

CONTRIBUTIONS TO THE STUDY OF COREOIDEA FAUNA IN THE LOWER BASIN OF THE SIRET RIVER

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Abstract. The studies of Coreoidea fauna in the lower basin of the Siret River carried out between 2004-2005 and 2007-2008 have led to the identification of 31 species of coreoidea (56.36% of the entire amount of species of coreoidea reported for the territory of Romania). Most of the coreoidea identified in the lower basin of the Siret River are thermophile species, drawn to xerophile sandy biotopes. 2 species spread sporadically, featuring populations counting few specimens (*Ceraleptus lividus* of Coreidae and *Liorhysus hyalinus* of Rhopalidae) and 8 are rare species, spreading intermittently: *Coriomeris affinis* has been reported in Plavișevîța, Orșova (County of Mehedinți), Moldova Veche (County of Caraș-Severin), Caraorman (County of Tulcea); *Rhopalus rufus* has been found only in southern Banat, in Dubova and Craiova; *Stictopleurus subtomentosus* has been reported only in the County of Dolj; *S. pictus* in the County of Dolj, County of Bihor and Caraorman; *Maccevetus errans caucasicus* is found only in various lowland regions; *Agraphopus lethierry* is reported only in Desa, Craiova (County of Dolj), Constanța, Caraorman, Sfântu Gheorghe (County of Tulcea); *Chorosoma gracile* in the County of Satu Mare, County of Bihor and County of Dolj; and *Dicranocephalus setulosus* in Dobrogea (KIS 2001). The species of *Rhopalus rufus* have been twice reported for the territory of Romania, the first report being carried out by KIS in 1975 for two females collected in Oltenia in 1973 and in 1976.

Keywords: fauna, ecology, zoogeography, coreoide, lower basin of the Siret River.

Rezumat. Contribuții la studiul faunei de coreoide în bazinul inferior al râului Siret. Studiile privind fauna de coreoide în bazinul inferior al Siretului realizate în perioada 2004-2005 și 2007-2008, au dus la identificarea a 31 specii de coreoide (56,36% din totalul speciilor de coreoide raportate pentru teritoriul României). Coreoidele identificate în bazinul inferior al râului Siret sunt în majoritate specii termofile, iubitoare de biotopuri xerofite și nisipoase. Două specii au o răspândire sporadică, populații cu puțini indivizi (*Ceraleptus lividus* dintre Coreidae și *Liorhysus hyalinus* dintre Rhopalidae) iar 8 specii sunt rare, răspândite punctiform: *Coriomeris affinis* este citată la Plavișevîța, Orșova (jud. Mehedinți), Moldova Veche (jud. Caraș-Severin), Caraorman (jud. Tulcea), *Rhopalus rufus* a fost găsită doar în sudul Banatului, la Dubova și Craiova, *Stictopleurus subtomentosus* citată doar în județul Dolj, *Stictopleurus pictus* în județele Dolj, Bihor și Caraorman, *Maccevetus errans caucasicus* întâlnită în diverse regiuni din zona de câmpie, *Agraphopus lethierry* citată la Desa, Craiova (jud. Dolj), Constanța, Caraorman, Sfântu Gheorghe (jud. Tulcea), *Chorosoma gracile* în județele Satu Mare, Bihor, Dolj și *Dicranocephalus setulosus* din Dobrogea (KIS 2001). Specia *Rhopalus rufus* este la a doua semnalare pentru teritoriul României, prima fiind realizată de KIS în 1975 pentru 2 femele colectate în 1973 și 1976 în Oltenia.

Cuvinte cheie: faună, ecologie, zoogeografie, coreoide, bazinul inferior al Siretului.

INTRODUCTION

Other research with respect to coreoidea in the lower basin of the Siret River has been occasionally carried out by MARCU in 1982 and by KIS in 2001. MARCU (1982) has published a list of heteroptera in southeastern Moldavia pertaining to the patrimony of the Natural History Museum of Galați, most of the data collected being owed to the reserve in Hanu Conachi and to the Gârboavele forest reserve, both of them being located in the County of Galați.

RESULTS AND DISCUSSIONS

Our studies of the coreoidea fauna in the lower basin of the Siret River were carried out between 2004-2005 and 2007-2008. The heteropterologic material has been sampled from 13 sampling spots located in the County of Galați and in the County of Brăila. We have collected 745 specimens of coreoidea pertaining to 31 species (56.36% of the entire amount of coreoidea in Romania), 16 genera (60% of the total amount of the coreoidea genera in Romania) and 4 families (Fig. 1). Four species of Coreoidea previously reported by other researches did not show up in my research. They are mentioned in Table 1.

