

## FAUNAL AND ECOLOGICAL DATA ABOUT THE LEAF-BEETLES (COLEOPTERA, CHRYSOMELIDAE) FROM THE MOUNTAINOUS AREA OF BIHOR COUNTY (ROMANIA)

ILIE Lorena Cosma

**Abstract.** The paper presents the faunal and ecological data of the leaf-beetles from the mountainous area of Bihor County studied during a period of five years (2010-2015). There were identified 63 species belonging to 30 genera and 6 subfamilies. The majority of the chrysomelid species were identified in Bihor Mts. and are oligophagous species. The list includes Carpathian endemic species restricted only to the Romanian Carpathians, recorded along the entire chain of the Carpathian Mts. Four species are rare at national level.

**Keywords:** Chrysomelidae, mountainous area, Bihor County.

**Rezumat. Date faunistice și ecologice despre gândacii de frunze (Coleoptera, Chrysomelidae) din zona montană a județului Bihor (România).** Lucrarea prezintă fauna și date ecologice ale gândacilor de frunze din zona montană a județului Bihor studiată în perioada 2010-2015. S-au identificat 63 de specii aparținând la 30 de genuri și 6 subfamilii. Majoritatea speciilor de crisomelide au fost identificate în munții Bihorului și sunt oligofage. Lista include specii endemice carpatine, cunoscute doar în Carpații românești, întâlnite de-a lungul întregului lanț Carpatic. Patru specii sunt rare la nivel național.

**Cuvinte cheie:** Chrysomelidae, zona montană, județul Bihor.

### INTRODUCTION

Bihor County belongs to the historical province Crișana and is located in the north-western part of Romania. The mountainous area is located in all the eastern part of this county, from south to north and includes the following mountainous groups: Bihor Mountains, Codru-Moma Mountains, Pădurea Craiului Mountains and Plopiș (Șes) Mountains.

Bihor Mountains are located in the south-eastern part of Bihor County, having the biggest altitudes, between 1160 m (Vârtopeș peak) and 1848 m (Cucurbăta Mare peak).

Codru Moma Mountains are located in the southern extremity of Bihor County having altitudes up to 1112 m (Pleșu peak).

Pădurea Craiului Mountains are located in the central-eastern part of Bihor County, having altitudes between 600 and 800 meters.

Șes Mountain is located in the north-eastern part of Bihor County, having more reduced altitudes, between 500 and 900 meters (BERINDEI & POP, 1972).

Data about the leaf-beetles from the mountain area of Bihor County were published by seven different authors (MOCSARY, 1875; PETRI, 1912; PANIN, 1944; MARCU, 1957; 1961; KASZAB, 1962; GRUEV & MERKL, 1993).

### MATERIALS AND METHODS

The coleopterans were collected for seven months during April – October, 2010-2015. There was used an entomological net, sweeping the vegetation (bushes and herbs).

The identification of the species was made in the laboratory, using some sources mentioned in specialized literature (KASZAB, 1962; WARCHALOWSKI, 2003). There were used the nomenclature and the classification of LOBL & SMETANA, 2010.

### RESULTS AND DISCUSSIONS

In the mountain area of Bihor County, there were identified six subfamilies and 63 species belonging to the family Chrysomelidae:

Subfamily Criocerinae Latreille, 1807

1. *Lilioceris merdigera* Linnaeus, 1758 – Codru-Moma Mts (collected Ilie, 2013). Oligophagous.
2. *Oulema melanopus* Linnaeus, 1758 – Bihor Mts (collected Ilie, 2012-2014). Oligophagous.

Subfamily Cryptocephalinae Gyllenhal, 1813

1. *Labidostomis tridentate* Linnaeus, 1758 – Codru Moma Mts (collected Ilie, 2011). Polyphagous.
2. *Labidostomis humeralis* Schneider, 1792 – Șes Mountain (collected Ilie, 2013). Oligophagous.
3. *Clytra laeviuscula* Linnaeus, 1758 – Bihor Mts (collected Ilie, 2012-2015). Polyphagous.
4. *Smaragdina salicina* Scopoli, 1763 – Șes Mountain (collected Ilie, 2015). Polyphagous.
5. *Smaragdina xanthaspis* Germar, 1824 – Bihor Mts (collected Ilie, 2014). Polyphagous.

