

Contribution to the knowledge on Cicadomorpha (Hemiptera: Auchenorrhyncha) of Montenegro

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Received 1 September 2014 | Accepted 8 September 2014 | Published online 9 September 2014.

The fauna of leafhoppers and planthoppers of Montenegro is insufficiently known, and most studies are restricted on the species of the agricultural importance (e.g., Velimirović 1980, Krstić *et al.* 2012). However, considering the geographical location of Montenegro and its diverse ecosystems, a rich fauna of leafhoppers and planthoppers may be expected.

Recently in the framework of a master thesis of the first author we conducted the field studies on leafhoppers and planthoppers of Montenegro. Collecting was carried out by sweep-net sampling in 2012 and 2013. The collected individuals were preserved as dry specimens, and deposited at the Department of Biology in Podgorica, and in the collection of Christoph Bückle (Tübingen). The nomenclature in the species list follows Holzinger *et al.* (2003) and Hoch (2013). The material was collected at 35 localities:

Code	Sampling localities	Coordinates	m asl.	Date
CG1	Podgorica, Duklja, wet meadows along Zeta river	42°28'6"N, 19°15'57"E	44	28.05.2012 11.11.2012
CG2	Podgorica, Mareza, wet meadows	42°28'20"N, 19°11'16"E	41	16.06.2012 30.05.2012
CG3	Podgorica, village Grbavci, pastures	42°22'2"N, 19°11'20"E	17	15.06.2013
CG4	Podgorica, Lužnica, wet meadows along Matica river	42°28'36"N, 19°9'29"E	62	19.11.2012
CG5	Podgorica, Žabljak Crnojevića, wet meadows along Skadar Lake	42°19'2"N, 19°9'31"E	16	15.06.2013
CG6	Danilovgrad, village Bandići, wet meadows along Matica river	42°28'49"N, 19°7'23"E	61	19.05.2012 04.08.2013
CG7	Danilovgrad, village Tunjevo, wet meadows along Matica river	42°37'45"N, 19°1'3"E	53	01.05.2012
CG8	Danilovgrad, village Donji Zagarač, meadows with scattered shrubs	42°29'46"N, 19°6'21"E	83	20.07.2013
CG9	Danilovgrad, village Dobro Polje, wet meadows along Matica river	42°38'7"N, 19°1'35"E	48	18.06.2013 04.08.2013
CG10	Danilovgrad, village Glava Zete, wet meadows along Matica river	42°39'54"N, 18°59'56"E	56	21.06.2012 18.06.2013
CG11	Spuž, village Martinići, meadows	42°10'5"N, 19°4'17"E	571	21.06.2012 04.08.2013
CG12	Virpazar, village Dupilo, pastures	42°12'37"N, 19°4'30"E	23	19.06.2012 15.06.2013
CG13	Cetinje, Rijeka Crnojevića, wet meadows	42°21'14"N, 19°1'25"E	48	20.06.2012
CG14	Podgorica, Vitoja, in fens along shores of Skadar Lake	42°19'30"N, 19°21'47"E	6	25.05.2012

