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CONTRIBUTION TO KNOWLEDGE OF DOWNY OAK (*QUERCUS PUBESCENS* WILLD.) ENTOMOFAUNA IN MONTENEGRO

SUMMARY

Research on Downy Oak (*Quercus pubescens* Willd.) entomofauna was conducted from 2006 to 2012 at 29 localities in the south and central part of Montenegro. A total of 48 species were registered. Of these insect species, 18 species or 38% were registered for the first time in Montenegro. The registered species belong to the orders Homoptera, Coleoptera, Lepidoptera and Hymenoptera. The largest number of species belong to the order Coleoptera (24 species or 50 %), then to order Lepidoptera (14 species or 29%), Hymenoptera (8 species or 17%) and Homoptera (2 species or 4%). These species are trophically related to trunk, branches, leaves and seeds of the Downy Oak. The majority of the species is found on branches (19 species or 40%) and then on leaves (16 species or 33%), the trunk (11 species or 23%) and the seeds (2 species or 4%).

Key words: Entomofauna, Downy Oak, Montenegro

INTRODUCTION

Downy Oak (*Quercus pubescens* Willd.) grows in areas with dry and hot sub-Mediterranean or Mediterranean climate, but it also penetrates deeply into the continent (Šilić 1983). It lives mostly on shallow and skeletal lands with southern exposures. On the Montenegrian coast and continental area, it occurs mostly as isolated individuals or in groups, in degraded oak forests, underbrush, bright oak and other thermophilous forests. According to Trinajstić (1989), the following associations occur in the coastal part of Montenegro: As. Myrto-Quercetum ilicis, As. Quercetum ilicis-virgilianae, As. Orno-Quercetum ilicis, As. Ostryo-Quercetum ilicis, As. Erico-Arbutetum and As. Myrto-Quercetum ilicis. Downy Oak is represented in all of these associations.

The first data on insect defoliators in oak forests in Montenegro appeared in 1903. According to the damage, defoliation was blamed on the larvae of the gypsy moth (Vučković 1972). Entomology research on Macedonian and English oaks in Montenegro have been performed by Mijušković (1966, 1971, 1980), who registered the species *Caliroa varipes* Klug. on English oak, while on Macedonian oak he registered the species *Harpiphorus lepidus* Klug. and *Altica quercetorum* Foudr. Entomology research on Downy Oak was conducted by Vujanović (1985), who registered the following insects species on this oak in Montenegro: *Lymantria dispar* L., *Erannis defoliaria* Cl., *Tortrix viridana* L.,

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Archips xylosteana L., *Thaumatopoea processionea* L., *Pseudoips bicolorana* Fuess., *Phylloxera coccinea* Heyd., *Kermes roboris* Fonsc., *Balaninus (Curculio) glandium* L., *Attelabus nitens* Scop., *Orchestes quercus* L., *Cerambyx cerdo* L., *Tischeria complanella* Hb., *Macrodiplosis dryobia* Loew., *Andricus ostreus* Hart., *Biorhiza pallida* Oliv., *Andricus (Cynips) hungaricus* Hart., *Andricus (Cynips) kollari* Hart., *Cynips (Diplolepis) quercifolii* L., *Cynips (Diplolepis) longiventris* Fourcr. and *Neuroterus quercusbaccarum* L.

MATERIAL AND METHODS

Collection of insects and larvae that fed on the tree, leaves and seeds of Downy Oak were conducted, by an itinerary method, throughout the whole year for the period from 2006 to 2012. In the field, insects and larvae that lived in the tree were collected by direct trimming of the bark of the trees and branches (collecting was done with a brush and exhauster) and by taking material for raising (branches and parts of the tree where visible holes of xylophagous groups of insects were observed). Tree parts included the lower part of the tree, the middle and apical parts, the branches of the first third of the tree, branches from the middle of the tree, and the top and apical branches; these were separated and placed in photoeclectors where the insects were raised.

