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GALL MIDGES (DIPTERA: CECIDOMYIIDAE) OF MONTENEGRO

DUŠKA SIMOVA - TOŠIĆ[1] AND MARCELA SKUHRAVÁ[2]

[1]Faculty of Agriculture, Belgrade University, Nemanjina 6, YU-11081 Zemun,
E-mail: dsimova@eunet.yu
[2]Czech Zoological Society, Viničná 7, CZ-128 00 Praha 2
E-mail: skuhrava@quick.cz

The present fauna of Montenegro includes 85 species of which 56 are new records for the fauna of Monte Negro. The majority (52%) are European, 36% are Eurosiberian, 8% Mediterranean and sub-Mediterranean and 4% are Holarctic species. *Asphondylia verbasci* and *Neomikiella beckiana* are sub-Mediterranean species, *Asphondylia rosmarini*, *Dasineura oleae, Dryomyia circinans, D. lichtensteini* and *Janetia cerris,* are Mediterranean species. *Jaapiella vacciniorum, Contarinia helianthemi* and *Dasineura daphnes* are rare species which occur in mountain and sub-alpine zones of European mountains. *Dasineura pyri* damaging pear (*Pyrus communis*) is the only one pest known in Montenegro.

KEY WORDS: Diptera, Cecidomyiidae, Fauna, Zoogeography, Check-list, Montenegro

INTRODUCTION

Only very few data about gall midge galls, as well as of galls of other insect groups, are known from the territory of Montenegro. That was the reason for which we decided to summarize scattered data about occurrence of gall midges and to contribute to their knowledge. We continue in the successive elaboration and enrichment of the knowledge of gall midge faunas in countries of the Balcan Peninsula (SIMOVA - TOŠIĆ *et al*., 1996, 2000).

HISTORY

Galls of *Dryomyia circinanas* on leaves of the oak *Quercus macedonica* DC found by I. Szyszylowicz at Medun in Monte Negro in 1887 were the first finding of gall midge galls in the territory of Monte Negro (LÖW, 1888). TROTTER (1903)

who worked at the Institute of Botany of the University at Padova, Italy, undertook a long research journey across the whole Balcan Peninsula up to Turkey to collect plant galls caused by various gall causers. In the course of this journey he also collected plant galls in the environs of Cetinje. There he found 15 gall midge galls on various host plants.

The German cecidologist O. Jaap collected galls along the coast of the Adriatic Sea and found there, among others, also several galls of gall midges (JAAP, 1919-1920).

The Czech Phytopatologist E. Baudyš Who Worked At The University Of Agriculture In Brno, Czech Republic, Identified Galls Collected By Various Researchers, Mainly Botanists, Sent To Him From Various Countries. He Gives In His Paper (BAUDYŠ, 1913) Galls Of *Lasioptera Carophila* Found On *Ferulago Galbanifera* Koch. At Štirnido, Monte Negro, By J. Rohlena, And Later (BAUDYŠ 1928) Galls Of *Oligotrophus Panteli* On *Juniperus Communis* Ssp. *Nana* Found At Kukavica Planina Near Peč, 1500 M, And Galls Of *Janetia Cerris* On *Quercus Macedonica* Found At Podgorica, Leg. By J. Rohlena In 1903.

For a long time of about fifty years, between 1928-1976, no researcher, either of the territory of Montenegro or of adjacent or of distant countries was interested in the study of gall insects. Only VELIMIROVIĆ (1976) investigated the pear gall midge, *Dasineura pyri,* which caused damage to pear trees in the vicinity of Podgorica and Herceg-Novi. JANEŽIČ (1977) during his investigations of several parts of Yugoslavia collected gall midge galls also at several localities of Monte Negro. He listed 14 gall midge species two of which were found by Trotter. SIMOVA - TOŠIĆ *et al*. (1990) gave some data about the occurrence and biology of *Asphondylia rosmarini* at the Adriatic coast.

STUDY AREA

Monte Negro is a small mountainous country on the Balcan Peninsula at the coast of the Adriatic Sea occupying a territory of 13,812 km^2. It is spread mainly on Dinaric Alps and its highest point is on the Mount Durmitor, 2522 m. (Bobotov kuk). The territory is noted for its limestone formations and limestone phenomena. Fertile lowlands are round the Skadar lake and along the valleyes of the rivers Zeta and Tara. The climate in Monte Negro is predominantly of continental type in the inland and of subtropical type at the coast of the Adriatic Sea. Rainfall fluctuated from 1600 at lowland up to 3000 mm in the mountains.

From the biogeographical point of view, the largest part of Monte Negro belongs to the Province of Balcan Highlands (Udvardy, 1975). Mountains are cov-

ered with broadleaved deciduous and mixed forests in lower part, with coniferous forests at higher parts and in mountains. Along the coast a narrow strip of sclerophyllous mediterrranean vegetation shrubs occurs.