Figure 1 features, in a comparative manner, the coreoidea heteroptera collected in the lower basin of the Siret and the ones cited in the bibliography, on the territory of the country. One can notice that there is a relatively abundant coreoidea heteroptera fauna in the region investigated by us. This considerable diversity in the lower basin of the Siret is explained by its geographical location, in an area increasingly characterized by steppe-like particularities, featuring arid influences, high average temperatures and low humidity, which do not enable the development of a plant carpet to persist for the entire vegetation period. This aspect exerts deep influences on the development of entomocoenoses and, hence, of the coreoidea biocoenoses.

Table 1 features the list of the species of coreoidea collected in the lower basin of the Siret, as well as the ones cited in the bibliography, the zoogeographical appertaining, ecological preferences, the trophic spectrum, as well as the spread on the territory of Romania. Previous studies of the coreoidea heteroptera fauna in the lower basin of the Siret River refer to the region on the right hand side of the Siret (County of Galați), 23 species pertaining to 17 genera having been reported. Of these, the following have not been found any more during the research carried out within the respective region: *Phyllomorpha laciniata*, *Spathocera lobata*, *S. laticornis*, *Coriomeris scabricornis* – the Coreidae family.

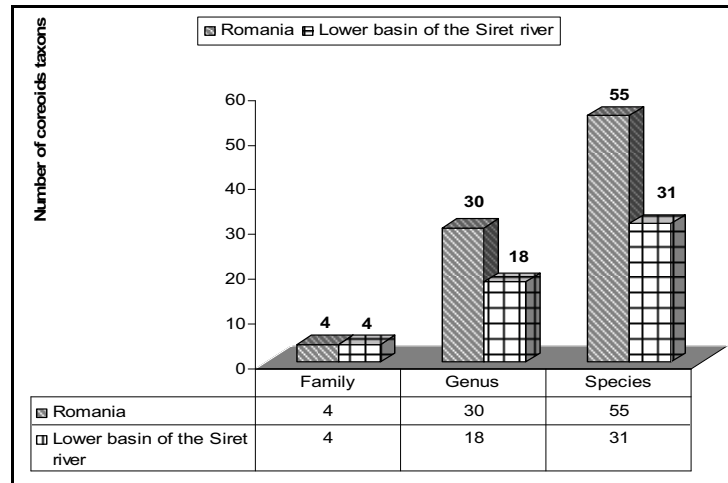


Figure 1. Representation of taxons within the Coreoidea super-family in the lower basin of the Siret River in Romania.
 Figura 1. Rezentarea taxonilor din suprafamilia Coreoidea în bazinul inferior al Siretului și în România.

As compared to the previously carried out studies, 7 genera featuring 11 new species of Coreoidea in southeastern Moldavia have been identified for the examined region: *Coriomeris affinis* – the Coreidae family, *Rhopalus maculatus*, *R. rufus*, *Stictopleurus subtomentosus*, *S. pictus*, *Maccevetus errans caucasicus*, *Agraphopus lethierry*, *Chorosoma gracile* – the Rhopalidae family and *Dicranocephalus agilis*, *D. albipes*, *D. setulosus* – the Stenocephalidae family. Thus, our studies complete the picture of the distribution of the species of coreoidea on the territory of Romania.

The species of coreoidea collected from the lower basin of the Siret pertain to the following genera and families: the *Gonocerus*, *Syromastus*, *Coreus*, *Centrocoris*, *Ceraleptus*, and *Coriomeris* genera within the Coreidae family, the *Alydus* and *Camptopus* genera within the Alydidae family, the *Corizus*, *Liorhyssus*, *Rhopalus*, *Brachycarenum*, *Stictopleurus*, *Maccevetus*, *Agraphopus*, *Myrmus*, and *Chorosoma* genera within the Rhopalidae family, and the *Dicranocephalus* genus within the Stenocephalidae family. The Rhopalidae family is represented by the largest number of genera (9) and by the most numerous species (19) within the fauna in the lower basin of the Siret. We mention that only 18 species of this family have been cited in the specialty publications, and that the *Rhopalus rufus* species has not been included in the work Romania’s Fauna, Heteroptera, Fascicle 9, the Coreoidea and the Pyrrhocorioidea Super-families published by KIS in 2001, despite the fact that the same author (KIS, 1975) had signaled its presence by means of two female specimens identified in southern Banat. The Coreidae family is represented by 8 species pertaining to 6 genera within the studied area. On the other hand, 29 species of the Coreidae family are ascertained within Romania’s fauna. There is a significant difference between the coreoidea fauna in the studied area and the fauna on the entire territory of the country, yet this difference is also explained by the preference featured by certain species of coreoidea of mountainsides. Few species identified both in the studied area and in the rest of the Romanian regions pertain to the Alydidae (2 and 3 species, respectively) and Stenocephalidae (3 and 4 species, respectively) families (Fig. 2).