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CG15	Božaj, Karaula, wet meadows along Skadar Lake	42°18' 41"N, 19°22'53"E	79	09.06.2013
CG16	Plužine, Trsa, montane pastures	43°11'26"N, 18°56'46"E	1.464	23.08.2013 02.08.2012
CG17	Plužine, village Babići meadows along <i>Pinus</i> (a) and <i>Fagus</i> forest (c), <i>Pinus</i> forest margins (b), meadows with scattered <i>Pyrus</i> trees (d), montane grassland (e)	43°16'46"N, 8°51'57"E	1.249	14.07.2013 13.07.2013 31.07.2012
CG18	Nikšić, Vidrovan village, Jasenov Polje, calcareous grassland	42°53'35"N, 18°57'58"E	910	02.08.2012 13.08.2013
CG19	Gornja Trepča, Njegoš Mt., montane meadows	42°49' 39"N, 18°45'51"E	837	20.09.2013
CG20	Bjelasica Mt., Dolovi Lalevića, montane meadows	42°53' 43"N, 19°37'29"E	1.672	04.07.2012
CG21	Bjelasica Mt., Svatovsko groblje, montane meadows	42°53'2"N, 19°39'53"E	1.870	04.07.2012
CG22	Mojkovac, wet meadows along Tara river	43°22'21"N, 19°2'58"E	1.348	22.06.2013
CG23	Bijelo Polje, village Zaton, wet meadows along Lim river	43°0'11"N, 19°47'10"E	646	22.06.2013
CG24	Kolašin, village Crkvine, montane meadows	43°7' 7"N, 19°20'25"E	823	24.06.2013
CG25	Andrijevice, wet meadows along Lim river	42°43'6"N, 19°45'31"E	1.361	23.06.2013
CG26	Rožaje, wet meadows along Ibar River	42°49'58"N, 20°9'59"E	1.081	23.06.2013
CG27	Berane, village Dapsići, meadows	42°49'47"N, 19°56'50"E	965	24.06.2013
CG28	Grahovo, Podlisac, calcareous grassland	42°40'58"N, 18°48'10"E	1.114	15.07.2013
CG29	Grahovo, Dragalj, meadows	42°36'19"N, 18°40'34"E	635	04.07.2013
CG30	Bar, Rumija, Dobri Do, meadows	42°5'51"N, 19°0'39"E	972	12.07.2013
CG31	Kotor, Sv. Vrač, shrubs	42°25'48"N, 18°46'12"E	312	01.07.2013
CG32	Budva, Grbalj, Vrmac, shrubs	42°18'36"N, 18°48'15"E	22	04.07.2013
CG33	Budva, Jaz beach, shrubs and <i>Phragmites</i>	42°16'54"N, 18°48'1"E	2	04.07.2013 15.11.2012
CG34	Budva, Buljarica beach, wet meadows along sea shore	42°11'55"N, 18°57'55"E	11	21.06.2013 15.11.2012
CG35	Ulcinj, Ada Bojana, wet meadows	41°51'51"N, 19°21'40"E	1	17.08.2013

The collected material encompasses 73 species. Data on particular sites is given below, with the use of the following abbreviations and symbols: **1–35** – numbers of sites, ex. – specimen(s).

MEMBRACIDAE

- *Centrotus cornutus* (Linneus, 1758): CG17(b), 1 ex.
- *Gargara genistae* (Fabricius, 1775): CG31, 4 ex.
- *Stictocephala bisonia* Kopp & Yonke, 1977: CG2, 1 ex.; CG6, 3 ex.; CG9 b), 1 ex.; CG35, 2 ex.

CERCOPIDAE

- *Cercopis sanguinolenta* (Scopoli, 1763): CG4, 2 ex.; CG6, 2 ex.; CG7, 35 ex.; CG12, 1 ex.; CG20, 2 ex.

APHROPHORIDAE

- *Aphrophora alni* (Fallen, 1805): CG9, 1 ex.; CG10, 13 ex.; CG18, 1 ex.; CG25, 2 ex.; CG29, 2 ex.; CG32, 2 ex.
- *Aphrophora salicina* (Goeze, 1778): CG23, 2 ex.
- *Lepyronia coleoptrata* (Linnaeus, 1758): CG1, 6 ex.; CG10, 12 ex.; CG11, 5 ex.; CG12, 7 ex.; CG18, 6 ex.
- *Neophilaenus campestris* (Fallen, 1805): CG1, 43 ex.; CG6, 8 ex.; CG10, 1 ex.; CG14, 11 ex.; CG33, 7 ex.; CG34, 14 ex.
- *Neophilaenus lineatus* (Linnaeus, 1758): CG18, 1 ex.; CG19, 1 ex.
- *Neophilaenus cf. modestus* (Haupt, 1922): CG18, 2 ex.; CG33, 7 ex.
- *Philaenus signatus* (Melichar, 1896): CG2, 4 ex.; CG11, 2 ex.
- *Philaenus spumarius* (Linnaeus, 1758): CG1, 2 ex.; CG4, 3 ex.; CG6, 12 ex.; CG12, 3 ex.; CG14, 2 ex.; CG15, 5 ex.; CG17(a), 6 ex.; CG19, 5 ex.; CG22, 20 ex.; CG23, 1 ex.

