FAUNISTIC DATA ON LEAF BEETLES (COLEOPTERA: CHRYSOMELIDAE) FROM THE PRAHOVA AND THE DOFTANA VALLEYS, ROMANIA

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Abstract. *This paper presents data regarding the occurrence of leaf-beetles species in some forests phytocoenosis and shrub lands situated on the middle courses of the Prahova and the Doftana rivers, on the basis of the material collected between 2007 and 2008. Until now there were recorded in the researched sites 41 chrysomelid species, belonging to 24 genera and 7 subfamilies: Criocerinae (one species), Clythrinae (4 species), Cryptocephalinae (9 species), Chrysomelinae (15 species), Galerucinae (one species), Alticinae (9 species) and Cassidinae (2 species). In addition, for every species cited in the taxa list, information about the present distribution range and the biology of these species are mentioned. All the identified leaf beetle species are mentioned for the first time in the investigated areas.*

Keywords: *Coleoptera, Chrysomelidae, the Prahova, the Doftana, Romania.*

Rezumat. Date faunistice asupra crisomelidelor (Coleoptera: Chrysomelidae) de pe Văile Prahovei şi Doftanei, România. *Lucrarea prezintă date referitoare la prezenţa crisomelidelor în câteva fitocenoze lemnoase şi de tufărişuri situate pe cursurile mijlocii ale râurilor Prahova şi Doftana, pe baza unui material colectat în perioada 2007-2008. Până în prezent, în siturile cercetate au fost identificate 41 specii, încadrate în 24 genuri şi 7 subfamilii: Criocerinae (1 specie), Clythrinae (4 specii), Cryptocephalinae (9 specii), Chrysomelinae (15 specii), Galerucinae (1 specie), Alticinae (9 specii) şi Cassidinae (2 specii). Pentru fiecare specie citată în lista taxonomică, sunt prezentate informaţii referitoare la arealul actual de răspândire şi la biologia acestor specii. Toate speciile de crisomelide identificate sunt menţionate pentru prima dată în zonele cercetate.*

Cuvinte cheie: *Coleoptera, Chrysomelidae, Prahova, Doftana, România.*

INTRODUCTION

Romania has a remarkable entomofaunistic diversity, due to its considerable territorial area, geomorphologic characteristics and biotopes variety. The taxonomic and faunistic studies are the basis for both the biodiversity evaluation and the management of natural resources.

The Chrysomelidae, commonly known as leaf beetles, is one of the most numerous family of Coleoptera Order (also with Curculionidae and Staphylinidae families), including about 40,000 species in the world fauna. The leaf beetles species have a great adaptive capacity, being found from the oceans coasts to the alpine areas (JOLIVET, 1997).

Chrysomelids are phytophagous coleopterans, strictly specialized on certain species, genera or families of plants. The adults are commonly found on flowers and leaves and the larvae feed on leaves and roots. Many species are important from an economical point of view, being serious pests for forests and agricultural crops.

An updated check-list of the Chrysomelidae from Romania, including 571 species from 82 genera belonging to 13 subfamilies, was published by MAICAN (2005).

MATERIAL AND METHODS

The present contribution is based on the study of chrysomelid material collected between 2007 and 2008, from 11 sites situated on the middle reaches of the Prahova and the Doftana rivers. Until now, in the Romanian coleopterological literature there is no published information regarding the leaf-beetles fauna from these areas.

Studies were made within the research programs from the Ecology, Taxonomy and Nature Conservation Centre of the Institute of Biology (Bucharest).

Recent data about the biocoenotic differentiation of *Quercus petraea* and of mixed *Quercus petraea* and *Fagus sylvatica* deciduous forests from the lower Doftana Valley (Prahova county) were published by VASILIU-OROMULU et al. (2007-2008).

Also, information concerning the biological diversity of shrub lands dominated by *Salix purpurea* and *Hippophaë rhamnoides* along the collinar floodplain of the Prahova and the Doftana rivers can be found in the paper of PAUCĂ-COMĂNESCU et al. (2008).

