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## PRELIMINARY DATA CONCERNING ORTHOPTERA (INSECTA) FAUNA FROM NORTH DOBROGEA (ROMANIA)

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Abstract. The results of orthopterological researches made in northern Dobrogea (Romania) in May and September 2005 are presented. The paper shows a list of 48 species from this region grouped in 8 orthoptera families with ecological and zoogeographical data. Two species, *Metrioptera (Metrioptera) roeselii* Hagenbach, 1822 and *Metrioptera (Metrioptera) bicolor* Philippi, 1830 are new reports for this area.

Résumé. On présente les résultats des recherches orthoptérologiques faites dans la région du nord de Dobrogea (Roumanie) en Mai et Septembre 2005. Le travail comprend une liste de 48 espèces de cette région, groupée en 8 familles d'orthoptères, avec des données écologiques et zoogéographiques. Deux espèces *Metrioptera (Metrioptera) roeselii* Hagenbach, 1822 et *Metrioptera (Metrioptera) bicolor* Philippi, 1830 sont signalés pour la première fois dans cette région.

Key words: Orthoptera, Dobrogea, Romania, faunistics.

The plateau region from northern Dobrogea (Romania) bordered by Dunărea Veche and Sf. Gheorghe, two of the Danube's branches, is an area characterised mainly by steppic grasslands. The Orthoptera fauna from this region has a large number of species with diversified ecological characteristics.

The study of grasshoppers and katydids from this region began in the 19th century. Data about them were given by numerous naturalists. Among them we mention Frey Gessner (1897, 1899), Burr (1899), Müller (1932), Mîndru (1956), Kis (1963, 1994), Kis & Lehrer (1981), and Rakosy & Weiser (2000). Until now 76 orthoptera species were reported from this area.

The aim of this present study is to complete the list of species and to give new data on the distribution of different species from this region. The observations presented in this study resulted from the researches made by the specialists of "Grigore Antipa" National Museum of Natural History (Bucharest) in attempt to study the biodiversity of Dobrogea and from personal researches made by the authors for a future Ph. Degree Thesis.

### MATERIAL AND METHOD

In this paper we have studied 615 specimens of grasshoppers and katydids from 14 different collecting sites. The material was collected in 3 separate trips: 23-28.V.2005, 5-9.IX.2005 and 10-15.IX.2005. The sampling of the material was made manually and sweeping the vegetation with the entomological net. Then, the material was dried or preserved in acetone.

The specimen identification was made according to external morphology and genitalia using identification keys made by Kis (1976, 1978), Bellman & Luquet (1995) and the systematic ordering was made after Heller and al. (1998). The collecting sites are presented in fig. 1.