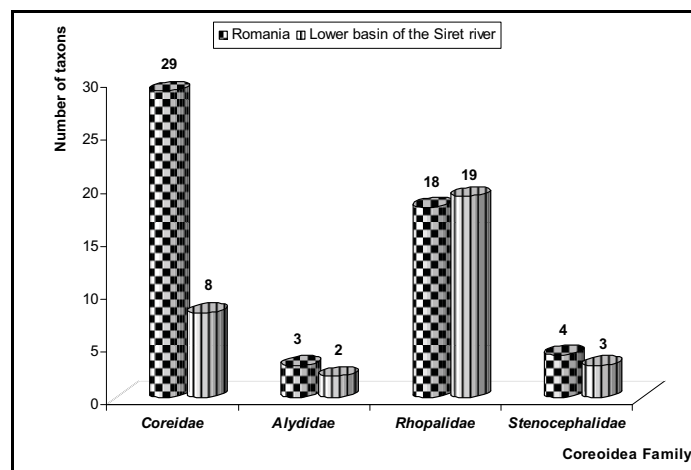


Figure 2. Representation of the species of Coreoidea by families in the lower basin of the Siret and in Romania.
 Figura 2. Rezentarea speciilor de coreoide pe familii, în bazinul inferior al Siretului și în România.

The analysis of terrestrial species of heteroptera pertaining to the Coreoidea super-family in the lower basin of the Siret according the zoogeographical criterion reveals the fact that most of them have a large spreading habitat. The zoogeographical classification of each species identified by us is introduced in table 1. The zoogeographical data is taken from MOULET (1994), KIS (1984, 2001), LIS et al. (2008).

Summarizing the data in table 1 and Figure 3, the fact that the species featuring Palearctic (43%), European (16%) and Euro-Mediterranean (20%) spread prevail stands out. The rest of the zoogeographical elements, namely, the species featuring Eurasian, Mediterranean, Holo-Mediterranean, southern Palearctic, Euro-Siberian and cosmopolitan spread are rendered by decreased percentages. This distribution of zoogeographical elements is similar to the one at the country level with respect to the order of majority elements.

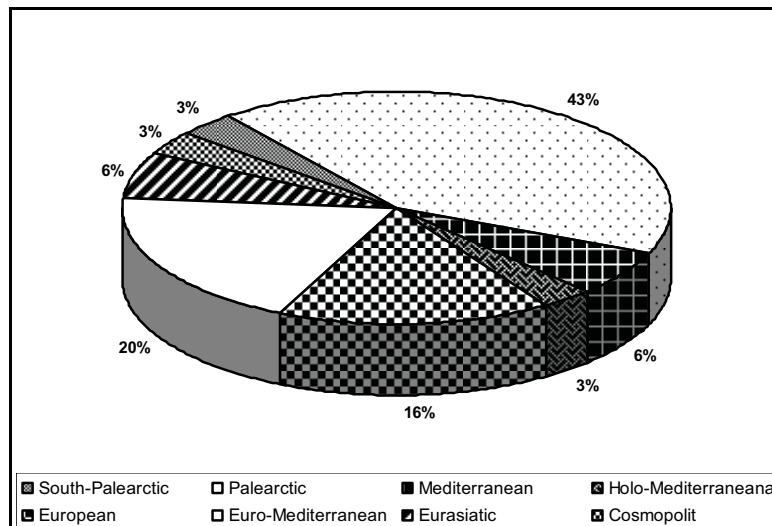


Figure 3. The zoogeographical classification of species of coreoidea identified in the lower basin of the Siret.
Figura 3. Încadrarea zoogeografică a speciilor de coreoide identificate în bazinul inferior al Siretului.

