

**RECORDS OF THE FAMILY SALDIDAE (HETEROPTERA) IN  
SERBIA AND IN COLLECTIONS OF THE NATURAL HISTORY  
MUSEUM IN BELGRADE**

LJILJANA PROTIĆ

Natural History Museum, 11000 Belgrade, Njegoševa 51, P.O.Box 401, Serbia,  
e-mail: protic@nhmbeo.rs

The Heteroptera collections of the Natural History Museum in Belgrade include 24 species of the family Saldidae. To date 16 species from this family have been recorded in Serbia. *Chartoscirta elegantula longicornis* (Jakovlev) is a new species for the Heteroptera fauna of Serbia, while *Saldula pilosella hirsuta* (Reuter) is a new species for the Heteroptera fauna of Croatia.

Additions and corrections to data on species of the family Saldidae published within the Catalogue of the Heteroptera of the Palearctic Region (Aukema & Rieger 1995) and the Catalogue of the Heteroptera of ex Yugoslavia (Protić 1998) are the substance of this paper.

**Key words:** Heteroptera, Saldidae, Serbia, collections

**INTRODUCTION**

The data on species distribution presented in the Catalogue of the Heteroptera of ex Yugoslavia were mostly taken from literature, while a smaller amount of data originated in the entomological collections of the Natural History Museum (Protić 1998, 2001). This was the first attempt at preparing a publication of this kind, and some unintentional errors went unnoticed until immediately after printing. These errors have been corrected and new data added gradually and irregularly during the last several

years. At the time of writing this catalogue, the Netherlands Entomological Society published the "Catalogue of the Heteroptera of the Palearctic Region" (Aukema & Rieger 1995-2006). By then, the territory of SFR Yugoslavia was already divided into six countries which, except for Serbia and Montenegro which were in an alliance of states until 2006, were recognized in the Catalogue. This paper will present additional data on the distribution of species in Serbia and Montenegro, as well as the additions and corrections to the Catalogue of the Heteroptera of the Palearctic Region.

This paper also includes the data from the collections of Heteroptera at the Natural History Museum in Belgrade that were not included in the Catalogue (Protić 1998). This group mostly includes the data collected after the Catalogue was published, as well as omitted data and specimens collected outside the territory of former Yugoslavia.

The previously unpublished data included in this paper pertain to species of the family Saldidae from the Study Collection of Heteroptera at the Natural History Museum collected in Serbia and Montenegro, the unpublished data from the Collection of Heteroptera by Nicholas Kormilev collected outside of Serbia, as well as the collection by Petar Novak, which mostly includes the specimens acquired by exchange with colleagues from other European countries and some specimens from Dalmatia.

The Collection of Heteroptera from Serbia, collected by Hilf Moricz, is stored at the Land Museum of Bosnia and Herzegovina in Sarajevo (Protić 1985). These specimens are material proof of old literature data collected by authority scientists such as Horváth.