6. *Pachybrachys sinuatus* Mulsant et Rey, 1857 – Bihor Mts (collected Ilie, 2012). Polyphagous.
7. *Cryptocephalus ocellatus* Drapiez, 1819 – Şes Montain (collected Ilie, 2013). Polyphagous.
8. *Cryptocephalus bipunctatus* Linnaeus, 1758 – Bihor Mts (collected Ilie, 2011). Polyphagous.
9. *Cryptocephalus hipochaeridis* Linnaeus, 17758 – Codru-Moma Mts (collected Ilie, 2010). Oligophagous.
10. *Cryptocephalus moraei* Linaeus, 1758 – Codru-Moma Mts (collected Ilie, 2011), Bihor Mts (collected Ilie, 2012). Polyphagous.
11. *Cryptocephalus octacosmus* Bedel, 1891 – Bihor Mts (collected Ilie, 2013). Polyphagous.
12. *Cryptocephalus flavipes* Fabricius, 1781 – Bihor Mts (collected Ilie, 2012). Polyphagous.
13. *Cryptocephalus quadripustulatus* Gyllenhal, 1813 – Bihor Mts (collected Ilie, 2012). Oligophagous.
14. *Cryptocephalus schaefferi* Schrank, 1789 – Bihor Mts. (collected Ilie, 2013). Polyphagous.

Subfamily Chrysomelinae Latreille, 1802

1. *Timarcha goettingensis* Linnaeus, 1758 – Şes Mountain (collected Ilie, 2012). Oligophagous.
2. *Timarcha gibba* Hagenbach, 1825 – Bihor Mts. (KASZAB, 1962). Oligophagous.
3. *Chrysolina aurichalcea* Linnaeus, 1758– Codru-Moma Mts. (collected Ilie, 2013). Oligophagous.
4. *Chrysolina haemoptera* Linnaeus, 1758 – Bihor Mts. (collected Ilie, 2013). Oligophagous.
5. *Chrysolina biharica* Breit, 1919 – Bihor Mts. (KASZAB, 1962). Oligophagous
6. *Chrysolina umbratilis* Weise, 1887 –Bihor Mts. (KASZAB, 1962). Monophagous.
7. *Chrysolina sturmi* Westhoff, 1882 – Codru-Moma Mts. (collected Ilie, 2012). Polyphagous.
8. *Chrysolina polita* Linnaeus, 1758 – Codru-Moma Mts. (collected Ilie, 2013), Bihor Mts. (ILIE, 2012; PANIN, 1944). Oligophagous.
9. *Chrysolina graminis* Linnaeus, 1758 – Bihor Mts. (MARCUS, 1957). Polyphagous.
10. *Chrysolina fastuosa* Scopoli, 1763 – Bihor Mts. (collected Ilie, 2011-2015). Polyphagous.
11. *Chrysolina olivieri* Bedel, 1892 –Şes Mountain, (collected Ilie, 2012). Oligophagous.
12. *Chrysolina sanguinolenta* Linnaeus, 1758 –Şes Mountain (collected Ilie, 2013). Monophagous.
13. *Chrysolina weisei* Fivaldszky, 1883 –Şes Mountain (collected Ilie, 2013). Unknown
14. *Chrysomela populi* Linnaeus, 1758 – Bihor Mts. (collected Ilie, 2013). Oligophagous.
15. *Gastrophysa viridula* De Geer, 1775 – Bihor Mts. (collected Ilie, 2013; MARCUS, 1963). Oligophagous.
16. *Oreina coerulea* Olivier, 1790 – Bihor Mts. (MARCUS, 1961). Oligophagous.
17. *Oreina bidentata* Bontems, 1891 – Bihor Mts. (collected Ilie, 2013). Oligophagous.
18. *Oreina intricata* Germar, 1824 – Bihor Mts, (KASZAB, 1962) Monophagous.
19. *Oreina virgulata* Germar, 1824 – Codru-Moma Mts. (collected Ilie, 2012). Oligophagous.
20. *Oreina bifrons* Fabricius, 1792 – Bihor Mts. (PETRI, 1912). Oligophagous.
21. *Sclerophaedon carpathicus* Weise, 1875 – Codru-Moma Mts. (KASZAB, 1962). Oligophagous.
22. *Gonioctena fornicata* Brugemann, 1873 – Bihor Mts. (collected Ilie, 2012-2014). Polyphagous.

Subfamily Galerucinae Latreille, 1802

1. *Lochmaea capreae* Linnaeus, 1758 – Bihor Mts. (collected Ilie, 2012-2013). Polyphagous.
2. *Galerucella calmariensis* Linnaeus, 1758 – Bihor Mts. (collected Ilie, 2013). Monophagous.

