

HETEROPTERA ON *CUPRESSUS SEMPERVIRENS* (LINNAEUS) IN MONTENEGRO (STATE COMMUNITY OF SERBIA AND MONTENEGRO)

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This is the first contribution to acknowledgment of Heteroptera fauna on *Cupressus sempervirens* in Montenegro. Researches were performed on 45 localities. 21 species of Heteroptera were established. It has identified eight species new for fauna of Montenegro: *Orius majusculus* Reuter, *Monosteira unicostata* (Mulsant & Rey), *Deraeocoris rutilus* (Herrich-Schaeffer), *Phytocoris parvulus* Reuter, *Orsillus depressus* (Mulsant & Rey), *Stictopleurus punctatonevrosus* (Goeze), *Holcogaster exilis* Horváth, *Nezara viridula* var. *torquata* (Fabricius).

KEY WORDS: Heteroptera, *Cupressus sempervirens*, Montenegro, Serbia

INTRODUCTION

Two varieties of common cypress, *Cupressus sempervirens* (Linnaeus) are spread in Mediterranean and sub-Mediterranean part of Montenegro. The most frequent are: *C. sempervirens* var. *pyramidalis* Nyman and *C. sempervirens* var. *horizontalis* Miller. It is autochthonous in Dalmatia. It was introduced in Montenegro, and often grown in the coastal regions. It is bred by seed in the coastal region and it does not form larger forest stands but mostly grows in larger or smaller groups. Although it is Mediterranean, species it can endure very low temperatures even up to – 20° C (VIDAKOVIĆ, 1982). In south part of Montenegro, cypress often can be found in pine cultures, tree-lined paths, than some decorative trees can be found in

monastery yards and other monuments. Cypress has very important part in dendroflora of south Montenegro since foundation of the State experimental station for south cultures in Bar, in 1937, when wind-protective pillars have formed on edges of plantation of subtropical fruits in Bar. That is why cypress is the best species for that purpose. Experience with these wind-protective belts has served as example for continual and spreading of cypress use for the same purposes after the second world war. Wind-protective cypress belts are formed in the area of Podgorica because of very strong north wind. Fast spreading of cypress came after not only because of its decorative feature, resistance to drought, hoarfrost, smoke and other harmful substances in the air, modest needs for water and mineral matters, but also because of its resistance to plant diseases and harmful insects. The reason for research of Heteroptera on cypress is its high sensibility on diseases (*Seiridium cardinale* Wagener) (MIJUŠKOVIĆ, 1984) and herewith possibility of higher sensibility toward harmful insects species.

Fauna of Heteroptera of Montenegro is insufficiently researched. First data on fauna Heteroptera of Montenegro were registered at the end of 19th and at the beginning of 20th century, when foreign entomologists (APFELBECK, 1891; HORVÁTH, 1918; SHUMACHER, 1914) have collected insects on the territory of Balkan Peninsula. These researches are mostly reduced on a few localities in the coastal region and on the mountain Durmitor. Heteroptera were worked within the project "Fauna of Durmitor" in eighties years of 20th century (PROTIĆ *et al*, 1990).

There are only fragmented data on Heteroptera with *C. sempervirens* on areas of the former Yugoslavia, where cypress is spread (NOVAK & WAGNER, 1951, 1955; PROTIĆ, 1998, 2001). This is the first contribution which mostly deals with Heteroptera on *C. sempervirens*. Considering that continual researches of fauna Heteroptera of Montenegro were not done until present days, and entomofauna *C. sempervirens* was not specially researched, we got very important data during our researched.

MATERIAL AND METHODS

Research of Heteroptera on *C. sempervirens* was performed in the period of 2001 to 2004. Samples have been taken from 45 localities in the central and south part of Montenegro, where *C. sempervirens* is spread. Collecting of material was performed during whole year. Standard methods were used for Heteroptera collecting as reaping with net of thick linen – catcher, and exhaustor was used for individual sampling. Tree parts, branches and cones were found on terrain and they were put photoelectors. Insects breeding in photoelectors was followed and recorded every day. Glass cylinders were used for insects breeding. Hunted and bred specimens of Heteroptera were stuffed, labeled, identified and conserved. Total

number of processed samples is 51. All samples (specimens) are collected by Dragan ROGANOVIĆ, and identified by Ljiljana PROTIĆ. Processed specimens are housed in Entomological collection in Natural History Museum in Belgrade.

