"BABEŞ-BOLYAI" UNIVERSITY CLUJ-NAPOCA
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DOCTORAL THESIS ABSTRACT

STUDY OF THE COREOIDEA FAUNA (INSECTA, HETEROPTERA, COREOIDEA) IN THE LOWER BASIN OF THE SIRET RIVER AND THE MĂCIN MOUNTAINS REGION

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Key words: fauna, biology, ecology, Coreoidea, inferior basin of the Siret river, Măcin Mountains

INTRODUCTION

Our researches in view of elaborating the doctorate dissertation have been carried out in two regions located in completely different geographical units: the lower basin of the Siret River, on the one hand, and the Măcin Mountains region, on the other hand. In each case, the terrestrial heteroptera fauna in general and, implicitly, the coreoidea heteroptera fauna are very little studied, which is one of the chief premises leading to the selection of the research subject matter *Study of the Coreoidea Fauna (Insect, Heteroptera, Coreoidea) in the Lower Basin of the Siret River and in the Măcin Mountains region*.

Our researches stand out as a completion of the map of the distribution of the Coreoidea heteroptera fauna within southeastern Romania, bringing new data in this respect.

The purpose of this paper refers to the faunal, zoogeographical and ecological study of the Coreoidea heteroptera in the lower basin of the Siret River and in the Măcin Mountains region, in view of valuing their biodiversity.

In view of achieving this purpose, the following objectives have been intended:

- Establishing the constitution of the coreoids families in the studied region by species;
- Determining the zoogeographical elements of the studied species;
- Analyzing the structure and the diversity of the coreoidea complexes within the studied ecosystems;
- Establishing the degree of similarity of the coreoids heteroptera coenoses within the studied ecosystems;
- Identifying rare and endangered species.

Far from being complete or flawless, the present paper would not have materialized at all, but for the support and the invaluable help of all those who have invested time, patience and hope in me, teaching me all they deemed useful to me in my profession as a biologist.

This is why I want to express my gratitude to all the members of my family for who even the faintest achievement in my carrier as a naturalist has constituted a reason of sincere joy and a new occasion of encouragement and stimulation of the ambition to turn each professional dream from an intended objective into something materialized.

It is to my tutor, Prof. Dr. Nicolae Tomescu of the Faculty of Biology and Geology within the Babes Bolyai University of Cluj that I owe my heartfelt gratitude and my strongest appreciation, not only for the help in realizing the study and in framing the dissertation, but also for his tolerance, generosity and willingness of having accepted me as a doctorate student. All the discussions with Prof. Dr. Nicolae Tomescu led to the enhancement of my knowledge in entomology and zoology, and the chance of benefiting from his advices and guidance adds to the fortune of having been able to meet some of our best specialists in zoology and ecology – the university teaching staff of the Faculty of Biology of Cluj.

I insist on expressing my gratitude to my colleagues at the Museum Complex of Natural Science of Galaţi, museum section, keepers Irincu Carmen, Creţu Mihaela, Popescu Mariana, who have repeatedly accompanied me in the field in view of collecting entomological material and have helped me in preserving and storing it.

The list of those who helped me either directly or by advices and encouragements is much more comprehensive. I assure them of the warmth of my feelings and, despite of not having mentioned them, I also express my gratitude to them.

CHAPTER 1

SHORT HISTORY OF THE RESEARCHES ON COREOIDEA WITH A SPECIAL EMPHASIS ON THE FAUNA OF ROMANIA

During the latter half of the 19th century, several entomologists studied the heteroptera fauna in Romania: Geza Horvath studied the fauna of Dobrogea, A.L. Montandon – Dobrogea and Moldavia, Maurice Jaquet – Dobrogea and the surroundings of Bucharest, O.M. Reuter – Dobrogea, Frivaldszki Janos – Banat, Lözinz Albert and Sziladi Zoltan – Transylvania, Geza Horvath – Transylvania and Banat (Sienkiewicz, 1957). These papers were synthesized in 1897 by Horvath who subsequently continued to publish papers on heteroptera until the year 1936 (Kis, 1984).

In late 19th century and in early 20th century, A.L. Montandon studied the heteroptera in Dobrogea, Muntenia and Moldavia and then, together with G. Horvath, published data regarding the heteroptera within the entire territory of the country such that, in early 20th century, this order of insects was one of the best documented (Kis, 1984). In 1954, 1955 and 1956, Sienkiewicz published some faunal notes mentioning 10 new species of heteroptera for the fauna of Romania (Sienkiewikz, 1957).

During the last few decades of the 20th century, significant contributions to the knowledge of the heteroptera in Romania have been brought by S. Marcoci, P. Borcea, H. Plattner, E. Schneider, B. Kis, C. Popov, I. Paina (Kis, 1984).

The one to distribute for the first time a series of genera featuring the same particularities within the Coreidae family was Leach, in 1815, a denomination which is subsequently accepted by Amyot and Serville in 1843, which denotes the term Supericornes and Rhopalidae. In 1852, Dallas separates the Alydidae family from Coreidae, and in 1867, Stal splits the Coreidae family into two subfamilies: Coreinae and Pseudophloeina (Moulet, 1995).

Taxonomical studies of coreoidea have been carried out by: Puton (1881), Putshkov (1962), Stichel (1960), Stys (1960), Schaefer (1964, 1965, 1981), Vasquez (1983), Moulet (1991, 1994).

On the basis of the structure of the genital capsule in coreoidea males and females, countless determination criteria have been described: Martynova in 1975 for Russia and Mongolia; Puchcov in 1986 and Putchkova in 1957 for Ukraine; Vazquez in 1982 for Spain; Kerzhner in 1988 for Russia; Moulet in 1995 for France; Gollner-Scheiding in 2000 for Germany; Kis. B in 2001 for Romania; Barbara Lis, Adam Stroinski, Jerzy A. Lis in 2008 for Poland.

Faunal and zoogeographical studies of the coreoidea heteroptera have been carried out by: Stichel W. (1955-1962), Aukema (1990), Kondorosy et Foldessy (1998), Bakonyi and Vasarhelyi (1993), Kondorosy and Kis (1996), Foldessy (1993, 1997, 1998-1999, 2000), Foldessy and Varga (1994), Foldessy and Kovacs (1998-1999), Foldessy, Vasarhelyi, Bakonyi (1999), Aukema (1992, 2004).

Anatomical and physiological studies of the coreoidea heteroptea have been carried out by: Pendergrast (1957), Koch (1957), Schaefer (1965), Vavrinova (1988), Moulet (1993), Davidova-Vilimova, Nejedla and Schaefer (2000).

Cytological and genetic studies of the coreoidea heteroptera have been carried out by: Pigozzi and Solari in 2003, Simiczjew, Ogorzalek and Stys in 1998, Cattani and Papeshi in 2004, Garcia-Gonzalez et al. in 2003, Tay, Miettinen and Kaitala in 2003.

Studies regarding the coreoidea heteroptera biology have been carried out by: Moulet in 1992, 1994/1995, Musolin, Numata and Saulich in 2001, Musolin and Saulich in 1996, 1997, Kis in 2001.

Ethological studies of the species of the Coreoidea superfamily have been carried out by: Panizzi and Hirose, 2002, Kaitala, 1998, 1999; Katvala and Kaitala, 2001, 2003, Mari Katvala, 2002, 2003, Kaitala and Miettinen, 1997, Reguera and Gomendio, 1999, 2002; Kaitala, 2001, Kaitala, Gamberale-Stille and Swartling, 2003, Gomendio and Reguera, 2000; Kaitala and Smith, 2002, Miettinen and Kaitala, 2000, Garcia-Gonzalez and Gomendio, 2004.

Studies of parasitism and parasites of Coreoidea have been carried out by: Popov and Roșca, 1983, Romeis, Shanower and Madhuri, 2000, Kaitala, 1996; Gonzalez and Gomendio, 2003, Arja Kaitala and Mari Katvala, 2001, Kaitala and Axen, 2000.

CHAPTER 2

CHARACTERIZATION OF THE STUDIED REGION

In view of studying the coreoidea fauna (Insect, Heteroptera, Coreoidea), collections of entomological material from the lower basin of the Siret River and from the Măcin Mountains region have been carried out.

The studies of the coreoidea fauna in the lower basin of the Siret River have been carried out between 2004-2005 and 2007-2008. The heteropterological material has been sampled from 13 collection spots (figure 1) in the County of Galaţi and in the County of Brăila, located in the following regions:

- **Mesophile meadows** on the territory of the Gârboavele forest

1. **The Gârboavele forest** is located in the High Covurlui Plain, 1.5 kilometers westwards from Tulucești, on the administrative territory of this commune**.**

- **Poplar and willow arboretums:**

2. nearby the locality of **Şendreni** (County of Galaţi), the right hand side of the Siret. The region is located at the cross point of the High Covurlui Plain with the Siret riverside. The altitude on its territory ranges between 6 and 7 meters, and the soil is alluvial;
3. the forest on the left hand side of the Siret, on the administrative territory of the commune of **Vasile Alecsandri** in the County of Galaţi, located at an altitude of 13 meters on alluvial soil, consisting of 20 to 30 years old poplars and willows.
4. **Voinești** (County of Brăila) riparian vegetation nearby the Buzau River, riverside coppices consisting of *Salix alba* and of *Populus alba*, occurring on fine-grained alluvial soils featuring average trophicity and excessive humidity, where the water generated by floods goes stale for a long time. The most widespread association of riverside coppices, also reported in Voinești, is the one consisting of *Salicetum albae* Issler 1924.

- **Anthropized meadows**:

5. lea on the territory of the commune of **Ivești,** located in the west side of the County of Galaţi (at the border with the County of Vrancea), in the Siret riverside and in the Tecuciului Plain. Prominent soils refer to cambic chernozem, alluvial soils and psamosoils.
6. **Muchea** (commune of Siliștea, County of Brăila) – meso-xerophile meadow at the outskirts of the locality, close to the road, nearby certain agricultural cultures and vineyards, where the following species occur: *Artemisia austriaca, Euphorbia sp, Hypericum perforatum, Stipetum capillatae, Poa angustifolia*
7. **Baldovinești** (County of Brăila) – at the outskirts of the locality, nearby the railroad, there is a meadow chiefly consisting of anthropophilic weeds: *Amaranthus retroflexus, Centaurea cyanus, Chenopodium album, Matricaria recutita, Setaria pumila* which form communities of segetal weeds.
8. **Măxineni** (County of Brăila) – mesophile meadow on a regularly flooded alluvial ridge microrelif, numerous species pertaining to the *Festuco-Brometea* class occurring in the floristic composition, as well as coenoses consisting of *Junus gerardi*.

- **Arenicolous habitats**

9. **Hanu Conachi** (199.3 hectares) is a complex faunal and floristic reserve, growing on psamosoils at an altitude of 14 to 20 meters; it is located at the crossing point of the Tecuciului Plain with the Siret riverside, nearby the homonymous village.

- **Meso-xerophile meadows in humid regions** located around pools and lakes developed on the lower watercourse of the Siret. The specific vegetal associations refer to: *Phragmites, Thypha, Mymphoides, Scirpus*, etc., a certain xerophyte vegetation dominated by gramineae occurring nearby the banks.

10. **The Potcoava Lake** is an oxbow lake located in the Siret riverside, 2 kilometers from Braniștea (County of Galaţi), at an altitude of 8 meters.
11. **The Lozova Pool** is a piscicultural facility where industrial fishing is performed, but as from the year 2007 it has been entered into the recreational circuit for sport fishing. It is located on a fluvial bank on the lower watercourse of the Lozova valley, bordered by the homonymous village to the west, and by Braniștea to the east.
12. **The Tălăbasca Lake** located in the Siret riverside, nearby the village of Tudor Vladimirescu, at an altitude of 8 to 10 meters. The Călmăţui brook flows into it, and in the southeastern side it keeps its connection to the Siret by means of a channel. As from 1994, it has been a protected natural avifaunal region.

13.The Mălina Pool, fluvial bank on the lower watercourse of the homonymous valley at an altitude of 6 to 8 meters, on the administrative territory of the commune of Şendreni. It is 4.3 kilometers long, 0.8 kilometers wide at most and 2 meters deep on an average. It features a longish shape and it communicates with the Siret by means of a channel. It is bordered by the village Movileni and by the village Şendreni to the south.