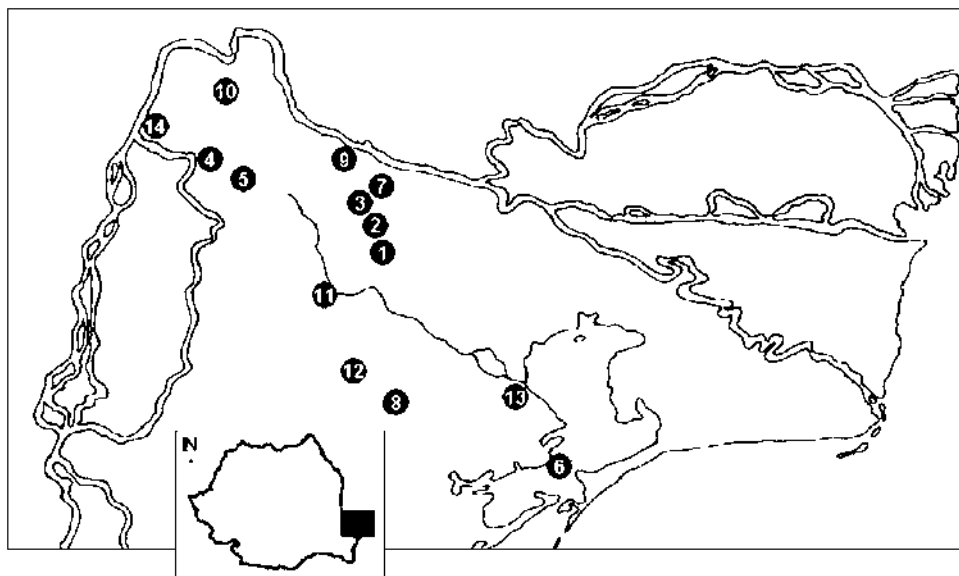


Fig. 1 – Distribution of the collecting sites from northern Dobrogea: 1-Alba; 2-Valea Teilor; 3-Niculițel; 4-Măcin; 5-Greci; 6-Jurilovca; 7-Saon Monastery; 8-Celic Dere Research Institute; 9-Isaccea; 10-Garvăn; 11-Horia; 12-Ciucurova; 13-Enisala; 14-Smârdan.

Abbreviations used in tables and figures:

*Geographical abbreviations:*

Ab – Alba; Ci – Ciucurova; CD – Celic Dere Research Institute; En – Enisala; Gr – Greci; Gv – Garvăn; Hr – Horia; Is – Isaccea; Jr – Jurilovca; Mc – Măcin; MS – Saon Monastery; Nt – Niculițel; Sm – Smârdan; VT - Valea Teilor.

*Zoogeographical abbreviations:*

AE - African-European; B – Balcanic; CAE - Central-Asian-European; CAM - Central-Asian-Mediterranean; CAP - Central-Asian-Pontic; CE Central-European; CM - Circum-Mediterranean; E – European; EM - East-Mediterranean; ES-Eurosiberian; Eu – Euroasian; H – Holarctic; HB – Holobalcanic; Hp – Holopalaeartic; P – Palaeartic; Po – Pontic; M – Mediterranean; SE - South-European; WP - West-Palaeartic.

#### RESULTS

The 615 orthopteran specimens belong to 48 species grouped in 8 families, 21 (43.75%) species belonging to the Ensifera Suborder and 27 (56.25%) species to the Caelifera Suborder (Tab. 1). Family Acrididae is prevalent with 24 species (50%), followed by Tettigoniidae with 10 species (20.83%), Phaneropteridae, Conocephalidae, Gryllidae and Tetrigidae with 3 species (6.25%) and Bradyporidae and Gryllotalpidae with one species (2.08%). *Chorthippus brunneus* (Thunberg, 1815) is the most common species with 21.41% (131 specimens) of all collected material.

From the ecological point of view, the xerophilous and the xero-mesophilous species are prevalent in this region (Fig. 2). We have found as many mesophilous species as xerophilous ones: 33.33%.

Table 1

The Orthoptera species collected in northern Dobrogea in 2005.