In view of ecologically characterizing the species of coreoidea collected from the lower basin of the Siret River we used the data featured by KIS (2001) on the species of coreoidea of Romania's fauna.

With respect to the ecological preferences of the coreoidea heteroptera, the data synthesized in Table 1 substantiate that most of them are thermophile species, drawn to xerophyte sandy biotopes, which, for that matter, are characteristic of the studied region. Few species are drawn to mesophyte biotopes, and, for that matter, they are identified within the Gârboavele forest reserve which, by force of its structure, enables the development of such habitats. The trophic spectrum of the analyzed species of coreoidea is chiefly polyphagous, yet two species only (*Dicranocephalus albipes* and *D. setulosus* of Stenocephalidae) are stenophagous and one (*Agraphopus lethierry* of Rhopalidae reported only for *Cynodon dactylon*) is monophagous.

Analyzing the species of coreoidea identified in the lower basin of the Siret according to their spread on the territory of Romania, as well as according to their frequency within biotopes, we can say that 13 of the 31 species identified here are extensively spread within all the regions of the country, featuring extremely numerous populations; that 8 species are frequent, featuring well represented populations, counting numerous specimens; that 2 species feature a sporadic spread and populations counting few specimens (*Ceraleptus lividus* of Coreidae and *Liorhyssus hyalinus* of Rhopalidae); and that 8 are rare species, spreading intermittently: *Coriomeris affinis* has been reported in Plavișevîța (Mehedinți County), Moldova Veche (Caraș-Severin County), Caraorman (Tulcea County); *Rhopalus rufus* has only been found in southern Banat, in Dubova and Craiova; *Stictopleurus subtomentosus* has been reported only in the Dolj County; *S. pictus* in the Dolj County, Bihor County and Caraorman; *Maccevethus errans caucasicus* is found only in various lowland regions; *Agraphopus lethierry* is reported only in Desa, Craiova (Dolj County), Constanța, Caraorman, Sfântu Gheorghe (Tulcea County); *Chorosoma gracile* in the Satu Mare County, County of Bihor and Dolj County and *Dicranocephalus setulosus* in Dobrogea (KIS, 2001).

With regard to the *Rhopalus rufus* species of Rhopalidae, we ascertain its presence on the territory of Romania by our studies.

Table 1. Zoogeographical elements, ecology and fauna of coreoids species in the lower basin of the Siret River.
 Tabel 1. Elemente de zoogeografie, ecologie și faunistică a speciilor de coreoidee din bazinul inferior al râului Siret.

