

Weevils (Coleoptera: Curculionidea) from the southern part of Retezat National Park and the Domogled-Cerna Valley National Park, Romania

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Summary

We have recorded 67 species of Curculionoidea in the studied area (tab. 1). Of these some are endemic to the Carpathians: *Liophloeus (Liophloeodes) liptoviensis* J. Weise, *Otiorhynchus (Magnanotius) kollari* (Gyll.), *O. (Prilisvanus) opulentus* Germ. and some are considered rare: *Limatogaster (Limatogaster) pachyscelis* Stierl., *Kyklioacalles aubei* (Boh.), *Leiosoma oblongulum* (Boh.) and *Aparopion costatum* (Fahreus). Besides some common species like: *Nedyus quadrimaculatus* (L.), *Strophosoma (s. str.) melanogrammum* (Forster), there are also well represented species from the following genera: *Otiorhynchus*, *Phyllobius* and *Polydrusus* (tab. 1). The endemic species *Otiorhynchus (Prilisvanus) opulentus* Germ. is widespread in the area. Other rare and endemic species, are mainly present in spruce and beech forest from Câmpușel (habitat 3) and on herbaceous vegetation from Stâncă Roșie (Red Rock) (habitat 4).

Rezumat

Curculionide (Coleoptera: Curculionoidea) din sudul Parcului Național “Retezat” și Parcului Național “Domogled – Valea Cernei”, România

În zona cercetată am semnalat 67 specii din Familia Curculionoidea (tab.1). Dintre acestea se remarcă cele endemice în Carpați: *Liophloeus (Liophloeodes) liptoviensis* J. Weise, *Otiorhynchus (Magnanotius) kollari* (Gyll.), *O. (Prilisvanus) opulentus* Germ. și cele considerate rare: *Limatogaster (Limatogaster) pachyscelis* Stierl., *Kyklioacalles aubei* (Boh.), *Leiosoma oblongulum* (Boh.) și *Aparopion costatum* (Fahreus). Pe lângă unele specii comune: *Nedyus quadrimaculatus* (L.), *Strophosoma (s. str.) melanogrammum* (Forster), sunt bine reprezentate speciile genurilor *Otiorhynchus*, *Phyllobius* și *Polydrusus* (tab. 1). Specia endemică *O. (Prilisvanus) opulentus* Germ. este foarte răspândită în zonă. Celelalte specii endemice și rare sunt prezente mai ales în pădurea de molid și fag de la Câmpușel (habitatal 3) și pe vegetația ierboasă de la Stâncă Roșie (habitatal 4).

Keywords: weevils, Retezat, Domogled - Cerna Valley, faunistic studies, endemic and rare species, ecology, Romania

Introduction

Our research unfolded in 2010 during the biodiversity study performed on the contact area between Reteza” National Park and Domogled – Cerna Valey National Park where the modernization of the national road “DN 66A” was planned, which is a link road between the localities Câmpul lui Neag and Cerna. This road crosses numerous natural habitats some of which are of National and European concern.

Weevils have been studied and collected in the 3-5 June 2010 period from natural habitats (mixed spruce and deciduous forests, beech forests, meadows with *Rumex*, rocks, marshes with *Carex*) near Câmpul lui Neag – Cerna Valley area, approximately 50 meters on each side of the area where the link road was designed to build, and in Scorota Gorge situated near the town Câmpușel.

