius* (Jakovlev) (познати су само подаци из литературе), *Geocoris ater* (Fabricius), *Geocoris dispar* (Waga), *Geocoris grylloides* Linnaeus, *Geocoris lapponicus* (Zetterstedt) (примерци из Србије у Земаљском музеју Босне и Херцеговине у Сарајеву), *Geocoris lineola* (Rambur) (познати су само подаци из литературе), *Geocoris megacephalus* (Rossi), *Geocoris pallidipennis* (Costa) и *Geocoris erythrocephalus* (Lepelletier & Serville). *Geocoris* (*Geocoris*) *pallidipennis* (Costa) је нова за фауну Србије.

Убедљиво је најбројнија врста *Geocoris erythrocephalus* (Lepelletier & Serville) са 574 примерка, а све друге заједно броје 70 примерака. Највећи број је уловљен у Србији, затим у Македонији, Далмацији и свега неколико је из Немачке, Пољске, Италије и Марока. Примерци *Geocoris megacephalus* (Rossi) у збирци Николе Кормилаева били су са етикетом *Geocoris siculus* Fieber. Према Каталогу Heteroptera палеарктика (АУКЕМА & RIEGER, 2001) то је синоним врсте *G. megacephalus* (Rossi). *Geocoris* (*Picocoris*) *erythrocephalus* (Lepelletier & Serville) презимљује у стадијуму имага. У Србији је уловљен на 51 локалитету. Сабирањем примерака по месецима у обрађиваном материјалшле у уочена су два шпица. Један је у пролеће (мај), када су стенице излетеле из својих зимских пребивалишта, а други је крајем лета (август) када се развија нова генерација (графикон 1).

Врсте фамилије Lygaeidae су фитофагни инсекти. Изузетак су Geocorinae који су предатори. У примењеној ентомологији још увек се недовољно користе у биолошкој борби.