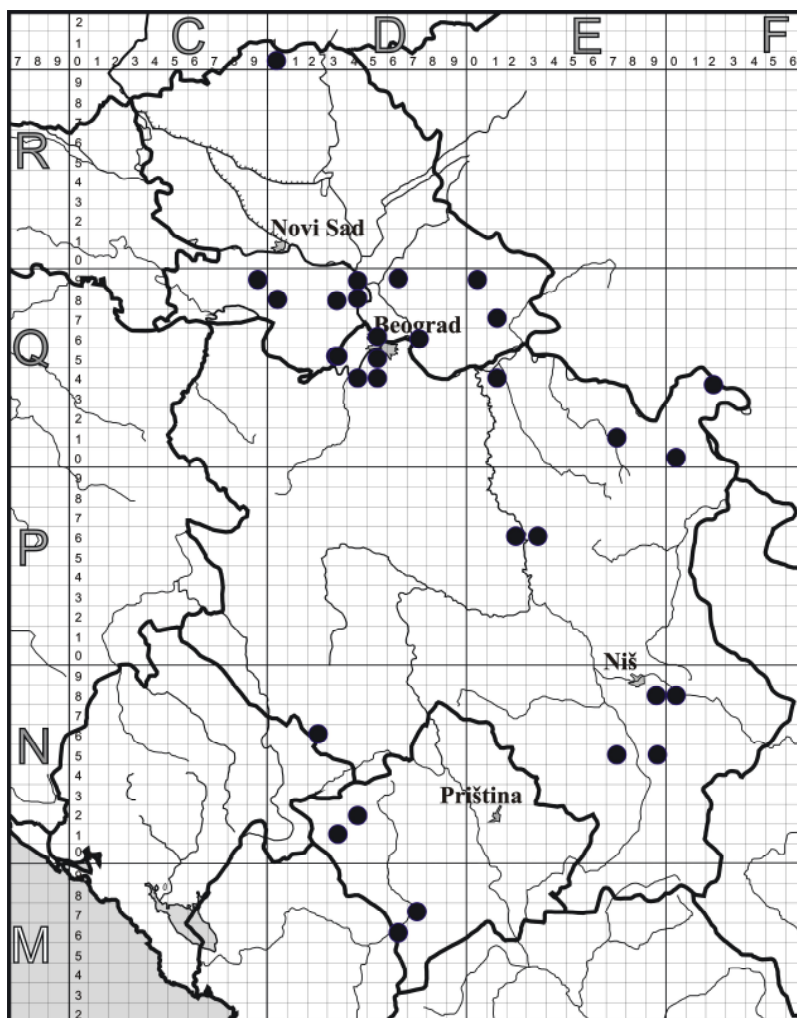
This paper also includes the data on already published species, with cited references, as these data are the only proof and are very important for understanding the present knowledge on fauna and the distribution of species from the family Saldidae in Serbia (Horváth 1903; Csiki 1940; Živojinović 1950).

### **List of localities in Serbia**

In Serbia Saldidae have been investigated at 30 localities. The list of localities in Serbia includes the UTM code. All the localities are shown on the map (Map. 1).

FN 08 Bela Palanka	EQ 17 Deliblatski Pesak: Grebenac
DQ 55 Beograd: Topčider	EP 36 Dobričevo
DQ 56 Beograd: Zemun	FQ 24 Kladovo: rit
DQ 35 Boljevci: Crni Lug	DN 31 Koprivnik
EP 26 Čuprija	EN 75 Leskovac

- |                            |                           |
|----------------------------|---------------------------|
| EQ 71 Majdanpek            | DM 77 Prizren: Prizrenska |
| DQ 54 Makiš                | Bistrica                  |
| DQ 44 Mala Moštanica: Žuto | DQ 08 Ruma                |
| Brdo                       | DQ 69 Sakule              |
| DS 00 Palić                | DQ 49 Slankamen: Koševac  |
| DQ 76 Pančevo              | DQ 38 Stara Pazova        |
| DN 42 Peć                  | DQ 48 Surduk              |
| DN 26 Pešter               | EN 98 Suva Planina        |
| FQ 00 Plavna               | DM 96 Šara: Pavlov Kamen  |
| EQ 09 Plavna: Zamna, r     | EN 95 Vlasotince          |
| EQ 14 Požarevac            | DQ 99 Vrdnik              |



Map. 1. - Distribution of family Saldidae in Serbia - investigated localities

During the revision of specimens from the collections of the Natural History Museum we used several identification keys (Cobben 1985; Pericart 1990; Vinokurov & Kanyukova 1995)

## RESULTS (LIST OF SPECIES)

### **Family SALDIDAE Amyot & Serville, 1843**

#### **Subfamily CHILOXANTHINAE Cobben, 1959**

##### ***Chiloxanthus pilosus* (Fallén, 1807)**

Collection of Nicholas Kormilev: \*Bov Kum 05.07. 1934. leg. anonym

Collection of Petar Novak: Germany: Hagermarsch Nordsee 06.1931. Eigen

\*Note: The label with the name of the locality is unclear, and the region or country of collection could not be decoded.

