

TRUE BUGS (HETEROPTERA) OF PČINJA VALLEY (SERBIA)

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Abstract

During the summer season in July 2006, 2007 and 2008 expeditions in the valley of the Pčinja River were carried out. During these expeditions 339 specimens of true bugs (Heteroptera) were collected from 7 different localities: Vogance, Jablanica, Budovija, Gornji Starac, Delinovica, Kozjak and Čivcije. 80 species from 22 families were identified. The majority of these species present two biomes: Mediterranean mountain pastures and forests of rocky grounds and European steppes with diverse grasses. The true bug's mixed continental-Mediterranean fauna structure in the valley of the Pčinja River is a result of the specific climate conditions of that area. *Paraparomius leptopoides* (Bärensprung, 1859) is a new species for Serbian fauna.

KEY WORDS: true bugs, Heteroptera, Pčinja, South Serbia

Introduction

The Pčinja River valley is a region with extraordinary biogeographical characteristics compared to the rest of Serbia. The climate of this area, a mix of continental and Mediterranean, has influenced the development of specific heterogenous vegetation. These two factors (climate conditions and vegetation) define the unusual structure of fauna in this area which represents the mixed fauna of the Mediterranean mountain pastures and forests of rocky grounds and fauna of the European deciduous forests. The available data on specific fauna structure of the Pčinja Valley refers mostly to vertebrates species. No research was conducted on the topic of the invertebrates and there is no data for the Pčinja's true bug fauna. This paper is written in order to contribute to the study of the biodiversity of the Pčinja Valley and to determine if specific climate-vegetation factors have an influence on the fauna structure of true bugs.

The Pčinja Valley is the area of 2.606 ha at an altitude of 400–1.300 m a.s.l. in the south of Serbia near the border with Macedonia. The Pčinja River's bed is surrounded by hills which belong to the Rodopi mountain

range: Gornji Starac to the west, Kozjak to the east and the south, Jablanica and Vogance to the north. The Upper Jurassic sediments from southern Serbia extend into Macedonia and appear in the Pčinja Valley in sandstones, alevrolites and clays. The basin is open in the south-east where the Pčinja River leaves the gorge. The Mediterranean influence which comes from the south through the Vardar Valley has an impact on the present vegetation. Furthermore, the Pčinja Valley is the northern areal borderline and the only habitat in Serbia for *Fritillaria graeca*, *Leontodon fasciculatus*, *Saxifraga graeca*, *Sylvia hortensis*, *Neophron percnopterus*, *Sitta neumayer*, *Elaphe quatuorlineata*, *Platyceps najadum*, and *Testudo graeca*.

The Pčinja's flow in Serbia is 45 km long; a very small part of the river is in a protected area. The Pčinja River springs as the Tripušnica River on Dukat Mountain. Near Trgovište it fuses with the Lesnička and Kozjedolska Rivers and becomes known as the Pčinja. On its way the river meanders, makes whirlpools and banks of sand. The bed of the river expands in front of the dam, near the monastery Saint Prohor of Pčinja. Not far from the dam and the monastery, the river enters the territory of Macedonia and flows into the Vardar River.

The left shore is actually the north side of Kozjak hill which is overgrown with deciduous forests. During the last glacial, Kozjak's arc shape formed the refuge which enabled the presence of today's relict multidominant forests of *Quercus orientalis*, *Q. cerris*, *Q. petraea*, *Q. frainetto*, *Carpinus orientalis*, *Fagus sylvatica*, *Fraxinus ornus*, *Corylus colurna* and *Juniperus oxycedrus*. On the right shore, there is the Gornji Starac hill, where the vegetation is not so rich in trees and the constant high influence of erosive forces causes degradation of the vegetation. The types of vegetation present on this shore are degradative forests on rocky ground, bushes, termophilous meadows and rocks.

The Pčinja Valley is on the border of *Quercetum farnetto – cerris* and *Quercetum pubescento – carpinetum orientalis* forests which caused the presence of numerous transitive types of vegetation. Meadows and pastures are settled between and in degradative forests with the following representatives: *Andropogon ischaemum*, *Festuca vallesiaca*, *F. heterophylla*, *Poa nemoralis*, *Brachipodium silvaticum*, *Thymus* sp., *Sedum maximum*, *Hieracium pilosella* and *Rumex acetosella*. The vegetation by the river bed is bushy with *Alnus glutinosa*, but near the dam the vegetation is marshy, influenced by the slower flow. In villages, forests and meadows alternate with orchards, vineyard and fields.

The Area of Extraordinary Characteristics "Pčinja Valley" is in the II category of protection as A Natural Resource of Great Value by The Regulation on Categorization of Protected Areas, but by IUCN's Framework for Classifying Terrestrial and Marine Protected Areas from 1990 it is in the V category as a Protected Landscape. This area is on the lists of The European Association for the Conservation of the Geological Heritage (ProGeo), Important Plant Areas (IPA), Important Bird Areas (IBA) (STUDY OF INSTITUTE FOR NATURE CONSERVATION OF SERBIA, 1993; PUZOVIĆ, 2009).