| No. | Taxon | Zoogeographical classification | Ecological preferences | Trophic spectrum | Presence in the investigated areas | |
|-----|--|--------------------------------|---|------------------|------------------------------------|---|
| | | | | | Frequency | SA |
| | COREIDAE Family | | | | | |
| 1 | <i>Gonocerus acuteangulatus</i> (GOEZE 1778) | Holo- Mediterranean | Deciduous forest edge | P | +++ | [1]; Gb, HC-[2] |
| 2 | <i>Syromastus rhombicus</i> (LINNAEUS 1767) | Palaearctic | Xerophile sunny biotopes | P | ++++ | [1]; Gb, HC, B-[2] |
| 3 | <i>Coreus marginatus</i> (LINNAEUS 1758) | Palaearctic | Grassy biotopes | P | ++++ | [1] |
| 4 | <i>Centrocoris spiniger</i> (FABRICIUS 1781) | Euro-Mediterranean | Sandy and herophiles biotopes | P | +++ | Te-[1] |
| 5 | <i>Phylomorpha laciniata</i> (VILLERS 1789) | Mediterranean | Xerophile sunny biotopes | O | + | Iv-[1] |
| 6 | <i>Spathocera lobata</i> (HERRICH-SCHAEFFER) | Euro-Mediterranean | Biotopes hydrophilic | O | +++ | Tl-[1] |
| 7 | <i>Spathocera laiticornis</i> (SCHILLING 1829) | Palaearctic | Sandy biotopes | P | ++ | HC-[1] |
| 8 | <i>Ceraleptus lividus</i> STEIN 1858 | Eurasitic | Sandy and rocky biotopes xerophile | P | ++ | I-[1] |
| 9 | <i>Ceraleptus gracilicornis</i> (HERRICH-SCHAEFFER 1835) | Euro-Mediterranean | Xero-thermophilic biotopes | P | ++++ | Gb, B-[2] |
| 10 | <i>Coriomeris denticulatus</i> (SCOPOLI 1763) | Palaearctic | Biotopes mesophilic | P | ++++ | Gb, HC, B-[2] |
| 11 | <i>Coriomeris scabricornis</i> (PANZER 1809) | Palaearctic | Sandy biotopes, on different plants | P | +++ | HC-[1] |
| 12 | <i>Coriomeris affinis</i> (HERRICH-SCHAEFFER 1839) | Euro-Mediterranean | Xero-thermophilic biotopes | P | + | Mehedinti County, Caraș-Severin County, Tulcea County |
| | ALYDIDAE Family | | | | | |
| 13 | <i>Alydus calcaratus</i> (LINNAEUS 1758) | Palaearctic | Grassy biotopes | P | ++++ | [1]; Gb-[2] |
| 14 | <i>Camptopus lateralis</i> (GERMAR 1817) | Palaearctic | Xero-thermophilic biotopes | P | +++ | [1] |
| | RHOPALIDAE Family | | | | | |
| 15 | <i>Corizus hyoscyami</i> (LINNAEUS 1758) | Palaearctic | Xerophile sunny biotopes | P | ++++ | [1]; Gb, T-[2] |
| 16 | <i>Liorrhynchus hyalinus</i> (FABRICIUS 1794) | Cosmopolit | Xero-thermophilic biotopes sandy | P | ++ | Tc, L, F-[1] |
| 17 | <i>Rhopalus parumpunctatus</i> SCHILLING 1829 | Palaearctic | Sunny grassy biotopes | P | ++++ | HC-[1] |
| 18 | <i>Rhopalus conspersus</i> (FIEBER 1837) | European | Sand and limestone biotopes | P | +++ | [1]; Gb-[2] |
| 19 | <i>Rhopalus subrufus</i> (GMELIN 1790) | European | Sunny grassy biotopes | P | ++++ | [1]; Gb, HC-[2] |
| 20 | <i>Rhopalus rufus</i> SCHILLING 1821 | Euro-Mediterranean | Xerophile sunny biotopes | P | + | Sudul Banatului: Dubova, Craiova |
| 21 | <i>Rhopalus maculatus</i> (FIEBER 1837) | Palaearctic | Marshy biotopes | P | ++++ | all regions |
| 22 | <i>Brachycarenum tigrinus</i> (SCHILLING 1829) | Palaearctic | Sandy biotopes | P | +++ | [1]; Gb, HC, B, G-[2] |
| 23 | <i>Stictopleurus punctatovosus</i> (GOEZE 1778) | Palaearctic | Xerophile sunny biotopes | P | ++++ | [1]; Gb, HC-[2] |
| 24 | <i>Stictopleurus crassicornis</i> (LINNAEUS 1758) | Palaearctic | Sunny grassy biotopes | P | ++++ | [1] |
| 25 | <i>Stictopleurus submontosus</i> (REY 1888) | Mediterranean | Xero-thermophilic biotopes sandy | P | + | Dolj County |
| 26 | <i>Stictopleurus abutilon</i> (ROSSI 1790) | European | Xero-thermophilic biotopes sandy | P | ++++ | [1]; Gb, HC, G, T, M, B-[2] |
| 27 | <i>Stictopleurus pictus</i> (FIEBER 1861) | Mediterranean | Xero-thermophilic biotopes sandy | P | + | Dolj County, Bihor County, Caraorman |
| 28 | <i>Macevathus errans caucasicus</i> (KOLENATI 1845) | Euro-Mediterranean | sand and limestone biotopes xerothermoffile | P | + | lowland region |

| | | | | | | | | |
|----|---|--------------------|--------------------------------------|---|------|---|-------------|-----|
| 29 | <i>Agraphopus lethierryi</i> STÅL 1872 | South Palearctic | Sandy biotopes | M | + | Desa, Craiova (Dolj County), Constanta, Caraorman, Sf. Gheorghe | | • ▲ |
| 30 | <i>Myrmus miriformis</i> (FALLEN 1807) | European | Sunny grassy biotopes | P | +++ | all regions | [1]; Gb-[2] | • |
| 31 | <i>Chorosoma schillingii</i> (SCHILLING 1829) | European | Sandy biotopes | P | +++ | Sand dunes on the lowland regions | HC-[1] | • |
| 32 | <i>Chorosoma gracile</i> JOSIFOV 1968 | Eurasiatică | Sandy biotopes | P | + | Satu Mare County, Bihor County, Dolj County | | • ▲ |
| | STENOCEPHALIDAE Family | | | | | | | |
| 33 | <i>Dicranocephalus agilis</i> (SCOPOLI 1763) | Palearctic | Biotopes varied herbaceous and shrub | P | +++ | all regions | | • ▲ |
| 34 | <i>Dicranocephalus albipes</i> (FABRICIUS 1781) | Euro-Mediterranean | Grassy biotopes | O | ++++ | all regions | | • ▲ |
| 35 | <i>Dicranocephalus setulosus</i> (FERRARI 1874) | Holomediterranean | Xerothermofile grassy biotopes | O | + | Dobrogea: Agigea, Istria, Măcin | | • ▲ |