Subfamily Alticinae Kutchera, 1859

1. *Phyllotreta vittula* Redtenbacher, 1849 – Bihor Mts. (collected Ilie, 2012-2015). Polyphagous.
2. *Aphthona ovata* Foudras, 1861 – Bihor Mts. (collected Ilie, 2013). Oligophagous.
3. *Longitarsus melanocephalus* De Geer, 1775 – Codru-Moma Mts. (collected Ilie, 2014). Oligophagous.
4. *Longitarsus ganglbaueri* Heikertinger, 1912 – Codru-Moma Mts. (collected Ilie, 2014). Monophagous.
5. *Mniophila muscorum* Koch, 1803– Codru-Moma Mts. (collected Ilie, 2013), Bihor Mts. (MOCSARY, 1875). Polyphagous.
6. *Orestia carpathica* Reitter, 1880 – Bihor Mts. (GRUEV & MERKL, 1993). Oligophagous.
7. *Minota carpathica* Heikertinger, 1911 – Bihor Mts. (GRUEV & MERKL, 1993). Oligophagous.
8. *Minota halmae* Apfelbech, 1906 – Bihor Mts. (GRUEV & MERKL, 1993). Oligophagous.
9. *Neocrepidodera ferruginea* Scopoli, 1763 – Codru-Moma Mts. (collected Ilie, 2013), Bihor Mts. (MOCSARY, 1875). Polyphagous.
10. *Dibolia carpathica* Weise, 1893 – Şes Mountain (collected Ilie, 2013). Monophagous.
11. *Chaetocnema hortensis* Geoffroy, 1785 – Şes Mountain (collected Ilie, 2014). Oligophagous.
12. *Crepidodera aurata* Marsham, 1802 –Bihor Mts. (collected Ilie, 2011-2015). Oligophagous.
13. *Crepidodera plutus* Latreille, 1804 – Bihor Mts. (collected Ilie, 2011-2013). Oligophagous.
14. *Crepidodera aurea* Geoffroy, 1805 – Bihor Mts. (collected Ilie, 2012). Oligophagous.
15. *Podagrica fuscicornis* Linnaeus, 1766 – Codru-Moma Mts. (collected Ilie, 2012), Bihor Mts. (MOCSARY, 1875). Oligophagous.
16. *Podagrica malvae* Hliger, 1807 – Bihor Mts. (MOCSARY, 1875), Codru-Moma Mts. (collected Ilie, 2012). Oligophagous.

17. *Psylliodes frivaldszky* Weise, 1888 – Bihor Mts. (GRUEV & MERKL, 1993). Oligophagous.
18. *Psylliodes hyoscyanus* Linnaeus, 1758 – Bihor Mts. (MOCSARY, 1875). Monophagous.
19. *Psylliodes subaeneus* Kutschera, 1867 – Bihor Mts. (GRUEV & MERKL, 1993). Oligophagous.

#### Subfamily Cassidinae Gyllenhal, 1813

1. *Hypocassida subferruginea* Schrank, 1776 – Șes Mountain (collected Ilie, 2013), Bihor Mts. (collected Ilie, 2012-2014). Monophagous.
2. *Cassida sanguinolenta* Müller, 1776 – Codru-Moma Mts. (collected Ilie, 2012). Monophagous.
3. *Cassida vibex* Linnaeus, 1767 – Șes Mountain (collected Ilie, 2013), Codru-Moma Mts. (collected Ilie, 2014-2015). Oligophagous.
4. *Cassida viridis* Linnaeus, 1758 – Șes Mountain (collected Ilie, 2013), Codru-Moma Mts. (collected Ilie, 2014), Bihor Mts. (collected Ilie, 2011-2013). Polyphagous.

Those 63 collected species of chrysomelids belong to 6 subfamilies and 30 genera. Three subfamilies are best represented: Chrysomelidae (22 species, 34.92%), Alticinae (19 species, 30.15%), Chrysocephalinae (14 species, 22.22%). Other subfamilies presents a smaller number of species: Cassidinae - 4 species (6.4%), Galerucinae 2 species (3.17%) and Criocerinae – 2 species, 3.17%.

Out of the 63 mentioned chrysomelid species, 49 have been identified by the author (marked in round brackets with “Ilie” and the years when the author collected the chrysomelid species), the rest of them being recorded from literature.