Material and Methods

339 specimens of true bugs were collected from the Pčinja Valley in the periods of 13–28.07.2006, 1–15.07.2007 and 13–20.07.2008. Material from meadows and pastures was collected by standard sweep-netting method. On habitats with bushy vegetation as well as in forests and aquatic habitats, true bugs were collected individually. Material was identified by Dr Ljiljana PROTIĆ of the Belgrade Natural History Museum and the following references were used: AUKEMA & RIEGER (1995, 1996, 1999, 2001, 2006), KORMILEV (1943),

PÉRICART (1972, 1983, 1984, 1998), PROTIĆ (1987, 1998, 2001a), WAGNER (1970/71, 1975). The collection of true bugs from the Pčinja Valley is stored in the Belgrade Natural History Museum.

Results

Systematic list of the species recorded in the Pčinja Valley.

Infraorder Nepomorpha

Family Corixidae

Sigara (Pseudovermicorixa) nigrolineata nigrolineata (Fieber, 1848)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 2 ex.

Family Nepidae

Nepa cinerea (Linnaeus, 1758)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.; Vogance, 17.07.2008. leg. J. Šeat, 2 ex.

Family Notonectidae

Notonecta (Notonecta) glauca glauca (Linnaeus, 1758)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 2 ex.

Infraorder Gerromorpha

Family Hydrometridae

Hydrometra stagnorum (Linnaeus, 1758)

Pčinja, r.: Jablanica, 17.07.2008. leg. J. Šeat, 3 ex.

Family Gerridae

Gerris (Gerris) costae (Herrich-Schaeffer, 1850)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 2 ex.

Gerris (Gerris) lacustris (Linnaeus, 1758)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 2 ex.

Family Veliidae

Velia (Pleisovelia) currens (Fabricius, 1794)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 4 ex.

Infraorder Leptopodomorpha

Family Saldidae

Macrosaldula variabilis (Herrich-Schaeffer, 1835)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat 1 ex

Infraorder Cimicomorpha

Family Miridae

Adelphocoris lineolatus (Goeze, 1778)

Pčinja, r. Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex.; Budovija, 1–15.07.2007. leg. I. Gajić, 5 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 2 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 1 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.; Budovija, 17.07.2008. leg. J. Šeat, 1 ex.

Adelphocoris vandalicus (Rossi, 1790)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 2 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.

Brachycoleus decolor (Reuter, 1887)

Pčinja, r.: Budovija, 17.07.2008. leg. J. Šeat, 1 ex.

Calocoris (Closterotomus) fulvomaculatus (De Geer, 1773)

Pčinja, r.: Budovija, 13–28.07.2006. leg. J. Šeat, 1 ex.; Budovija, 1–15.07.2007. leg. I. Gajić, 1 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.

Deraeocoris (Deraeocoris) ruber (Linnaeus, 1758)

Pčinja, r.: Kozjak, 13–28.07.2006. leg. J. Šeat, 1 ex.; Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Deraeocoris (Deraeocoris) ventralis (Reuter, 1904)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Liocoris tripustulatus (Fabricius, 1781)

Pčinja, r.: Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.

Lygus pratensis (Linnaeus, 1758)

Pčinja, r.: Jablanica, 1–15.07.2007. leg. I. Gajić, 2 ex.

Oncotylus (Cylindromelus) setulosus (Herrich-Schaeffer, 1839)

Pčinja, r.: Budovija, 17.07.2007. leg. J. Šeat, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.

Orthops (Orthops) kalmi (Linnaeus, 1758)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Phytocoris (Leptophytocoris) ustulatus (Herrich-Schaeffer, 1835)

Pčinja, r.: Kozjak, 13–28.07.2006. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Stenodema (Stenodema) laevigata (Linnaeus, 1758)

Pčinja, r.: Budovija, 17.07.2008. leg. J. Šeat, 2 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Trigonotylus coelestialium (Kirkaldy, 1902)

Pčinja, r.: Budovija, 13–28.07.2006. leg. J. Šeat, 1 ex

Family Nabidae

Himacerus (Aptus) mirmicoides (O. Costa, 1834)

Pčinja, r.: Kozjak, 13–28.07.2006. leg. J. Šeat, 1 ex.

Family Reduviidae

Phymata crassipes (Fabricius, 1775)

Pčinja, r.: Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Budovija, 1–15.07.2007. leg. I. Gajić, 1 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.

Rhynocoris iracundus (Poda, 1761)

Pčinja, r.: Kozjak, 13–28.07.2006. leg. J. Šeat, 1 ex.; Vogance, 17.07.2008. leg. J. Šeat, 1 ex.

Family Tingidae

Stephanitis pyri (Fabricius, 1775)

Pčinja, r.: Gornji Starac, 13.07.2008. leg. J. Šeat, 1 ex.

Infraorder Pentatomorpha

Family Acanthosomatidae

Acanthosoma haemorrhoidale (Linnaeus, 1758)

Pčinja, r.: Delinovica, 1–15.07.2007. leg. I. Gajić, 1 ex.