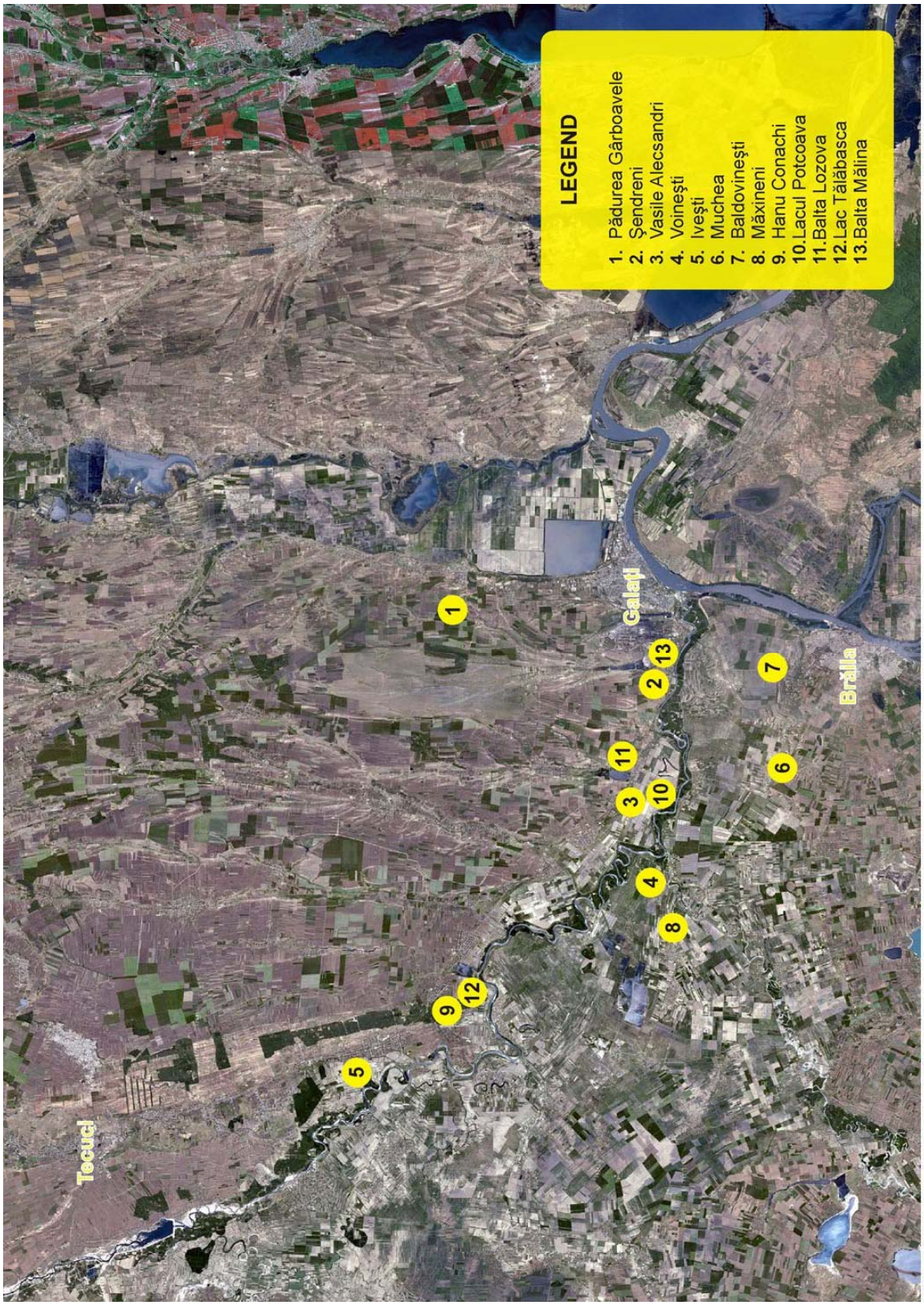


Fig. 1 - Collection points map of heteropterologic material from lower basin of Siret River

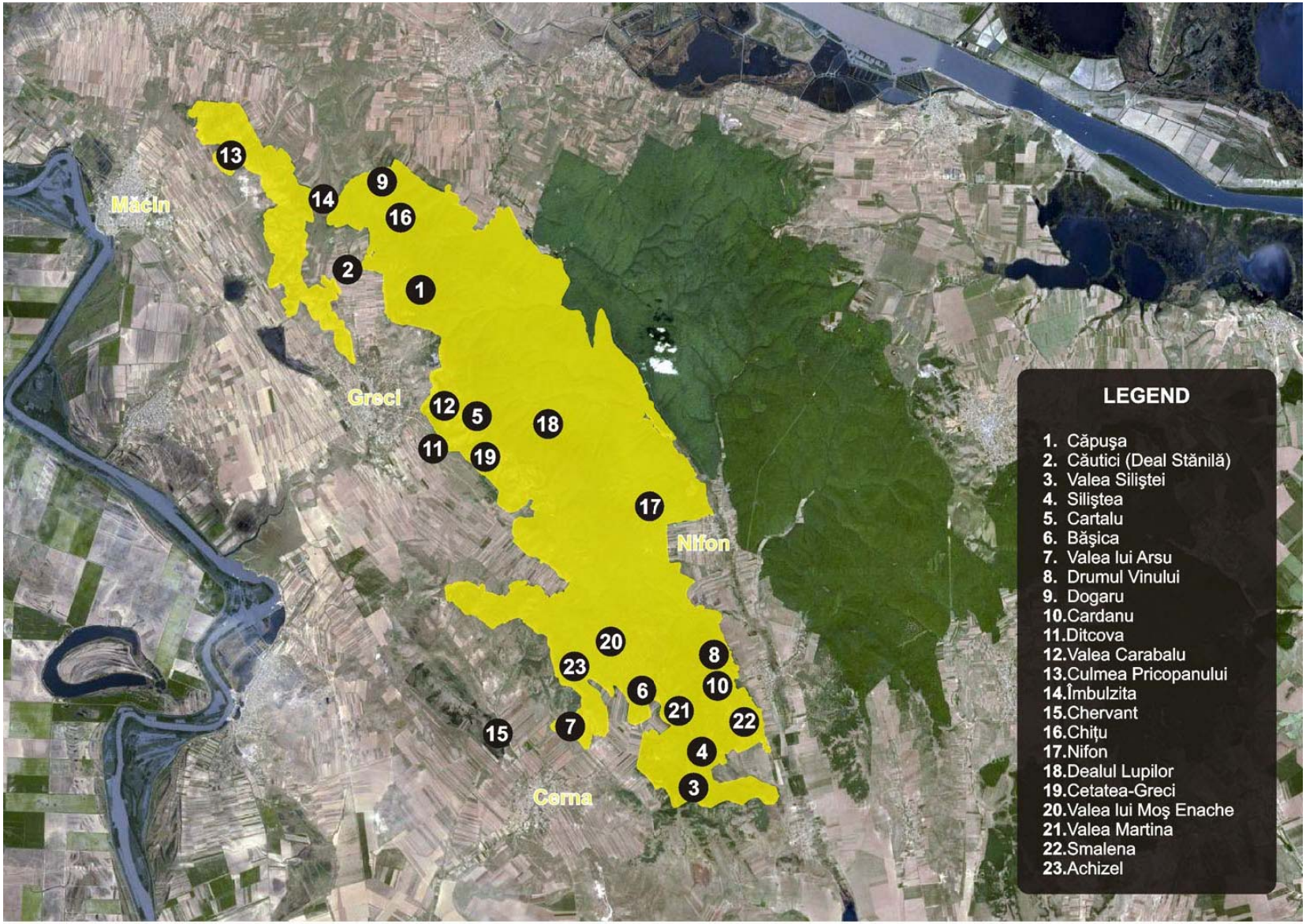


Fig. 25 - Collection points map of heteropterologic material from Măcin Mountains area

The collection of coreoidea in the Măcin Mountains region has been carried out in 6 types of habitats (23 collection spots), identified by the following vegetal associations: mixed pedunculiflora lime tree and yoke elm forest (*Querco pedunculiflorae-Tilietum*), meadow, undergrowths and tree slashes complex (*Achillea coarctatae-Quercetum pubescens*), hornbeam and manna durmast oak grove (*Fraxino orini-Quercetum dalechampii*), mixed lime tree and yoke elm durmast oak forest (*Nectaroscordo-Tilietum*), Balkan steppe-like meadows and oak grove with three species of oaks (*Fragaris viridis-Polyquercetum*).

The distribution of the collection sites (figure 25) by types of habitats:

- **H_1 –** meadows in habitats consisting of *Querco pedunculiflorae-Tillietum* (mixed pedunculiflora lime tree and yoke elm forest): Căpușa, Căutici (Deal Stănilă), Valea Siliștea.
- **H_2 –** meadows in habitats consisting of *Achillea coarctatae-Quercetum pubescens* (meadows associated with undergrowths and tree slashes): Siliștea, Bășica, Cartalu, Valea lui Arsu, Drumul Vinului.
- **H_3 –** meadows in habitats consisting of *Fraxino orni-Quercetum dalechampii* (hornbeam and manna durmast oak grove): Dogaru, Cardanu, Ditcova, Valea Carabalu.
- **H_4 –** habitats consisting of Balkan steppe-like meadows: Culmea Pricopanului, Îmbulzita, Chervant
- **H_5 –** meadows in habitats consisting of the association *Nectaroscordo-Tillietum* (mixed lime tree and yoke elm durmast oak forest) located in the Măcin Mountains region: Chiţu, Nifon (Valea Livezii), Dealul Lupilor, Cetatea-Greci.
- **H_6 –** habitats consisting of *Fragaris viridis-Polyquercetum* (oak grove with three species of oaks) located in the Măcin Mountains region: Valea lui Moș Enache, Valea Martina, Smalenta, Achizel.

CHAPTER 3

MATERIAL AND METHOD

The collection of terrestrial heteroptera from the lower basin of the Siret Rover and from the Măcin Mountains region implied the covering of several phases: field researches subsequently to which the collection stations were established and characterized, and within those, the collection spots, field observations regarding the relief, the vegetation, the temperature, the anthropic influence, etc., the study of topographical maps, extracting quality and quantity biological samples, identifying the species, counting the specimens and sorting them by gender, in the laboratory, the statistical processing of the gathered data, interpreting the results.

The collected material was killed in 70% alcohol, and subsequently to the sorting it was prepared by stinging with Lill pins in the scutellum area, and subsequently to preservation, labeling and drying, it was stored in specimen cases.

The correct determination of the species of Coreoidea requires a careful morphological examination of the antennas and of the anterior and posterior legs, of the scutellum, of the pattern on the dorsal and ventral side of the abdomen, of the parameters of the genital capsule in males. Genitalia are used in view of identifying the species in most of the heteroptera.

In view of identifying the species of Coreoidea I have employed the determination criteria realized by Kis (2001), Moulet (1995), Putschova (1957), Putshkov (1986), Wagner (1966).

In view of the ecological characterization of the Coreoidea populations under study I have used the following ecological indexes: numerical abundance, relative abundance, frequency, constancy, diversity, equitability and similarity.

CHAPTER 4

GENERAL CHARACTERIZATION OF COREOIDEA

Palearctic coreoidea are small and medium sized heteroptera (5 to 15 mm), reaching 30 and even 40 mm in exotic species. In most cases, their body is oval, infrequently elongated, with almost straight and parallel side borders. The tegument is highly chitinous.

Most of the time, sexual dimorphism does not occur at a habitus level, males featuring, as a rule, a waist smaller than the females'.

Antennas are made of four elements, their shape and proportion representing a significant taxonomic feature. Antennal anomalies are common enough in Coreidae heteroptera, being less reported in the Stenocephalidae family.

Stridulation in Coreoidea is a long ascertained phenomenon; Mulsant and Rey (1870), Bolivar (1894), Horvath (1894). Mulsant and Rey (1870) are the ones who have proved the sounds generated by *Phyllomorpha laciniata* are owed to the movement of the wings; Bolivar has subsequently rectified these observations and showed that, as far as these species are concerned, the sounds are generated by the movement of the antennas. Sounds in *Centrocoris spiniger* and in *Spathocera lobata* are also due to the movement of the antennas.

The eggs of Coreoidea have been described by a large number of authors: Southwood (1956), Putshkova (1957), Cobben (1968). In most cases, they are ovoid, more or less elongated in most Rhopalidae, Pseudophloeinae and few Coreinae, or massive, globular in Alydidae and certain Coreidae. Coreoidea feature a parametabolic type of hemimetabolic metamorphosis. The larvae are extremely similar to the adults, both morphologically and ethologically, they live on the same biotope, they feed in the same way (except for alydidae, which, during the early larval stages, are myrmecophile, but become phytophagous beginning with the 4^{th} and the 5^{th} stage). Just as it is the case with almost all of the heteroptera, Coreoidea feature 5 larval growth stages delimited by molts.

Coreoidea are spread on all types of biotopes, but they have a propensity for the sunny biotopes which feature lush xerophile vegetation. They are phytophagous heteroptera with a large spectrum of host plants.

Alydidae do not differ highly from the other representatives of the Coreoidea superfamily, the only difference with respect to the feeding regime referring to the larval stages, when they are myrmecophile.