##### ***Chiloxanthus stellatus* (Curtis, 1835)**

Collection of Nicholas Kormilev: Karesuando (Finland) 20.07.1935. leg Lindberg.

#### **Subfamily SALDINAE Amyot & Serville, 1843**

##### ***Chartoscirta cincta* (Herrich-Schaeffer, 1841)**

Collection of Nicholas Kormilev (Protić 1998)

Collection of Petar Novak: Germany: Kleinzerbst 24.03.1920. Heidenreich; Jonity 03.1915.; E. Heidenreich Bessau 04.1931.

Study collection: Serbia: Kladovo: Kladovo boggy (rit) 28.06.1985. leg, Lj. Protić; Plavna: Zamna, r. 16.06.1987. leg, Lj. Protić

Land Museum of Bosnia and Herzegovina in Sarajevo: Požarevac 1 ex.

Inadvertently omitted from the Catalogue of the Heteroptera of the Palearctic Region. SL, CR, MC, ME, RS.

##### ***Chartoscirta cocksi* (Curtis, 1835)**

Collection of Nicholas Kormilev (Protić 1998)

Collection of Petar Novak: Germany: Schmiedeberg bei Halle a.d.S. leg. Dr. Feige; Ohrid: Sv. Naum, 09.07.1937. leg. P. Novak. New locality for Macedonia.

Serbia: Požarevac, Suva Planina (Horváth 1903) - These literature data are supported by specimens stored at the Land Museum of Bosnia and Herzegovina in Sarajevo (Protić 1985). Note: After 1998 there were no new data for Serbia. Inadvertently omitted from the Catalogue of the Heteroptera of the Palearctic Region. BH, RS.

***Chartoscirta elegantula* (Fallén, 1807)**

Collection of Nicholas Kormilev: Germany: Holstein 09.08.1937. leg. E. Wagner

***Chartoscirta elegantula longicornis* (Jakovlev, 1882)**

A new species for the fauna of Serbia (Fig. 1)

Study collection: Mala Moštanica: Žuto Brdo 29.04.2000, 06.07.2001. leg. A. Stojanović

Beograd: Topčider 22.05.2004, 24.06.2006. leg. A. Stojanović

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: RS

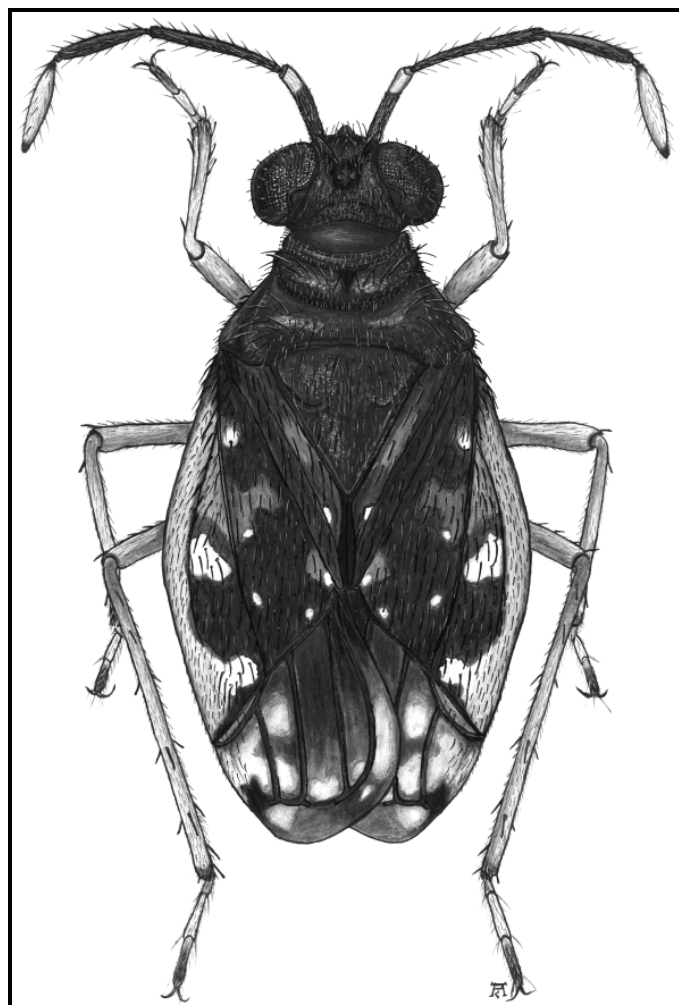


Fig. 1. - *Chartoscirta elegantula longicornis* (Jakovlev, 1882) –  
– a new species for fauna of Serbia