List of the collecting sites:

- Cornu, Câmpina, Valley of the Prahova river (km 94 on DN1): shrub lands dominated by *Salix purpurea*, 488m altitude (**I**);
- Nistoreşti, Valley of the Prahova river (km 98 on DN1): shrub lands dominated by *Hippophaë rhamnoides*, includes in the 3240th European Habitats (GAFTA & MOUNTFORD, 2008); 558 m altitude (**II**);
- Câmpina forestry department, Valley of the Doftana river: *Quercus petraea* forest, included in *Querco petraeae-Carpinetum* Soó et Pócs 1957 association, 500 m altitude (**III**);

- Câmpina forestry department, Valley of the Doftana river: the mixed *Quercus petraea* and *Fagus sylvatica* forest, included in *Petraeo-Fagetum* Scam./1956/1959 association, 500 m altitude (**IV**);
- Lunca Mare, Valley of the Doftana river: shrub lands dominated by *Salix purpurea*, 437 m altitude (**V**);
- Teşila, Valley of the Doftana river: shrub lands dominated by *Myricaria germanica* (**VI**);
- Şotriile, Valley of the Doftana river: *Fagus sylvatica* forest, included in *Hieracio rotundati-Fagetum* (Vida 1963 Täuber 1987) associations (**VII**);
- Glodeasa forest, Valley of the Doftana river: mixed *Abies alba* and *Fagus sylvatica* forest (**VIII**);
- Valea Largă, Posada, Valley of the Prahova river: alluvial vegetation on the right bank of the Prahova river (**IX**);
- Doftana Gorges, Valley of the Doftana river: pasture under cliff (**X**);
- Breaza Gorges, Valley of the Prahova river: shrub lands under cliff (**XI**).

The specimens were collected by the author by means of entomological net, shaking the shrubs and by hand directly from the soil or vegetation. They were determined on the basis of external morphology and of genitalia (aedeagus from males), using the keys of KIPPENBERG & DÖBERL's paper (1994) and WARCHAŁOWSKI's monographies (1985, 1995, 1998, 2003).

The examined material is deposited in the collection of the Institute of Biology, Bucharest.

Subfamilies are ordered according to SEENO & WILCOX (1982). The used nomenclature and systematic are according to WARCHAŁOWSKI (2003).

Information about the general distribution and host plants of the chrysomelid species are presented according to MOHR (1966), WARCHAŁOWSKI (2003) and SASSI (2007).

The systematic presentation of each identified species is accompanied with information regarding biology (the host plants) and the general distribution.

RESULTS

As a result of faunistic researches made within 2007-2008, in some phytocoenoses situated along the Prahova and the Doftana rivers, 41 leaf beetles species, from 24 genera and 7 subfamilies were recorded.

The taxonomic structure of Chrysomelidae fauna in the investigated sites is presented in the Table 1.

The best represented subfamilies were: Chrysomelinae, generally including meso-hygrophilous species (15 species), followed by Cryptocephalinae and Alticinae (with 9 species each). The other subfamilies have fewer species: Clythrinae (4 species), Cassidinae (2 species), Criocerinae and Galerucinae (with one species each).

The highest number of species was found in the following sites: the shrub lands from Lunca Mare, Valley of the Doftana river (20 species), alluvial vegetation on the right bank of the Prahova river from Valea Largă (16 species) and pasture under cliff from Doftana Gorges, the Doftana Valley (10 species).

In the shrubs dominated by *Salix purpurea* from Lunca Mare, the life cycle of chrysomelids is favoured by the presence of higher number of vegetal species (*Salix purpurea*, *Cornus sanguinea*, *Ligustrum vulgare*, *Alnus incana*, *Populus alba*, *Crataegus monogyna*, *Rubus caesius*), representing the characteristic host plants and trophic basis for certain species and genera of leaf beetles.

Pachybrachis hippophaëus SUFFRIAN (whose host plant is *Hippophaë rhamnoides*) was not found in the shrubs dominated by *Hippophaë rhamnoides* from Nistoreşti.

Among the most important species from a faunistic point of view the following were recorded: *Clytra quadripunctata* LINNAEUS, *Smaragdina flavicollis* CHARPENTIER, *Cryptocephalus quinquepunctatus* SCOPOLI, *Gonioctena linnaeana* (SCHRANK) and *Longitarsus kutscherae* (RYE).

All the chrysomelid species are mentioned for the first time in the investigated areas.

In order to fill in the information about the specific diversity of the Chrysomelidae family from the Prahova and the Doftana river valleys, more systematic studies are necessary in the future.