Crt. No.	Taxon	Stations											Ecological characteristics	Zoogeographical characteristics				
		Ab	VT	Nt	Mc	Gr	Jr	MS	CD	Is	Gv	Hr			Ci	En	Sm	
Suborder Ensifera																		
Suprafamily Tettigoniodea																		
Family Phaneropteridae																		
1.	<i>Phaneroptera nana</i> Fieber, 1853	-	-	1 ♀	-	-	-	-	-	-	-	-	-	-	1 ♀	-	mesophilous, arboreal	M, CM
2.	<i>Phaneroptera gracilis</i> Burmeister, 1838	-	-	-	-	-	-	1 ♀	-	-	-	-	-	-	-	-	mesophilous, arboreal	CAE, CAP
3.	<i>Poecilimon fussi</i> Brunner, 1878	-	-	-	-	-	-	1 ♀	-	-	-	-	-	-	-	-	meso-xerophilous	B, HB
Family Conocephalidae																		
Subfamily Conocephalinae																		
4.	<i>Conocephalus hastatus</i> (Charpentier, 1825)	-	-	-	1 ♀	-	-	2 ♂ 1 ♀	-	1 ♂	-	-	1 ♂ 1 ♀	-	-	-	meso-xerophilous	M, EM
5.	<i>Conocephalus fuscus</i> Thunberg, 1815	1 ♂ 1 ♀	-	-	-	-	-	1 ♂	1 ♀	-	-	-	-	-	-	-	higrophilous	P, HP
Subfamily Copiphorinae																		
6.	<i>Ruspolia nitidula</i> Scopoli, 1786	-	-	-	-	-	-	3 ♂ 2 ♀	-	1 ♂	-	-	-	-	-	-	higrophilous	AE
Family Tettigoniidae																		
Subfamily Tettigoniinae																		
7.	<i>Tettigonia viridissima</i> (Linnaeus, 1758)	-	-	1 ♂	1 ♂	-	-	-	-	-	-	-	-	-	2 ♂	-	mesophilous, arboreal	P, HP
8.	<i>Pterolepis germanica</i> Herrich-Schaeffer, 1840	-	-	4 ♂ 3 ♀	-	-	-	2 ♂	-	-	-	-	1 ♂ 2 ♀	-	2 ♂	-	meso-xerophilous	M, CM
9.	<i>Decticus verrucivorus</i> (Linnaeus, 1758)	-	-	-	-	-	-	-	-	-	-	-	2 ♂	-	1 ♂	-	meso-xerophilous	ES
10.	<i>Decticus albifrons</i> (Fabricius, 1793)	-	-	-	-	-	-	-	-	2 ♂ 3 ♀	-	-	-	-	-	-	xerophilous	M, CM
11.	<i>Platycleis (Tessellana)</i> <i>veyseleti</i> Kucak, 1984	-	-	-	-	-	-	-	-	-	-	-	-	-	1 ♂	-	xerophilous	CAE, CAP

Table 1 (continued)

Crt. No.	Taxon	Stations													Ecological characteristics	Zoogeographical characteristics		
		Ab	VT	Nt	Mc	Gr	Jr	MS	CD	Is	Gv	Hr	Ci	En			Sm	
12.	<i>Platypleis (Tessellana) nigrosignata</i> Costa, 1863	-	-	1♂	-	-	1♀	-	2♀	-	-	-	-	-	-	-	xerophilous	M, EM
13.	<i>Platypleis (Platypleis) affinis</i> Fieber, 1853	-	-	1♂ 2♀	2♂	4♂ 5♀	2♀	-	-	1♀	-	1♂ 3♀	1♂ 2♀	-	-	-	xerophilous	M, CM
14.	<i>Platypleis (Platypleis) intermedia</i> Serville, 1839	-	-	-	-	-	-	1♂	-	-	-	-	-	-	-	-	xerophilous	CAE, CAM
15.	<i>Metrioptera (Metrioptera) bicolor</i> Philippi, 1830*	-	-	-	-	-	-	-	-	-	1♂	-	-	-	-	-	meso-xerophilous	ES
16.	<i>Metrioptera (Metrioptera) roeselii</i> Hagenbach, 1822*	-	-	-	-	-	-	-	-	-	1♂	-	-	-	-	-	mesophilous	H
Family Bradyponidae																		
Subfamily Ephippigerinae																		
17.	<i>Ephippiger ephippiger</i> (Fiebigs, 1784)	-	-	1♀	-	-	-	-	1♂	-	-	11♂ 2♀	1♂	-	-	-	mesophilous, arboreous	E, SE
Suprafamily Grylloidea																		
Family Gryllidae																		
Subfamily Gryllinae																		
18.	<i>Gryllus campestris</i> (Linnaeus, 1758)	-	-	-	-	-	-	-	-	-	-	-	1♂	-	-	-	mesophilous, geophilous	P, HP
19.	<i>Melanogryllus desertus</i> (Pallas, 1771)	-	-	-	-	-	-	-	1♂	-	-	-	-	-	-	-	mesophilous, geophilous	CAE, CAM
Subfamily Oceanthinae																		
20.	<i>Oecanthus pellucens</i> (Scopoli, 1763)	1♀	-	15♂ 14♀	1♀	2♀	2♂ 1♀	-	1♂	-	-	4♂ 1♀	3♂	4♂ 2♀	-	-	xerophilous	CAE, CAM
Family Gryllotalpidae																		
21.	<i>Gryllotalpa gryllotalpa</i> (Linnaeus, 1758)	-	-	-	-	-	-	-	-	-	2♂	-	-	-	-	-	mesophilous, terricolous	P, HP