Habitats and locations from which the weevils where collected and studied:

1. **Piceo-Fagetum association:** *Picea, Fagus, Acer* etc. and hygrophile herbaceous vegetation such as *Hyloconium splendens, Saxifraga paniculata* etc, **Cheile Scorotei (Scorota Gorge)**, N 45°16'37.79", E 22°53'57.96", alt. 1165 m (fig. 1 a, b);
2. **Piceo-Fagetum association:** with hygrophile herbaceous vegetation, **Câmpușel**, N 45°15'10.59", E 22°51'46.82", alt. 1233 m;
3. **Piceo-Fagetum association:** with hygrophile herbaceous vegetation, **Câmpușel end of the road**, N 45°15'12.4", E 22°51'51.2", alt. 1247 m and N 45°15'11,0"; E 22°51'49,8", alt. 1257 m (fig. 2);
4. **Steep rocks with divers herbaceous vegetation:** species, such as *Campanula, Dianthus, Silene, Geranium* etc., **Stânca Roșie (Red Rock)**, N 45°14'59.5"; E 22°51'36.5", alt. 1369 m (fig. 3 a, b);
5. **Piceo-Fagetum association with clearings:** and hygrophile herbaceous vegetation, **Retezatul Calcaros**, N 45°13'52.3"; E 22°50'26.6", alt. 1280 m (fig. 4);
6. **Marshes with blue Carex** with hygrophile herbaceous vegetation: spruce and beech, N 45°15'13.4"; E 22°31'31.0", alt. 1280 m;
7. **Spruce forest with clearings:** with divers herbaceous vegetation (*Urtica, Rumex* etc), at **”Empire” waterfall – Entrance in „Domogled – Cerna Valley” National Park**, N 45°13'51.3"; E 22°50'35.7", alt. 1287 m (fig. 5);
8. **Shrubbery**, clearings of beach forest, N 45°13'52.0"; E 22°50'31.7", alt. 1312 m;
9. **Meadow with Rumex alpinus** bordered by shrubs and trees, N 45°13'52.3"; E 22°50'26.6", alt. 1280 m (fig. 6);
10. **Beech forest with Luzula (Luzulo-Fagetum 1)**, N 45°14'39.4"; E 22°51'15.6", alt. 1355 m;
11. **Beech forest with Luzula (Luzulo-Fagetum 2)**, N 45°12'55.4"; E 22°49'03.9", alt. 935 m (fig. 7);
12. **Aceri-Fraxinetum**, priority habitat, N 45°12'45.5"; E 22°49'06.3", alt. 940 m (fig. 8);
13. **Deciduous forest**, with diverse herbaceous species such as *Petasites, Campanula, Lamium, Urtica dioica*, ferns etc, at **Cerna springs**, N 45°12'13.1"; E 22°47'53.5", alt. 745 m (fig. 9);

14. Mountain meadows, near Cerna springs, Lake's end, N $45^{\circ}13'52.3''$; E $22^{\circ}46'55.0''$, alt. 715 m (fig. 10);

15. Beech forest, Iovan's Lake, N $45^{\circ}12'23.1''$; E $22^{\circ}48'18.9''$, alt. 748 m (fig. 11);



Fig. 1a



Fig. 1b



Fig. 2



Fig. 3a



Fig. 3b



Fig. 4

Fig. 1 a, b *Piceo-Fagetum*, Cheile Scorotei (Scorota Gorge).

Fig. 2 *Piceo-Fagetum*, Câmpușel.

Fig. 3 a, b Steep rocks, Stâncă Roșie (Red Rock).

Fig. 4 *Piceo-Fagetum*, Retezatul Calcaros.