From the total number of 45 processed localities, Heteroptera were collected on follows: Bar: Čanj CM 46, Budva: Lastva Grbaljska CM 28, Budva: Miločer CM 28, Budva: Slovenska Plaža CM 28, Herceg Novi: Kamenari CM 00, Perast: Tvrdjava CM 10, Podgorica: Bioče CN 50, Podgorica: Čemovsko Polje CN 50, Ulcinj: Ada Bojana CM 54, Ulcinj: Lido CM 54.

RESULTS

Fam. ANTHOCORIDAE

Orius (Heterorius) majusculus Reuter, 1884*¹

Cupressus sempervirens: Ulcinj: Lido 2002-07-11, by using catcher.

Fam. TINGIDAE

Monosteira unicostata (Mulsant & Rey, 1852) *

Cupressus sempervirens: Budva: Slovenska Plaža 2002-05-02 by using catcher; Podgorica: Čemovsko Polje 2002-07-11 by using catcher.

Fam. MIRIDAE

Calocoris affinis (Herrich-Schaeffer, 1835)

Cupressus sempervirens: Herceg Novi: Kamenari 2003-06-03 by using catcher.

Deraeocoris ruber (Linnaeus, 1758)

Cupressus sempervirens: Podgorica: Čemovsko Polje 2002-06-09, by using catcer of dry cypress.

Deraeocoris rutilus (Herrich-Schaeffer, 1839)*

Cupressus sempervirens: Herceg Novi: Kamenari 2003-06-08, by using catcher.

Deraeocoris schach Fabricius, 1781**²

Cupressus sempervirens: Herceg Novi: Kamenari 2003-06-08, by using catcher and breeding in photoeclector.

Phytocoris (Ribautomiris) parvulus Reuter, 1880* (Fig. 1)

Cupressus sempervirens: Podgorica: Čemovsko Polje 2002-06-09; 2003-02-26 by using catcher and breeding in photoeclector.

Fam. LYGAEIDAE

Orsillus depressus (Mulsant & Rey, 1852) *

Cupressus sempervirens: Perast: Tvrdjava (fortress) 2002-03-16, breeding – lar-

¹ * first finding in Montenegro

² ** second finding in Montenegro

va; Ulcinj: Lido: Ulcinj: Ada Bojana 2002-04-24; Budva: Drobni Pijesak 2003-05-17 by using catcher of healthy cypress; Herceg Novi: Kamenari 2003-06-08, by using catcher.

Orsillus maculatus (Fieber, 1861) *

Cupressus sempervirens: Budva: Miločer 2003-05-02, (breeding in photoeclector);