Table 1. Localities where research was conducted

Virpazar (Sotonići) CM 48	Ulcinj (Ada Bojana) CM 64
Virpazar (Brijege) CM 48	Budva (Drobni Pijesak) CM 28
Herceg Novi (Bijela) CM 00	Budva (Sv. Stefan) CM 28
Herceg Novi (Rose) BN 90	Budva (Bečići) CM 29
Nikšić – Vir CN 35	Budva (Rafailovići) CM 28
Nikšić (Bogetići) CN 33	Petrovac (Reževići) CM 37
Herceg Novi (Savinska Dubrava) BN 91	Petrovac (Kruševica) CM 38
Bar (Maljevik) CM 46	Petrovac (city) CM 38
Bar (Sutomore) CM 47	Petrovac (Blizikuće) CM 38
Bar (Čanj) CM 37	Podgorica (Bioče) CN 61
Rijeka Crnojevića CM 39	Ulcinj (Svač) CM 66
Kotor (Dobrota) CM 10	Podgorica (Gorica hill) CM 50
Kotor (Radanovići) CM 10	Podgorica (Gornja Gorica) CM50
Ulcinj (Kruče) CM 55	Cetinje (city) CM 20
Cetinje (Bajice) CM 20	

Besides the photoeclectors, glass cylinders were also used for insect raising. Insect species that live on leaves and feed on different parts of the tissues of Downy Oak were captured by mowing, using a net of thick linen used for freestyle wrestling. Photophilous species were collected with light traps. Experimental areas were separated into the localities Podgorica, Nikšić, Cetinje, Bar, Ulcinj and Herceg Novi. Collected insects were conserved, marked and prepared by standard methods (Hoffard et al. 1980; Mihajlović 2008). Collected insects were stored by the author of this contribution. Systematic classification

and nomenclature were given according to Karaman (1971), Schwenke (1974), Karsholt and Razowski,(1996), Mihajlović (1986, 2008), etc.

RESULTS AND DISCUSSION

During this research on Downy Oak entomofauna, the following insect species were registered:

Order: Homoptera

Fam: Kermesidae

Kermes quercus (Linnaeus 1758) – Shield-shaped products were registered on branches, at the locality of Nikšić (Vir) on 22/06/2008. This species is registered for the first time in Montenegro by this research.

Kermes roboris (Fourcroy 1785) – Shield-shaped products on branches were registered on the locality of Petrovac (Blizikuće) on 30/05/2011. Previous research registered this species in Montenegro (Vujanović 1985).

Order: Coleoptera

Fam: Lymexylonidae

Hylecoetus dermestoides (Linnaeus 1761) – An imago of this species was registered on a tree stump, at the locality of Bar (Maljevik) on 25/05/2008 1 ex. It is registered for the first time in Montenegro by this research.

Fam: Buprestidae

Agrilus angustulus (Illiger 1803) – The species was taken from a branch with symptoms of attack, from the locality of Cetinje (Bajice) on 11/08/2011, 3 ex. It is registered for the first time in Montenegro by this research.

Agrilus biguttatus (Fabricius 1777) – An imago of the species was taken from the tree from the locality of Bar (Čanj) in 12/06/2012. 1 ex. It is registered for the first time in Montenegro by this research.

Agrilus sulcicollis (Lacordaire 1835) – An individual of this species was taken from branches of bigger diameter from the locality of Cetinje (city) on 09/06/2012. 1 ex. It is registered for the first time in Montenegro by this research.

Coraebus florentinus (*bifasciatus*) (Herbst 1801) – The species was taken from a large diameter branch from the locality of Bar (Sutomore) on 02/08/2010 1 ex. It is registered for the first time in Montenegro by this research.

Fam: Bostrichidae

Bostrychus capucinus (Linnaeus 1758) – An imago was caught from a drained trunk at the locality of Budva (Drobni pijesak) on 28/05/2011, 1 ex. It is registered for the first time in Montenegro by this research.

Fam: Cerambycidae

Cerambyx cerdo (Linnaeus 1758) – An imago of the species was caught at the locality of Podgorica (Bioče) on 27/06/2009, 1 ex, while larval holes in trunks and thick branches were registered at the localities of Ulcinj (Ada Bojana) and Petrovac (city). The species is registered in Montenegro (Heyrovsky 1967, Vujanović 1985).