***Chartoscirta geminata* (Costa, 1852)**

Collection of Nicholas Kormilev: Italy: Ischia Island 23. 07.1936. leg. Michalk

***Halosalda lateralis* (Fallén, 1807)**

Collection of Nicholas Kormilev: Germany: Numburg 19.10.1931. leg. Dietze

***Macrosaldula scotica* (Curtis, 1835)**

Collection of Nicholas Kormilev: Germany: Oberstdorf 06.08.1934, 13.08.1935, 27.08.1936. leg. K. Schmidt

Study collection: Serbia: Šara: Pavlov Kamen 28.06.1988. leg. Lj. Protić; Bosna and Herzegovina: Trgovačko Jezero (Lake) 02.08.1989. leg. M. Živković

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: BH, RS

***Macrosaldula variabilis* (Herrich-Schaeffer, 1835)**

Collection of Nicholas Kormilev (Protić 1998)

Study collection: Serbia: Prizren: Prizrenska Bistrica 22.06.1988. leg. Lj. Protić; Pešter 12.08.1988. leg. M. Živković

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: RS

***Microcanthia fennica* Reuter, 1884**

Collection of Nicholas Kormilev: Germany: Taucha 05.08.1930. leg. Lindberg

***Micracantha marginalis* (Fallén, 1807)**

Collection of Petar Novak: Bay. Alpen Oberstdorf 06.08.1934. leg. K. Schmidt

Collection of Nicholas Kormilev: Germany: Oberstdorf 25.07.1933, 26.07.1933, leg. K. Schmidt

***Saldula amplicollis* Reuter, 1891**

Collection of Nicholas Kormilev (Protić 1998)

Collection of Petar Novak: Bosna and Herzegovina: Prolog, 07.1912. leg. P. Novak; Sinj 29.06.1936. leg. P. Novak

Study collection: Montenegro: Durmitor 27.05.2006. leg. M. Obradović, I. Perezanović

Serbia: Peć (Csiki 1940). Currently the only known specimen from Serbia.

Note: Replace YU in the Catalogue of the Heteroptera of the Palearctic Region with RS.

***Saldula arenicola* (Scholtz, 1847)**

Collection of Petar Novak: Germany: Hanover Neu-Darchau  
16.07.1935.

Collection of Nicholas Kormilev (Protić 1998)

Land Museum of Bosnia and Herzegovina in Sarajevo: Požarevac 1 ex.

Note: Replace YU in Catalogue of the Heteroptera of the Palearctic Region with: BH, RS (Protić 1998).

***Saldula c-album* (Fieber, 1859)**

Collection of Nicholas Kormilev (Protić 1998)

Serbia: Majdanpek: (Živojinović 1950). Currently the only known specimen from Serbia.

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: BH, CR, MC, RS (Protić 1998).

***Saldula melanoscela* (Fieber, 1859)**

Collection of Nicholas Kormilev (Protić 1998)

Study collection: Serbia: Surduk 26.09.1999.; Sakule 03.06.2000.;  
30.08.2003.; Beograd: Topčider 22.05.2004.; Boljevci: Crni Lug  
30.07.2005.; Slankamen: Koševac 18.08.2006. leg. A. Stojanović.

Note: Replace YU in Catalogue of the Heteroptera of the Palearctic Region with: RS (Protić 1998).