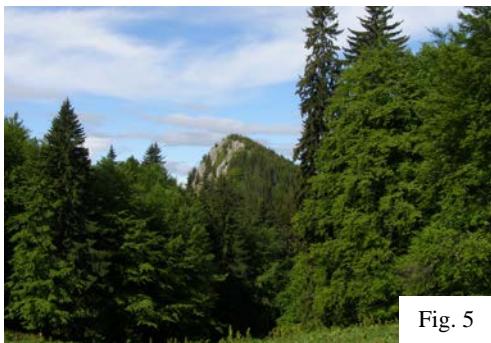


Fig. 5



Fig. 6



Fig. 7



Fig. 9

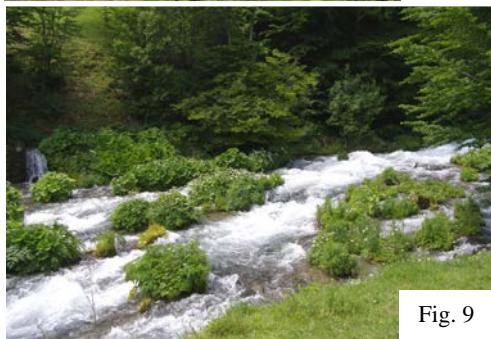


Fig. 8



Fig. 10



Fig. 11



Fig. 11

Fig. 5 Spruce forest with clearings, Entrance in Domogled – Cerna Valley National Park.

Fig. 6 Meadow with *Rumex alpinus*.

Fig. 7 Beech forest, *Luzulo-Fagetum* 2.

Fig. 8 Aceri-Fraxinetum.

Fig. 9 Deciduous forest, Cerna springs.

Fig. 10 Mountain meadows, Cerna springs.

Fig. 11 Beech forest, Iovan's Lake.

Material and methods

The weevils were collecting by shaking the tree and shrub canopy using an umbrella net, by mowing the vegetation with an entomological net, or simply collecting them directly from the host plants. Also weevils from litter were collected using a litter sifter.

The collected material was prepared and studied in the laboratory. Beetles used in the study are kept in L. A. Teodor collection. For species identification a stereoscopic microscope and specific keys were used (ENDRÖDI 1961; DIECKMANN L. 1988; FREUDE, HARDE & LOHSE 1981, 1983; BEHNE L. 1994, 1998; COLONNELLI 2004; TEODOR & VLAD-ANTONIE 2007; RHEINHEIMER & HASSLER 2010; MAGNANO & ALONSO-ZARAZAGA 2013). For species identification specific morphological descriptions were used and male genitalia were studied. We photographed the habitats where the weevils were collected and observed, and some of the studied individuals.

Results and discussions

In total we found 67 species from the Curculionoidea Superfamily. Some of them are common and widespread species while others are common only in the mountainous area and less frequent in plain or hill areas (tab. 1).

Table 1: Weevils from Câmpul lui Neag – Cerna Valley area identified in 3-5 June 2010

Nr. crt.	Classification/species	N		Date	Hab	Obs
		♂♂	♀♀			
	Curculionoidea					
	Apionidae					
	Apioninae					
	Aplemonini					
1.	<i>Perapion violaceum</i> (Kirby, 1808)	-	1	3.VI	14	
		2	1	3.VI	8	
		1	1	4.VI	11	
2.	<i>Pseudostenapion simum</i> (Germar, 1817)	1	-	4.VI	9	
	Ceratapiini					
3.	<i>Diplapion confluens</i> (Kirby, 1808)	-	1	3.VI	4	
	Kalcapiini					
4.	<i>Melanapion minimum</i> (Herbst, 1797)	3	-	3.VI	4	
		-	1	3.VI	8	
5.	<i>Squamapion cineraceum</i> (Wencker, 1864)	-	1	3.VI	14	
6.	<i>Taeniapion urticarium urticarium</i> (Herbst, 1784)	2	1	3.VI	13	
		-	1	4.VI	9	
		-	1	4.VI	11	
	Synapiina					
7.	<i>Ischnopterapion (Chlorapion) virens</i> (Herbst, 1797)	1	-	3.VI	14	
		-	1	4.VI	12	
	Piezotrachelini					
8.	<i>Protaipion fulvipes</i> (Fourcroy, 1785)	-	1	3.VI	13	
	Curculionidae					
	Ceutorhynchinae					
	Ceutorhynchini					