CICADELLIDAE

Megophthalminae

- *Megophthalmus scanicus* (Fallen, 1806): CG17 a), 1 ex.; CG23, 2 ex.

Ulopinae

- *Utecha trivialis* (Germar, 1821): CG10, 1 ex.; CG18, 5 ex.

Macropsinae

- *Hephathus* sp.: CG6, 1 ex.; CG9, 1 ex.; CG23, 5 ex.; CG25, 8 ex.; CG27, 1 ex.; CG29, 2 ex.
- *Oncopsis alni* (Schränk, 1801): CG26, 4 ex.

Agalliinae

- *Agallia consobrina* (Curtis, 1833): CG15, 3 ex.

- *Anaceratagallia ribauti* (Ossiannilsson, 1938): CG3, 8 ex.; CG5, 2 ex.; CG6, 7 ex.; CG9, 3 ex.; CG10, 2 ex.; CG11, 9 ex.; CG13, 6 ex.; CG19, 3 ex.; CG30, 2 ex.; CG32, 2 ex.
- *Anaceratagallia venosa* (Fourcroy, 1785): CG18, 5 ex.; CG33, 2 ex.
- *Anaceratagallia* sp.: CG10, 2 ex.; CG13, 5 ex.; CG16, 6 ex.; CG18, 28 ex.; CG35, 4 ex.
- Dorycephalinae**
- *Eupelix cuspidata* (Fabricius, 1775): CG3, 1 ex.; CG10, 1 ex.; CG12, 1 ex.; CG16, 1 ex.; CG18, 1 ex.
- Aphrodinae**
- *Aphrodes bicincta* (Schränk, 1776): CG11, 2 ex.; CG12, 3 ex.; CG16, 2 ex.; CG17(e), 2 ex.; CG18, 6 ex.
- *Aphrodes diminuta* (Ribaut, 1952): CG16, 4 ex.; CG23, 1 ex.; CG30, 1 ex.
- *Aphrodes makarovi* Zachvatkin, 1948: CG11, 4 ex.; CG17(e), 3 ex.
- *Planaphrodes bifasciata* (Linnaeus, 1758): CG20, 1 ex.
- Cicadellinae**
- *Cicadella viridis* (Linnaeus, 1758): CG2, 11 ex.; CG9, 1 ex.; CG33, 1 ex.; CG35, 2 ex.
- Typhlocybinae**
- *Emelyanoviana mollicula* (Boheman, 1845): CG7, 27 ex.; CG33, 1 ex.
- *Erythria cf. aureola* (Fallen, 1806): CG16, 3 ex.; CG17(b), 6 ex.; CG17(c), 1 ex.; CG17(d), 1 ex.; CG25, 1 ex.
- *Eupteryx atropunctata* (Goeze, 1778): CG19, 2 ex.
- *Eupteryx gr. melissae* Curtis, 1837: CG9, 2 ex.; CG34, 28 ex.
- Deltocephalinae**
- *Allygidius atomarius* (Fabricius, 1794): CG2, 2 ex.; CG9, 1 ex.
- *Allygidius commutatus* (Fieber, 1872): CG2, 4 ex.; CG11, 3 ex.; CG31, 2 ex.
- *Allygus modestus* (Scott, 1876): CG2, 6 ex.; CG17(a), 2 ex.
- *Anoplotettix fuscovenosus* (Ferrari, 1882): CG15, 3 ex.
- *Arocephalus longiceps* (Kirschbaum, 1868): CG25, 3 ex.
- *Artianus manderstjernii* (Kirschbaum, 1868): CG11, 1 ex.; CG13, 2 ex.; CG16, 5 ex.; CG17(e), 70 ex.; CG18, 3 ex.; CG19, 3 ex.
- *Balclutha punctata* (Fabricius, 1775): CG2, 35 ex.; CG6, 28 ex.; CG7, 27 ex.; CG9, 5 ex.; CG10, 5 ex.; CG11, 8 ex.; CG17(b), 6 ex.; (c), 4 ex.; CG21, 1 ex.; CG26, 11 ex.; CG28, 7 ex.; CG33, 2 ex.
- *Cicadula quadrinotata* (Fabricius, 1794): CG9 a), 1 ex.