The identified chrysomelid species present the following distribution in the mountain area of Bihor County: 35 were found in Bihor Mts., 9 – in Șes Mountain, 8 – in Codru-Moma Mts., 8 are common in Codru-Moma Mts. and Bihor Mts., 1 is common in Șes Mountain and Bihor Mts., 1 is common in Șes Mountain and Codru-Moma Mts. and 1 is common in Codru-Moma Mts., Șes Mountain and Bihor Mts.

Some of the mentioned species (14) are widely distributed in Romania: *Oulema melanopus*, *Clytra laeviuscula*, *Pachybrachys sinuatus*, *Cryptocephalus hypochaeridis*, *Cryptocephalus moraei*, *Chrysolina polita*, *Chrysolina fastuosa*, *Chrysomela populi*, *Gonioctena fornicata*, *Crepidodera aurea*, *Podagrica malvae*, *Hypocassida subferruginea*, *Cassida vibex* and *Cassida viridis*.

The list includes two certain Carpathian endemics restricted only to the Romanian Carpathians: *Chrysolina biharica* and *Chrysolina weisei*. Other species are Carpathian endemics, being recorded along the entire Carpathian Mts. chain: *Sclerophaedon carpathicus* and *Psylliodes frivaldszky*.

Five chrysomelid species are distributed within the Alpine - Carpathian chain: *Chrysolina olivieri*, *Chrysolina umbratilis*, *Oreina intricata*, *Sclerophaedon carpathicus* and *Minota carpathica*.

Depending on the nutritional spectrum, the chrysomelids of Bihor County belong to three groups: oligophagous species (33, 52.38%), polyphagous species (20, 31.74%), monophagous species (9, 14.28 %) and one (1.58 %) with host-plant unknown.

Four chrysomelid species (*Timarcha gibba*, *Chrysolina aurichalcea*, *Chrysolina umbratilis* and *Oreina bifrons*) are rare at national level.

## CONCLUSIONS

The list of the mountainous leaf-beetles of Bihor County includes 63 species belonging to 30 genera and 6 subfamilies.

The majority of chrysomelids were recorded in Bihor Mts. and 14 species are widely distributed in Romania.

The oligophagous species predominate in the collected chrysomelid species.

Four species are rare at national level, six species are distributed within the Alpine-Carpathian chain and along the entire Carpathian Mts. chain and two species are endemic in the Carpathians, restricted only to the Romanian Carpathians.

## ACKNOWLEDGEMENTS

Special thanks to Mr. Professor Mircea Varvara, “Al. I. Cuza” University of Iasi, for his constructive comments and publishing advice.

## REFERENCES

- BERINDEI I. & POP GR. 1972. *Județul Bihor*. Edit. Academiei R. S. R. București. 161 pp.
- GRUEV B. & MERKL O. 1993. Geographical distribution of Alticinae (Coleoptera, Chrysomelidae) in Romania. *Annales Historico-Naturales Musei Nationalis Hungarici*. Budapest. **85**: 75-132.
- KASZAB Z. 1962. *Fauna Hungariae. Chrysomelidae*. Akademiai Kiado. Budapest. 416 pp.
- LOBL I. & SMETANA A. 2010. *Catalogue of Palearctic Coleoptera. Chrysomeloidae*. Stenstrup. Appolo Books. 924 pp.
- MARCU O. 1957. Contribuții la cunoașterea faunei coleopterelor Transilvaniei. *Buletinul Universității Babeș-Bolyai. Seria Științele Naturii*. Cluj-Napoca. **1**(1-2): 533-536.

- MARCU O. 1961. Noi contribuții la cunoașterea coleopterelor din Transilvania. *Studia Universitatea Babeș-Bolyai. Cluj-Napoca.* **9**(2): 75-88.
- MOCSARY S. 1875. *Adatok Biharmegye faunajához.* Matematikaies Termeszettudományi. Közlem. Budapest. **10**: 163-200.
- PANIN S. 1944. Les Chrysomela de la Roumanie. *Bulletin de la Section Scientifique de l'Académie Roumaine.* București. **26**(9): 601- 625.
- PETRI K. 1912. *Siebenburgens Käferfauna auf Grund ihrer Erforschung bis zum Jahre 1911.* Hermannstadt: 258-262.
- WARCZALOWSKI A. 2003. *Chrysomelidae. The leaf-beetles of Europe and the Mediterranean area.* Pemberley Books. Warszawa. 600 pp.

**Ilie Lorena Cosma**

Gimnasiun School no 1 Batâr, Bihor count, Romania.  
E-mail: aurelian\_ilie@yahoo.fr

Received: January 23, 2017  
Accepted: March 31, 2017