CONCLUSIONS

The paper presents faunistic data about the occurrence of 41 species (from 24 genera) of the Chrysomelidae family collected between 2007 and 2008 from some forests phytocoenosis and shrub lands situated on the middle courses of the Prahova and the Doftana rivers, Romania.

The leaf beetles species belong to the following subfamilies: Criocerinae (one species), Clythrinae (four species), Cryptocephalinae (nine species), Chrysomelinae (15 species), Galerucinae (one species), Alticinae (nine species) and Cassidinae (two species).

In addition, for every chrysomelid species cited in the taxa list, information about the present distribution range and the biology of these species are mentioned.

All the leaf beetles species are recorded from the first time in the researched areas.

Table 1. The taxonomic structure of Chrysomelidae fauna in the researched sites.
Tabel 1. Structura taxonomică a faunei de Chrysomelidae în siturile cercetate.

Taxa (subfamily/species)	Collection sites											Host plants	Chorotype/ General distribution
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI		
CHRYSOMELIDAE													
CRIOCERINAE													
Oulema melanopus (LINNAEUS, 1758)					•			•				Poaceae (*Agropyron*, *Lolium*, *Dactylis*, *Avena*, *Hordeum*)	West Palaearctic
CLYTHRINAE													
Clytra quadripunctata (LINNAEUS, 1758)					•					•		Betulaceae (*Betula*), Rosaceae (*Crataegus, Prunus*), Salicaceae (*Salix*), Fagaceae (*Quercus*)	Euro-Siberian
Labidostomis longimana (LINNAEUS, 1761)					•							Fabaceae (*Lotus, Trifolium*), Brassicaceae	Turanic-European
Smaragdina flavicollis (CHARPENTIER, 1825)					•							Betulaceae (*Alnus glutinosa*); probably monophagous	European
Smaragdiuna salicina (SCOPOLI, 1763)								•				Rosaceae (*Crataegus*), Salicaceae (*Salix*)	European
CRYPTOCEPHALINAE													
Cryptocephalus bipunctatus (LINNAEUS, 1758)										•		Salicaceae, Betulaceae, Corylaceae, Rosaceae, Fagaceae, Fabaceae; polyphagous	Euro-Siberian
Cryptocephalus flavipes FABRICIUS, 1781					•							Salicaceae, Betulaceae, Fagaceae, Corylaceae, Cistaceae; polyphagous	Europe, Asia Minor, Caucasus, South Russia, Central Asia east to Altai
Cryptocephalus frenatus LAICHARTING, 1781									•			Betulaceae (*Alnus*), Salicaceae (*Salix*)	European
Cryptocephalus hypochoeridis (LINNAEUS, 1758)					•							Ranunculaceae (*Ranunculus*)	European
Cryptocephalus moraei (LINNAEUS, 1758)									•			Guttiferae (*Hypericum*); oligophagous	Euro-Siberian
Cryptocephalus ocellatus DRAPIEZ, 1819					•				•			Salicaceae (*Salix, Populus*), Corylaceae (*Corylus*), Fagaceae (*Quercus*), Betulaceae (*Betula*, *Alnus*), Ulmaceae (*Ulmus*); polyphagous	Turanic-European
Cryptocephalus quinquepunctatus (SCOPOLI, 1763)									•			Salicaceae (*Salix*), Betulaceae (*Alnus*)	Central-European (mostly mountains and submountains)
Cryptocephalus parvulus MÜLLER, 1776									•			Betulaceae, Salicaceae, Fagaceae, Corylaceae, Rosaceae; polyphagous	European (excepting Mediterranean Subregion but occurs in Corsica, and Sardinia), from North Spain to South Russia, Central Asia, East Siberia, Japan
Pachybrachis sinuatus (MULSANT, 1859)					•	•			•	•		Tamaricaceae (*Myricaria germanica*), Salicaceae (*Salix*)	Europe, Asia Minor