***Saldula opacula* Zetterstadt, 1838**

Collection of Nicholas Kormilev (Protić 1998)

Serbia: Požarevac, Suva Planina (Horváth 1903) Currently the only known specimen from Serbia.

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: RS

***Saldula orthochila* (Fieber, 1859)**

Collection of Nicholas Kormilev (Protić 1998)

Serbia: Koprivnik (Csiki 1940). Currently the only known specimen from Serbia.

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: ME and RS (Protić 1998)

***Saldula pallipes* (Fabricius, 1794)**

Collection of Nicholas Kormilev (Protić 1998)

Collection of Petar Novak: Germany: Dübener Helde Schmiedeberg leg. Dr. Feige; Schmiedeberg bei Halle a.d.S. leg. Dr. Feige; Salzstelle Beste Tal Öst. Holstein 15.7.1933.

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: CR; replace YU with RS (Protić 1998).

***Saldula pilosella pilosella* (Thomson, 1871)**

Collection of Nicholas Kormilev: Germany: Holstein 07.07.1934. leg. E. Wagner

Study collection: Serbia: Zemun, Dunav, r. 02.08.1941. leg. Kodrić; Sakule 30.8.2003.; Surduk 20.09.2003. leg. A. Stojanović.

Note: A new species for fauna of Serbia. Replace YU in Catalogue of the Heteroptera of the Palearctic Region with: RS and add CR.

***Saldula pilosella hirsuta* (Reuter, 1888)**

Collection of Petar Novak: Sućurac, 08.1923. leg. P. Novak

***Saldula saltatoria* (Linnaeus, 1758)**

Collection of Petar Novak: Germany: Eisleben Dr. Feige

Collection of Nicholas Kormilev (Protić 1998)

Study collection: Serbia: Plavna, Zamna r. (Protić 1992)

Land Museum of Bosnia and Herzegovina in Sarajevo: Bela Palanka.

Note: It was previously incorrectly identified as *Macrosaldula scotica* (Curtis, 1835) and published under that name for Serbia (Protić 1998). Add to the Catalogue of the Heteroptera of the Palearctic Region: ME and RS (Protić 1998).

***Saldula xanthochila* (Fieber, 1859)**

Collection of Nicholas Kormilev (Protić 1998)

Serbia: Požarevac (Horváth 1903).

Land Museum of Bosnia and Herzegovina in Sarajevo: Požarevac leg. Hilf Moricz (Protić 1985).

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: RS.

***Salda litoralis* (Linnaeus, 1758)**

Collection of Nicholas Kormilev (Protić 1998)

Collection of Petar Novak: Germany: Jadebusen 08.1926. Eigen; Hagermarsch Nordsee 06.1931. Eigen

Serbia: Majdanpek (Živojinović 1950). Currently the only known specimen from Serbia.

Note: Add to the Catalogue of the Heteroptera of the Palearctic Region: RS.

Table 1. List of studied species from family Saldidae from the collections of Natural History Museum [Coll. NHM BEO] and the literature sources.

No Species	Coll., NHM BEO	Serbia [RS]	New localities	Reference, single one source/without specimens
1 <i>Chiloxanthus pilosus</i> (Fallén)	+	-	-	
2 <i>Chiloxanthus stellatus</i> Curtis	+	-	-	
3 <i>Chartoscirta cincta</i> (Herrich-Schaeffer)	+	+	+	
4 <i>Chartoscirta cocksi</i> Curtis	+	+	+	
5 <i>Chartoscirta elegantula longicornis</i> (Jakovlev)	+	+	+	
6 <i>Chartoscirta geminata</i> (Costa)	+	-	-	
7 <i>Halosalda lateralis</i> (Fallén)	+	-	-	
8 <i>Macrosaldula scotica</i> (Curtis)	+	+	+	
9 <i>Macrosaldula variabilis</i> (Herrich-Schaeffer)	+	+	+	
10 <i>Microcanthia fennica</i> Reuter	+			
11 <i>Micracantha marginalis</i> (Fallén)	+	-	-	
12 <i>Saldula amplicollis</i> Reuter	+	+	+	Csiki 1940
13 <i>Saldula arenicola</i> (Scholtz)	+	+	-	
14 <i>Saldula c-album</i> (Fieber)	+	+	-	Živojinović 1950
15 <i>Saldula melanoscela</i> (Fieber)	+	+	+	
16 <i>Saldula opacula</i> Zetterstadt	+	+		Horváth 1903
17 <i>Saldula orthochila</i> (Fieber)	+	+		Csiki 1940
18 <i>Saldula pallipes</i> (Fabricius)	+	+	-	
19 <i>Saldula pilosella pilosella</i> (Thomson)	+	+	+	
20 <i>Saldula saltatoria</i> (Linnaeus)	+	+		
21 <i>Saldula xanthochila</i> (Fieber)	+	+		
22 <i>Salda litoralis</i> (Linnaeus)	+	+		Živojinović 1950