Despite the fact that coreoids heteroptera have a strictly phytophagous feeding regime, the species in our region rarely damage agricultural cultures. The fact that the populations of these species are scarce and that they are sensitive to the presence of pesticides must be mentioned.

CHAPTER 5

THE COREOIDEA FAUNA (HETEROPTERA: COREOIDEA) IN THE LOWER BASIN OF THE SIRET RIVER AND IN THE MĂCIN MOUNTAINS

5.1. THE COREOIDEA FAUNA IN THE LOWER BASIN OF THE SIRET RIVER

5.1.1 General characterization of the coreoidea in the lower basin of the Siret River

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

Our studies of the coreoidea fauna in the lower basin of the Siret River were carried out between 2004-2005 and 2007-2008. The heteropterological material has been collected from 13 sampling spots located in the County of Galaţi and in the County of Brăila. From the studied regions, 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.

4 species of coreoidea previously reported by other researches did not occur in my researches.

Table 1 features the list of the species of coreoidea collected from 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 Galaţi), 23 species pertaining to 17 genera being reported. Of these, the following have not been spotted any longer during the researches carried out within the respective region: *Phyllomorpha laciniata, Spathocera lobata, Spathocera laticornis, Coriomeris scabricornis* – the Coreidae family.

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, Rhopalus rufus, Stictopleurus subtomentosus, Stictopleurus pictus, Maccevethus errans caucasicus, Agraphopus lethierry, Chorosoma gracile* – the Rhopalidae family and *Dicranocephalus agilis, Dicranocephalus albipes, Dicranocephalus setulosus* – the Stenocephalidae family. Thus, our studies complement 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 of the Coreidae family, the *Alydus* and *Camptopus* genera of the Alydidae family, the *Corizus, Liorhyssus, Rhopalus, Brachycarenus, Stictopleurus, Maccevethus, Agraphopus, Myrmus* and *Chorosoma* genera of the Rhopalidae family, and the *Dicranocephalus* genus of 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 *Fauna of Romania, Heteroptera, Fascicle 9, the Coreoidea and the Pyrrhocorioidea Superfamilies* published by Kis in 2001, despite the fact that the same author (Kis, 1975) has reported 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.

Table 1 - Zoogeographical elements, ecology and fauna of coreoides species in the lower basin of the Siret River

Nr crt	Taxon	Zoogeographical classification	Ecological preferences	Trophic spectrum	Spread on the territory of Romania		Presence in the areas investigated	
					Frequency	Area	SA	SP
	COREIDAE Family							
1	*Gonocerus acuteangulatus* (Goeze 1778)	Holo- Mediterranean	Deciduous forest edge	P	+++	all regions	[1]; Gb, HC-[2]	●
2	*Syromastus rhombeus* (Linnaeus 1767)	Palearctic	Xerofile sunny biotopes	P	++++	all regions	[1];Gb, HC, B-[2]	●
3	*Coreus marginatus* (Linnaeus 1758)	Palearctic	Grassy biotopes	P	++++	all regions	[1];	●
4	*Centrocoris spiniger* (Fabricius 1781)	Euro-Mediterranean	Sandy and herophiles biotopes	P	+++	all regions	Tc-[1];	●
5	*Phyllomorpha laciniata* (Villers 1789)	Mediterranean	Xerofile sunny biotopes	O	+	all regions	Iv-[1];	◇
6	*Spathocera lobata* (Herrich-Schaeffer 1840)	Euro-Mediterranean	Biotopes hydrophilic	O	+++	southern region	Tl-[1];	◇
7	*Spathocera laticornis* (Schilling 1829)	Palearctic	Sandy biotopes	P	++	all regions	HC-[1];	◇
8	*Ceraleptus lividus* Stein 1858	Eurasiatic	Sandy and rocky biotopes xerofile	P	++	all regions	I-[1];	●
9	*Ceraleptus gracilicornis* (Herrich-Schaeffer 1835)	Euro-Mediterranean	Xero-thermophilic biotopes	P	++++	all regions	Gb, B-[2]	●
10	*Coriomeris denticulatus* (Scopoli 1763)	Palearctic	Biotopes mesophilic	P	++++	all regions	Gb, HC, B-[2]	●
11	*Coriomeris scabricornis* (Panzer 1809)	Palearctic	Sandy biotopes, on different plants	P	+++	all regions	HC-[1];	◇
12	*Coriomeris affinis* (Herrich-Schaeffer 1839)	Euro-Mediterranean	Xero-thermophilic biotopes	P	+	Jud. Mehedinți, Caraș-Severin, Tulcea		● ▲
	ALYDIDAE Family							
13	*Alydus calcaratus* (Linnaeus 1758)	Palearctic	Grassy biotopes	P	++++	all regions	[1]; Gb-[2]	●
14	*Camptopus lateralis* (Germar 1817)	Palearctic	Xero-thermophilic biotopes	P	+++	all regions	[1];	●
	RHOPALIDAE Family							
15	*Corizus hyoscyami* (Linnaeus 1758)	Palearctic	Xerofile sunny biotopes	P	++++	all regions	[1];Gb, T-[2]	●
16	*Liorrhyssus hyalinus* (Fabricius 1794)	Cosmopolit	Xero-thermophilic biotopes sandy	P	++	Southern region	Tc, L, F-[1];	●
17	*Rhopalus parumpunctatus* Schilling 1829	Palearctic	Sunny grassy biotopes	P	++++	all regions	HC-[1];	●
18	*Rhopalus conspersus* (Fieber 1837)	European	Sand and limestone biotopes	P	+++	all regions	[1];Gb-[2]	●
19	*Rhopalus subrufus* (Gmelin 1790)	European	Sunny grassy biotopes	P	++++	all regions	[1];Gb, HC-	●

							[2]	
20	*Rhopalus rufus* Schilling 1821	Euro-Mediterranean	Xerofile sunny biotopes	P	+	Sudul Banatului: Dubova, Craiova		●▲
21	*Rhopalus maculatus* (Fieber 1837)	Palearctic	Marshy biotopes	P	++++	all regions		●▲
22	*Brachycarenus tigrinus* (Schilling 1829)	Palearctic	Sandy biotopes	P	+++	all regions	[1];Gb, HC, B, G-[2]	●
23	*Stictopleurus punctatonervosus* (Goeze 1778)	Palearctic	Xerofile sunny biotopes	P	++++	all regions	[1];Gb, HC-[2]	●
24	*Stictopleurus crassicornis* (Linnaeus 1758)	Palearctic	Sunny grassy biotopes	P	++++	all regions	[1];	●
25	*Stictopleurus subtomentosus* (Rey 1888)	Mediterranean	Xero-thermophilic biotopes sandy	P	+	jud. Dolj		●▲
26	*Stictopleurus abutilon* (Rossi 1790)	European	Xero-thermophilic biotopes sandy	P	++++		[1]; Gb, HC, G, T, M, B-[2]	●
27	*Stictopleurus pictus* (Fieber 1861)	Mediterranean	Xero-thermophilic biotopes sandy	P	+	jud. Dolj, Bihor, Caraorman		●▲
28	*Maccevethus errans caucasicus* (Kolenati 1845)	Euro-Mediterranean	Biotopuri xero-termofile nisipoase şi pietroase	P	+	lowland region		●▲
29	*Agraphopus lethierry* Stål 1872	South Palearctic	Sandy biotopes	M	+	Desa, Craiova (jud. Dolj), Constanta, Caraorman, Sf. Gheorghe		●▲
30	*Myrmus miriformis* (Fallén 1807)	European	Sunny grassy biotopes	P	+++	all regions	[1];Gb-[2]	●
31	*Chorosoma schillingii* (Schilling 1829)	European	Sandy biotopes	P	+++	Sand dunes on the lowland regions	HC-[1];	●
32	*Chorosoma gracile Josifov 1968*	Eurasiatică	Sandy biotopes	P	+	jud. Satu Mare, Bihor, Dolj		●▲
	STENOCEPHALIDAE Family							
33	*Dicranocephalus agilis* (Scopoli 1763)	Palearctic	Biotopes varied herbaceous and shrub	P	+++	all regions		●▲
34	*Dicranocephalus albipes* (Fabricius 1781)	Euro-Mediterranean	Grassy biotopes	O	++++	all regions		●▲
35	*Dicranocephalus setulosus* (Ferrari 1874)	Holomediterranean	Xerotermofile grassy biotopes	O	+	Dobrogea: Agigea, Istria, Măcin		●▲

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 – Galaţi; Gb – Gârboavele; HC – Hanu Conachi; B – Brateş; Tc – Tecuci; Tl – Tulucești; I – Independența; L – Liești; F – Frumușița; T – Tălășmani; M – Mălina; Iv- Iveşti

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.

The analysis of the species of terrestrial heteroptera pertaining to the Coreoidea superfamily 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 entered in table 1. The zoogeographical data is taken from Moulet (1994), Kis (2001), Lis et al. (2008).

Summarizing the data in table 1, 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 prominent elements.

In view of the ecological characterization of the species of coreoidea collected from the lower basin of the Siret River we used the data featured by Kis (2001) for the species of coreoidea of the fauna of Romania.

With respect to the ecological preferences of coreoidea heteroptera, the data synthesized in table 1 substantiates that most of them are thermophile species, drawn to xerophile sandy biotopes, which, for that matter, are characteristic of the studied region. Few species are drawn to mesophile 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 *Dicranocephalus 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 Plavişeviţa, Orșova (County of Mehedinţi), Moldova Veche (County of Caraş-Severin), Caraorman (County of Tulcea); *Rhopalus rufus* has only been spotted in southern Banat, in Dubova and Craiova; *Stictopleurus subtomentosus* has been reported only in the County of Dolj; *Stictopleurus pictus* in the County of Dolj, County of Bihor and Caraorman; *Maccevethus errans caucasicus* is spotted only in various lowland regions; *Agraphopus lethierry* is reported only in Desa, Craiova (County of Dolj), Constanţa, 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.

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

5.1.2 New species within the fauna of Moldavia

As a result of analyzing the autochthon literature on the coreoidea fauna in Moldavia, I have identified 8 species which have not been reported in the region. They refer to: *Coriomeris affinis, Rhopalus rufus, Stictopleurus pictus, Maccevethus errans caucasicus, Agraphopus lethierryi, Chorosoma gracile, Dicranocephalus setulosus, Stictopleurus subtomentosus*, Royer, 1923. For Romania, the species has also been cited in the southern regions of Oltenia: Craiova, Bucovăţ, Prunet (County of Dolj) (Kis, 2001).

5.1.3 New species within the fauna of the lower basin of the Siret

As a result of the studies carried out in the lower basin of the Siret, 3 of the total amount of 31 species of coreoidea identified in this region have not been reported in the previous studies.

They refer to *Rhopalus maculatus* of the Rhopalidae family, and to *Dicranocephalus agilis* and *Dicranocephalus albipes* of the Stenocephalidae family. The new species within the fauna of Moldavia add to these, and, consequently, the new species within the lower basin of the Siret sum up to 11 species.

5.1.4 Analysis of the communities of coreoidea within the habitats studied in the lower basin of the Siret River

The biological material has been collected by quantity samples from 13 stations located in the lower basin of the Siret River, in the County of Galaţi and in the County of Brăila, during 2004-2005 and 2007-2008.

During the study period, 745 specimens pertaining to the Coreoidea Superfamily, classified in 4 families, 18 genera, 31 species have been collected. Their distribution by types of habitats is rendered in table 2.