Family Alydidae

Alydus calcaratus (Linnaeus, 1758)

Pčinja, r.: Kozjak, 13–28.07.2006., leg. J. Šeat, 1 ex.; Jablanica, 1–15.07.2007., leg. I. Gajić, 1 ex.; Delinovica, 1–15.07.2007., leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008., leg. J. Šeat, 1 ex.

Camptopus lateralis (Germar, 1817)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 2 ex.; Budovija, 1–15.07.2007. leg. I. Gajić, 2 ex.; Kozjak, 1–15.07.2007. leg. I. Gajić, 2 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 4 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 3 ex.

Family Berytidae

Berytinus (Berytinus) clavipes (Fabricius, 1775)

Pčinja, r.: Budovija, 13–28.07.2007. leg. I. Gajić, 1 ex.

Berytinus (Lizinus) montivagus (Meyer-Dür, 1841)

Pčinja, r.: Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.

Neides tipularius (Linnaeus, 1758)

Pčinja, r.: Gornji Starac, 13.07.2008. leg. J. Šeat, 2 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Family Coreidae

Ceraleptus gracilicornis (Herrich-Schaeffer, 1835)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex

Ceraleptus lividus (Stein, 1858)

Pčinja, r.: Budovija, 17.07.2008. leg. J. Šeat, 1 ex.

Coreus marginatus marginatus (Linnaeus, 1758)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex.; Budovija, 1–15.07.2007. leg. I. Gajić, 2 ex

Coriomeris affinis (Herrich-Schaeffer, 1839)

Pčinja, r.: Kozjak, 1–15.07.2007. leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 4 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex

Coriomeris denticulatus (Scopoli, 1763)

Pčinja, r.: Vogance, 17.07.2008. leg. J. Šeat, 2 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 6 ex

Phyllomorpha laciniata (Villers, 1789)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex.; Budovija, 17.07.2008. leg. J. Šeat, 1 ex.; Vogance, 17.07.2008. leg. J. Šeat, 2 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Syromastes rhombeus (Linnaeus, 1767)

Pčinja, r.: Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Budovija, 1–15.07.2007. leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 4 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Family Cydnidae

Cydnus aterrimus (Forster, 1771)

Pčinja, r.: Budovija, 1–15.07.2007. leg. I. Gajić, 1 ex.

Family Lygaeidae

Lygaeus equestris (Linnaeus, 1758)

Pčinja, r.: Jablanica, 14.07.2008. leg. J. Šeat, 2 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 5 ex.

Nysius (Macroparius) graminicola (Kolenati, 1846)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.; Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex.

Ortholomus punctipennis (Herrich-Schaeffer, 1838)

Pčinja, r.: Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.

Spilostethus saxatilis (Scopoli, 1763)

Pčinja, r.: Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.; Vogance, 17.07.2008. leg. J. Šeat, 2 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 10 ex.

Family Heterogastridae

Heterogaster artemisiae (Schilling, 1829)

Pčinja, r.: Kozjak, 13–28.07.2006. leg. J. Šeat, 1 ex.; Budovija, 13–28.07.2006. leg. J. Šeat, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 2 ex.

Family Rhyparochromidae

Paraparomius leptopoides (Bärensprung, 1859)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.

Rhyparochromus vulgaris (Schilling, 1829)

Pčinja, r.: Budovija, 13–28.07.2006. leg. J. Šeat, 1 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.

Xanthochilus minusculus (Reuter, 1885)

Pčinja, r.: Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.

Family Pentatomidae

Aelia acuminata (Linnaeus, 1758)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.

Aelia rostrata (Boheman, 1852)

Pčinja, r.: Jablanica, 1–15.07.2007. leg. I. Gajić, 4 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 2 ex., Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.; Budovija, 17.07.2008. leg. J. Šeat, 4 ex.; Vogance, 17.07.2008. leg. J. Šeat, 3 ex.; Jablanica, 17.07.2008. leg. J. Šeat, 3 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 10 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 5 ex.

Carpocoris (Carpocoris) fuscispinus (Boheman, 1851)

Pčinja, r.: Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.

Carpocoris (Carpocoris) pudicus (Poda, 1761)

Pčinja, r.: Kozjak, 13–28.07.2006. leg. J. Šeat, 1 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Budovija, 1–15.07.2007. leg. I. Gajić, 1 ex.; Delinovica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 2 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 5 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 7 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Carpocoris (Carpocoris) purpureipennis (De Geer, 1773)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.

Codophila varia (Fabricius, 1787)

Pčinja, r.: Jablanica, 14.07.2008. leg. J. Šeat, 2 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 2 ex.

Dolycoris baccarum (Linnaeus, 1758)

Pčinja, r.: Kozjak, 13–28.07.2006. leg. J. Šeat, 2 ex.; Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 3 ex.; Delinovica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 2 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 4 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Eurydema (Eurydema) oleracea (Linnaeus, 1758)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 1 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 2 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Eurydema (Rubrodorsalium) ventralis (Kolenati, 1846)

Pčinja, r.: Budovija, 1–15.07.2007. leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 3 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Eysarcoris aeneus (Scopoli, 1763)

Pčinja, r.: Čivčije, 1–15.07.2007. leg. I. Gajić, 1 ex.