Durmitor one of well known mountains in Montenegro for its beauty, specific flora and fauna as well as cultural and historical importance 1959. was proclaimed by the Assembly of the Republic as National Park. Committee for worlds heritage of the Unated Nations (UNESCO) include Durmitor National Park into the list of the worlds natural and cultural heritage (NONVEILLER, 1984).

MATERIAL AND METHODS

We summarized data about occurrence of gall midge species gathered by earlier researchers in the past. In the "List…" (see below) we also present new data about occurrence of gall midges which have been obtained by the first author in the course of faunal investigations in Monte Negro during the period of 1980-1990. The majority of localities where gall midge galls were investigated were situated at various altitudes of the Mount Durmitor (in altitudes from 540 to 2000 meters) (Fig. 1).

Gall midge galls were identified by using keys for determination of BUHR (1994-1995) and HOUARD (1908-1909), larvae according to MÖHN (1955), adults according to SKUHRAVÁ (1997a). From the zoogeographic point of view, the gall midge fauna of Montenegro was analysed using zoogeographical method of SKUHRAVÁ (1987, 1994a,b, 1997b). The economic importance has been evaluated according to DARVAS *et al*. (2000) and SKUHRAVÁ & ROQUES (2000). Nomenclature of gall midges is according to SKUHRAVÁ (1986, 1989, 1997a), nomenclature of host plants according to TUTIN *et al*. (1964-1980), EHRENDORFER (1973) and LAUBER & WAGNER (2001).

LOCALITIES WERE GALL MIDGE GALLS ARE COLLECTED

- Budva; - Biograd lake; - Cetinje; - Dobre vode; - Herceg Novi; - Ivanova korita (Lovćen); - Kolašin; - Mojkovac; - Nikšić; - NP. Durmitor; - Njeguši (Lovćen); - Petrovac na moru; - Podgorica; - Skadar lake; - Sutomore; - Tivat; - Ulcinj; - Way to Nikšić (Danilovgrad)

Localities of NP. Durmitor:
- Aluge 1300-1400 m.; - Barno lake 1470 m.; - Bivak 2000 m.; - Borje (Žabljak) 1450 m.; - Bukovica gornja 1370 m; - Bukovica donja 1300 m; - Canyon Komarnice 800-1000 m.; - Canyon Tare 540-1200 m.; - Crno lake 1422 m.; - Čeline 1500 m.; - Čurovac 1400-1625 m.; - Hotel Durmitor 1420 m.; - Djurdjevića Tara 1700-1100 m.; - Dobri do 1600-1700 m.; - Jablan lake 1791 m; - Junca

do 1430 m.; - Lokvice 1693 m.; - Lokvice: Katuni 1840 m.; - Mala Crna Gora 1450 m.; - Mali Štuoc 1500 m.; - Mioč poljana 1420 m.; - Modro lake 1625 m.; - Mojkovac; - Motićki gaj 1500 m.; - Omar 1450 m.; - Otoka 1415 m.; - Pitomine 1500 m.; - Tepca 540-1200 m.; - Timar 1200 m; - Zminje lake 1450 m.; - Žabljak 1450 m.; - Velka Kalica 1850 m.; - Virak 1480 m.; - Vojno odmaralište 1480 m.; - Way to Ledena pećina 1850 m.; - Way to Stari Katuni 1760 m.