Table 1 (continued)

Crt. No.	Taxon	Stations													Ecological characteristics	Zoogeographical characteristics		
		Ab	VT	Nr	Mc	Gr	Jr	MS	CD	Is	Gv	Hr	Ci	En			Sm	
Suborder Caelifera																		
Suprafamily Tetrigoidea																		
Family Tetrigidae																		
22.	<i>Tetrix ceperoi</i> Bolivar, 1887	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	higrophilous	P, WP
23.	<i>Tetrix subulata</i> (Linnaeus, 1761)	-	-	-	-	-	-	2 ♀	-	-	-	-	-	-	-	-	higrophilous	H
24.	<i>Tetrix bolivari</i> Saulcy, 1901	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	higrophilous	CAE, CAM
Suprafamily Acridoidea																		
Family Acrididae																		
Subfamily Calliptaminae																		
25.	<i>Calliptamus italicus</i> (Linnaeus, 1758)	-	-	1 ♂ 2 ♀	-	1 ♂ 1 ♀	-	-	-	-	1 ♂	-	-	-	-	-	mesophilous	P, HP
26.	<i>Calliptamus barbarus</i> (Costa, 1836)	-	-	-	3 ♂ 2 ♀	3 ♂ 9 ♀	1 ♂ 3 ♀	-	-	-	4 ♂ 3 ♀	-	-	-	1 ♂	-	xerophilous	CAE, CAM
Subfamily Catantopinae																		
27.	<i>Pezotettix giornae</i> (Rossi, 1794)	-	2 ♂	-	-	-	-	-	-	-	-	-	-	1 ♂ 1 ♀	-	-	mesophilous	M, CM
Subfamily Acridinae																		
28.	<i>Acrida ungarica</i> (Herbst, 1786)	-	1 ♂ 2 ♀	-	7 ♂ 3 ♀	7 ♂ 11 ♀	3 ♂	1 ♀	-	-	5 ♂ 12 ♀	4 ♂ 1 ♀	3 ♂ 2 ♀	2 ♂ 5 ♀	-	-	xerophilous	AE
Subfamily Oedipodinae																		
29.	<i>Oedipoda caerulea</i> (Linnaeus, 1758)	-	-	2 ♂ 1 ♀	-	1 ♂ 1 ♀	-	-	-	-	-	-	-	-	-	-	xerophilous	P, HP
30.	<i>Oedipoda germanica</i> (Latreille, 1804)	-	-	-	-	-	-	-	-	-	-	-	-	-	2 ♂ 1 ♀	-	xerophilous	M, CM
31.	<i>Sphingonotus caerulans</i> (Linnaeus, 1867)	-	-	-	-	-	-	-	-	-	2 ♀	-	-	-	-	-	xerophilous	P, WP
32.	<i>Acrotylus insubricus</i> (Scopoli, 1886)	-	-	-	-	-	-	-	-	-	3 ♂ 5 ♀	-	-	-	-	-	xerophilous	M, CM
33.	<i>Oedateus decorus</i> (Germar, 1826)	-	-	-	-	-	2 ♂	-	-	-	-	-	-	-	-	-	xerophilous	CAE, CAM
34.	<i>Aiolopus thalassinus</i> (Fabricius, 1781)	-	-	-	-	-	-	-	-	-	-	-	-	2 ♂ 1 ♀	-	-	higrophilous	P, HP

Table 1 (continued)