Eysarcoris venustissimus (Schrank, 1776)

= *E. fabricii* (Kirkaldy, 1904)

Pčinja, r.: Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.

Graphosoma (Graphosoma) lineatum italicum (O.F. Müller, 1766)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 2 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 1 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 5 ex.

Holcostethus strictus vernalis (Wolf, 1804)

Pčinja, r.: Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.

Neottiglossa (Neottiglossa) leporina (Herrich-Schaeffer, 1830)

Pčinja, r.: Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.

Palomena prasina (Linnaeus, 1758)

Pčinja, r.: Čivčije, 1–15.07.2007. leg. I. Gajić, 1 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex

Pentatoma (Pentatoma) rufipes (Linnaeus, 1758)

Pčinja, r.: Jablanica, 1–15.07.2007. leg. I. Gajić, 2 ex.; Delinovica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 1 ex.

Piezodorus lituratus (Fabricius, 1794)

Pčinja, r.: Gornji Starac, 13–28.07.2006. leg. J. Šeat, 2 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 3 ex.; Čivčije, 1–15.07.2007. leg. I. Gajić, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Sciocoris (Sciocoris) cursitans cursitans (Fabricius, 1794)

Pčinja, r.: Gornji Starac, 13.07.2008. leg. J. Šeat, 1 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex

Sciocoris (Aposciocoris) homalonotus (Fieber, 1851)

Pčinja, r.: Čivčije, 1–15.07.2007. leg. I. Gajić, 1 ex.

Sciocoris (Neosciocoris) maculatus (Fieber, 1832)

Pčinja, r.: Čivčije, 18.07.2008. leg. J. Šeat, 1 ex

Zicrona coerulea (Linnaeus, 1758)

Pčinja, r.: Jablanica, 1–15.07.2007. leg I. Gajić, 1 ex.

Family Pyrrhocoridae

Pyrrhocoris apterus (Linnaeus, 1758)

Pčinja, r.: Jablanica, 1–15.07.2007. leg I. Gajić, 1 ex.; Budovija, 1–15.07.2007. leg. I Gajić, 1 ex.

Pyrrhocoris marginatus (Kolenati, 1845)

Pčinja, r.: Vogance, 17.07.2008. leg. J. Šeat, 1 ex.

Family Rhopalidae

Chorosoma schillingii (Schilling, 1829)

Pčinja, r.: Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.

Corizus hyoscyami (Linnaeus, 1758)

Pčinja, r.: Budovija, 1–15.07.2007. leg. I Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 1 ex.; Budovija, 17.07.2008. leg. J. Šeat, 1 ex.

Liorhysus hyalinus (Fabricius, 1794)

Pčinja, r.: Čivčije, 1–15.07.2007. leg. I. Gajić, 1 ex.; Jablanica, 1–15.07.2007. leg I. Gajić, 1 ex.

Myrmus miriformis (Fallén, 1807)

Pčinja, r.: Gornji Starac, 13–28.07.2006. Leg. J. Šeat, 1 ex.; Jablanica, 1–15.07.2007. leg I. Gajić, 2 ex.; Budovija, 1–15.07.2007. leg. I Gajić, 1 ex.

Rhopalus parumpunctatus (Schilling, 1817)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.; Budovija, 13–28.07.2006. leg. J. Šeat, 2 ex.; Kozjak, 1–15.07.2007. leg. I Gajić, 2 ex.; Vogance, 1–15.07.2007. leg I. Gajić, 1 ex.; Čivčije, 1–15.07.2007. leg. I. Gajić, 1 ex.; Jablanica, 1–15.07.2007. leg I. Gajić, 2 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 2 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Rhopalus rufus (Schilling, 1829)

Pčinja, r.: Čivčije, 18.07.2008. leg. J. Šeat, 3 ex.

Stictopleurus abutilon (Rossi, 1790)

Pčinja, r.: Vogance, 1–15.07.2007. leg I. Gajić, 1 ex.; Kozjak, 20.07.2008. leg. J. Šeat, 1 ex.

Family Scutelleridae

Eurygaster maura (Linnaeus, 1758)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 2 ex.; Vogance, 1–15.07.2007. leg. I. Gajić, 1 ex.; Jablanica, 1–15.07.2007. leg. I. Gajić, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 8 ex.; Jablanica, 14.07.2008. leg. J. Šeat, 1 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 3 ex.

Odontotarsus purpureolineatus (Rossi, 1790)

Pčinja, r.: Jablanica, 13–28.07.2006. leg. J. Šeat, 1 ex.; Gornji Starac, 13.07.2008. leg. J. Šeat, 1 ex.

Family Stenocephalidae

Dicranocephalus albipes (Fabricius, 1781)

Pčinja, r.: Čivčije, 1–15.07.2007. leg. I. Gajić, 1 ex.; Čivčije, 18.07.2008. leg. J. Šeat, 1 ex.

Discussion

In the Pčinja Valley true bugs were collected from different types of habitats but most of the specimens were from meadows and pastures, types of habitats where it is possible to apply the standard sweep-netting method. Although the expeditions lasted from 2006 to 2008, they were performed only during July resulting in a fairly small number of registered species.