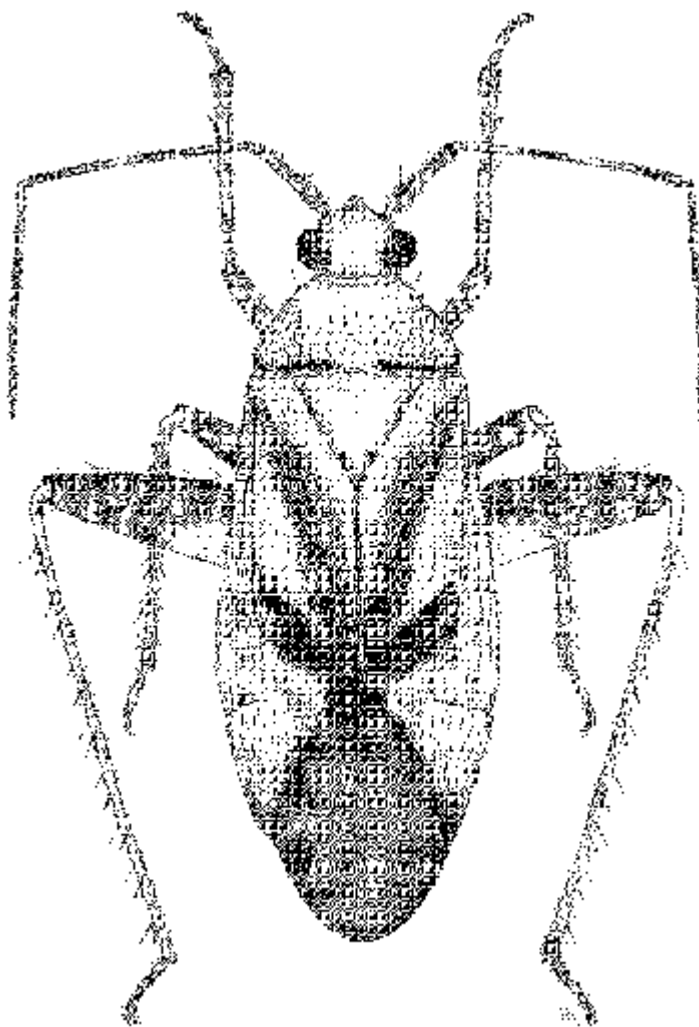


Fig. 1. *Phytocoris (Ribautomiris) parvulus* Reuter – new species for the State Community of Serbia and Montenegro. (Drew A. Stojanović)

Podgorica: Bioče 2002-07-11; Podgorica: Ćemovsko Polje 2001-06-16; 2002-02-03, 2002-07-11, 2002-10-11, cypress cone (breeding in photoeclator); 2003-04-30, by using catcher; Budva: Lastva Grbaljska 2003-06-01, 2003-07-12, cypress cone (breeding in photoeclator); Bar: Čanj 2003-06-15 by using catcher.

Rhyparochromus (Xanthochilus) quadratus (Fabricius, 1798)

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2002-02-17, cypress tree (breeding in photoeclator); Herceg Novi: Kamenari 2002-06-09, by using catcher of dry cypress.

Fam. COREIDAE

Syromastus rhombeus (Linnaeus, 1767) **

Cupressus sempervirens: Herceg Novi: Kamenari 2003-06-08. by using catcher.

Fam. RHOPALIDAE

Stictopleurus punctatonervosus (Goeze, 1778) *

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2002-06-09, by using catcher of dry cypress.

Fam. PENTATOMIDAE

Acrosternum millierei Mulsant & Ray, 1866**

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2001-11-18. by using catcher and breeding in photoeclator.

Aelia rostrata Boheman, 1852**

Cupressus sempervirens: Herceg Novi: Kamenari 2003-06-08. by using catcher.

Ancyrosoma leucogrammes (Gmelin, 1789)

Cupressus sempervirens: Herceg Novi: Kamenari 2003-06-08. by using catcher.

Apodiphus amygdali (Germar, 1817) **

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2003-02-26 by using catcher

Holcogaster exilis Horváth, 1903*

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2002-01-03, cypress cone and breeding in photoeclator.

Nezara viridula (Linnaeus, 1758)

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2001-11-18. by using catcher.

Nezara viridula var. *torquata* (Fabricius, 1775) *

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2001-11-18. by using catcher.

Palomena prasina (Linnaeus, 1758)

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2001-11-18. by using catcher and breeding in photoeclector.

Raphigaster nebulosa (Poda, 1761)

Cupressus sempervirens: Podgorica: Ćemovsko Polje 2003-02-26. by using catcher.

DISCUSSION AND CONCLUSION

During perennial following of entomofauna on cypress (*Cupressus sempervirens*) in Montenegro, 21 species Heteroptera was identified. Identified species are systematized in seven families. The most numerous species are from the family Pentatomide, with nine species, then family Miridae with five species, Lygaeidae with three species, and other families: Anthocoridae, Tingidae, Coreidae and Rhopalidae, with one species each.

It is published eight species, new for fauna of Heteroptera of Montenegro in this paper: *Orius majusculus* Reuter, *Monosteira unicostata* (Mulsant & Rey), *Deraeocoris rutilus* (Herrich-Schaeffer), *Phytocoris parvulus* Reuter, *Orsillus depressus* (Mulsant & Rey), *Stictopleurus punctatonervosus* (Goeze), *Holcogaster exilis* Horváth, *Nezara viridula* var. *torquata* (Fabricius).

Orius majusculus Reuter is predator, whose prey are Aphididae, Acari, especially *Metatetranychus alni* Koch. It was found on plants *Polygonum*, *Phragmites*, *Carex*. It was collected by our researches for the first time in Montenegro, on locality Lido, on big Ulcinj beach. Mediterranean species.

Monosteira unicostata (Mulsant & Rey) was collected on two localities in Montenegro: Podgorica and Budva. This species was recorded in Mediterranean mostly on woody plants: *Populus alba*, *Populus tremula*, and *Alnus glutinosa*, *Punica granatum*, on fruits, genus *Pyrus* sp. and genus *Prunus* sp. It has not been collected on cypress until now.