- *Doratura concors* Horvath, 1903: CG2, 7 ex.; CG6, 1 ex.; CG12, 2 ex.; CG16, 28 ex.; CG17(c), 7 ex.; (d), 3 ex.; (e), 12 ex.; CG18, 45 ex.
- *Doratura homophyla* (Flor, 1861): CG5, 8 ex.; CG6, 10 ex.; CG10, 3 ex.; CG9 b), 38 ex.; CG13, 3 ex.; CG17(b), 1 ex.; (c), 4 ex.; (d), 2 ex.; CG35, 4 ex.
- *Doratura cf. paludosa* Melichar, 1897: CG1, 5 ex.; CG11, 38 ex.; CG19, 7 ex.
- *Doratura stylata* (Boheman, 1847): CG1, 3 ex.; CG7, 2 ex.; CG12, 3 ex.; CG16, 44 ex.; CG17(b), 14 ex.; (c), 18 ex.; (d), 2 ex.; (e), 18 ex.; CG18, 44 ex.; CG28, 1 ex.
- *Ebarrius interstinctus* (Fieber, 1869): CG18, 5 ex.
- *Elymana sulphurella* (Zetterstedt, 1828): CG16, 43 ex.; CG17(a), 11 ex.; CG29, 4 ex.
- *Emeljanovianus cf. medius* (Mulsant & Ray, 1855): CG16, 3 ex.; CG17(b), 5 ex.; (c), 24 ex.; (d), 7 ex.; (e), 20 ex.; CG18, 28 ex.; CG28, 7 ex.
- *Eohardya fraudulentus* (Horvath, 1903): CG19, 2 ex.
- *Euscelis incisus* (Kirschbaum, 1858): CG1, 11 ex.; CG4, 2 ex.; CG16, 2 ex.; CG30, 1 ex.; CG34, 35 ex.
- *Fieberiella cf. flori* (Stal, 1864): CG2, 5 ex.; CG19, 1 ex.; CG33,
- *Goniagnathus brevis* (Herrich-Schäffer, 1835): CG6, 3 ex.; CG8, 2 ex.; CG10, 2 ex.; CG18, 4 ex.; CG29, 1 ex.; CG35, 1 ex.
- *Graphocraerus ventralis* (Fallen, 1806): CG16, 1 ex.; CG22, 1 ex.; CG23, 2 ex.
- *Handianus ignoscus* (Melichar, 1896): CG18, 7 ex.
- *Henschia collina* (Boheman, 1850): CG19, 23 ex.
- *Hesium domino* (Reuter, 1880): CG16, 2 ex.; CG17(c), 1 ex.
- *Idiodonus cruentatus* (Panzer, 1799): CG16, 36 ex.
- *Jassargus flori* (Fieber, 1869): CG23, 1 ex.; CG25, 2 ex.
- *Jassargus obtusivalvis* (Kirschbaum, 1868): CG1, 68 ex.; CG2, 7 ex.; CG4, 3 ex.; CG6, 114 ex.; CG7, 60 ex.; CG8, 10 ex.; CG10, 13 ex.; CG11, 48 ex.; CG12, 27 ex.; CG13, 23 ex.; CG16, 10 ex.; CG17(a), 4 ex.; (b), 15 ex.; (d), 22 ex.; CG18, 50 ex.; CG19, 48 ex.; CG22, 11 ex.; CG24, 4 ex.; CG25, 1 ex.; CG34, 3 ex.
- *Macrosteles cristatus* (Ribaut, 1927): CG26, 19 ex.
- *Macrosteles cf. fieberi* (Edwards, 1889): CG7, 26 ex.
- *Macrosteles laevis* (Ribaut, 1927): CG5, 25 ex.; CG7, 40 ex.; CG26, 19 ex.
- *Macrosteles quadripunctulatus* (Kirschbaum, 1868): CG9, 4 ex.; CG15, 3 ex.; CG33, 1 ex.
- *Macrosteles sexnotatus* (Fallen, 1806): CG2, 6 ex.; CG5, 20 ex.
- *Maïestas schmidtgeni* (Wagner, 1939): CG3, 5 ex.; CG5, 5 ex.; CG6, 4 ex.; CG12, 1 ex.; CG13, 7 ex.; CG35, 2 ex.