The true bug distribution is related to the distribution of specific vegetation types and plant species (PROTIĆ, 2001b) and 78 (out of 80) true bug species from Pčinja are classified in appropriate biome types (Tab. I).

Paraparomius leptopoides (Bärensprung, 1859) and *Calocoris (Closterotomus) fulvomaculatus* (De Geer, 1773), collected from arid meadows of rocky ground are not present on the list of Serbian true bugs from 2001 and it is unknown to which biome type they belong. *Calocoris (Closterotomus) fulvomaculatus* specimens were registered previously in Požarevac and Belgrade surroundings (PROTIĆ, 1998) but *Paraparomius leptopoides* is a new species for Serbian fauna and it was registered on the territory of ex-Yugoslav countries (Slovenia, Croatia, Bosnia and Herzegovina, Macedonia and Montenegro) (PROTIĆ, 2001a).

True bug species from Pčinja usually occupy grasslands (Fig. 1). Most of them are members of the Mediterranean mountain pastures and forests of rocky grounds (4) and the European steppes with diverse grasses (5) except for *Alydus calcaratus*, *Peribalus strictus*, *Neottiglossa leporina*, *Piezodorus lituratus*, *Sciocoris cursitans cursitans*, *Dicranocephalus albipes*, *Odontotarsus purpureolineatus* which live on these two biomes only. *Berytinus clavipes* is a characteristic species of high-mountain rocky grounds and pastures (1); *Xanthochilus minusculus*, *Sciocoris maculatus* and *Sciocoris homalonotus* occupy only the European steppes with diverse grasses. The fact is that most true bugs from Pčinja are not strictly related to one biome type only, therefore species from the Mediterranean mountain pastures and forests of rocky grounds and the European steppes often live in meadows (7), deciduous forests (3), high-mountain pastures (1) and sometimes in agricultural biocenoses. *Coreus marginatus*, *Lygus pratensis*, *Dolycoris baccarum* and *Pyrrhocoris apterus* live almost everywhere and their presence does not determine to which type of biome that habitat belongs. Moreover, the distribution of aquatic and semiaquatic true bug species (present in bogs

and marshes (10) and aquatic habitats (11)) is defined not by the vegetation types but rather by the physical and chemical water characteristics and the morphology of the water basin in which they live.

Table I. Biome classification of true bugs from the Pčinja Valley by PROTIĆ (2001b).