Crt. No.	Taxon	Stations													Ecological characteristics	Zoogeographical characteristics			
		Ab	VT	Nt	Mc	Gr	Jr	MS	CD	Is	Gv	Hr	Ci	En			Sm		
35.	<i>Paracinema tricolor bisignata</i> (Charpentier, 1825)	-	-	-	-	-	7♂ 15♀	-	-	2♂ 1♀	-	-	-	-	-	-	-	higrophilous	M, CM
Subfamily Gomphocerinae																			
36.	<i>Doclostaurus maroccanus</i> (Thunberg, 1815)	-	-	-	-	-	1♀	-	-	-	-	-	-	-	-	-	-	xerophilous	CAE, CAM
37.	<i>Stenobothrus lineatus</i> (Panzer, 1796)	-	-	-	-	-	-	-	-	-	2♀	-	-	-	-	-	-	mesophilous	ES
38.	<i>Omocestus rufipes</i> (Zetterstedt, 1825)	-	-	-	-	-	-	-	-	-	1♂	-	-	-	-	-	-	mesophilous	P, HP
39.	<i>Omocestus minutus</i> Brullé, 1832	-	-	-	-	10♂ 20♀	-	-	-	-	-	-	-	-	-	-	-	mesophilous	Po
40.	<i>Gomphocerippus rufus</i> (Linnaeus, 1758)	-	-	3♂ 7♀	2♂ 1♀	-	-	-	2♀	-	-	-	-	-	1♂ 1♀	1♂	-	mesophilous	ES
41.	<i>Chorthippus biguttulus</i> (Linnaeus, 1758)	-	-	-	-	-	-	-	-	-	-	-	-	-	1♂	-	-	mesophilous	P, HP
42.	<i>Chorthippus brunneus</i> (Thunberg, 1815)	1♂ 2♀	8♂ 11♀	27♂ 37♀	1♂ 4♀	9♂ 6♀	-	-	4♂ 5♀	-	4♂ 1♀	3♂	3♀	-	5♂ 3♀	-	-	meso-xerophilous	P, HP
43.	<i>Chorthippus macrocerus purpuratus</i> (Voronozovskij, 1928)	1♀	-	9♂ 8♀	-	-	-	-	-	1♂	-	-	-	-	-	-	-	xerophilous	CAE, CAP
44.	<i>Chorthippus albomarginatus</i> (De Geer, 1773)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	higro-mesophilous	P, HP
45.	<i>Chorthippus dichrous</i> (Eversmann, 1859)	-	-	-	-	-	-	-	-	6♂ 3♀	-	-	-	-	-	-	-	higro-mesophilous	CAE, CAP
46.	<i>Chorthippus loratus</i> (Fischer W., 1846)	1♂ 13♀	2♂ 4♀	2♂ 1♀	1♂ 1♀	1♂ 1♀	1♂ 2♀	2♂ 4♀	-	-	-	-	-	-	3♂	-	1♂ 3♀	xerophilous	Po
47.	<i>Chorthippus parallelus</i> (Zetterstedt, 1921)	-	-	1♂	-	-	-	-	-	-	-	-	-	-	-	-	-	mesophilous	ES
48.	<i>Euchorthippus declivus</i> (Brisout, 1847)	-	-	9♂ 4♀	2♂ 4♀	-	-	-	-	-	-	-	-	-	1♂ 2♀	1♀	-	meso-xerophilous	E, CE

The species marked with \* are reported from this area for the first time

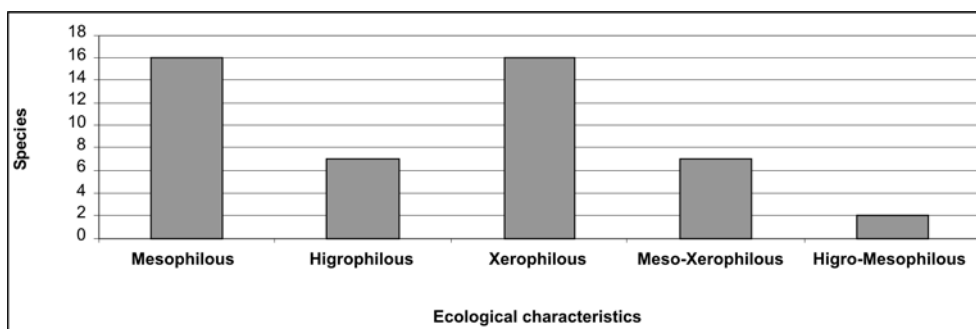


Fig. 2 – Distribution of Orthoptera from northern Dobrogea according to ecological preferences.

From the zoogeographical point of view, the Palaearctic species prevail with 27.08%, followed by Central-Asian-European elements 22.92%, Mediterranean elements 20.83%, Eurosiberian elements 10.42%, European, African-European, Holarctic, Pontic elements 4.17% and 2,08% Balcanic species (Fig. 3).