Deraeocoris rutilus (Herrich-Schaeffer) was collected on locality Kamenari by using catcer method on *Cupressus sempervirens*. Zoo-phytophagous species. It is generally spread species on Balkan peninsula (AUKEMA & RIEGER 1999, JOSIFOV, 1986, PROTIĆ, 1998). Ponto-meditteranean species.

Phytocoris parvulus Reuter was collected near Podgorica, by using catcher method on *Cupressus sempervirens*. This species is new for fauna Montenegro, for State community of Serbia and Montenegro and for Catalogs of Heteroptera of the Palearctic Region (AUKEMA & RIEGER, 1999). Characteristic species for *Cupres-*

sus sempervirens (STICHEL, 1956-1958, WAGNER 1970/1971, SCHUH, 1995). It is generally spread species on Balkan Peninsula. It was found in Croatia only on locality Josipdol in ancient 1900. (PROTIĆ, 1998). Mediterranean species.

Stictopleurus punctatonervosus (Goeze) was found by reaping method on dry cypress in Podgorica. Phytophagous species. It was collected on herbaceous species from families: Asteraceae, Fabaceae, Brassicaceae, and Umbeliferae, as on *Tamarix* sp. It has not recorded on cypress until now. On Balkan Peninsula, it is spread in hot habitats. Euro-Siberia species.

Holcogaster exilis Horváth is new species for fauna of State Community of Serbia and Montenegro. It has bred from cone *Cupressus sempervirens*, from locality Čemovsko Polje in Podgorice surroundings. Phytophagous species. It lives on: *Juniperus* sp., *Cupressus* sp. It is spread on south part of Balkan Peninsula (PROTIĆ, 2001). One specimen from Dubrovnik (Dalmatia) which has determined as *H. fibulata* (Germar), and determined as *H. exilis* Horváth after reidentification, is housed in Collection of Heteroptera belonging to Nikola KORMILEV in Natural History Museum in Belgrade. Mediterranean species.

Nezara viridula var. *torquata* (Fabricius) was collected on locality Čemovsko Polje in Podgorica surroundings. Considering former Yugoslavia it has been found on many localities along Adriatic coast on islands and in Herzegovina, locality Domanovići (PROTIĆ, 2001). Mediterranean species.

Characteristic feature for six species of Heteroptera: *Deraeocoris schach* Fabricius, *Orsillus maculatus* (Fieber), *Syromastus rhombeus* (Linnaeus), *Acrosternum millierei* Mulsant & Rey, *Aelia rostrata* Boheman, *Apodiphus amygdali* (Germar), which were identified from cypress, that until now they were registered only on one more locality in Montenegro.

Apodiphus amygdali (Germar) was registered on locality Podgorica (Schumacher 1914), 90 years ago. It is characteristic species for *Amygdalis communis*. *Locus typicus* is Split (GERMAR, 1817). Phytophagous species. In Dalmatia, it lives on woody plants, mostly on fruits. Mediterranean species.

Acrosternum millierei Mulsant & Rey was collected by reaping method on *Cupressus sempervirens* on Čemovsko Polje in Podgorica surroundings. Phytophagous species. It was registered on woody plants: *Juniperus* sp., *Quercus* sp. On Balkan Peninsula, it is spread along Adriatic coastal region from Slovenia to Albania and on the island Crete, than in the valley of the river Strumica in Bulgaria. It has not been known in Montenegro until now only on locality Stari Bar (HORVÁTH 1918). Mediterranean species.

Syromastus rhombeus (Linnaeus), was hunted on cypress on locality Kamenari. The first finding from Ulcinj dates 90 years ago (SCHUMACHER 1914). Phytophagous - polyphagous species, which can be met on many herbaceous plants, especially on species of family Caryophyllaceae. It is widely spread on Balkan Peninsula.

Deraeocoris schach Fabricius, was hunted after 90 years on locality Kamenari. The first finding of this species in Montenegro, is on the mountain Sutorman (SCHUMACHER 1914). Zoo- phytophagous species. It was registered on plants: *Spartium junceum*, *Lavatera* sp., *Echium* sp., *Juniperus phoenicea*, *Quercus ilex*, and *Q. pubescens*. On Balkan peninsula, it is spread at the edge along Adriatic coast. In Macedonia, it is spread on higher heights above sea level spreading deeper in the ground: Treska, Šarplanina, Udovo, Demir Kapija, Valandovo, Skopje (PROTIĆ, 1998). Mediterranean species.