Biome	True bug species
High-mountain rocky grounds and pastures	<i>Aelia acuminata</i> (L.), <i>Ae. rostrata</i> Boheman, <i>Brachycoleus decolor</i> Reuter, <i>Camptopus lateralis</i> (Germar), <i>Carpocoris fuscispinus</i> (Boheman), <i>C. pudicus</i> (Poda), <i>C. purpureipennis</i> (De Geer), <i>Coreus marginatus marginatus</i> (L.), <i>Coriomeris denticulatus</i> (Scopoli), <i>Corizus hyoscyami</i> (L.), <i>Dolycoris baccarum</i> (L.), <i>Eurygaster maura</i> (L.), <i>Eysarcoris venustissimus</i> (Schrank), <i>Lygus pratensis</i> (L.), <i>Nysius graminicola</i> (Kolenati), <i>Ortholomus punctipennis</i> (Herrich-Schaeffer), <i>Palomena prasina</i> (L.), <i>Phyllomorpha laciniata</i> (Villers), <i>Phymata crassipes</i> (Fabricius), <i>Pyrrhocoris apterus</i> (L.), <i>Rhopalus rufus</i> Schilling, <i>Rhyparochromus vulgaris</i> (Schilling), <i>Spilostethus saxatilis</i> (Scopoli), <i>Zicrona caerulea</i> (L.)
Coniferous forests	<i>Adelphocoris vandalicus</i> (Rossi), <i>Deraeocoris ruber</i> (L.), <i>Lygaeus equestris</i> (L.), <i>Lygus pratensis</i> (L.), <i>Pyrrhocoris apterus</i> (L.), <i>Syromastus rhombeus</i> (L.)
Deciduous forests	<i>Acanthosoma haemorrhoidale</i> (L.), <i>Adelphocoris lineolatus</i> (Goeze), <i>A. vandalicus</i> (Rossi), <i>Brachycoleus decolor</i> Reuter, <i>Carpocoris pudicus</i> (Poda), <i>C. purpureipennis</i> (De Geer), <i>Ceraleptus gracilicornis</i> (Herrich-Schaeffer), <i>C. lividus</i> Stein, <i>Coreus marginatus marginatus</i> (L.), <i>Deraeocoris ruber</i> (L.), <i>D. ventralis</i> Reuter, <i>Dolycoris baccarum</i> (L.), <i>Eurydema ventralis</i> Kolenati, <i>Eurygaster maura</i> (L.), <i>Eysarcoris venustissimus</i> (Schrank), <i>Liocoris tripustulatus</i> (Fabricius), <i>Lygaeus equestris</i> (L.), <i>Lygus pratensis</i> (L.), <i>Pentatoma rufipes</i> (L.), <i>Phymata crassipes</i> (Fabricius), <i>Pyrrhocoris apterus</i> (L.), <i>P. marginatus</i> (Kolenati), <i>Rhynocoris iracundus</i> (Poda), <i>Spilostethus saxatilis</i> (Scopoli), <i>Stephanitis pyri</i> (Fabricius), <i>Stictopleurus abutilon</i> (Rossi), <i>Zicrona caerulea</i> (L.)
Mediterranean mountain pastures and forests of rocky grounds	<i>Acanthosoma haemorrhoidale</i> (L.), <i>Adelphocoris lineolatus</i> (Goeze), <i>A. vandalicus</i> (Rossi), <i>Aelia acuminata</i> (L.), <i>Alydus calcaratus</i> (L.), <i>Berytinus clavipes</i> (Fabricius), <i>B. montivagus</i> (Mayer-Dur), <i>Brachycoleus decolor</i> Reuter, <i>Camptopus lateralis</i> (Germar), <i>Carpocoris fuscispinus</i> (Boheman), <i>C. pudicus</i> (Poda), <i>C. purpureipennis</i> (De Geer), <i>Ceraleptus gracilicornis</i> (Herrich-Schaeffer), <i>Chorosoma schillingii</i> (Schilling), <i>Codophila varia</i> (Fabricius), <i>Coreus marginatus marginatus</i> (L.), <i>Coriomeris denticulatus</i> (Scopoli), <i>Corizus hyoscyami</i> (L.), <i>Cydnius aterrimus</i> (Forster), <i>Deraeocoris ruber</i> (L.), <i>D. ventralis</i> Reuter, <i>Dicranocephalus albipes</i> (Fabricius), <i>Dolycoris baccarum</i> (L.), <i>Eurydema oleracea</i> (L.), <i>E. ventralis</i> Kolenati, <i>Eurygaster maura</i> (L.), <i>Eysarcoris aeneus</i> (Scopoli), <i>E. venustissimus</i> (Schrank), <i>Graphosoma lineatum italicum</i> (Müller), <i>Heterogaster artemisiae</i> Schilling, <i>Liocoris tripustulatus</i> (Fabricius), <i>Liorhysus hyalinus</i> (Fabricius), <i>Lygaeus equestris</i> (L.), <i>Lygus pratensis</i> (L.), <i>Myrmus miriformis</i> (Fallen), <i>Neides tipularius</i> (L.), <i>Neottiglossa leporina</i> (Herrich-Schaeffer), <i>Nysius graminicola</i> (Kolenati), <i>Odontotarsus purpureolineatus</i> (Rossi), <i>Oncotylus setulosus</i> (Herrich-Schaeffer), <i>Ortholomus punctipennis</i> (Herrich-Schaeffer), <i>Orthops kalmii</i> (L.), <i>Palomena prasina</i> (L.), <i>Pentatoma rufipes</i> (L.), <i>Peribalus strictus</i> (Fabricius), <i>Phyllomorpha laciniata</i> (Villers), <i>Phymata crassipes</i> (Fabricius), <i>Piezodorus lituratus</i> (Fabricius), <i>Pyrrhocoris apterus</i> (L.), <i>P. marginatus</i> (Kolenati), <i>Rhopalus parumpunctatus</i> Schilling, <i>Rhynocoris iracundus</i> (Poda), <i>Rhyparochromus vulgaris</i> (Schilling), <i>Sciocoris cursitans cursitans</i> (Fabricius), <i>Spilostethus saxatilis</i> (Scopoli), <i>Stephanitis pyri</i> (Fabricius), <i>Stictopleurus abutilon</i> (Rossi), <i>Syromastus rhombeus</i> (L.), <i>Trigonotylus caelestialium</i> (Kirkaldy), <i>Zicrona caerulea</i> (L.)
European steppes with diverse grasses	<i>Acanthosoma haemorrhoidale</i> (L.), <i>Adelphocoris lineolatus</i> (Goeze), <i>Aelia acuminata</i> (L.), <i>Ae. rostrata</i> Boheman, <i>Alydus calcaratus</i> (L.), <i>Berytinus montivagus</i> (Mayer-Dur), <i>Camptopus lateralis</i> (Germar), <i>Carpocoris fuscispinus</i> (Boheman), <i>C. purpureipennis</i> (De Geer), <i>Ceraleptus gracilicornis</i> (Herrich-Schaeffer), <i>C. lividus</i> Stein, <i>Chorosoma schillingii</i> (Schilling), <i>Codophila varia</i> (Fabricius), <i>Coreus marginatus marginatus</i> (L.), <i>Coriomeris denticulatus</i> (Scopoli), <i>Corizus hyoscyami</i> (L.), <i>Cydnius aterrimus</i> (Forster), <i>Dicranocephalus albipes</i> (Fabricius), <i>Dolycoris baccarum</i> (L.), <i>Eurydema oleracea</i> (L.), <i>E. ventralis</i> Kolenati, <i>Graphosoma lineatum italicum</i> (Müller), <i>Heterogaster artemisiae</i> Schilling, <i>Liorhysus hyalinus</i> (Fabricius), <i>Lygaeus equestris</i> (L.), <i>Lygus pratensis</i> (L.), <i>Neides tipularius</i> (L.), <i>Neottiglossa leporina</i> (Herrich-Schaeffer), <i>Odontotarsus purpureolineatus</i> (Rossi), <i>Ortholomus punctipennis</i> (Herrich-Schaeffer), <i>Palomena prasina</i> (L.), <i>Pentatoma rufipes</i> (L.), <i>Peribalus strictus</i> (Fabricius), <i>Phymata crassipes</i> (Fabricius), <i>Piezodorus lituratus</i> (Fabricius), <i>Pyrrhocoris apterus</i> (L.), <i>P. marginatus</i> (Kolenati), <i>Rhyparochromus vulgaris</i> (Schilling), <i>Sciocoris cursitans cursitans</i> (Fabricius), <i>S. homalonotus</i> Fieber, <i>S. maculatus</i> Fieber, <i>Spilostethus saxatilis</i> (Scopoli), <i>Stictopleurus abutilon</i> (Rossi), <i>Syromastus rhombeus</i> (L.), <i>Xanthochilus minusculus</i> (Reuter)