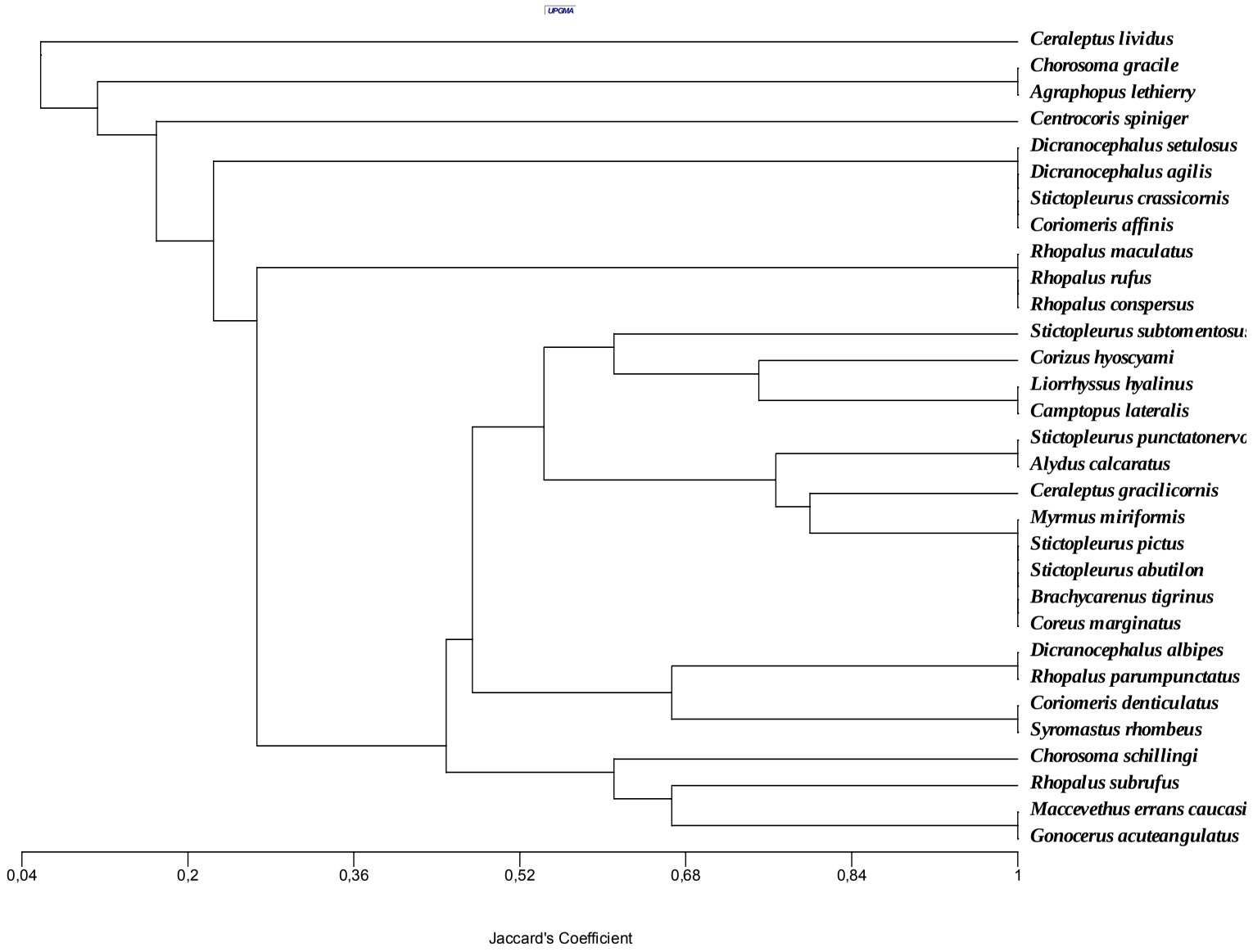
Table 2 – The species of coreoidea identified in 5 types of habitats in the lower basin of the Siret River

Nr. crt.	Taxon	S_1	S_2	S_3	S_4	S_5
	Familia Coreidae					
1	*Gonocerus acuteangulatus*					
2	*Syromastus rhombeus*					
3	*Coreus marginatus*					
4	*Centrocoris spiniger*					
5	*Ceraleptus lividus*					
6	*Ceraleptus gracilicornis*					
7	*Coriomeris denticulatus*					
8	*Coriomeris affinis*					
	Familia Alydidae					
9	*Alydus calcaratus*					
10	*Camptopus lateralis*					
	Familia Rhopalidae					
11	*Corizus hyoscyami*					
12	*Liorrhyssus hyalinus*					
13	*Rhopalus parumpunctatus*					
14	*Rhopalus conspersus*					
15	*Rhopalus subrufus*					
16	*Rhopalus rufus*					
17	*Rhopalus maculatus*					
18	*Brachycarenus tigrinus*					
19	*Stictopleurus punctatonervosus*					
20	*Stictopleurus crassicornis*					
21	*Stictopleurus subtomentosus*					
22	*Stictopleurus abutilon*					
23	*Stictopleurus pictus*					
24	*Maccevethus errans caucasicus*					
25	*Agraphopus lethierry*					
26	*Myrmus miriformis*					
27	*Chorosoma schillingi*					
28	*Chorosoma gracile*					
	Familia Stenocephalidae					
29	*Dicranocephalus agilis*					
30	*Dicranocephalus albipes*					
31	*Dicranocephalus setulosus*					
Total specii		20	9	14	21	16

S_1 - mesophile meadows; S_2 – poplar and willow arboretums; S_3 – anthropized meadows; S_4 – arenicolous habitats; S_5 – habitats in humid regions.

- signalizing the presence within the habitat
- the first signalization of the species in the region

Fig.99 Affinity of coreoids species collected from different habitat types located in the lower basin of the Siret



It is ascertained that out of the 31 species identified within the lower basin of the Siret, 5 have been spotted in all the investigated types of habitats. They refer to *Coreus marginatus* (the Coreidae family), *Brachycarenus tigrinus, Stictopleurus abutilon, Stictopleurus pictus* and *Myrmus miriformis* (the Rhopalidae family). 4 species have been spotted in 4 types of habitats: *Alydus calcaratus* (the Alydidae family) and *Stictopleurus punctatonervosus* (the Rhopalidae family) are missing from the anthropized meadows, *Ceraleptus gracilicornis* is missing from the habitats in humid regions, *Corizus hyoscyami* is missing from the habitats consisting of poplar and willow arboretums.

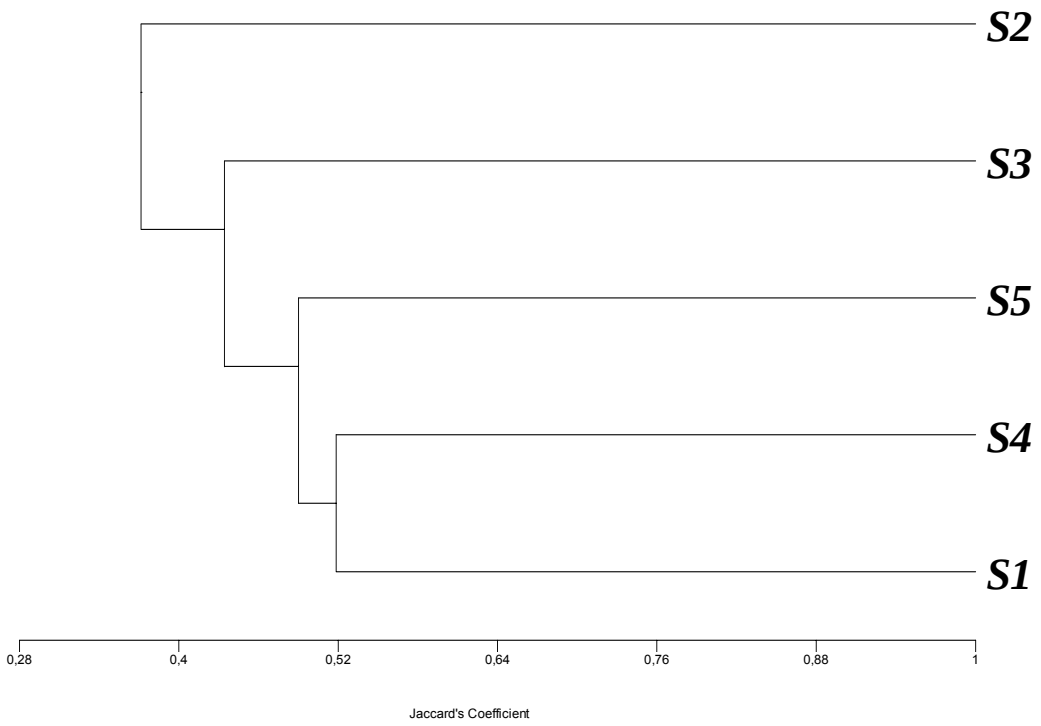


Fig 100 - The degree of similarity of the habitats investigated in the lower basin of the Siret, on the basis of the specific communities of coreoidea
S_1 - mesophile meadows; S_2 – poplar and willow arboretums; S_3 – anthropized meadows; S_4 – arenicolous habitats; S_5 – habitats in humid regions.

As a result of the analysis of the similarity dendrogram of the habitats investigated in the lower basin of the Siret River (fig. 100) on the basis of the specific communities of coreoidea, a higher association of the two types of natural habitats located in the region of the Gârboavele forest reserve (S_1) and in the region of the arenicolous reserve in Hanu Conachi (S_4) is ascertained, these two also featuring the highest values of the specific biodiversity, the number of species of coreoidea spotted in the two habitats being the largest, that is, 14. Their location, but their statute as protected areas too, enables the development of certain species of plants which complement the trophic spectrum of coreoidea. The habitats in humid regions (S_5) located in the surroundings of pools or lakes add to these two abovementioned, and they feature a well developed vegetal carpet for the entire vegetation period, the drought period included, which feature 49% ecological similarity with S_1 and S_4, in which case only 8 species of coreoidea are common to the 3 habitats. The ones barest of coreoidea, specifically speaking, refer to the anthropized meadows (S_3), followed by the poplar and willow arboretums (S_2). This state of affairs is explicable: the anthropized meadows in the lower basin of the Siret are fairly degraded and bare of gramineae and leguminosae, plants prominent in the food of coreoidea, and the poplar and willow arboretums also shelter a fairly scarce vegetal carpet, to which we must add the grazing of cattle of the riparian villages on the Siret, which is one of the few regions where such occupations are possible. A 44% similarity is ascertained between these two types of habitats, namely, S_3 and S_2, featuring 6 species of coreoidea in common, all of which are species of great ecological flexibility, tolerating the fluctuations of the ecological factors.

Table 3 – The list of the species of coreoidea identified in the lower basin of the Siret River by types of habitats

Nr. crt.	**Taxon**	S_1	S_2	S_3	S_4	S_5
Coreidae Family						
1	*Gonocerus acuteangulatus*	1				1
2	*Syromastus rhombeus*	6			11	
3	*Coreus marginatus*	44	56	4	63	1
4	*Centrocoris spiniger*					1
5	*Ceraleptus lividus*		1			
6	*Ceraleptus gracilicornis*	1	10	4	2	
7	*Coriomeris denticulatus*	1			1	
8	*Coriomeris affinis*				1	
Alydidae Family						
9	*Alydus calcaratus*	1	1		1	6
10	*Camptopus lateralis*			6	1	5
Rhopalidae Family						
11	*Corizus hyoscyami*	4		6	2	1
12	*Liorhyssus hyalinus*			1	1	2
13	*Rhopalus parumpunctatus*	5		1	4	
14	*Rhopalus conspersus*	1				
15	*Rhopalus subrufus*	10			6	1
16	*Rhopalus rufus*	1				
17	*Rhopalus maculatus*	1				
18	*Brachycarenus tigrinus*	96	5	3	15	14
19	*Stictopleurus punctatonervosus*	6	7		27	18
20	*Stictopleurus crassicornis*				5	
21	*Stictopleurus subtomentosus*				2	2
22	*Stictopleurus abutilon*	16	2	3	14	17
23	*Stictopleurus pictus*	3	1	1	5	6
24	*Maccevethus errans caucasicus*	2				1
25	*Agraphopus lethierry*			1		
26	*Myrmus miriformis*	5	10	41	46	53
27	*Chorosoma schillingi*	13		3		5
28	*Chorosoma gracile*			1		
Stenocephalidae Family						
29	*Dicranocephalus agilis*				4	
30	*Dicranocephalus albipes*	1		7	6	
31	*Dicranocephalus setulosus*				1	
Total species		**20**	**9**	**14**	**21**	**16**
Total individuals		**218**	**93**	**82**	**218**	**134**
Shannon – Wiener diversity index H_s		**2,783**	**1,970**	**2,692**	**3,249**	**2,889**
Equitability E		**0,644**	**0,622**	**0,707**	**0,740**	**0,722**

S_1 - **mesophile meadows**; S_2 – **poplar and willow arboretums**; S_3 – **anthropized meadows**; S_4 – **arenicolous habitats**; S_5 – **habitats in humid regions**.

As a result of the analysis of table 3, it is ascertained that most of the specimens of coreoidea have been collected from the two habitats which, for that matter, were mentioned above as featuring the highest specific diversity. We refer to the Gârboavele forest from where

we have collected 218 specimens pertaining to 20 species and 14 genera, and to the reserve in Hanu Conachi from where we have also collected 218 specimens pertaining, on the other hand, to 21 species and 13 genera. Despite the fact the two types of habitats have a similar specific diversity, numerically speaking, there are differences between them as far as the presence or the absence of certain species is concerned. Thus, *Gonocerus acuteangulatus* of coreidae, *Rhopalus conspersus, Rhopalus rufus, Rhopalus maculatus* and *Maccevethus errans caucasicus* of rhopalidae are spotted only in the mesophile meadows in Gârboavele, and *Coriomeris affinis* of coreidae, *Liorhyssus hyalinus, Rhopalus subrufus, Stictopleurus crassicornis, Stictopleurus subtomentosus* of rhopalidae and *Dicranocephalus setulosus* of stenocephalidae are identified only in the arenaria habitat in Hanu Conachi.