Cerambyx scopoli (Füessly 1775) – The species was taken from the trunk from the locality of Herceg Novi (Bijela) on 05/05/2008 1 ex. During previous research, the species was registered in the area of Montenegro (Heyrovsky 1967).

Plagionotus arcuatus (Linnaeus 1758) – The species was taken from trunk part from the locality of Bar (Sutomore) on 20/06/2011, 1 ex. By this research, it is registered in Montenegro for the first time.

Plagionotus detritus (Linnaeus 1758) – The species was taken from the trunk, from the locality of Podgorica (Gornja Gorica) on 11/07/2012, 1 ex. By this research, it is registered in Montenegro for the first time.

Clytus arietis (Linnaeus 1758) – The species was taken from a small diameter branch at the locality of Budva (Rafailovići) on 22/06/2011. 2 ex. By former research, the species was registered in the area of Montenegro (Roganović 2007).

Clytus rhamni (Germar 1817) – The species was taken from a small diameter branch from the locality of Podgorica (Gorica Hill) on 02/06/2010 1 ex and from the locality of Ulcinj (Kruče) on 15/06/2009, 1 ex. By former research, the species was registered in the area of Montenegro (Heyrovsky 1967).

Phymatodes testaceus (Linnaeus 1758) – An individual of this species was taken from large diameter branches from the locality of Herceg Novi (Savinska Dubrava) on 28/07/2008. 1 ex. During previous research, the species was registered in Montenegro (Heyrovsky 1967).

Fam: Chrysomelidae

Altica quercetorum (Foudras 1860) – Egg nests were registered on the leaf back, at the locality of Kotor (Radanovići) on 25/04/2006. An imago of this species was caught at the locality of Podgorica (Gorica hill) on 1/04/2010. 1 ex. During previous research, the species was registered in Montenegro (Mijušković 1980).

Fam: Curculionidae

Attelabus nitens (Scopoli 1763) – An imago was caught on a leaf, at the locality of Nikšić (Vir) on 01/06/2008 1 ex. During previous research, this species was registered in Montenegro (Vujanović 1985).

Rhynchaenus quercus (Olivier 1807) – One specimen was caught on a leaf, at the locality of Nikšić (Vir) on 02/05/2010 1 ex. During previous research, the species was registered in Montenegro (Vujanović 1985).

Curculio glandium (Marsham 1802) – Individuals of this species were obtained by raising them from acorns in the period from 12 to 23/05/2011. Acorns were collected at the locality of Budva (Sveti Stefan). During previous research, the species was registered in Montenegro (Vujanović 1985).

Fam: Scolytidae

Scolytus intricatus (Ratzeburg 1837) – The species was found on a small diameter branch at the locality of Virpazar (Brijege) on 14/05/2006 1 ex. During previous research, the species was registered in Montenegro, on Durmitor (Spaić and Stevanović 1991).

Dryocoetes villosus (Fabricius 1792) – The species was registered on a larger diameter branch at the locality of Nikšić (Vir) on 17/04/2012 1 ex. During previous research, the species was registered in Montenegro, on Mt. Komovi (Roganović 2012).

Xyloterus signatus (Fabricius 1787) – The species was taken from branches collected at the locality of Podgorica (Bioče) on 18/09/2009 1 ex. During previous research, the species was registered in Montenegro, on Mt. Komovi (Roganović 2012).

Xyleborus dispar (Fabricius 1792) – The species was taken from branches that are collected at the locality Virpazar (Brijege) on 28/04/2010 1 ex. During previous research, this species was registered in Montenegro (Novak 1952).

Xyleborus monographus (Fabricius 1792) – The species was taken from trunk parts collected at the locality of Petrovac (Kruševica) on 12/04/2007, 2 ex. During previous research, this species was registered in Montenegro (Novak 1952).