Biome	True bug species	(Table I – continued)
Orchards	<i>Adelphocoris lineolatus</i> (Goeze), <i>Aelia rostrata</i> Boheman, <i>Brachycoleus decolor</i> Reuter, <i>Deraeocoris ruber</i> (L.), <i>Dolycoris baccarum</i> (L.), <i>Himacerus mirmicoides</i> (O. Costa), <i>Liorhysus hyalinus</i> (Fabricius), <i>Lygaeus equestris</i> (L.), <i>Lygus pratensis</i> (L.), <i>Orthops kalmii</i> (L.), <i>Palomena prasina</i> (L.), <i>Pyrrhocoris apterus</i> (L.), <i>Rhynocoris iracundus</i> (Poda), <i>Stephanitis pyri</i> (Fabricius), <i>Trigonotylus caelestialium</i> (Kirkaldy)	
Meadows	<i>Adelphocoris lineolatus</i> (Goeze), <i>Aelia acuminata</i> (L.), <i>Berytinus montivagus</i> (Mayer-Dur), <i>Brachycoleus decolor</i> Reuter, <i>Carpocoris pudicus</i> (Poda), <i>C. purpureipennis</i> (De Geer), <i>Ceraleptus lividus</i> Stein, <i>Chorosoma schillingii</i> (Schilling), <i>Codophila varia</i> (Fabricius), <i>Coreus marginatus marginatus</i> (L.), <i>Coriomeris affinis</i> (Herrich-Schaeffer), <i>C. denticulatus</i> (Scopoli), <i>Corizus hyoscyami</i> (L.), <i>Cydnus aterrimus</i> (Forster), <i>Deraeocoris ruber</i> (L.), <i>Dolycoris baccarum</i> (L.), <i>Eurydema oleracea</i> (L.), <i>Eurygaster maura</i> (L.), <i>Eysarcoris aeneus</i> (Scopoli), <i>Graphosoma lineatum italicum</i> (Müller), <i>Heterogaster artemisiae</i> Schilling, <i>Liocoris tripustulatus</i> (Fabricius), <i>Lygus pratensis</i> (L.), <i>Ortholomus punctipennis</i> (Herrich-Schaeffer), <i>Orthops kalmii</i> (L.), <i>Palomena prasina</i> (L.), <i>Phytocoris ustulatus</i> Herrich-Schaeffer, <i>Pyrrhocoris apterus</i> (L.), <i>Rhopalus rufus</i> Schilling, <i>Spilostethus saxatilis</i> (Scopoli), <i>Stenodema laevigata</i> (L.), <i>Zicrona caerulea</i> (L.)	
Agrobiocenoses	<i>Adelphocoris lineolatus</i> (Goeze), <i>A. vandalicus</i> (Rossi), <i>Aelia rostrata</i> Boheman, <i>Berytinus montivagus</i> (Mayer-Dur), <i>Chorosoma schillingii</i> (Schilling), <i>Coreus marginatus marginatus</i> (L.), <i>Dolycoris baccarum</i> (L.), <i>Eurydema oleracea</i> (L.), <i>Eurygaster maura</i> (L.), <i>Liorhysus hyalinus</i> (Fabricius), <i>Myrmus miriformis</i> (Fallen), <i>Neides tipularius</i> (L.), <i>Orthops kalmii</i> (L.), <i>Pyrrhocoris apterus</i> (L.), <i>Rhopalus parumpunctatus</i> Schilling, <i>Rhynocoris iracundus</i> (Poda), <i>Trigonotylus caelestialium</i> (Kirkaldy)	
Parks	<i>Aelia acuminata</i> (L.), <i>Brachycoleus decolor</i> Reuter, <i>Camptopus lateralis</i> (Germar), <i>Ceraleptus lividus</i> Stein, <i>Coreus marginatus marginatus</i> (L.), <i>Lygus pratensis</i> (L.), <i>Myrmus miriformis</i> (Fallen), <i>Oncotylus setulosus</i> (Herrich-Schaeffer), <i>Pyrrhocoris apterus</i> (L.), <i>Rhopalus rufus</i> Schilling, <i>Stephanitis pyri</i> (Fabricius)	
Bogs and marshes	<i>Aelia rostrata</i> Boheman, <i>Dolycoris baccarum</i> (L.), <i>Eysarcoris aeneus</i> (Scopoli), <i>Graphosoma lineatum italicum</i> (Müller), <i>Hydrometra stagnorum</i> (L.), <i>Macrosaldula variabilis</i> (Herrich-Schaeffer), <i>Pyrrhocoris apterus</i> (L.), <i>Velia currens</i> (Fabricius)	
Aquatic habitats	<i>Gerris costae</i> (Herrich-Schaeffer), <i>G. lacustris</i> (L.), <i>Nepa cinerea</i> L., <i>Notonecta glauca glauca</i> L., <i>Sigara nigrolineata nigrolineata</i> (Fieber)	