A great number of specimens have been collected from the habitats in humid regions. They refer to 134 specimens pertaining to 16 species and 13 genera. What is noticeable for this type of habitat is the absence from the research samples of the representatives of the Stenocephalidae family. There is only one species of coreidae exclusively specific to this type of habitat: *Centrocoris spiniger*, a species which has been reported for the County of Galaţi in the locality of Tecuci.

The habitats featuring a small number of coreoidea refer, in turn, to the poplar and willow arboretums and to the anthropized meadows, each of them with 93 and 82 specimens, respectively. The order is reversed between the two types of habitats with respect to the specific diversity, given that the anthropized meadows feature 14 species of coreoidea pertaining to 12 genera, whereas the poplar and willow arboretums feature 9 species pertaining to 6 genera.

In view of expressing diversity, I have calculated the Shannon-Wiener indicator (table 3), the diversity being independent from the size of the sample and easily generalizable. Ordering the diversity of the coreoidea heteroptera in the habitats investigated in the lower basin of the Siret, we notice the maximum value Hs = 3.249 is registered for the species in the arenicolous habitat, being followed by the one of the species in humid regions (Hs = 2.889), in the mesophile meadows of the Gârboavele forest reserve (Hs = 2.783) and in the anthropized meadows (Hs = 2.692). The lowest diversity is ascertained for the poplar and willow arboretums, for which Hs = 1.97.

With respect to equitability, the fact that this indicator features average values is noticed, values which prove there are no great differences between the number of the populations of the species of coreoidea which constitute the communities of species. Thus, we have obtained the highest value for the arenaria habitat (E = 0.74), the real diversity representing 74% of the maximal (theoretical) one, followed by habitats in humid regions (E = 0.722) and by the anthropized meadows habitat (E = 0.707). Subsequently, the degree o uniformity of the distribution of specimens by species is increasingly diminished for the mesophile meadows in the Gârboavele forest (E = 0.644) and for the poplar and willow arboretums (E = 0.622).

5.2. THE COREOIDEA FAUNA IN THE MĂCIN MOUNTAINS

As a result of the faunal researches carried out in 2005 and 2007-2008 in the Măcin Mountains region, a number of 35 species pertaining to 19 genera and 4 families (figure 8) has been identified, 1361 specimens being analyzed. Researches on coreoidea in the Măcin Mountains region have been carried out by Sienkiewicz (1964, 1962) and by Kis (1976), the studied region being fairly limited.

In table 16 we present the list of species of coreoidea collected from the Măcin Mountains region, as well as of the ones previously signalized in the bibliography, the zoogeographical appertaining, the ecological preferences, the trophic spectrum, as well as the spread on the territory of Romania.

Table 16 – Coreoides fauna in Macin Mountains. Features zoogeographical, ecological, and spread in Romania and Macin Mountains

Nr crt	Taxon	Zoogeographical classification	Ecological preferences	Trophic spectrum	Spread on the territory of Romania		Presence in the areas investigated	
					Frequency	Area	SA	SP
	COREIDAE Family							
1	*Gonocerus acuteangulatus* (Goeze 1778)	Holomediterranean	Deciduous forest edge	P	+++	all regions		● ▲
2	*Syromastus rhombeus* (Linnaeus 1767)	Palearctic	Xerofile sunny biotopes	P	++++	all regions	M. [1]; Cp. [3]	●
3	*Coreus marginatus* (Linnaeus 1758)	Palearctic	Biotopes grass	P	++++	all regions	M., C. [3]	●
4	*Enoplops scapha* (Fabricius 1794)	Palearctic	Biotopes grass and shrubs	P	++	all regions	M. [1]	○
5	*Centrocoris spiniger* (Fabricius 1781)	Euro-Mediterranean	Sandy and herophiles biotopes	P	+++	all regions	M. [1]	●
6	*Phyllomorpha laciniata* (Villers 1789)	Mediteranean	Xerofile sunny biotopes	O	+	all regions	G. [2]; M. [1]	●
7	*Spathocera lobata* (Herrich-Schaeffer 1840)	Euro-Mediterranean	Biotopes hydrophilic	O	+++	Southern region	M. [1]	●
8	*Spathocera dalmani* (Schilling 1829)	European	Sunny sandy biotopes	P	+	Osoi (jud. Iaşi), Bucureşti		● ▲
9	*Spathocera tuberculata* Horváth 1882	Euro-Mediterranean	unknown	-	+	Valea lui Mihai (jud. Bihor)		● ▲
10	*Spathocera obscura* (Germar 1842)	European	Sunny sandy biotopes	O	+	Jud. Timiş, Dolj, Vaslui		● ▲
11	*Arenocoris falleni* (Schilling 1829)	Eurasiatic	Sunny sandy biotopes	P	++	all regions	M. [1]	○
12	*Bathysolen nubilus* (Fallén 1807)	Palearctic	Xerofile grassy biotopes	P	++	all regions	M. [1]	○
13	*Ceraleptus gracilicornis* (Herrich-Schaeffer 1835)	Euro-Mediterranean	Xero-thermophilic biotopes	P	++++	all regions	M. [1]	●
14	*Ceraleptus lividus* Stein 1858	Eurasiatic	Sandy and rocky biotopes xerofile	P	++	all regions		● ▲
15	*Ceraleptus obtusus* (Brullé 1838)	Mediterranean	Biotypes xerofile - legumes	P	+	all regions		● ▲
16	*Coriomeris hirticornis* (Fabricius 1794)	Palearctic	Xero-thermophilic biotopes sandy	P	+++	Southern region of Romania		● ▲
17	*Coriomeris denticulatus* (Scopoli 1763)	Palearctic	Biotopes mesophilic	P	++++	all regions	C. [1]G. [3]	●
18	*Coriomeris affinis* (Herrich-Schaeffer 1839)	Euro-Mediterranean	Xero-thermophilic biotopes	P	+	Jud. Mehedinţi, Caraş-Severin, Tulcea		● ▲
	ALYDIDAE Family							
19	*Alydus calcaratus* (Linnaeus 1758)	Palearctic	grassy biotopes	P	++++	all regions		● ▲
20	*Camptopus lateralis* (Germar 1817)	Palearctic	Xero-thermophilic biotopes	P	+++	all regions	M., G., C., Cp. [3]	●
	RHOPALIDAE Family							
21	*Corizus hyoscyami* (Linnaeus 1758)	Palearctic	Xerofile sunny biotopes	P	++++	all regions	M., C. [3]	●

22	*Liorrhyssus hyalinus* (Fabricius 1794)	Cosmopolit	Xero-thermophilic biotopes sandy	P	++	southern region	M. [3]	●
23	*Rhopalus parumpunctatus* Schilling 1829	Palearctic	Sunny grassy biotopes	P	++++	all regions	C.[1]	●
24	*Rhopalus distinctus* (Signoret 1859)	European	Grassy thermophilic biotopes	P	+	Jud. Cluj, Hunedoara, Bihor, Dolj, sudul Dobrogei		● ▲
25	*Rhopalus subrufus* (Gmelin 1790)	European	Sunny grassy biotopes	P	++++	all regions	C.[1]	●
26	*Rhopalus conspersus* (Fieber 1837)	European	Sand and limestone biotopes	P	+++	all regions		● ▲
27	*Rhopalus maculatus* (Fieber 1837)	Palearctic	Marshy biotopes	P	++++	all regions		● ▲
28	*Brachycarenus tigrinus* (Schilling 1829)	Palearctic	Sandy biotopes	P	+++	all regions	M., G., C., Cp. [3]	●
29	*Stictopleurus punctatonervosus* (Goeze 1778)	Palearctic	Sunny grassy biotopes	P	++++	all regions		● ▲
30	*Stictopleurus crassicornis* (Linnaeus 1758)	Palearctic	Sunny grassy biotopes	P	++++	all regions	M., C. [1]	●
31	*Stictopleurus subtomentosus* (Rey 1888)	Mediterranean	Xero-thermophilic biotopes sandy	P	+	jud. Dolj		● ▲
32	*Stictopleurus abutilon* (Rossi 1790)	European	Xero-thermophilic biotopes sandy	P	++++	all regions	M., Cp. [3]	●
33	*Stictopleurus pictus* (Fieber 1861)	Mediterranean	Xero-thermophilic biotopes sandy	P	+	jud. Dolj, Bihor, Caraorman		● ▲
34	*Maccevethus errans caucasicus* (Kolenati 1845)	Euro-Mediterranean	sand and limestone biotopes xerotermofile	P	+	lowland regions	Măcin - Sienkiewicz 1964	●
35	*Myrmus miriformis* (Fallén 1807)	European	Sunny grassy biotopes	P	+++	all regions	Cerna - Sienkiewicz 1964	●
36	*Chorosoma schillingii* (Schilling 1829)	European	Sandy biotopes	P	+++	sand dunes and lowland regions	Măcin - Sienkiewicz 1964	●
37	*Chorosoma gracile Josifov 1968*	Eurasiatic	Sandy biotopes	P	+	jud. Satu Mare, Bihor, Dolj		● ▲
	STENOCEPHALIDAE Family							
38	*Dicranocephalus albipes* (Fabricius 1781)	Euro-Mediterranean	Biotopes grass	O	++++	all regions	Cp. [3]	●
39	*Dicranocephalus medius* (Mulsant & Rey 1870)	European	Biotopes grass and shrubs	O	++	different regions	M. [1] (sp rare in Rom.)	○
40	*Dicranocephalus setulosus* (Ferrari 1874)	Holomediteranean	Xerotermofile grassy biotopes	O	+	Dobrogea: Agigea, Istria, Măcin	M. [1] (sp. F. rare in Rom.)	○

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] - Sienkiewicz 1964; [2] - Sienkiewicz 1962; [3] – Kiss 1976 M.- Măcin, C.-Cerna, G. – Greci, Cp.- Căprioara;

This abundance of species of the coreoidea fauna in the Măcin Mountains region is explained by the variety of the studied habitats, by its geographical location in southeastern Romania, given the forest ecosystems ensure the ecological stability and the optimum habitat for various herbaceous species.

Should we compare the distribution of the species of coreoidea obtained by us with the faunal data on the entire territory of Romania, we can notice a similar distribution, meaning the proportion and the degree of specific representation of the families are generally valid.

Analyzing the ecological preference of the species of coreoidea identified by our researches in the Măcin Mountains region (table 16), as well as their spread on the territory of Romania realized by Kis in 2001, we can explain their diversity in the studied region. Thus, for the Măcin Mountains region, 13 species of coreoidea with a large spread as compared to the territory of Romania are present, and they are represented by highly numerous populations; 9 species of coreoidea are frequent, being represented by populations counting numerous specimens; 2 species feature a sporadic presence, their populations counting few specimens; and 11 species of coreoidea identified for the Măcin Mountains region are rare, featuring a sparse or almost sparse spread as compared to the territory of Romania.

Except for the *Spathocera lobata* species (the Coreidae family) the ecology of which is little known, all the other species identified find characteristic biotopes in the studied region: xerophile and xero-thermophile meadows, mesophile meadows and sandy and rocky biotopes with high thermal values.

Out of the species widely spread on the territory of Romania, but which have not been reported in the Măcin Mountains region, we have identified the following species: *Alydus calcaratus* of the Alydidae family, as well as *Rhopalus conspersus, Rhopalus maculatus, Stictopleurus punctatonervosus* of the Rhopalidae family. The species frequently spotted in various regions of the country, which have not been identified previously to our researches in the Măcin Mountains region, but featuring ecological preferences identical to the ones of the studied region, refer to *Gonocerus acuteangulatus* and *Coriomeris hirticornis* pertaining to coreidae. The species featuring almost sparse spread, rare and extremely rare species on the territory of our country, identified for the first time by our researches, refer to *Spathocera dalmani* reported in Osoi (County of Iași) and Bucharest (Kis, 2001), *Spathocera tuberculata* reported in Valea lui Mihai (County of Bihor), *Spathocera obscura* spotted in the County of Timiș, County of Dolj and County of Vaslui, *Stictopleurus subtomentosus* reported in the County of Dolj, *Stictopleurus pictus* spotted in the County of Dolj, County of Bihor and Caraorman, as well as to *Chorosoma gracile* reported in the County of Satu Mare, County of Bihor and County of Doj.

As compared to the previously carried out studied, we have identified in the studied region (the Măcin Mountains region) 8 genera with 16 new species of coreoidea, which are to be spotted at the first signalization. They refer to the following species: *Gonocerus acuteangulatus, Spathocera dalmani, Spathocera tuberculata, Spatocera obscura, Ceraleptus lividus, Ceraleptus obtusus, Coriomeris hirticornis, Coriomeris affinis* of coreidae, *Alydus calcaratus* of alydidae, *Rhopalus distinctus, Rhopalus conspersus, Rhopalus maculatus, Stictopleurus punctatonervosus, Stictopleurus subtomentosus, Stictopleurus pictus* and *Chorosoma gracile* of rhopalidae. Moreover, *Spathocera dalmani, Spathocera tuberculata, Spathocera obscura* of coreidae, and *Stictopleurus subtomentosus* and *Chorosoma gracile* of rhopalidae are for the first time mentioned in the Dobrogea region. Thus, our studies complement the table of the distribution of the species of coreoidea on the territory of Romania.