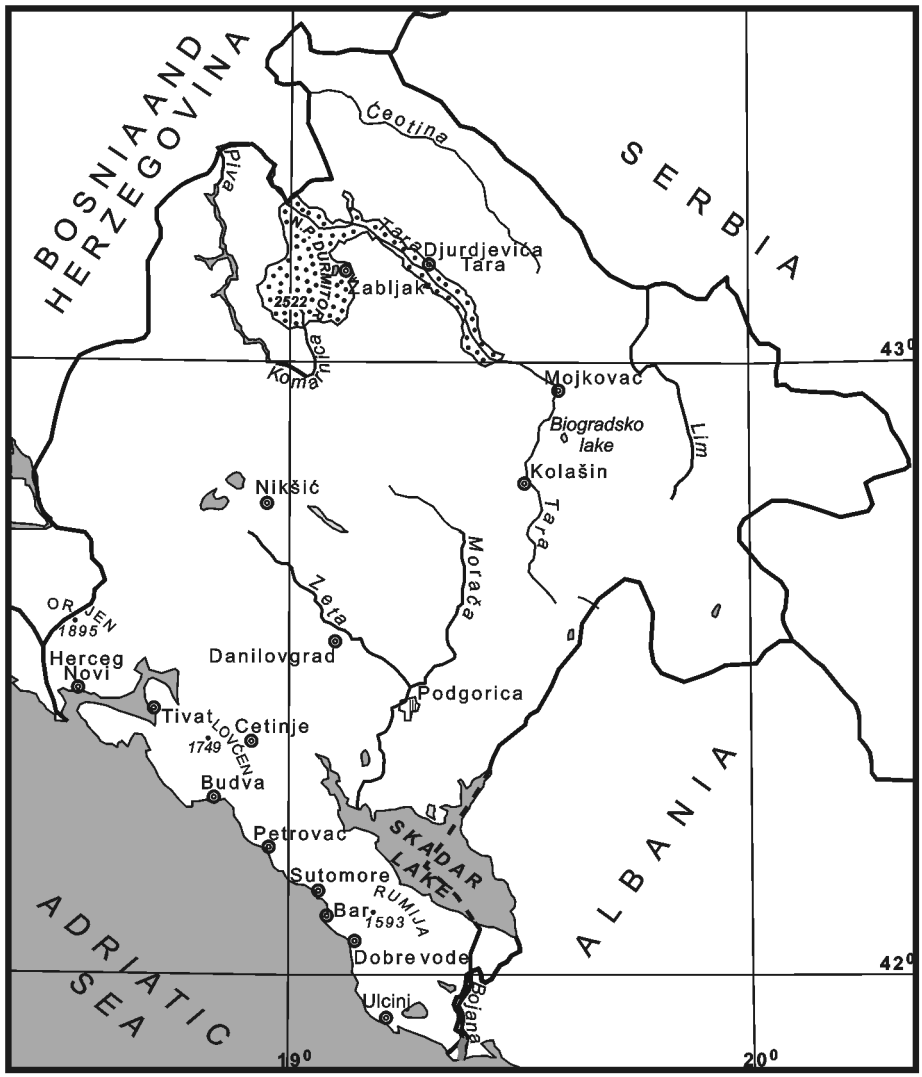

Fig. 1. Map of Montenegro with localities where gall midge galls were collected.

RESULTS

The present gall midge fauna of Montenegro includes 85 species, 56 of which were found for the first time and are, therefore, new records for Montenegro. The majority of Montenegro's gall midge species belongs to phytophagous species, only *Aphidoletes aphidimyza* belongs to zoophagous species. Larvae of phytophagous gall midge species cause galls on various host plant species, i.e. on trees, shrubs, herbaceous plants, or develop on host plants without making galls. Larvae of zoophagous species *Aphidoletes aphidimyza* live in colonies of various aphids and feed by sucking aphid bodies.

From the taxonomical point of view, the present known gall midge fauna of Montenegro is formed only by members of the subfamily Cecidomyiinae larvae of which are mainly gall-makers. To find members of other two subfamilies, the Lestremiinae and Porricondylinae, which are predominantly saprophagous or mycophagous, it would be necessary to use other collecting methods, e.g. exposition of yellow dishes or other traps of various types, or individual sweeping method on various host plants.

The gall midge fauna of Montenegro, including 85 species, is not too much abundant if we compare it with other gall midge faunas of Balcan Peninsula - 219 species in Slovenia (SIMOVA-TOŠIĆ *et al*., 1996) and 283 species in Serbia (SIMOVA-TOŠIĆ *et al*., 2000). Probably it is connected with the fact that the territory of Montenegro is relatively small and it is formed mainly by mountain complexes where the vegetation is not so rich as in other countries.

LIST OF GALL MIDGE SPECIES

For each species the following data are given: host plant (or animal) species, plant family, references, unpublished localities where species was found, distribution in Palaearctic region. An asterisk (*) before the species name indicates a new record for the fauna of Montenegro.

* ***Aphidoletes aphidimyza*** (Rondani, 1847)
Host: Zoophagous on more than 30 aphids species on different plants belonging to various plant families.
Localities: Budva, Mojkovac, Nikšić, Podgorica.
Distribution: Holarctic.

Asphondylia rosmarini Kieffer, 1896
Host: *Rosmarinus officinalis* L. (Lamiaceae)
Localities: Herceg Novi, Sutomore, Tivat, Ulcinj.
Reference: S.V.Sm.: 1990.
Distribution: Mediterranean.

* ***Asphondylia serpylli*** Kieffer, 1898
Host: *Thymus serpyllum* L. (Lamiaceae).
Localities: Durmitor (Djurdjevića Tara, Mlinski potok).
Distribution: European.

* ***Asphondylia verbasci*** (Vallot, 1827)
Host: *Verbascum lychnitis* L. (Scrophulariaceae).
Localities: Durmitor (Djurdjevića Tara).
Distribution: Submediterranean.

Bayeriola thymicola (Kieffer, 1888)
Host: *Thymus serpyllum* L. (Lamiaceae).
Reference: T.: 1903.
Distribution: European.

Contarinia acerplicans (Kieffer, 1889)
Host: *Acer pseudoplatanus* L. (Aceraceae)
Localities: Nikšić, Podgorica.
Reference: T.: 1903.
Distribution: European.