Xyleborus saxeseni (Ratzeburg 1837) – Individuals of this species were obtained from the trunk part on 23/03/2008. 2 ex. Material was collected at the locality of Nikšić (Bogetići). During previous research, the species was registered in Montenegro, on Mt. Komovi (Roganović 2012).

Fam: Platypodidae

Platypus cylindrus (Fabricius 1792) – An imago of the species was taken from a large diameter branch at the locality of Cetinje (Bajice) on 23/05/2007. 1 ex. During previous research, this species was registered in Montenegro (Novak 1952).

Order: Lepidoptera

Fam: Tischeriidae

Tischeria ekebladella (Bjerkander 1795) – Symptoms of attack (mines) was registered on young leaves, at the locality of Petrovac (city), on 15/07/2011. During previous research, the species was registered in Montenegro (Vujanović 1985).

Fam: Cossidae

Cossus cossus (Linnaeus 1758) – A corridor system of larvae in a trunk was registered at the locality of Podgorica (Bioče), while a butterfly of the species was caught at the locality of Petrovac (Reževići) on 21/07/2011 1 ex. By this research, the species is registered for the first time in Montenegro.

Zeuzera pyrina (Linnaeus 1761) – The species was caught at the locality of Rijeka Crnojevića on 02/07/ 2007, 1 ex. Corridors and larva of this species were registered in a branch, at the locality of Podgorica (Gorica hill). By this research, the species is registered for the first time in Montenegro.

Fam: Gracillaridae

Phyllonorycter heegeriella (Zeller 1846) – Mines on the back, along the leaf edge, were registered at the locality of Cetinje (city) on 12/09/2010. A butterfly of this species was caught at the locality of Cetinje (Bajice) on

07/07/2012. 1 ex. By this research, the species is registered for the first time in Montenegro.

Phyllonorycter parisiella (Wocke 1848) – Symptoms of leaf damage (mines) were registered at the locality of Petrovac (Blizikuće) on 11/08/2010. The species was caught at the locality of Herceg Novi (Rose) on 02/06/2011. 1 ex. By this research, it is registered for the first time in Montenegro.

Fam: Tortricidae

Archips xylosteana (Linnaeus 1758) – Butterflies of this species were caught at the locality of Virpazar (Brijege) on 15/06/2006 2 ex. A few larvae were collected from leaves, at the locality of Podgorica (Gornja Gorica) on 15/05/2007. During previous research, the species was registered in Montenegro (Vujanović 1985).

Aleimma loeflingiana (Linnaeus 1758) – Butterflies of this species were caught at the locality of Nikšić (Vir) on 27/07/2007. 2 ex. At the same locality, larvae are collected by shaking branches down, on 20/05/2008. By this research, the species is registered for the first time in Montenegro.

Tortrix viridana (Linnaeus 1758) – Larvae are collected from leaves at the locality of Ulcinj (Kruče) on 16/04/2006. Butterflies were caught at the locality of Kotor (Radanovići) on 19/05/2008 3 ex. During previous research, the species was registered in Montenegro (Vujanović 1985).

Cydia splendana (Hübner 1799) – The species was taken from acorns collected at the locality of Budva (Bečići). Individuals emerged on 11/07/2007. 2 ex. By this research, it is registered for the first time in Montenegro.

Fam: Geometridae

Agriopis leucophaearia (Denis & Schiffermüller 1775) – Larvae of this species were registered at the locality of Nikšić (Vir) in 12/04/2011, while one specimen of butterfly was caught at the locality of Cetinje (city) on 20/02/2007. By this research, the species is registered for the first time in Montenegro.

Fam: Thaumatopoeidae

Thaumatopoea processionea (Linnaeus 1758) – Larvae were registered on a large number of trees, at the locality of Ulcinj (Svač) on 17/04/2006. Butterflies were caught at the same locality on 08/09/2006. 5 ex. During previous research, the species was registered in Montenegro (Vujanović 1985).

Fam: Lymantridae

Lymantria dispar (Linnaeus 1758) – The species was registered at all localities of the research in different phases of growth. A gradation phase was established during 2011. The first written data on gypsy moth presence in Montenegro as well as damages caused by it, originated in 1903 (Vučković 1972).