Characteristic species for *C. sempervirens* are: *Orsillus depressus* (Mulsant & Rey) and *Orsillus maculatus* (Fieber). Life cycle of these species is going on cypress. *O. depressus* is now collected for the first time in Montenegro on more localities along Adriatic coast. On the area of former Yugoslavia, this species is spread from Slovenia to Macedonia, it has not been found only in Montenegro. *O. maculatus* was registered on the same area on much less localities. In Montenegro, it was found in Perast (PROTIĆ, 1987). Both of these species are spread in Mediterranean and their areals are corresponding to areal of *C. sempervirens*.

Deraeocoris ruber (Linnaeus) for the first time was found on cypress. It was registered on many plants: *Abies alba*, *Pinus silvestris*, *Larix deciduous*, *Corylus avellana*, *Populus* sp., *Quercus* sp., *Prunus* sp., *Malus* sp., *Ribes* sp., *Rubus* sp., *Urtica dioica*, *Ononis* sp., *Lamium* sp., *Ballota* sp. Zoo-phytophagous species. Prey are species from orders and families: Aphididae, Acarina, Lepidoptera (caterpillars), Heteroptera. It is generally spread on Balkan Peninsula. (AUKEMA & RIEGER 1999, JOSIFOV, 1986, PROTIĆ, 1998).

According to geographical belonging 57% or 12 identified species of Heteroptera on *Cupressus sempervirens* in Montenegro are Holarctic and one is Cosmopolite. High number of Mediterranean species Heteroptera, is caused by selective collecting on the plant *Cupressus sempervirens*, which is typical Mediterranean species.

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HETEROPTERA NA *CUPRESSUS SEMPERVIRENS* (LINNAEUS) У ЦРНОЈ ГОРИ

Љ. ПРОТИЋ И Д. РОГАНОВИЋ

И з в о д

О Heteroptera-ма са *C. sempervirens* на просторима ех Југославије, где је чемпрес распрострањен постоје само фрагментарни подаци (NOVAK & WAGNER, 1951, 1955; PROTIĆ, 1998, 2001). Ово је први прилог који искључиво обрађује Heteroptera на *C. sempervirens*. С обзиром да до сада нису вршена континуирана истраживања фауне Heteroptera Црне Горе, као ни састав фауне на *C. sempervirens* у току наших истраживања дошли смо до значајних података, који обогаћују познавање фауне Heteroptera.

Истраживања ентомофауне на *Cupressus sempervirens* трајала су од 2001. до 2004. године. Heteroptera су уловљене на 10 локалитета. Укупно је обрађен 51 примерак. Обрађени примерци налазе се у Ентомолошкој збирци Природњачког музеја у Београду. Идентификована је 21 врста Heteroptera.

У обрађеном материјалу Heteroptera идентификовано је осам нових врста за фауну Црне Горе: *Orius majusculus* Reuter, *Monosteira unicastata* (Mulsant & Rey), *Deraeocoris rutilus* (Herrich-Schaeffer), *Phytocoris parvulus* Reuter, *Orsillus depressus* (Mulsant & Rey), *Stictopleurus punctatonervosus* (Goeze), *Holcogaster exilis* Horváth, *Nezara viridula*

var. *torquata* (Fabricius). Налаз врсте *Ph. parvulus* у Црној Гори нов је податак и за фауну Државне заједнице Србије и Црне Горе, као и допуна познавању ареала ове врсте за Каталог Heteroptera палеарктика (AUKEMA & RIEGER, 1999).

Од укупно 21 идентификоване врсте, шест је до сада нађено само на једном локалитету у Црној Гори. За врсте: *Deraeocoris schach* Fabricius, *Orsillus maculatus* (Fieber), *Syromastus rhombeus* (Linnaeus), *Acrosternum millierei* Mulsant & Rey, *Aelia rostrata* Boheman, *Apodiphus amygdali* (Germar), које су идентификоване са чемпреса карактеристично је да су до сада биле нађене на само још једном локалитету у Црној Гори.

Карактеристичне врсте Heteroptera су: *Orsillus depressus*, *O. maculatus* и *Ph. parvulus*.

Преко 50% утврђених врста Heteroptera на *C. sempervirens* распрострањено је у медитерану.

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