Contarinia carpini Kieffer, 1898
Host: *Carpinus betulus* L. (Corylaceae).
Reference: T.: 1903.
Distribution: European.

Contarinia coryli (Kaltenbach, 1859)
Host: *Coryllus avellana* L. (Corylaceae).
Reference: T.: l903.
Distribution: Eurosiberian.

* ***Contarinia craccae*** Kieffer, 1897
Host: *Vicia cracca* L. (Fabaceae)
Localities: Mojkovac, Podgorica.
Distribution: Eurosiberian.

* ***Contarinia helianthemi*** (Hardy, 1850)
Host: *Helianthemum nummularium* (L.) Mill. (Cistaceae)
Localities: Durmitor (Hotel Durmitor, Vojno odmaralište, Žabljak).
Distribution: European.

* ***Contarinia lonicerae*** Kieffer, 1909
Host: *Lonicera nigra* L. (Caprifoliaceae).
Localities: Durmitor (Mlinski potok, Zminje Lake).
Distribution: European.

Contarinia petioli (Kieffer, 1898)
Host: *Populus tremula* L., *P. alba* L. (Salicaceae).
Localities: Durmitor (Barno lake, Crno lake, Čeline, Mali Štuoc, Mala Crna Gora, Omar).
Reference: J.: 1977.
Distribution: Eurosiberian.

* ***Cystiphora sonchi*** (Bremi, 1847)
Host: *Sonchus arvensis* L. (Asteraceae)
Localities: Durmitor (Djurdjevića Tara, Tepca: Canyon Tare).
Distribution: Eurosiberian.

* ***Cystiphora taraxaci*** (Kieffer, 1888)
Host: *Taraxacum officinale* Web. (Asteraceae).
Localities: Durmitor (Crno lake, Hotel Durmitor, Mlinski potok, Tepca: Canyon Tare).
Distribution: Eurosiberian.

Dasineura acrophila (Winnertz, 1853)
Host: *Fraxinus ornus* L. (Oleaceae).
Reference: T.: 1903.
Distribution: European.

* ***Dasineura capsulae*** (Kieffer, 1901)
Host: *Euphorbia cyparissias* L., *E amygdaloides* L. (Euphorbiaceae).
Localities: Budva, Durmitor (Tepca).
Distribution: European.

* ***Dasineura cerastii*** (Binnie, 1877)
Host: *Cerastium mesiacum* Friv. (Caryophyllaceae).
Locality: Durmitor (Vojno odmaralište).
Distribution: European.

Dasineura crataegi (Winnertz, 1853)
Host: *Crataegus oxyacantha* L. (Rosaceae).
Localities: Cetinje, Mojkovac, Podgorica.
References: J.: 1977, T.: 1903.
Distribution: European.

* ***Dasineura daphnes*** (Kieffer, 1901)
Host: *Daphne mezereum* L. (Thymelaeaceae).
Locality: Durmitor (Barje).
Distribution: European.

* ***Dasineura erigerontis*** (Rübsaamen, 1912)
Host: *Erigeron acer* L. (Asteraceae).
Locality: Durmitor (Djurdjevića Tara).
Distribution: European.

Dasineura filicina (Kieffer, 1889)
Host: *Pteridium aquilinum* (L.) Kuhn. (Hypolepidaceae).
Localities: Ivanova Korita, way to Lovečen.
Reference: J.: 1977.
Distribution: Eurosiberian.

* ***Dasineura hyperici*** (Bremi, 1847)
Host: *Hypericum perforatum* L. (Hypericaceae).
Localities: Durmitor (Crno lake, Žabljak), Sutomore.
Distribution: European.

* ***Dasineura lathyri*** (Kieffer, 1909)
Host: *Lathyrus pratensis* L. (Fabaceae).
Locality: Durmitor (Mala Crna Gora).
Distribution: Eurosiberian.

* ***Dasineura lathyricola*** (Rübsaamen, 1890)
Host: *Lathyrus pratensis* L. (Fabaceae).
Localities: Herceg Novi, Durmitor (Čurovac, Mala Crna Gora, Mali Štuoc, Tepca).
Distribution: Eurosiberian.

Dasineura oleae (F. Löw, 1885)
Host: *Olea europea* L. (Oleaceae).
Localities: Budva, Durmitor (Mali Štuoc), Petrovac na moru, Sutomore, Tivat.
Reference: J.: 1977.
Distribution: Mediterranean.

* ***Dasineura plicatrix*** (Loew, 1850)
Host: *Rubus caesius* L., *R. idaeus*. (Rosaceae).
Localities: Durmitor (Djurdjevića Tara, Lokvice), Podgorica, Sutomore, valey of Morača.
Distribution: European.

* ***Dasineura pustulans*** (Rübsaamen, 1889)
Host: *Filipendula ulmaria* (L.) Maxim. (Rosaceae).
Localities: Durmitor (Mlinski potok, Zminje lake).
Distribution: European.