Euproctis chrysorrhoea (Linnaeus 1758) – The species was caught at the locality of Nikšić (Vir) on 30/ 07/2011, 2 ex. At this locality, winter larvae nests were registered. During previous research, it was registered in Montenegro (Vasić et al. 1990).

Fam: Arctiidae

Callimorpha (Euplagia) quadripunctaria (Poda 1761) – The species was caught at the locality of Podgorica (Bioče) on 17/06/2011 2 ex. At the same locality, larvae were registered on oak leaves on 10/04/2010. During previous research, it was registered in Montenegro (Vasić et al. 1990).

Order: Hymenoptera

Fam: Tenthredinidae

Caliroa varipes (Klug 1816) –Larvae and skeleton leaves were registered at the locality of Budva (Sveti Stefan) on 18/06/2008. During previous research, the species was registered in Montenegro (Mijušković 1966).

Fam: Cynipidae

Cynips quercusfolii (Linnaeus 1758) –Galls were registered on leaf backs at the locality of Cetinje (Bajice) on 14/08/2008. During previous research, the species was registered in Montenegro (Vujanović 1985).

Neuroterus quercusbaccarum (Linnaeus 1758) – Lens galls were registered on leaf backs, at the locality of Nikšić (Bogetići) on 01/09/2007. During previous research, the species was registered in Montenegro (Vujanović 1985).

Biorhiza pallida (Olivier 1791) –Galls were registered on branches at a large number of localities. During previous research, galls and larval stadiums of this species were registered in Montenegro (Vujanović 1985).

Andricus kollari (Hartig 1843) –Round galls were registered on branches at a large number of localities. During previous research, the species was registered in Montenegro (Vujanović 1985).

Andricus hungaricus (Hartig 1843) – Round galls were registered on branches at the locality of Petrovac (Blizikuće) on 10/08/2006. During previous research, larval stadiums and galls were registered on Downy Oak (Vujanović 1985).

Andricus quercustozae (Bosc 1792) –Round galls were registered on branches at the locality of Kotor (Dobrota) on 22/08/2009. By this research, the species is registered for the first time in Montenegro.

Andricus caputmedusae (Hartig 1843) – Galls were registered on branches at the locality of Cetinje (Bajice) on 14/08/2008. The species is registered for the first time in Montenegro by this research.

DISCUSSION

Research on the entomofauna of Downy Oak (*Quercus pubescens* Willd.) was carried out during the period from 2006 to 2012 on 29 localities in the south and central part of Montenegro. During this research, 48 species of insects were registered. From the total number of registered insects species, 18 species (or 38%) were registered for the first time in Montenegro: *Kermes quercus* L., *Hylecoetus dermestoides* L, *Agrilus angustulus* Ill., *Agrilus biguttatus* Fab., *Agrilus sulcicollis* Lacord., *Coraebus florentinus* (*bifasciatus*), Hbst., *Bostrychus capucinus* L., *Plagionotus arcuatus* L., *Plagionotus detritus* L., *Cossus cossus* L.,

Zeuzera pyrina L., *Phyllonorycter heegeriella* Zell., *Phyllonorycter parisiella* Wck., *Aleimma loeflingiana* L., *Cydia splendana* Hb., *Agriopis leucophaearia* D. et S., *Andricus quercustozae* Bosc. and *Andricus caputmedusae* Hart. Registered species belonged to the orders Homoptera, Coleoptera, Lepidoptera and Hymenoptera. The majority of species belonged to the order Coleoptera (24 species or 50 %), then to the Lepidoptera (14 species or 29%), Hymenoptera (8 species or 17%) and Homoptera (2 species or 4%).

Established species are trophically related to the trunk, branches, leaf and seeds of Downy Oak. The biggest number of species is related to branches, at 19 species or 40%, then leaves, at 16 species or 33%, trunks at 11 species or 23% and seeds, at 2 species or 4%.