Legend: O - stenophagous; P - polyphagous, M - monophagous; N - necunoscut; + - rare; ++ - sporadic; +++ - frequent; ++++ - widespread; ● - present in my samples, ○ - absent in my samples, ▲ - first reported in area, SA - previous alerts, SP - personal study, [1] - Kis, 2001; [2] - MARCU, 1982; G - Galați; Gb - Gârboavele; HC - Hanu Conachi; B - Brateș; Tc - Tecuci; Tl - Tulucești; I - Independența; L - Liești; F - Frumușița; T - Tăiășmani; M - Mălina; Iv - Ivești

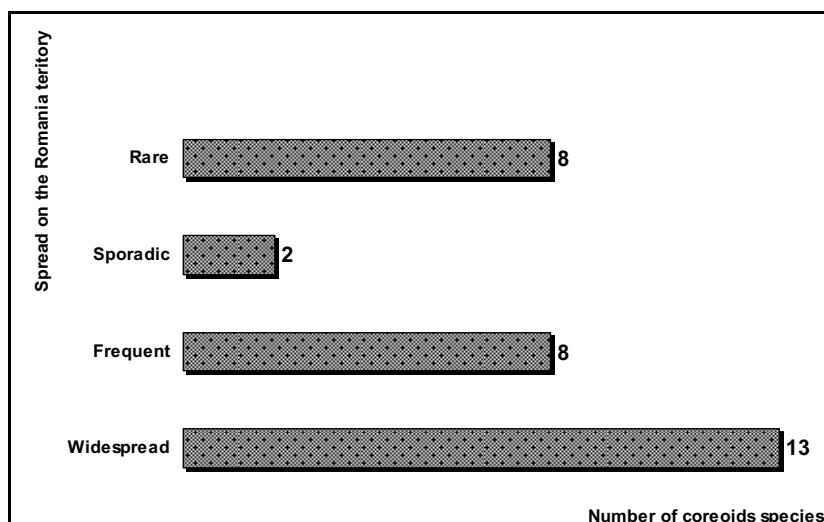


Figure 4. The presence of the species of Coreoidea in the lower basin of the Siret as compared to the spread on the territory of Romania.

Figura 4. Prezența speciilor de coreoide în bazinul inferior al Siretului raportat la răspândirea pe teritoriul României.

CONCLUSIONS

Our studies of the coreoidea fauna in the lower basin of the Siret River were carried out between 2005-2005 and 2007-2008. The heteropterologic material has been sampled from 13 sampling spots located in the County of Galați and in the County of Brăila.

Thirty one species pertaining to the Coreidae, Alydidae, Rhopalidae, Stenocephalidae families live in the studied habitats in the lower basin of the Siret River. The study of the heteropterologic material collected from the habitats located in the lower basin of the Siret led to the ascertainment of the fact that the *Rhopalus rufus* species of the Rhopalidae family is present within Romania's fauna. Eleven new species have been identified within the fauna of the lower basin of the Siret, 8 of them not having been mentioned within the entire Moldavia.

As far as zoogeographical classification is concerned, the species featuring Palearctic (43%), European (16%) and Euro-Mediterranean (20%) spread prevail. The rest of the zoogeographical elements, namely, the species featuring Eurasian, Mediterranean, Holo-Mediterranean, South Palearctic, Euro-Siberian and cosmopolitan spread are rendered by decreased percentages.

The trophic spectrum of the analyzed species of coreoidea is chiefly polyphagous, yet two species only (*Dicranocephalus albipes* and *D. setulosus* of Stenocephalidae) are stenophagous and one (*Agraphopus lethierry* of Rhopalidae reported only for *Cynodon dactylon*) is monophagous.

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