Dasineura pyri (Bouché, 1847)
Host: *Pyrus communis* L. (Rosaceae).
Localities: Durmitor (Mala Crna gora), Podgorica.
Reference: V. 1976.
Distribution: Holarctic.

Dasineura sisymbrii (Schrank, 1803)
Host: *Rorippa sylvestris* (L.) Bess. (Brassicaceae).
Reference: J.: 1977.
Distribution: European.

* ***Dasineura subpatula*** (Bremi, 1847)
Host: *Euphorbia amygdaloides* L., *E. myrsinites* L., *E. cyparissias* L.(Euphorbiaceae).
Localities: Herceg Novi, Durmitor (Barno lake, Canyon Tare, Crno lake, Tepca-Čurovac, Žabljak), Podgorica.
Distribution: European.

Dasineura thomasiana (Kieffer, 1888)
Host: *Tilia platyphyllos* Scop. (Tilliaceae).
Locality: Podgorica.
Reference: J.: 1977.
Distribution: European.

Dasineura tortilis (Bremi, 1847)
Host: *Alnus glutinosa* (L.) Gaertn. (Betulaceae).
Reference: J.: 1977.
Distribution: European.

Dasineura trifolii (F. Löw, 1874)
Host: *Trifolium repens* L. (Fabaceae).
Localities: Podgorica, Ulcinj.
Reference: J.: 1977.
Distribution: Eurosiberian (Holarctic).

Dasineura tympani (Kieffer, 1909)
Host: *Acer campestre* L. (Aceraceae).
Localities: Durmitor (Crno lake, Lokvice, Mala Crna Gora).
Reference: T.: 1903.
Distribution: European.

* ***Dasineura ulmaria*** (Bremi, 1847)
Host: *Filipendula ulmaria* (L.) Maxim (Rosaceae).
Localities: Durmitor (Lokvice, Mlinski potok, Zminje lake).
Distribution: Eurosiberian.

Dasineura urticae (Perris, 1840)
Host: *Urtica dioica* L. (Urticaceae).
Localities: Cetinje, Durmitor (Lokvice, Mlinski potok, Zminje lake), Njeguši.
Reference: T.: 1903.
Distribution: Eurosiberian.

* ***Dasineura viciae*** (Kieffer, 1888)
Host: *Vicia* sp. (Fabaceae)
Localities: Durmitor (Čeline, Djurdjevića Tara, Mioč poljana).
Distribution: Eurosiberian.

* ***Dasineura xylostei*** (Kieffer,1909)
Host: *Lonicera* sp. (Caprifoliaceae).
Localities: Durmitor (Bukovica donja, Dobri Do).
Distribution: European.

* ***Didymomyia tiliacea*** (Bremi, 1847)
Host: *Tilia cordata* Mill., *T. platyphyllos* Scop. (Tiliaceae).
Localities: Durmitor (Djurdjevića Tara), Herceg Novi, Podgorica.
Distribution: Eurosiberian.

* ***Drisina glutinosa*** Giard, 1893
Host: *Acer campestre* L., *A. heldreichii* Orh. (Aceraceae).
Localities: Durmitor (Bukovica donja, Mala Crna Gora, Tepca, Timar, Žabljak).
Distribution: European.

Dryomyia circinans (Giraud, 1861)
Host: *Quercus cerris* L. (Fagaceae).
Localities: Durmitor (Canyon Tare, Žabljak).

Reference: Löw, 1888.
Distribution: Mediterranean.

* ***Dryomyia lichtensteini*** (F. Löw, 1878)
Host: *Quercus ilex* L. (Fagaceae).
Locality: Ulcinj.
Distribution: Mediterranean.

* ***Geocrypta galii*** (Loew, 1850)
Host: *Gallium verum* L., *G. aparine* L. (Rubiaceae).
Localities: Durmitor (Crno lake), Mojkovac.
Distribution: Eurosiberian.

Harmandiola cavernosa (Rübsaamen, 1899)
Host: *Populus alba* L., *P. tremula* L. (Salicaceae).
Localities: Durmitor (Crno lake, Dobri Do, Mala Crna Gora, Mali Štuoc, Zminje lake), Podgorica, Sutomore.
Reference: T.: 1903.
Distribution: Eurosiberian.

Harmandiola globuli (Rübsaamen, 1889)
Host: *Populus tremula* L. (Salicaceae).
Localities: Durmitor (Čeline, Mala Crna Gora, Mlinski potok, Omar).
Reference: T.: 1903.
Distribution: Eurosiberian.

* ***Harmandiola populi*** (Rübsaamen, 1917)
Host: *Populus tremula* L. (Salicaceae).
Localities: Durmitor (Čeline, Dobri do, Mala Crna Gora, Mlinski potok, OmarVirak, Zminje lake, Žabljak).
Distribution: Eurosiberian.