- *Mocydia crocea* (Herrich-Schäffer, 1837): CG8, 1 ex.
- *Neoliturus cf. fenestratus* (Herrich-Schäffer, 1834): CG2, 1 ex.; CG3, 2 ex.; CG6, 3 ex.; CG9, 3 ex.; CG11, 5 ex.; CG18, 1 ex.; CG19, 2 ex.; CG30, 1 ex.; CG31, 1 ex.; CG34, 6 ex.; CG35, 1 ex.
- *Platymetopius rostratus* (Herrich-Schäffer, 1834): CG10, 2 ex.; CG10, 3 ex.; CG11, 1 ex.
- *Psammotettix alienus* (Dahlbom, 1850): CG1, 93 ex.; CG6, 114 ex.; CG7, 60 ex.; CG10, 45 ex.; CG13, 23 ex.; CG19, 28 ex.
- *Psammotettix confinis* (Dahlbom, 1850): CG1, 68 ex.; CG2, 4 ex.; CG4, 6 ex.; CG6, 99 ex.; CG7, 60 ex.; CG10, 5 ex.; CG13, 23 ex.; CG16, 45 ex.; CG18, 32 ex.; CG30, 4 ex.
- *Psammotettix helvolus* (Kirschbaum, 1868): CG6, 25 ex.; CG7, 20 ex.; CG10, 11 ex.; CG16, 115 ex.; CG18, 67 ex.; CG19, 14 ex.
- *Rhopalopyx cf. vitripennis* (Flor, 1861): CG19, 2 ex.
- *Selinocephalus obsoletus* (Germar, 1817): CG18, 7 ex.
- *Stictocoris picturatus* (Sahlberg, 1842): CG18, 1 ex.
- *Thamnotettix confinis* (Zetterstedt, 1828): CG16, 23 ex.; CG26, 8 ex.
- *Verdanus abdominalis* (Fabricius, 1803): CG16, 13 ex.; CG17(a), 42 ex., (c), 41 ex., (d), 7 ex.; CG20, 3 ex.; CG21 a), 22 ex.; CG21 b), 5 ex.; CG26, 9 ex.; CG27, 10 ex.; CG28, 8 ex.

In total 3541 specimens belonging to 73 species from 52 genera were collected. Most numerous were: *Jassargus obtusivalvis* (15.3 % of collected specimens), *Psammotettix alienus* (10.3 %), *Psammotettix confinis* (9.8 %) and *P. helvolus* (7.1 %). The most widely distributed were: *Jassargus obtusivalvis* (18 sites), *Neoliturus cf. fenestratus* and *Balclutha punctata* (11 sites each), *Philaenus spumarius*, *Psammotettix confinis* and *Anaceratagallia ribauti* (10 sites each), *Verdanus abdominalis* (8 sites), *Doratura stylata* and *D. homophyla* (7 sites each).

In the material discussed in this paper, particularly important for the knowledge on leafhoppers and planthoppers of Montenegro are the species which according to the online database of Fauna Europaea (Hoch 2013) are recorded for the first time for Montenegro/Serbia: *Aphrophora salicina* (Goeze, 1778), *Philaenus signatus* (Melichar, 1896), *Idiodonus cruentatus* (Panzer, 1799) and *Hesium domino* (Reuter, 1880).

Acknowledgements

Authors are grateful to Dipl. Biol. Christoph Bückle (Tübingen) for guidance, constructive advices and verification of the identification of a part of the collected material.

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