Nr. crt.	Classification/species	N		Date	Hab	Obs
		♂♂	♀♀			
9.	<i>Ceutorhynchus coarctatus</i> Gyllenhal, 1837	-	1	4.VI	11	
10.	<i>Ceutorhynchus striatellus</i> Schultze, 1900	1	-	3.VI	4	
11.	<i>Ceutorhynchus pallidactylus</i> (Marsham, 1802)	-	3	3.VI	4	
		-	1	3.VI	15	
		-	2	4.VI	12	
12.	<i>Ceutorhynchus puncticollis</i> Boheman, 1845	1	-	3.VI	4	
13.	<i>Mogulones crucifer</i> (Pallas, 1771)	2	2	4.VI	12	
14.	<i>Nedyus quadrimaculatus</i> (Linnaeus, 1758)	1	-	3.VI	8	
		4	5	3.VI	13	
		13	23	3.VI	15	
		1	3	4.VI	9	
		1	1	4.VI	10	
		14	4	4.VI	11	
		14	6	4.VI	12	
		2	2	5.VI	1	
		2	13	5.VI	3	
		9	8	5.VI	5	
		5	5	5.VI	7	
	Phytobiini					
15.	<i>Rhinoncus pericarpius</i> (Linnaeus, 1758)	1	1	3.VI	8	
		-	1	4.VI	2	
		-	1	4.VI	9	
		1	-	4.VI	11	
		5	1	5.VI	3	
		5	3	5.VI	5	
	Scleropterini					
16.	<i>Scleropterus serratus serratus</i> (Germar, 1824)	1	-	3.VI	13	
		-	1	3.VI	15	
		3	3	5.VI	3	
		-	5	5.VI	5	
		-	5	5.VI	7	
	Cryptorhynchinae					
	Cryptorhynchini					
	Tylocina					
17.	<i>Kyklioacalles aubei</i> (Boheman, 1837)	1	-	3.VI	4	rs
	Curculioninae					
	Anthonomini					
18.	<i>Anthonomus (s. str.) rubi</i> (Herbst, 1795)	-	1	3.VI	4	
		-	1	5.VI	3	
	Cionini					
19.	<i>Cionus alauda</i> (Herbst, 1784)	2	2	3.VI	4	
		2	-	3.VI	8	
		2	2	4.VI	11	
		3	-	4.VI	12	
20.	<i>Cionus ganglbaueri</i> Wingelmüller, 1914	-	1	3.VI	4	
21.	<i>Cionus nigritarsis</i> Reitter, 1904	1	-	3.VI	14	
22.	<i>Cionus thapsus</i> (Fabricius, 1792)	-	1	4.VI	11	
	Curculionini					

Nr. crt.	Classification/species	N		Date	Hab	Obs
		♂♂	♀♀			
	Curculionina					
23.	<i>Curculio (Archarius) salicivorus</i> Paykull, 1792	1	-	3.VI	4	
		-	1	3.VI	8	
	Tribul Mecinini					
24.	<i>Miarus campanulae</i> (Linnaeus, 1767)	-	1	4.VI	11	
25.	<i>Rhinusa tetra</i> (Fabricius, 1792)	2	5	3.VI	4	
	Rhamphini					
	Rhamphina					
26.	<i>Orchestes (Salius) fagi</i> (Linnaeus, 1758)	1	-	4.VI	10	
		1	-	4.VI	11	
		1	-	5.VI	1	
27.	<i>Tachyerges pseudostigma</i> Tempére, 1982	-	1	4.VI	10	
	Tychiini					
	Tychiina					
28.	<i>Tychius (s. str.) stephensi</i> Schönherr, 1836	1	-	4.VI	14	
	Entiminae					
	Brachyderini					
29.	<i>Strophosoma (s. str.) melanogrammum</i> (Forster, 1771)	-	14	3.VI	2	
		-	22	3.VI	3	
		-	3	5.VI	3	
		-	5	3.VI	8	
		-	4	3.VI	13	
		-	1	3.VI	15	
		-	15	4.VI	6	
		-	3	4.VI	9	
		-	12	4.VI	10	
		-	3	5.VI	7	
	Otiorhynchini					
30.	<i>Dodecastichus pulverulentus</i> Germar, 1824	4	2	3.VI	3	
		1	-	3.VI	13	
		2	1	3.VI	15	
		1	1	5.VI	1	
31.	<i>Limatogaster (Limatogaster) pachyscelis</i> Stierlin, 1861	1	-	3.VI	4	rs
32.	<i>Otiorhynchus (Lolatismus) antennatus</i> Stierlin, 1861	1	1	5.VI	1	
33.	<i>Otiorhynchus (Magnanotius) austriacus</i> (Fabricius, 1801)	-	1	5.VI	7	
34.	<i>Otiorhynchus (Magnanotius) kollari</i> Gyll., 1834	-	1	5.VI	7	Carp
35.	<i>Otiorhynchus (Majetnecus) lepidopterus</i> (Fabricius, 1794)	-	1	3.VI	2	
		-	6	4.VI	3	
36.	<i>Otiorhynchus (Namertanus) pauxillus</i> Rosenhauer, 1847	2	4	4.VI	1	
		2	18	5.VI	3	
37.	<i>Otiorhynchus (Nihus) scaber</i> (Linnaeus, 1758)	-	3	3.VI	2	
		-	2	3.VI	14	
		-	17	4.VI	3	
		-	12	4.VI	6	
		-	5	5.VI	7	