## DISCUSSION AND CONCLUSIONS

The collections of the Natural History Museum in Belgrade include 24 species from the family Saldidae, collected in Serbia, Croatia, Macedonia, Slovenia, Bosnia-Herzegovina, Germany, Finland and Italy. To date 16 species of this family have been collected in Serbia.

According to the data from 1998, the number of species collected in Serbia was the greatest of all the countries of former Yugoslavia. However, as there was no systematic collecting of species of the family Saldidae and as the habitats are very diverse (especially around the inaccessible mountain streams) there is a great possibility that these isolated protected habitats host some of the rare glacial relicts or some species new for Serbia.

*Chartoscirta elegantula longicornis* (Jakovlev) is new for the Heteroptera fauna of Serbia, and it was collected by Aleksandar Stojanović, entomologist at the Natural History Museum in Belgrade, at the localities of Mala Moštanica: Žuto Brdo and Topčider (park forest in Belgrade).

*Saldula pilosella hirsuta* (Reuter) is new for the Heteroptera fauna of Croatia, and it was collected by Petar Novak at Sućurac (Dalmatia) long ago (in 1923). This specimen is stored in the collection by Petar Novak at the Natural History Museum in Belgrade.

The collection by Petar Novak also includes a specimen of *Chartoscirta cocksi* (Curtis), collected at the locality of St. Naum at Ohrid Lake. This is a new locality for Macedonia and for the Catalogue (Protić 1998).

The Catalogue of the Heteroptera of the Palearctic Region (Aukema & Rieger 1995) lacks data on the distribution of the species *Chartoscirta cincta* (Herrich-Schaeffer) in countries of former Yugoslavia: Croatia, Macedonia, Montenegro, Serbia, Slovenia; *Chartoscirta cocksi* (Curtis) in Bosnia and Herzegovina and Serbia; Croatia should be added for the species *Saldula palustris* Douglas & Scott, as there is a record of collecting at Solin (Dalmatia) on July 27<sup>th</sup> 1952 (Novak & Wagner 1955).

The Catalogue of the Heteroptera of the Palearctic Region (Aukema & Rieger 1995) and the Catalogue of Heteroptera of former Yugoslavia (Protić 1998) lacks data on the distribution of the species *Salda adriatica* Horváth 1897 in Slovenia. Horvath (1887) described the new variety as *Salda littoralis* Linnaeus var. *adriatica* Horváth 1887, from the locality Tržič [Monfalcone] in Italy. After these catalogues were published, several specimens of this species were collected at Sečovelje (Slovenia) in 2001 (Gogala 2003).

The list of species includes two glacial relicts: *Salda littoralis* (Linnaeus) and *Saldula orthochila* (Fieber). Unfortunately, specimens of these species collected in Serbia are not present in the Collection of Heteroptera of the Natural History Museum in Belgrade, and their distribution is known only from literature sources. The collection includes specimens of the species *S. orthochila* (Fieber) collected at Durmitor in 1981 (Protić *et al.* 1990).

### Acknowledgement

I am grateful to Dr. Andrej Gogala, Slovenian Museum of Natural History in Ljubljana, for the literature, and to Dipl. ing Aleksandar Stojanović, Natural History Museum in Belgrade, for the elaborate drawing and ongoing daily assistance in my work.