Analyzing the coreoidea fauna identified in the Măcin Mountains region, we may ascertain they pertain to 7 zoogeographical units.

Summarizing the data in table 16, the fact that the species featuring Palearctic (34%), European (23%) and Euro-Mediterranean (20%) spread prevail stands out, Mediterranean elements with considerable contribution (11%) adding to these. The rest of the zoogeographical elements, namely, the species featuring Eurasian, cosmopolitan and Holo-Mediterranean spread are rendered by decreased percentages.

Analyzing the ecological preferences of coreoidea heteroptera, the data synthesized in table 16 shows most of them are thermophile species, drawn to xerophile and xero-thermophile biotopes which, for that matter, are characteristic of the studied region. Few species are drawn to mesophile biotopes, namely, *Gonocerus acuteangulatus* which prefers the outskirts of deciduous forests which are prominently spread in this region, and *Coriomeris denticulatus* which also prefers mesophile biotopes. The trophic spectrum of the analyzed species of coreoidea is prominently polyphagous, four species only (*Phyllomorpha laciniata, Spathocera lobata, Spathocera obscura* of coreidae and *Dicranocephalus albipes* of Stenocephalidae) being

oligophagous. *Spathocera tuberculata* of coreidae is a species with a very little known ecology; consequently, there is no data concerning its trophic spectrum.

5.2.1 New species within the fauna of Dobrogea and southeastern Romania

As compared to the previously carried out studies, we have identified 5 new species of coreoidea within the fauna of Dobrogea on the basis of the biological material collected from the Măcin Mountains: *Spathocera dalmani, Spathocera tuberculata, Spathocera obscura, Stictopleurus subtomentosus, Chorosoma gracile*.

5.2.2. New species within the fauna of the Măcin Mountains

As a result of the studies of the coreoidea heteroptera fauna in the Măcin Mountains region, 16 species of the total amount of 35 species identified here have not been spotted in the previous studies. 5 of these are new within the fauna of Dobrogea and within southeastern Romania (they are presented in the previous chapter), and 11 are reported for the first time in the Măcin Mountains: *Gonocerus acuteangulatus, Ceraleptus lividus, Ceraleptus obtusus, Coriomeris hirticornis, Coriomeris affinis, Alydus calcaratus, Rhopalus distinctus, Rhopalus conspersus, Rhopalus maculatus, Stictopleurus punctatonervosus, Stictopleurus pictus*.

5.2.3 Analysis of the communities of coreoidea within the habitats studied in the Măcin Mountains region

The heteropterological collections, by means of the entomological net, from the Măcin Mountains region have been carried out in 6 types of habitats (23 collection spots) identified by the vegetal associations: mixed pedunculiflora lime tree and yoke elm forest (*Querco pedunculiflorae-Tilietum*), meadow, undergrowths and tree slashes complex (*Achillea coarctatae-Quercetum pubescens*), hornbeam and manna durmast oak grove (*Fraxino orini-Quercetum dalechampii*), mixed lime tree and yoke elm durmast oak forest (*Nectaroscordo-Tilietum*), steppe-like meadows and oak grove with three species of oaks (*Fragaris viridis-Polyquercetum*).

A number of 1361 specimens pertaining to the Coreoidea superfamily have been collected from the investigated regions. Their classification by species within the family, as well as their distribution within habitats is rendered in table 17.

Analyzing table 17 it is ascertained that only four species of the total amount of 35 species of coreoidea registered for the entire Măcin Mountains region are spotted in all types of investigated habitats. They refer to *Camptopus lateralis* of the Alydidae family, *Stictopleurus pictus, Chorosoma schillingi* and *Chorosoma gracile* of the Rhopalidae family, eurytopic species for the Măcin Mountains region which find optimum life conditions in the studied region. On the other hand, there are species specific only to a certain type of habitat, and they are stenotopic species. Thus, *Spathocera dalmani* and *Spathocera tuberculata* of coreidae have only been spotted in habitats consisting of *Querco pedunculiflorae-Tillietum* (mixed pedunculiflora lime tree and yoke elm forest), *Rhopalus distinctus* of rhopalidae has only been spotted in habitats consisting of *Achillea coarctatae-Quercetum pubescens* (meadows associated with undergrowths and tree slashes), *Rhopalus maculatus* (the Rhopalidae family) has been spotted in the habitats consisting of *Achillea coarctatae-Quercetum pubescens* (meadows associated with undergrowths and tree slashes), and *Spathocera obscura* (the Coreidae family) has been spotted in habitats consisting of *Fragaris viridis-Polyquercetum* (oak grove with three species of oaks). With respect to the habitats consisting of the association *Nectaroscordo-Tilietum* (mixed lime tree and yoke elm durmast oak forest), *Gonocerus acuteangulatus* (the Coreidae family) is the only specific species.

Table 17 – The distribution of the species of coreoidea collected from the Măcin Mountains by types of habitats.

Nr crt.	Taxon	H_1	H_2	H_3	H_4	H_5	H_6
	Coreidae Family						
1	*Gonocerus acuteangulatus*	-	-	-	-	-	+
2	*Syromastus rhombeus*	+	+	-	+	+	-
3	*Coreus marginatus*	+	+	-	+	+	+
4	*Centrocoris spiniger*	+	+	+	+	-	+
5	*Phyllomorpha laciniata*	-	+	+	-	+	-
6	*Spathocera lobata*	+	-	-	+	+	-
7	*Spathocera dalmani*	+	-	-	-	-	-
8	*Spathocera tuberculata*	+	-	-	-	-	-
9	*Spathocera obscura*	-	-	-	-	+	-
10	*Ceraleptus gracilicornis*	-	-	+	+	+	+
11	*Ceraleptus lividus*	-	+	-	+	-	+
12	*Ceraleptus obtusus*	+	+	-	-	-	+
13	*Coriomeris hirticornis*	-	+	+	-	+	-
14	*Coriomeris denticulatus*	+	-	-	+	+	+
15	*Coriomeris affinis*	-	-	-	-	-	+
	Alydidae Family						
16	*Alydus calcaratus*	-	-	-	-	-	+
17	*Camptopus lateralis*	+	+	+	+	+	+
	Rhopalidae Family						
18	*Corizus hyoscyami*	+	-	-	+	+	-
19	*Liorrhyssus hyalinus*	-	+	+	-	+	+
20	*Rhopalus parumpunctatus*	+	+	-	+	+	+
21	*Rhopalus distinctus*	-	+	-	-	-	-
22	*Rhopalus subrufus*	+	+	-	+	-	+
23	*Rhopalus conspersus*	-	-	-	+	-	+
24	*Rhopalus maculatus*	-	-	+	-	-	-
25	*Brachycarenus tigrinus*	+	+	+	-	+	+
26	*Stictopleurus punctatonervosus*	+	+	-	+	+	+
27	*Stictopleurus crassicornis*	+	+	-	-	+	+
28	*Stictopleurus subtomentosus*	-	+	-	-	+	-
29	*Stictopleurus abutilon*	+	+	-	+	+	+
30	*Stictopleurus pictus*	+	+	+	+	+	+
31	*Maccevethus errans caucasicus*	-	+	-	+	+	-
32	*Myrmus miriformis*	+	-	+	+	+	+
33	*Chorosoma schillingi*	+	+	+	+	+	+
34	*Chorosoma gracile*	+	+	+	+	+	+
	Stenocephalidae Family						
35	*Dicranocephalus albipes*	+	-	-	+	-	-

H_1 – Habitat consisting of *Querco pedunculiflorae-Tilietum;* **H_2** – Habitat consisting of *Achillea coarctatae-Quercetum pubescens;* **H_3** – Habitat consisting of *Fraxino orini-Quercetum dalechampii;* **H_4** – Habitat consisting of Balkan steppe-like meadows*;* **H_5** – Habitat consisting of *Nectaroscordo-Tilietum;* **H_6** – Habitat consisting of *Fragaris viridis-Polyquercetum*

On the basis of the presence-absence (binary) data on the species of coreoidea within the habitats investigated in the Măcin Mountains region, the similarity dendrogram of the investigated habitats has been generated.

As a result of the analysis of the similarity dendrogram of the investigated habitats (figure 113), it is ascertained that the highest similarity occurs between the mixed pedunculiflora lime

tree and yoke elm forest (H_1) and the Balkan steppe-like meadows (H_4); that 16 species of the 21 and 22 species, respectively, identified for each of them are common, which generates a 64% similarity. The mixed lime tree and yoke elm durmast oak forest habitat adds, generating a 54% similarity. Also, there is a strong resemblance between the meadows associated with undergrowths and tree slashes (H_2) and the oak grove with three species of oaks, which yields a 56% similarity. A distinct community of coreoids is spotted in the habitat consisting of hornbeam and manna durmast oak grove, which features only 50% similarity with the other investigated habitats, which is substantiated by the small number of species identified here.

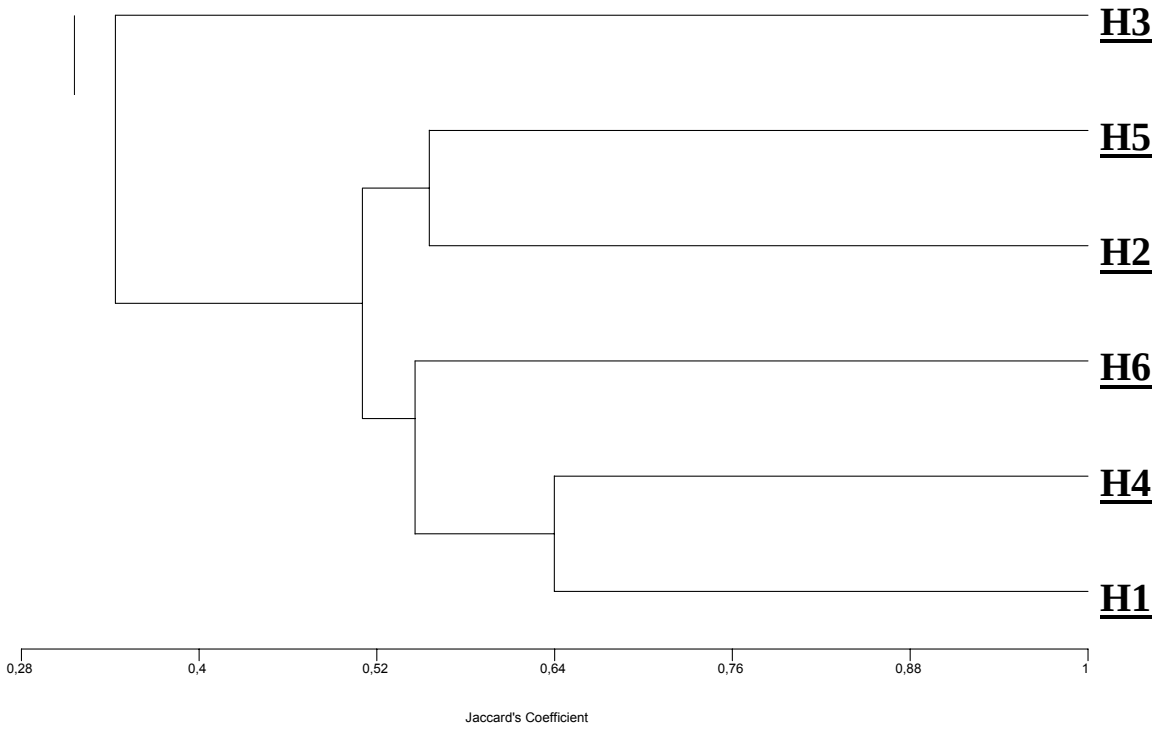


Figure 113 – The similarity of the studied habitats in the Măcin Mountains

This order yielded by the significance of the collected specimens by types of habitats does not maintain if we take into account their distribution by genera and species. On the basis of figure 114 we can notice that most species are registered in habitats H_5 and H_6 (22 species each), which are followed by H_1, H_2 (21 species each) and H_4 (20 species), H_3 being the last in this order. If we take into account the distribution of species by genera, H_5 is the first in this order (15 genera), followed by H_1 and H_4 (14 genera), then by H_6 (13 genera), H_2 (12 genera) and, finally, by H_3 (11 genera).