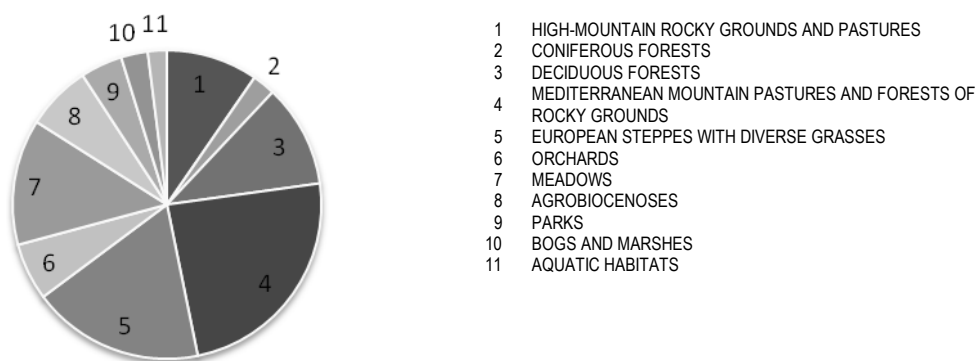


Figure 1. Biomes of the Pčinja Valley and true bug species that inhabit them.

A small number of true bugs from Pčinja are species characteristic of agrobiocenoses (8) and orchards (6) because anthropogenic biocenoses present in this area are fragmented, small and located by roads and houses.

Conclusion

During the 3-year expeditions, 339 specimens of true bugs (Heteroptera) were collected and identified as 80 species (from 22 families) from seven different localities (Vogance, Jablanica, Budovija, Gornji Starac, Čivčije, Delinovica, Kozjak) of the Pčinja River valley. The most numerous families are Pentatomidae with 21 species and Miridae with 13 species. 72 species (from 15 families) are terrestrial and mostly settled on grasslands. According to the biome classification (PROTIĆ, 2001) of most of the true bugs they are members of the Mediterranean mountain pastures and forests of rocky grounds biome and biome of the European steppes with diverse grasses. Biomes of meadows, deciduous forests and high-mountain rocky grounds and pastures are present in small parts. Results of classification of true bugs based on their presence in different biomes confirm that the Mediterranean influence from Macedonia led to the development of specific mixed continental-Mediterranean true bug fauna of this region: *Oncotylus setulosus* (Herrich-Schaeffer), *Phytocoris ustulatus* (Herrich-Schaeffer), *Phymata crassipes* (Fabricius), *Rhynocoris iracundus* (Poda), *Ceraleptus gracilicornis* (Herrich-Schaeffer), *Phyllomorpha laciniata* (Villers), *Spilostethus saxatilis* (Scopoli), *Chorosoma schillingii* (Schilling). A small presence of species which are characteristic of agrobiocenoses represents the good condition of local autochthonous vegetation, and the habitat diversity is confirmed through the species diversity. The species *Paraparomius leptopoides* (Bärensprung, 1859) is first recorded in Serbian fauna.

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СТЕНИЦЕ (НЕТЕРОПТЕРА) ДОЛИНЕ РЕКЕ ПЧИЊЕ (СРБИЈА)

ЈЕЛЕНА ШЕАТ

Извод

Током јула месеца 2006., 2007. и 2008. године вршена су теренска истраживања у долини реке Пчиње, где су сакупљане стенице (Heteroptera). Сакупљено је 339 примерака стеница са седам локалитета: Воганце, Јабланица, Будовија, Горњи Старац, Делиновица, Козјак и Чивчије. Детерминацијом је потврђено присуство 80 врста из 22 фамилије. Анализом биомске припадности утврђено је да највећи број врста припада биомима медитеранских каменитих пашњака и шума на камењарима и европским степама разнотравног типа. Мешовити континентално-медитерански фаунистички састав стеница Пчиње је резултат специфичних климатских услова који овде владају. Врста *Paraparomius leptopoides* (Bärensprung, 1859) је нова за фауну Србије.

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