* ***Harmandiola pustulans*** (Kieffer, 1909)
Host: *Populus tremula* L. (Salicaceae).
Localities: Durmitor (Mlinski potok, Vojno Odmaralište), way to Nikšić.
Distribution: European.

* ***Harrisomyia vitrina*** (Kieffer, 1909)
Host: *Acer pseudoplatanus* L. (Aceraceae).
Localities: Durmitor (Crno lake, Lokvice, Mala Crna Gora, Zminje lake).
Distribution: European.

Hartigiola annulipes (Hartig, 1839)
Host: *Fagus sylvatica* L. (Fagaceae).
Localities: Durmitor (Bukovica donja, Bukovica gornja, Crno lake, Dobri Do, Djurdjevića Tara, Lokvice, Mala Crna Gora, Modro lake, Pitomine, Stari Katuni, Timar, way to Stari Katuni).
Reference: T.: 1903.
Distribution: European.

* ***Iteomyia capreae*** (Winnertz, 1853)
Host: *Salix caprea* L. (Salicaceae).

Localities: Durmitor (Djurdjevića Tara, Lokvice, Mala Crna Gora, Mali Stuoc, Omar, way to Ledena pećina, Zminje lake).
Distribution: Eurosiberian.

* ***Jaapiella genisticola*** (F. Löw, 1877)
Host: *Genista tinctoria* L. (Fabaceae).
Locality: Durmitor (Žabljak).
Distribution: Eurosiberian.

* ***Jaapiella rubicundula*** (Rübsaamen, 1891)
Host: *Rumex acetosa* L. (Polygonaceae).
Locality: Durmitor (Žabljak).
Distribution: European.

* ***Jaapiella vacciniorum*** (Kieffer, 1913)
Host: *Vaccinium myrtillus* L. (Ericaceae).
Localities: Durmitor (Tepca, Žabljak).
Distribution: European.

****Jaapiella veronicae*** (Vallot, 1827)
Host: *Veronica chamaedrys* L. (Scrophulariaceae).
Localities: Durmitor (Crno lake, Tepca, Tepca - Čurovac, Žabljak).
Distribution: European.

Janetia cerris (Kollar, 1850)
Host: *Quercus cerris* L. (Fagaceae).
Localities: Nikšić, Podgorica.
Reference: J. 1977, Baudyš 1928.
Distribution: Mediterranean.

* ***Janetiella lemeei*** (Kieffer, 1904)
Host: *Ulmus* sp. (Ulmaceae).
Localities: Durmitor (Djurdjevića Tara, way to Tepca).
Distribution: European.

* ***Janetiella thymi*** (Kieffer, 1888)
Host: *Thymus serpyllum* L. (Lamiaceae).
Localities: Durmitor (Bivak, Djurdjevića Tara).
Distribution: Eurosiberian.

* ***Kaltenbachiola strobi*** (Winnertz, 1853)
Host: *Picea abies* (L.) Karst. (Pinaceae).
Locality: Durmitor (Žabljak).
Distribution: European.

* ***Kiefferia pericarpiicola*** (Bremi, 1847)
Host: *Daucus carota* L., *Pastinaca sativa* L. (Apiaceae).
Localities: Budva, Podgorica, Sutomore.
Distribution: Eurosiberian.

Lasioptera carophila F. Löw, 1874
Host: *Ferulago galbanifera* Koch. (Apiaceae).
Reference: Baudyš 1913.

Distribution: European.

* ***Lasioptera populnea*** Wachtl, 1883
Host: *Populus alba* L. (Salicaceae).
Localities: Durmitor (Crno lake, Mali Štuoc, Zminje lake).
Distribution: European.

* ***Lasioptera rubi*** (Schrank, 1803)
Host: *Rubus caesius* L. (Rosaceae).
Localities: Podgorica, valey of Morača.
Distribution: Eurosiberian.

* ***Mayetiola poae*** (Bosc, 1817)
Host: *Poa nemoralis* L. (Poaceae).
Localities: Durmitor (Crno lake, Lokvice, Tepca).
Distribution: European.

Mikiola fagi (Hartig, 1839)
Host: *Fagus sylvatica* L., *F. moesiaca* (Domin, Maly) (Fagaceae).
Localities: Durmitor (Aluge, Biogradsko lake, Crno lake, Djurdjevića Tara, Bukovica donja, Bukovica gornja, Čeline, Junca Do, Mala Crna Gora, Modro lake, Stari Katuni, Tepca, Timar, Žabljak).
References: T.: 1903, J.: 1977.
Distribution: European.

Mikomya coryli (Kieffer, 1901)
Host: *Corylus avellana* L. (Corylaceae).
Locality: Durmitor (Bukovica donja).
Reference: J. 1977.
Distribution: European.