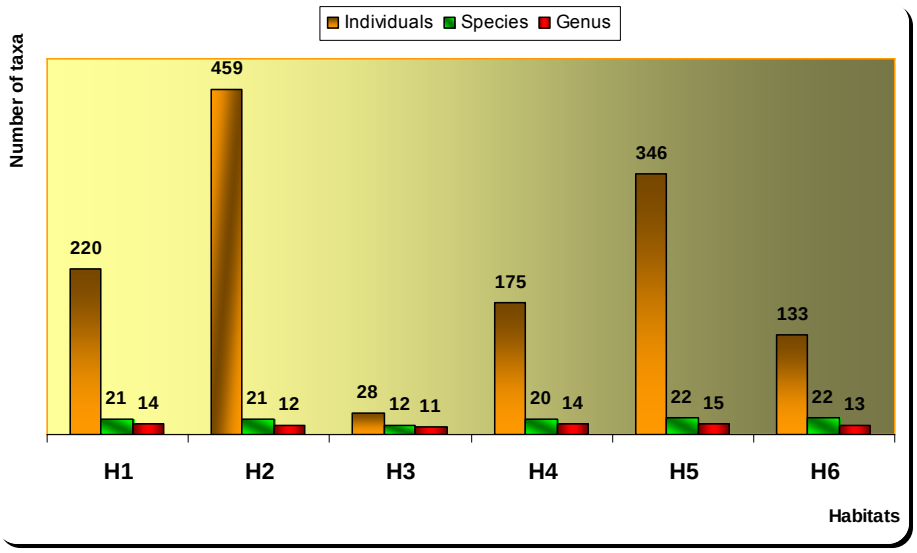


Figure 114 – The number of collected specimens and the distribution of coreoidea heteroptera taxons collected from the Măcin Mountains region by types of habitats

Table 18 – The number of collected specimens, the diversity and equitability indicator

Nr crt.	Taxon	H_1	H_2	H_3	H_4	H_5	H_6
	Coreidae Family						
1	*Gonocerus acuteangulatus*						1
2	*Syromastus rhombeus*	3	22		1	1	
3	*Coreus marginatus*	15	3		1	8	3
4	*Centrocoris spiniger*	1	9	2	2		4
5	*Phyllomorpha laciniata*		4	2		16	
6	*Spathocera lobata*	12			2	1	
7	*Spathocera dalmani*	1					
8	*Spathocera tuberculata*	2					
9	*Spathocera obscura*					1	
10	*Ceraleptus gracilicornis*			1	1	6	10
11	*Ceraleptus lividus*		1		1		1
12	*Ceraleptus obtusus*	1	1				2
13	*Coriomeris hirticornis*		6	1		7	
14	*Coriomeris denticulatus*	1			1	11	1
15	*Coriomeris affinis*						2
	Alydidae Family						
16	*Alydus calcaratus*						1
17	*Camptopus lateralis*	6	57	2	24	24	7
	Rhopalidae Family						
18	*Corizus hyoscyami*	1			4	1	
19	*Liorrhyssus hyalinus*		46	6		21	7
20	*Rhopalus parumpunctatus*	5	4		1	2	1
21	*Rhopalus distinctus*		1				
22	*Rhopalus subrufus*	9	6		1		1
23	*Rhopalus conspersus*				4		1
24	*Rhopalus maculatus*			1			
25	*Brachycarenus tigrinus*	6	15	1		4	2
26	*Stictopleurus punctatonervosus*	1	14		15	5	13
27	*Stictopleurus crassicornis*	1	1			2	2
28	*Stictopleurus subtomentosus*		22			3	
29	*Stictopleurus abutilon*	20	61		9	4	33
30	*Stictopleurus pictus*	12	44	1	2	7	12
31	*Maccevethus errans caucasicus*				1	4	
32	*Myrmus miriformis*	38		2	26	32	5
33	*Chorosoma schillingi*	57	117	7	65	185	13
34	*Chorosoma gracile*	27	18	2	12	1	11
	Stenocephalidae Family						
35	*Dicranocephalus albipes*	1			2		
Total species		**21**	**21**	**12**	**20**	**22**	**22**
Total colected individuals		**220**	**459**	**28**	**175**	**346**	**133**
Shannon – Wiener diversity index H_s		**3,376**	**3,387**	**3,194**	**3,006**	**2,710**	**3,682**
Equitability E		**0,769**	**0,784**	**0,891**	**0,696**	**0,608**	**0,826**

H_1 – Habitat consisting of *Querco pedunculiflorae-Tilietum;* **H_2** – Habitat consisting of *Achillea coarctatae-Quercetum pubescens;* **H_3** – Habitat consisting of *Fraxino orini-Quercetum dalechampii;* **H_4** – Habitat consisting of Balkan steppe-like meadows*;* **H_5** – Habitat consisting of *Nectaroscordo-Tilietum;* **H_6** – Habitat consisting of *Fragaris viridis-Polyquercetum*

Analyzing the specific diversity calculated by means of the Shannon-Wiener indicator (table 18 and figure 115), we notice the maximum value Hs = 3.682 is registered for the community of species in the habitat consisting of *Fragaris viridis-Polyquercetum*, being followed by the one of the community H_2 – Habitat consisting of *Achillea coarctatae-Quercetum pubescens* (Hs = 3.387), by H_1 – Habitat consisting of *Querco pedunculiflorae-Tilietum* (Hs = 3.376) and by H_3 – Habitat consisting of *Fraxino orini-Quercetum dalechampii* (Hs = 3.194). The lowest values of the coreoidea heteroptera diversity are yielded for H_4 – Habitat consisting of Balkan steppe-like meadows (Hs = 3,006) and H_5 – Habitat consisting of *Nectaroscordo-Tilietum* (Hs = 2.710).

With respect to equitability, the fact that this indicator features high values for H_3 and H_6 is noticed, for which the real diversity exceeds 89% in the first case 82% in the second case. Subsequently, the uniformity degree decreases progressively as from H_2 (E = 0.784), only to reach the lowest values for H_4 (E = 0.696) and H_5 (E = 0.608).

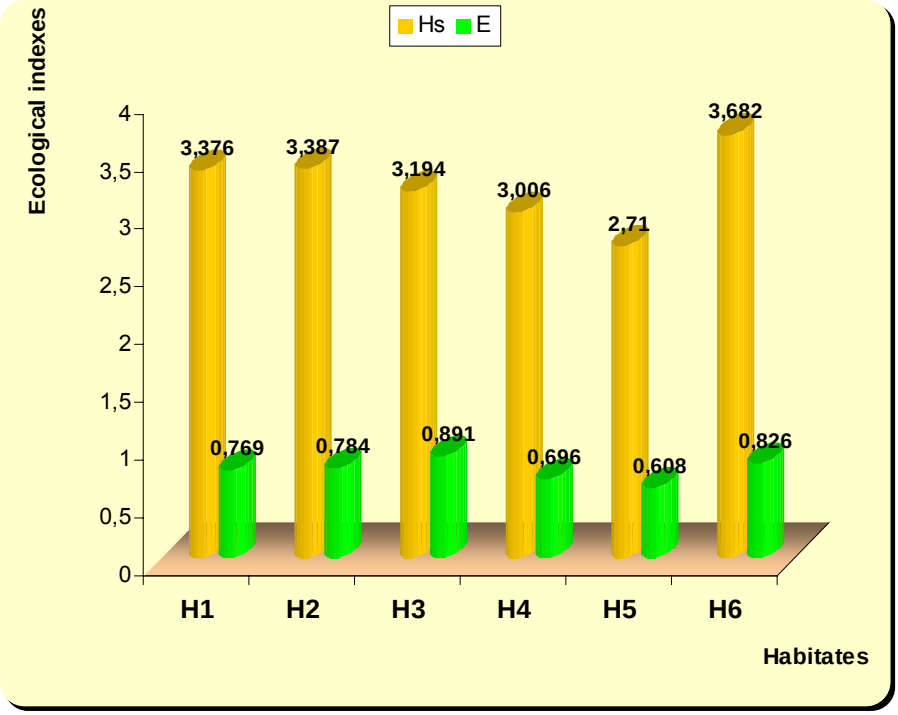


Figure 115 – The diversity and equitability indicators within the investigated habitats in the Măcin Mountains

5.3. Comparative Aspects of the Coreoidea Fauna in the Lower Basin of the Siret and in the Măcin Mountains Region

In the two regions, researches have been carried out in 11 types of habitats and 39 species of coreoidea (70.9% of the total amount of species of coreoidea from Romania) (table 33) have been identified. In the lower basin of the Siret River we have investigated 5 types of habitats: the Gârboavele Forest and mesophile meadows, arboretums consisting of poplar and willow, anthropized meadows, the Hanu Conachi arenicolous reserve and habitats in humid regions located nearby the lower watercourse of the Siret, and, as far as the Măcin Mountains are concerned, we have investigated 6 types of habitats: habitat consisting of *Querco pedunculiflorae-Tilietum*; habitat consisting of *Achillea coarctatae-Quercetum pubescens*; habitat consisting of *Fraxino orini-Quercetum dalechampii*; habitat consisting of Balkan steppe-like meadows; habitat consisting of *Nectaroscordo-Tilietum*; habitat consisting of *Fragaris viridis-Polyquercetum*.

The species of coreoidea identified in the two geographical units pertain to 4 families: Coreidae (15 species) (51.72% of the total amount of species of Coreidae from Romania), Alydidae (2 species) (66.67% of the total amount of species of Alydidae from Romania), Rhopalidae (19 species) (95% of the total amount of species of Rhopalidae from Romania) and Stenocephalidae (3 species) (75% of the species of Stenocephalidae from Romania).

27 species of coreoidea of the 39 identified by our studies are common to the two investigated geographical units, 8 being characteristic of the Măcin Mountains (*Phyllomorpha laciniata, Spathocera lobata, Spathocera dalmani, Spathocera tuberculata, Spathocera obscura, Ceraleptus obtusus, Coriomeris hirticornis, Rhopalus distictus*) and only four species have been exclusively spotted in the lower basin of the Siret River (*Agraphopus lethierry, Rhopalus rufus, Dicranocephalus agilis,Dicranocephalus setulosus*).

Analyzing the communities of coreoidea in the two studied geographical units, we ascertain the fact that the coreoidea fauna in the lower basin of the Siret is slightly better represented within the structure of rhopalidae, as compared to the one in the Măcin Mountains, meaning that for the lower basin of the Siret two species exclusively spotted here are identified (*Rhopalus rufus* and *Agraphopus lethierry*), and for the Măcin Mountains region only one species, namely, *Rhopalus distinctus*. In both cases, the identified species are extremely rare on the territory of Romania, standing out in sharp relief as a result of personal collections.

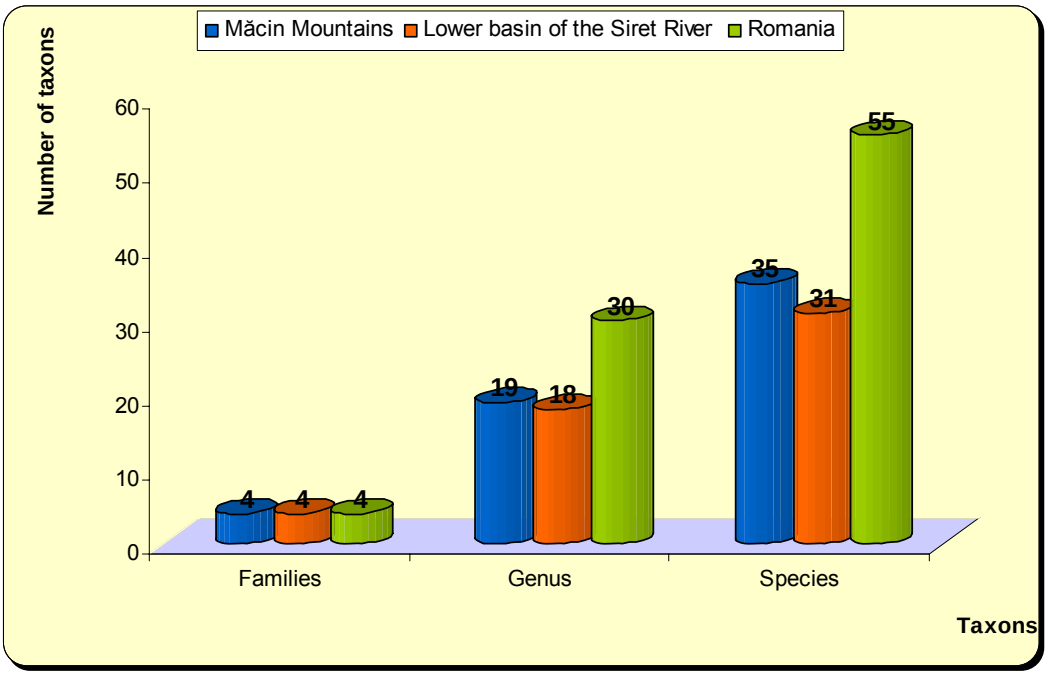


Figure 127 – The representation of the taxons within the Coreoidea superfamily in the Măcin Mountains, in the lower basin of the Siret River and in Romania

The same favorable conditions for the lower basin of the Siret occur also in the representation of conjoint taxons within the Stenocephalidae family, due to the fact that all the 3 species of stenocephalidae identified in our studies in the two investigated regions occur here, whereas only one of them, namely, *Dicranocephalus albipes*, a species highly frequent in the entire region of Romania, has been identified. I mention this species has been cited, along with *Dicranocephalus medius* and *Dicranocephalus setulosus*, in the previous studies carried out in the Măcin Mountains region, though the latter two did not occur in my own samples.