### REFERENCES

- Aukema, B., Rieger, Ch. (1995): Catalogue of the Heteroptera of the Palearctic Region. Netherland Entomological Society **1**: 1-222.
- Csiki, E. (1940): Félzárnyúrovarok. Hemipteren. Csiki Ernőállatanikutásai Albániában. Explorations zoologicaeab E. Csiki in Albaniperactae **17**: 289-315. – A Magyar Tudományos Akademia Balkán-kutatásainaktudományos Eredményei **1**, Budapest.
- Cobben, R. H. (1985): Additions to the eurasian saldid fauna, with a description of fourteen new species (Heteroptera: Saldidae). Tijdschrift voor Entomologie **128**: 215–270.
- Gogala, A. (2003): Heteroptera of Slovenia, I: Dipsocoromorpha, Nepomorpha, Gerromorpha and Leptopodomorpha. Annales, Annals for Istrian and Mediterranean Studies, Series historia naturalis **13**(2): 229-240.
- Horvath, G. (1887): Notes additionelles sur les Hemipteres Heteropteres Des environs de Gorice (Illyrie). Revue d'Entomologie **6**: 68-74.
- Horváth, G. (1903): Szerbia Hemiptera - faunaja. Annales Musei Nationalis Hungarici **1**: 3-28.
- Novak, P., Wagner, E. (1955): II Beitrag zur Kenntnis der Hemipteren-Fauna Dalmatiens. Zaštita bilja **30**, Dodatak Prilozi entomofauni Jugoslavije: 1-10.
- Pericart, J. (1990): Hémiptères Saldidae et Leptopodidae d'Europe *occidentale* et du Maghreb. – Fauna de France **77**, Paris.
- Protić, Lj. (1985): Heteroptera's collection of Hilf Moricz from Serbia in Regional Museum of Bosnia and Herzegovina in Sarajevo. Glasnik Zemaljskog muzeja Bosne I Hercegovine, Prirodne nauke, Nova serija **24**: 153-161. [in Serbian]
- Protić, Lj., Gogala, A., Gogala, M. (1990): Heteroptera (Insecta). In Nonveiller, G. (ed.): The Fauna of Durmitor Crnogorska akademija nauka i umjetnosti, Titograd, ANU Posebna izdanja **23**, Odjeljenje prirodnih nauka **14**: 279-313. [in Serbian]
- Protić, Lj. (1998): Catalogue of the Heteroptera fauna of Yugoslav countries. Part one. Natural History Museum, Belgrade. Special issue **38**: 1-215
- Protić, Lj. (2001): Catalogue of the Heteroptera fauna of Yugoslav countries. Part two. Natural History Museum, Belgrade. Special issue **39**: 1-272.
- Vinokurov N. N., Kanyukova E.V. (1995): Hemipterans (Heteroptera) of Siberia. Poluzhestkokrylye Nasekomye (Heteroptera) Sibiri (Heteroptera of Siberia). – Nauka Novosibirsk, 238 pp. [in Russian]

**НАЛАЗИ ФАМИЛИЈЕ SALDIDAE (HETEROPTERA) У СРБИЈИ И  
ЗБИРКАМА ПРИРОДЊАЧКОГ МУЗЕЈА У БЕОГРАДУ**

ЉИЉАНА ПРОТИЋ

## РЕЗИМЕ

Урађена је допуна и исправка врста фамилије Saldidae објављених у Каталогу Heteroptera палеарктика (Aukema & Rieger 1995) и Каталогу Heteroptera ex Југославије (Протић 1998).

У збиркама Heteroptera Природњачког музеја у Београду налазе се 24 врсте фамилије Saldidae. У Србији је до сада регистровано 16 врста ове фамилије. *Chartoscirta elegantula longicornis* (Jakovlev) нова је за фауну Heteroptera Србије, а *Saldula pilosella hirsuta* (Reuter) нова је за фауну Heteroptera Хрватске.