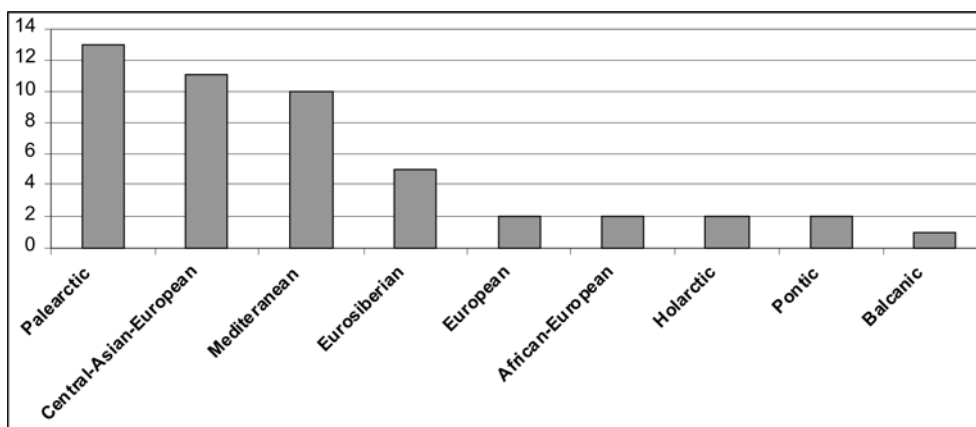


Fig. 3 – Distribution of Orthoptera from northern Dobrogea according to zoogeographical elements.

DISCUSSIONS

The species *Metrioptera (Metrioptera) bicolor* and *Metrioptera (Metrioptera) roeselii* are reported for the first time for Dobrogea, both of them being captured at Garvăn (TL).

*Metrioptera (Metrioptera) roeselii* Hagenbach, 1822 (Fig. 4) is an Eurosiberian species, living in mesophilous and higo-mesophilous grasslands, common in the northern part of the country. Adults can be seen from the end of June to October. It has a brown body colour with green shades on the sides and the pronotum is bordered by a white stripe. Males have the internal denticle of the cerci situated near the end of the second third and the elytra slightly rounded and truncated at the end. Females have their subgenital plate slotted deep in a triangular shape (Bellman & Luquet, 1995).

*Metrioptera (Metrioptera) bicolor* Philippi, 1830 (Fig. 5) is an Eurosiberian species, widely spread in all Europe and northern Asia, mesophilous, living in

mesophilous and xero-mesophilous meadows at different altitudes all over Romania. Adults can be seen from June to October with a peak in July. It has a green body-colour with light brown back and the sides of the pronotum is green and not bordered by a white stripe. Males have the internal denticle situated in the last third of the cerci. Females have the subgenital plate slightly straight slotted (Bellman & Luquet, 1995).

There are six new collecting points for Orthoptera: Alba, Celic Dere Research Institute, Garvăn, Horia, Saon Monastery and Valea Teilor.

Northern Dobrogea should be studied, from an orthopterological point of view, more thoroughly because the distribution and the structure of orthopteran associations can give us data about the studied habitats.

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#### DATE PRELIMINARE PRIVIND FAUNA DE ORTOPTERE (INSECTA) DIN NORDUL DOBROGEI (ROMÂNIA)

#### REZUMAT

Sunt prezentate rezultatele cercetarilor ortopterologice efectuate în Dobrogea de Nord in 2005. Lucrarea cuprinde o listă de 48 de specii de ortoptere din această zonă, grupate in 8 familii împreună cu date de ecologie. Două specii, *Metrioptera (Metrioptera) roeselii* și *Metrioptera (Metrioptera) bicolor* sunt semnalari noi pentru această zonă.

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Fig. 4 – *Metrioptera (Metrioptera) roeselii* Hagenbach, 1822 (collected in northern Dobrogea).



Fig. 5 – *Metrioptera (Metrioptera) bicolor* Philippi, 1830 (collected in northern Dobrogea).