Neomikiella beckiana (Mik, 1885)
Host: *Inula conyza* DC (Asteraceae).
Reference: T.: 1903.
Distribution: Submediterranean.

* ***Oligotrophus juniperinus*** (Linnaeus, 1758)
Host: *Juniperus communis* L. (Cupressaceae).
Localities: Durmitor (Crno lake, Motićki Gaj, Žabljak), way to Nikšić.
Distribution: European.

Oligotrophus panteli Kieffer, 1898
Host: *Juniperus communis* L. (Cupressaceae).
References: T.: 1903, Baudyš 1928.
Distribution: European.

Physemocecis ulmi (Kieffer, 1909)
Host: *Ulmus* sp. (Ulmaceae).
Locality: Durmitor (Djurdjevića Tara).
Reference: J.: 1977.
Distribution: European.

* ***Putoniella pruni*** (Kaltenbach, 1872)

Host: *Prunus spinosa* L., *P. domestica* L. (Rosaceae).
Localities: Herceg Novi, Kolašin.
Distribution: European.

* ***Rabdophaga clavifex*** (Kieffer, 1891)
Host: *Salix caprea* L. (Salicaceae).
Localities: Durmitor (Lokvice: Katuni, Timar).
Distribution: Eurosiberian.

* ***Rabdophaga iteobia*** (Kieffer, 1890)
Host: *Salix caprea* L. (Salicaceae).
Locality: Durmitor (Timar).
Distribution: Eurosiberian.

* ***Rabdophaga marginemtorquens*** (Bremi, 1847)
Host: *Salix alba* L. (Salicaceae).
Localities: Cetinje, Durmitor (Djurdjevića Tara).
Distribution: Eurosiberian.

* ***Rabdophaga rosaria*** (Loew, 1850)
Host: *Salix purpurea* L., *S. alba* (Salicaceae).
Localities: Durmitor (Bukovica donja, Djurdjevića Tara, Komarnica, Timar).
Distribution: Eurosiberian.

* ***Rabdophaga salicis*** (Schrank, 1803)
Host: *Salix* spp. (Salicaceae).
Localities: Durmitor (Bukovica donja, Djurdjevića Tara, Lokvice, Otoka, Velika Kalica, way to Ledena pećina), valey of Morača.
Distribution: Eurosiberian.

* ***Rabdophaga terminalis*** (Loew, 1850)
Host: *Salix alba* L., *S. purpurea* L. (Salicaceae).
Localities: Durmitor (Barno lake, Lokvice), Petrovac, Skadar lake, Sutomore.
Distribution: Eurosiberian.

* ***Rhopalomyia millefolii*** (Loew, 1850)
Host: *Achillea millefolium* L. (Asteraceae).
Localities: Durmitor (Motovički Gaj, Zminje lake, Žabljak), Mojkovac.
Distribution: Eurosiberian.

* ***Sackenomyia reaumurii*** (Bremi, 1847)
Host: *Viburnum lantana* L. (Caprifoliaceae).
Localities: Durmitor (Mlinski potok, Zminje lake, way to Djurdjevica Tara).
Distribution: European.

* ***Schizomyia galiorum*** Kieffer, 1889
Host: *Asperulla ciliata* L., *Gallium mollugo* L. ssp. *lucidum*, *Galium purpureum* L. (Rubiaceae).
Localities: Dobre vode, Durmitor (Barno lake, Bukovica gornja, Crno lake, Lokvice: Katuni, Mala Crna Gora, Omar, Zminje lake), Nikšić, Sutomore
Distribution: Eurosiberian.

* ***Schmidtiella gemmarum*** Rübsaamen, 1914

Host: *Juniperus* sp. (Cupressaceae).
Locality: Durmitor (Žabljak).
Distribution: European.

* ***Spurgia capitigena*** (Bremi, 1847)
Host: *Euphorbia amygdaloides* L., *E. cyparissias* L. (Euphorbiaceae).
Localities: Durmitor (Čeline, Jablan lake, Mioč poljana, Tepca), Nikšić, Skadar lake, Ulcinj,
Distribution: European.

Wachtliella rosarum (Hardy, 1850)
Host: *Rosa canina* L. (Rosaceae).
Localities: Durmitor (Bukovica gornja, Žabljak), Podgorica.
Reference: T.: 1903.
Distribution: Eurosiberian.

****Wachtliella stachydis*** (Bremi, 1847)
Host: *Stachys caesia* Bois, *S. recta* Brig. (Lamiaceae).
Localities: Durmitor (Dobri Do, Tepca, Zminje lake).
Distribution: European.

* ***Zeuxidiplosis giardi*** (Kieffer, 1896)
Host: *Hypericum perforatum* L. (Hypericaceae).
Locality: Durmitor (Žabljak).
Distribution: Holarctic.