Comparatively speaking, the coreidae fauna of the Măcin Mountains is clearly better represented then the one in the lower basin of the Siret, due to the fact that of the 12 species of coreidae identified in our studies, all of them occur within the fauna of the Măcin, 8 of them being mentioned for the first time in the region, whereas 8 species of coreidae have been identified in the lower basin of the Siret, only one being cited for the first time (*Coriomeris affinis*).

The study of the heteropterological material collected from the habitats located in the lower basin of the Siret led to the confirmation of the presence within the fauna of Romania of the *Rhopalus rufus* species pertaining to the Rhopalidae family. The species has been collected in only one specimen from the habitat located within the Gârboavele forest reserve, and it has been described in the previous subchapter.

The species featuring almost sparse spread, rare and extremely rare species on the territory of our country, identified for the first time by our researches, refer to *Spathocera dalmani* reported in Osoi (County of Iași) and Bucharest (Kis, 2001), *Spathocera tuberculata* reported in Valea lui Mihai (County of Bihor), *Spathocera obscura* spotted in the County of Timiș, County of Dolj and County of Vaslui; all of the three species have been exclusively identified in

the Măcin Mountains. *Stictopleurus subtomentosus* (reported in the County of Dolj), *Stictopleurus pictus* (spotted in the County of Dolj, County of Bihor and Caraorman), as well as *Chorosoma gracile* (reported in the County of Satu Mare, County of Bihor and County of Doj) have been identified by our researches both in the lower basin of the Siret and in the Măcin Mountains.

Table 33 – The coreoidea fauna in the lower basin of the Siret River and in the Măcin Mountains

Nr crt.	Taxon	Lower basin of Siret River	Măcin Mountains
	Coreidae Family		
	Coreinae Subfamily		
1	*Gonocerus acuteangulatus*	+	+•
2	*Syromastus rhombeus*	+	+
3	*Coreus marginatus*	+	+
4	*Centrocoris spiniger*	+	+
5	*Phyllomorpha laciniata*	-	+
	Spathocerinae Subfamily		
6	*Spathocera lobata*	-	+
7	*Spathocera dalmani*	-	+•
8	*Spathocera tuberculata*	-	+•
9	*Spathocera obscura*	-	+•
	Pseudophloeinae Subfamily		
10	*Ceraleptus gracilicornis*	+	+
11	*Ceraleptus lividus*	+	+•
12	*Ceraleptus obtusus*	-	+•
13	*Coriomeris hirticornis*	-	+•
14	*Coriomeris denticulatus*	+	+
15	*Coriomeris affinis*	+•	+•
	Alydidae Family		
16	*Alydus calcaratus*	+	+•
17	*Camptopus lateralis*	+	+
	Rhopalidae Family		
18	*Corizus hyoscyami*	+	+
19	*Liorrhyssus hyalinus*	+	+
20	*Rhopalus parumpunctatus*	+	+
21	*Rhopalus distinctus*	-	+•
22	*Rhopalus subrufus*	+	+
23	*Rhopalus rufus*	+•	-
24	*Rhopalus conspersus*	+	+•
25	*Rhopalus maculatus*	+•	+•
26	*Brachycarenus tigrinus*	+	+
27	*Stictopleurus punctatonervosus*	+	+•
28	*Stictopleurus crassicornis*	+	+
29	*Stictopleurus subtomentosus*	+•	+•
30	*Stictopleurus abutilon*	+	+
31	*Stictopleurus pictus*	+•	+•
32	*Agraphopus lethierry*	+•	-
33	*Maccevethus errans caucasicus*	+•	+
34	*Myrmus miriformis*	+	+
35	*Chorosoma schillingi*	+	+
36	*Chorosoma gracile*	+•	+•
	Stenocephalidae Family		
37	*Dicranocephalus agilis*	+•	-
38	*Dicranocephalus albipes*	+•	+
39	*Dicranocephalus setulosus*	+•	-

+ - present species; - - absent species; •- first report in the studied regions

CONCLUSIONS

- 39 species of coreoids heteroptera (Heteroptera, Coreoidea) have been identified during the researches carried out in the lower basin of the Siret River and in the Măcin Mountains, meaning 65.45% of the total amount of the existing species in Romania. The species in the studied regions pertain to 4 families and 20 genera.
- There are 31 species of coreoids pertaining to the Coreidae, Alydidae, Rhopalidae, Stenocephalidae families living in the habitats studied in the lower basin of the Siret River (the Gârboavele Forest and mesophile meadows, arboretums consisting of poplar and willow, anthropized meadows and the Hanu Conachi arenicolous reserve).
- There are 35 species of Coreoidea pertaining to 4 families and 19 genera living in the habitats studied in the Măcin Mountains region (habitat consisting of *Querco pedunculiflore - Tillietum*; habitat consisting of *Achillea coarctatae – Quercetum pubescens*; habitat consisting of *Fraxino orini-Quercetum dalechampii*; habitat consisting of Balkan steppe-like meadows; habitat consisting of *Nectaroscordo-Tilietum*; habitat consisting of *Fragaris viridis-Polyquercetum*).
- As compared to the previous studies of the coreoidea fauna in the two regions, 11 new species have been identified in the lower basin of the Siret (*Coriomeris affinis* – the Coreidae family, *Rhopalus rufus, Rhopalus maculatus, Stictopleurus subtomentosus, Stictopleurus pictus, Agraphopus lethierry,Maccevethus errans caucasicus, Chorosoma gracile* – the Rhopalidae family and *Dicranocephalus agilis, Dicranocephalus albipes, Dicranocephalus setulosus* – the Stenocephalidae family) and 16 species in the Măcin Mountains (8 species pertain to the Coreidae family, one species pertains to the Alydidae family and 7 species pertain to the Rhopalidae family).
- With respect to the lower basin of the Siret, 20 species of Coreoidea have been identified in mesophile meadows, 9 species in poplar and willow arboretums, 14 species in anthropized meadows, 21 species in the Hanu Conachi arenicolous reserve and 16 species in the habitats in humid regions located nearby the lower watercourse of the Siret.
- The *Coreus marginatus, Brachycarenus tigrinus, Stictopleurus abutilon* and *Myrmus miriformis* species feature a large spread on all the types of habitats in the lower basin of the Siret, whereas the *Rhopalus rufus, Rhopalus maculatus* species feature a limited spread only in the mesophile meadows in the Gârboavele forest, and the *Coriomeris denticulatus, Coriomeris affinis, Stictopleurus crassicornis, Dicranocephalus agilis, Dicranocephalus setulosus* species are characteristic of habitats with arenaria vegetation.
- Only the *Coreus marginatus* and *Brachycarenus tigrinus* species have registered high values of numerical and relative abundance in the mesophile meadows type of habitats, being the numerically prominent species and characteristic of this type of habitat.
- A relatively small number of species of coreoidea, featuring numerically reduced populations, have been identified in habitats consisting of poplar and willow arboretums located in the riparian regions of the lower Siret. *Coreus marginatus* registers the highest values of numerical and relative abundance. Characteristic or prominent species are: *Coreus marginatus* and *Stictopleurus punctatonervosus*.
- *Myrmus miriformis* is the species to register the highest values of numerical and relative abundance in the anthropized meadows in the lower basin of the Siret, being followed by *Chorosoma schillingi*, both of them being characteristic of this type of habitat.
- *Coreus marginatus, Myrmus miriformis* and *Stictopleurus punctatonervosus* have registered high values of numerical and relative abundance in the habitats consisting of arenaria vegetation. They are the prominent and carcateristic species of this type of habitat.
- *Myrmus miriformis, Brachycarenus tigrinus* and *Stictopleurus abutilon* are the characteristic and prominent species in the habitats located in the humid regions nearby the lower watercourse of the Siret.
- With respect to the Măcin Mountains, the following have been identified: 21 species of coreoidea heteroptera in the meadows of the habitats consisting of *Querco pedunculiflore – Tillietum*; 21 species in the meadows of the habitats consisting of *Achillea coarctatae-Quercetum pubescens*; 12 species in the meadows of the habitats consisting of *Fraxino orini-Quercetum dalechampii*; 20 species in habitats consisting of Balkan steppe-like meadows; 22 species in the meadows of the habitats consisting of *Nectaroscordo-Tilietum*; and 22 species in the meadows of the habitats consisting of *Fragaris viridis-Polyquercetum.*

- The *Camptopus lateralis, Stictopleurus pictus* and *Chorosoma schillingi* species feature a large spread in all types of habitats. *Myrmus miriformis* is present in all types of habitats, except for the ones consisting of *Achillea coarctatae-Quercetum pubescens*, and *Coreus marginatus* and *Sttictopleurus punctatonervosus, Stictopleurus abutilon* are absent from the habitats consisting of *Fraxino orini-Quercetum dalechampii*. *Spathocera obscura* has only been identified in habitats consisting of *Nectaroscordo-Tilietum*, *Spathocera dalmani* and *Spathocera tuberculata* only in habitats consisting of *Querco pedunculiflore – Tillietum*, and *Coriomeris affinis* and *Gonocerus acuteangulatus* only in habitats consisting of *Fragaris viridis-Polyquercetum.*
- The *Chorosoma schillingi, Myrmus miriformis, Chorosoma gracile, Coreus marginatus* and *Spathocera lobata* species have registered the highest values of numerical and relative abundance in the meadows of the habitats consisting of *Querco pedunculiflore – Tillietum*. They are the numerically dominant and characteristic species of this type of habitat.
- The species characteristic of the meadows of the habitats consisting of *Achillea coarctatae-Quercetum pubescens* are *Chorosoma schillingi, Stictopleurus abutilon, Camptopus lateralis, Liorhyssus hyalinus* and *Stictopleurus pictus*, which register the highest values of numerical and relative abundance.
- The small number of identified species of coreoidea, but also the small number of specimens collected from the meadows of the habitats consisting of *Fraxino orini-Quercetum dalechampii* render the results of the calculation of ecological indicators irrelevant.
- 4 of the 20 species identified in the meadows of the habitats consisting of Balkan steppe-like meadows are characteristic: *Chorosoma schillingi, Myrmus miriformis, Camptopus lateralis, Stictopleurus punctatonervosus.*
- The *Chorosoma schillingi* species is the one which has registered high values of numerical and relative abundance in the meadows of the habitats consisting of *Nectaroscordo-Tilietum*. High values have also been registered by the *Myrmus miriformis, Camptopus lateralis, Liorrhyssus hyalinus, Phyllomorpha laciniata* and *Coriomeris denticulatus* species which are also characteristic of this type of habitat.
- The species featuring the highest value of numerical and relative abundance in the meadows of the habitats consisting of *Fragaris viridis –Polyquercetum* is *Stictopleurus abutilon*, being flowed by *Chorosoma schillingi, Stictopleurus pictus, Chorosoma gracile, Ceraleptus gracilicorni*. They are all species characteristic of or prominent in the community of coreoidea in this type of habitat.
- 27 species of coreoidea of the 39 identified by our studies are common to the two geographical units investigated, 8 species being exclusively present in the Măcin Mountains (*Phyllomorpha laciniata, Spathocera lobata, Spathocera dalmani, Spathocera tuberculata, Spathocera obscura, Ceraleptus obtusus, Coriomeris hirticornis, Rhopalus distictus*) and four spotted exclusively in the lower basin of the Siret River (*Agraphopus lethierry, Rhopalus rufus, Dicranocephalus agilis, Dicranocephalus setulosus*).
- The study of the heteropterological material collected from the habitats located in the lower basin of the Siret led to the confirmation of the presence of the *Rhopalus rufus* species of the Rhopalidae family in the fauna of Romania.
- 11 new species in the fauna of the lower basin of the Siret have been identified, 8 of them not having been mentioned anywhere in Moldavia.
- 16 new species of coreoidea have been identified in the Măcin Mountains region by the studies carried out in the region: 8 species of coreidae, one species of alydidae and 7 species of rhopalidae.
- The investigations of the coreoidea fauna in the Măcin Mountains region led to the identification of 5 new species of coreoidea in the fauna of Dobrogea: *Spathocera dalmani, Spathocera tuberculata, Spathocera obscura, Stictopleurus subtomentosus* and *Chorosoma gracile.*

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