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

LIJ. PROTIĆ¹ AND D. ROGANOVIĆ²

¹Natural History Museum, P.O. Box 401, SCG-11000 Beograd
E-mail: protic.nhm@beotel.yu

²National Institute for the Conservation of Nature,
E-mail: roganovicd@cg.yu

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 punctatonervosus* (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 exhauster was used for individual sampling. Tree parts, branches and cones were found on terrain and they were put photoeclectors. Insects breeding in photoeclectors 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.


RESULTS

Fam. ANTHOCORIDAE
Orius (Heterorius) majusculus Reuter, 1884*


Fam. TINGIDAE
Monosteira unicostata (Mulsant & Rey, 1852) *


Fam. MIRIDAE
Calocoris affinis (Herrich-Schaeffer, 1835)

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

Deraeocoris ruber (Linnaeus, 1758)


Deraeocoris rutilus (Herrich-Schaeffer, 1839)*

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

Deraeocoris schach Fabricius, 1781**

*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

*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)

*Rhyparochromus* (*Xanthochilus*) *quadratus* (*Fabricius, 1798*)
*Cupressus sempervirens*: Podgorica: Ćemovsko Polje 2002-02-17, cypress tree (breeding in photoeclector); 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*) **

*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 photoeclector.

*Nezara viridula* (*Linnaeus, 1758*)

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

*Palomena prasina* (*Linnaeus, 1758*)

Raphigaster nebulosa (Poda, 1761)

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 Rho-palidae, 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.


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-

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 Podgorica 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 Caryophilaceae. 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). Zoophytophagous 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, Vlandovo, 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.

ACKNOWLEDGEMENTS

The authors are thankful to our colleague Dipl. ing. Aleksandar Stojoanović for illustration drawn of the species Phytocoris (Ribautomiris) parvulus Reuter.
REFERENCES


HETEROPTERA НА CUPRESSUS SEMPERVIRENS (LINNAEUS) У ЦРНОЈ ГОРИ

Љ. Протић и Д. Рогановић

ИЗВОД


Истраживања ентомофунале на Cupressus sempervirens трајала су од 2001. до 2004. године. Хетероптера 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 Хетероптера.

У обрађеном матерijалу Хетероптера идентификовано је осам нових врста за фауну Црне Горе: Orius majusculus Reuter, Monosteira unicosata (Mulsant & Rey), Deraeocoris rutilus (Herrich-Schaeffer), Phyto- coris 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).


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

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