Taxa (subfamily/species)	Collection sites											Host plants	Chorotype/ General distribution
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI		
CHRYSOMELINAE													
Gonioctena linnaeana (SCHRANK, 1781)									•	•		Salicaceae (*Salix*)	Europe, from North Spain and Norway to Sakhalin, South to Mongolia
Gonioctena pallida (LINNAEUS, 1758)									•			Rosaceae (*Sorbus aucuparia*)	European
Linaeidea aenea (LINNAEUS, 1758) [syn: *Plagiosterna aenea* LINNAEUS, 1758]				•	•		•	•	•			Betulaceae (*Alnus*)	Euro-Siberian
Phaedon cochleariae (FABRICIUS, 1792)									•			Brassicaceae (*Nasturtium officinale*, *Rorippa*, *Armoracia*, *Brassica*, *Sinapis*), *Veronica beccabunga*	Euro-Central Asian
Chrysolina fastuosa (SCOPOLI, 1763)										•	•	Lamiaceae (*Galeopsis*, *Lamium*)	Euro-Asian
Chrysolina herbacea (DUFTSCHMID, 1825)					•			•	•	•	•	Lamiaceae (*Mentha, Marrubium, Calamintha*)	European
Chrysolina polita LINNAEUS, 1758					•							Lamiaceae (*Mentha, Nepeta, Melissa, Origanum, Lycopus, Salvia, Glechoma)*	Euro-Siberian
Chrysomela populi LINNAEUS, 1758				•								Salicaceae (*Populus*, *Salix*)	Euro-Asian; India (GRUEV & TOMOV, 1986)
Chrysomela tremula FABRICIUS, 1787				•								Salicaceae (*Salix*)	from Ireland to Kamchatka
Chrysomela saliceti SUFFRIAN, 1849	•	•		•	•							Salicaceae (*Salix*)	from France to Mongolia
Chrysomela vigintipunctata (SCOPOLI, 1763)										•		Salicaceae *(Salix, Populus)*	Euro-Asian
Plagiodera versicolora (LAICHARTING, 1781)		•										Salicaceae *(Salix, Populus)*	Holarctic
Phratora tibialis (SUFFRIAN, 1851)	•	•			•							Salicaceae (*Salix*)	Europe, Asia Minor
Gastrophysa viridula (DE GEER, 1775)					•	•	•	•	•	•		Polygonaceae (*Rumex*, *Polygonum, Oxyria*)	Holarctic
Timarcha rugulosa HERRICH-SCHAFFER, 1838									•				South-eastern Poland, Ukraine, Slovakia, Moldavia, South Carpathians, Romania
GALERUCINAE													
Galerucella pusilla DUFTSCHMID, 1825					•							Lythraceae (*Lythrum salicaria*)	West Palaearctic
ALTICINAE													
Aphtona flava GUILLEBEAU, 1895						•	•					Euphorbiaceae (*Euphorbia*)	North Italy, Romania, Moravia, South Ukraine, basin of Danube, Croatia, Serbia, Bulgaria, Asia Minor; introduced in Canada and U.S.A.
Aphtona venustula (KUTSCHERA, 1861)					•							Euphorbiaceae (*Euphorbia*)	European

Taxa (subfamily/species)	Collection sites											Host plants	Chorotype/ General distribution
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI		
Chaetocnema chlorophana (DUFTSCHMID, 1825)	•											Poaceae, Juncaceae, Cyperaceae	Mediterranean Subregion, Central Europe, Asia Minor, Caucasus
Crepidodera aurata (MARSHAM, 1802)					•				•	•		Salicaceae (*Salix*, *Populus*)	Palaearctic
Longitarsus kutscherae (RYE, 1872)					•								Palaearctic
Neocrepidodera ferruginea (SCOPOLI, 1763)					•			•				Poaceae, Fabaceae, Polygonaceae, Urticaceae, Asteraceae, Boraginaceae	European
Neocrepidodera transversa (MARSHAM, 1802)						•	•					Asteraceae (*Cirsium*)	European
Phyllotreta tetrastigma (COMOLLI, 1837)									•			Brassicaceae (*Rorippa*, *Cardamine*, *Nasturtium*)	Euro-Siberian
Sphaeroderma testaceum (FABRICIUS, 1775)					•					•		Asteraceae (*Carduus*, *Cirsium*)	European
CASSIDINAE													
Cassida vibex LINNAEUS, 1767		•										Asteraceae (*Cirsium*, *Carduus*, *Centaurea*, *Arctium*, *Tanacetum*, *Achillea*)	Euro-Siberian
Cassida viridis LINNAEUS, 1758			•			•	•	•	•			Lamiaceae (*Stachys*, *Salvia, Mentha, Galeopsis*, *Lycopus*); hygro-mesophilous	Euro-Asian

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