During this research, the species *Agrilus angustulus* Ill. was registered in small numbers. It belongs to a secondary species because it prefers dry branches or trees in the drying phase and freshly fallen trees (Schwenke 1974). The species *Agrilus biguttatus* Fab., *Agrilus sulcicollis* Lacord. and *Coraebus florentinus* Hbst. were also registered in small numbers. However, because the species of the genus *Agrilus* belong to a vector group of mushrooms causing tracheomycosis (Glavendekić and Mihajlović, 2004), their role and influence on Downy Oak forests in Montenegro should receive attention.

During this research, the species *Cerambyx cerdo* L. was registered at only three localities. It is widespread in the whole of Europe and mainly lives on single oak trees but rarely attacks ash and elm. It has been placed on the IUCN Red List of species under category vulnerable (VU), criterion A1c + 2c ver. 2.3. It is also on annexes II and IV of Habitat Directive 92/43 EEC. As it mostly lives on older single trees, it does not represent a danger to Downy Oak forests. Trees like these should be always left in the forest or individually, to provide stability for populations of species like *Cerambyx cerdo*. During previous research on Downy Oak entomofauna, this species was registered only at one locality (Vujanović 1985). Other species of the family Cerambycidae, such as *Cerambyx scopoli* F., *Plagionotus arcuatus* L., *Plagionotus detritus* L., *Clytus arietis* L., *Clytus rhamni* Germ. and *Phymatodes testaceus* L. were also sparse in number in this research. For the Downy Oak, the registered species have no economic significance but do have ecological importance.

Species of the family *Curculionidae*, including *Attelabus nitens* Scop. and *Rhynchaenus quercus* Oliv. were small in number and registered in a small number of localities. During previous research of Downy Oak entomofauna, these were also registered in small numbers at two localities in Montenegro (Vujanović 1985). The species *Curculio glandium* L. was obtained by raising it from acorns. Previous research points to a small presence for this species in Downy Oak fruits (Vujanović 1985). However, the oak weevil *Curculio glandium* L. could be a very dangerous species in oak forests, where it can cause reduction in fruit of 30-60% and even up to 100% in some cases (Mihajlović 2008).

Species of the family *Scolytidae*, such as *Scolytus intricatus* Ratz., *Dryocoetes villosus* Fab., *Xyloterus signatus* Fab., *Xyleborus dispar* Fab., *Xyleborus monographus* Fabr. and *Xyleborus saxeseni* Ratz., were registered in small numbers during the research. However, consideration should be made that *Scolytus intricatus* Ratz. physiologically weakens the plant and also transmits the *Ophiostoma spp*. that causes tracheomycosis in different oak species (Marković 1999).

Species of the family *Cossidae*, including *Cossus cossus* L. and *Zeuzera pyrina* L., as well as their corridor systems, were registered in a small number of localities. The species *Coossus cossus* mostly attacks single trees and it is rarely massive in larger areas (Mihajlović 2008). Although the species *Zeuzera pyrina* L. is technically a physiological pest and attacks completely healthy trees, our research showed that this species has no special economic importance regarding Downy Oak forests.

Species of the family *Tortricidae*, including *Archips xylosteana* L., *Aleimma loeflingiana* L., and *Tortrix viridana* L. were registered, in different growing phases, in small numbers and they showed no important influence on Downy Oak forests. During previous research, *Archips xylosteana* L. and *Tortrix viridana* L. occurred with other defoliators (Vujanović 1985). The numbers of *Cydia splendana* Hüb. were very small.

During this research, the species *Thaumatopoea processionea* L was registered only at one locality in increased numbers in one summer season. Its increased numbers were registered during previous research in the central part of Montenegro (Vujanović 1985). Until now, no independent gradations have been reported for this species, but have always been reported for other defoliators and mostly with gypsy moths.

Tischeria ekebladella Bjerk. belongs to group of sappers that cause damages on young stands and in nurseries. Mines cause reduction of the assimilation surface and plant growth decreases. During our research, two generations per year were registered as well as the presence of mines in young trees. Research, showed that the species is optionally bivoltine, because on the north of Europe it has one, and in the warmer parts of Europe, two generations (Jordan 1995).