* ***Zygiobia carpini*** (F. Löw, 1847)
Host: *Carpinus betulus* L. (Corylaceae).
Localities: Durmitor (Djurdjevića Tara, Tepca).
Distribution: European.

ZOOGEOGRAPHY

From the zoogeographical point of view, gall midges occurring in Montenegro may be divided, according to their overall distribution over the Palaearctic region and over the world, into four groups: European, Eurosiberian, Mediterranean (including sub-Mediterranean), and Holarctic species. 44 species (52%) belong to European, 31 species (36%) to Eurosiberian, 7 species (8%) to Mediterranean and sub-Mediterranean and 3 species (4%) to Holarctic species.

The European gall midge species are restricted to Europe. Typical representatives in Montenegro are, for example, *Mikiola fagi* and *Hartigiola annulipes,* larvae of which cause galls on leaves of *Fagus sylvatica, Dasineura plicatrix* causing galls on various *Rubus*-species, *Spurgia capitigena* causing galls on *Euphorbia cyparissias*.

The Eurosiberian species occupy large areas extending from Europe to Western, Middle and even Eastern Siberia. The typical representatives in

Montenegro are, for example, species of the genus *Rabdophaga,* larvae of which cause galls on various species of *Salix,* and species of the genus *Harmandiola* larvae of which cause galls on leaves of *Populus tremula*.

The Mediterranean and sub-Mediterranean species has centres of distribution in the Mediterranean. Only seven species belong to this group. They occur along the coast of Adriatic Sea and in lowlands in the south-western part of Montenegro. *Asphondylia verbasci* larvae of which cause galls on flower buds of various species *Verbascum* and *Neomikiella beckiana* on leaf-bud of *Inula conyza* are sub-Mediterranean species with large distribution area reaching up to middle Europe. *Asphondylia rosmarini* causing galls on leaves of *Rosmarinus officinalis*, *Dasineura oleae* on leaves of *Olea europaea, Dryomyia circinans, Janetia cerris* on leaves of *Quercus cerris,* and *Dryomyia lichtensteini* on *Quercus ilex,* are typical representatives of Mediterranean species.

Holarctic species occur in northern parts of the Palaearctic and the Nearctic Regions. Only three species occurring in Montenegro belong to this group. *Aphidoletes aphidimyza,* an aphid-eating species, *Dasineura pyri*, a pest on pear leaves, and *Zeuxidiplosis giardi,* the gall midge species used in biological control of *Hypericum perforatum* in other zoogeographical regions of the world.

In addition, other three gall midge species are interesting from the zoogeographical point of view: *Jaapiella vacciniorum* larvae of which cause galls on the vegetative tip of *Vaccinium myrtilus, Contarinia helianthemi* on *Helianthemum nummularium* and *Dasineura daphnes* on *Daphne mezereum.* All are very rare species which occur in mountain and sub-alpine zones of European mountains.

ECONOMIC IMPORTANCE

Of 85 gall midge species occurring in Montenegro, only one species got a pest status in the past – *Dasineura pyri* (VELIMIROVIĆ, 1976). Since that time we did not find any record about harmful occurrence of gall midge species in Montenegro.

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МУВЕ ГАЛИЦЕ (DIPTERA: CECIDOMYIIDAE) ЦРНЕ ГОРЕ

Д. Симова-Тошић, M. Skuhrava

И з в о д

Садашња фауна мува галица Црне Горе обухвата 85 врста од којих су 56 први пут забележене у овом раду. Утврђене врсте су фитофагне изузев *Asohondylia aphidimyza* чије су ларве предатори лисних ваши. Ларве фитофагних врста углавном изазивају гале на различитим органима биљака домаћина, а ређе живе у наборима, удубљењима, испод коре, цветним ложама и другим местима без јасно видљивих деформација. Све утврђене врсте припадају подфамилији Cecidomyiinae. Утврђене врсте у Црној Гори, према ширем распрострањењу могу се поделити у четири групе. Највећи део (52%) су европске, 36% су еуросибирске, 8% медитеранске и суб-медитеранске, а 4% холарктичке.

Са зоогеографског становишта врло су интересантне суб-медитеранске врсте *Jaapiella vacciniorum* чије ларве изазивају гале на *Vccinium myrtillus*, *Asphondylia verbasci* и *Neomikiella lychnidis*, као и медитеранске врсте *Asphondylia rosmarinii*, *Dasineura oleae*.

Dryommyia circinans, *D. lichtensteini*, *Janetia cerris*, *Jaapilla vacciniorum*, *Contarinia helianthemi* и *Dasineura daphnes* су веома ретке врсте које се срећу у планинским и субалпским зонама европских планина. *Aphidoletes aphidimyza*, *Dasineura pyri* и *Zeuxidiplosis giardi* имају холарктичко распрострањење. *Dasineura pyri*, чије ларве увијају лишће крушке, једина је до сада утврђена штетна врста у Црној Гори.

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