The species *Lymantria dispar* L. is the most dangerous species of deciduous forests, firstly oaks and orchards. During this research, it was registered at all localities. The first gradation of gypsy moth in Montenegro was registered in 1903 (Vučković 1972). After the Second World War, a gradation was registered in the period of 1947 to 1950 in the northern part of Montenegro (Stamatović 1960). From 1955 to 1957, gradations have been scoped in large areas in the central and southern parts of Montenegro (Stamatović 1961). In recent times, a gradation was scoped in the central and southern part of Montenegro in the period of 2002 to 2004 (Roganović 2005). During our research, the last gradation was registered during 2011 in the coastal region. Previous research on gradation of the gypsy moth in Europe showed reduction of

the intergradation period that significantly endangers the stability of deciduous forests (Glavendekić and Mihajlović 2004).

The species *Callimorpha (Euplagia) quadripunctaria* Poda was registered only at the locality Bioče in the canyon of the river Morača. Larvae of this species grow on the leaves of species such as *Quercus, Fagus Fraxinus, Corylus, Salix, Prunus, Ribes, Rubus* etc. (Mihajlović 2008). The species is protected and is listed in Annex II, Habitat Directive 92/43 EEC. During this research, the species was registered in very small numbers and, until now, it has not been registered in increased numbers or in a wider area (Mihajlović 2008).

Species of the family Cynipidae, such as *Cynips quercusfolii* L., *Neuroterus quercusbaccarum* L., *Andricus hungaricus* Hart., *Andricus quercustozae* Bosc and *Andricus caputmedusae* Hart, or more precisely, their galls, were registered at a small number of localities, while galls of the species *Biorhiza pallida* Oliv. and *Andricus kollari* Hart. were registered in a greater number of localities in the research area. In forestry, gall wasps could be harmful because oak trees, when creating galls, consume nutritious substances that should be used for increased plant growth (Mihajlović 2008). During previous research, negative effects of gall wasps on forests in Montenegro have not been reported (Vujanović 1985).

CONCLUSIONS

Research on the entomofauna of Downy Oak (*Quercus pubescens* Willd.) was carried out during the period of 2006 to 2012 at 29 localities in the southern and central part of Montenegro.

During this research, 48 species of insects were registered. From the total number of registered insect species, 18 species or 38 % were registered for the first time in Montenegro.

Registered species belonged to the orders Homoptera, Coleoptera, Lepidoptera, and Hymenoptera. The majority of the species belonged to the order Coleoptera (24 species or 50 %), then to the Lepidoptera (14 species or 29%), Hymenoptera (8 species or 17%) and Homoptera (2 species or 4%).

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PRILOG POZNAVANJU ENTOMOFAUNE HRASTA MEDUNCA (*QUERCUS PUBESCENS* WILLD.) U CRNOJ GORI

SAŽETAK

Istraživanja entomofaune na hrastu meduncu (*Quercus pubescens* Willd.) obavljena su u periodu od 2006 do 2012 godine na 29 lokaliteta u južnom i centralnom dijelu Crne Gore. Tokom istraživanja konstatovano je ukupno 48 vrsta insekata. Od ukupnog broja konstatovanih vrsta insekata , 18 vrsta ili 38% se tokom ovih istraživanja prvi put konstatuje u Crnoj Gori. Konstatovane vrste pripadaju redovima Homoptera, Coleoptera, Lepidoptera, i Hymenoptera. Najveći broj vrsta pripada redu Coleoptera (24 vrste ili 50 %), zatim redu Lepidoptera (14 vrsta ili 29%), Hymenoptera (8 vrsta ili 17%) i Homoptera (2 vrste ili 4%). Utvrđene vrste su trofički vezane za deblo, grane, list i sjeme hrasta medunca. Najveći broj vrsta je vezan za grane 19 vrsta ili 40%, zatim za list 16 vrsta ili 33%, za deblo 11 vrsta ili 23% i za sjeme 2 vrste ili 4%.

Ključne riječi: Entomofauna, medunac, Crna Gora