Nr. crt.	Classification/species	N		Date	Hab	Obs
		♂♂	♀♀			
38.	<i>Otiorhynchus (s. str.) bisulcatus</i> (Fabricius, 1781)	1	-	4.VI	11	
39.	<i>Otiorhynchus (s. str.) coecus coecus</i> Germar, 1824	2	1	3.VI	2	
		4	1	4.VI	3	
		1	-	4.VI	11	
		-	2	5.VI	1	
		2	2	5.VI	7	
40.	<i>Otiorhynchus (Prilisvanus) opulentus</i> Germar, 1834	4	3	3.VI	2	Carp
		4	4	3.VI	4	
		4	2	3.VI	8	
		2	3	3.VI	14	
		-	1	3.VI	15	
		15	7	4.VI	9	
		-	1	4.VI	10	
		4	1	4.VI	11	
		11	8	4.VI	12	
		6	2	5.VI	1	
		7	3	5.VI	3	
		53	41	5.VI	7	
		-	2	3.VI	4	
		-	1	3.VI	15	
		-	1	4.VI	12	
41.	<i>Otiorhynchus (Proremus) coarctatus</i> Stierlin, 1861	3	1	3.VI	3	
		1	4	4.VI	4	
		-	2	4.VI	11	
		2	1	5.VI	1	
43.	<i>Otiorhynchus (Tithonus) chrysocomus</i> Germar, 1824	1	-	3.VI	2	
		-	1	4.VI	3	
		2	2	5.VI	7	
44.	<i>Otiorhynchus (Stupamacus) winkleri</i> Solari, 1937	-	1	5.VI	1	
Phyllobiini						
45.	<i>Phyllobius (Dieletus) argentatus argentatus</i> (Linnaeus, 1758)	8	-	3.VI	2	
		-	2	3.VI	3	
		2	-	5.VI	3	
		-	4	3.VI	8	
		3	3	3.VI	13	
		2	2	3.VI	15	
		1	1	4.VI	4	
		16	8	4.VI	6	
		8	3	4.VI	9	
		25	14	4.VI	10	
		2	1	4.VI	11	
		14	1	4.VI	12	
		2	2	5.VI	5	
46.	<i>Phyllobius (Metaphyllum) glaucus</i> (Scopoli, 1763)	-	2	5.VI	1	
		5	4	5.VI	3	
		5	2	5.VI	7	

Nr. crt.	Classification/species	N		Date	Hab	Obs
		♂♂	♀♀			
47.	<i>Phyllobius (Nemoicus) oblongus</i> (Linnaeus, 1758)	4	6	3.VI	4	
		1	1	5.VI	1	
48.	<i>Phyllobius (Parnemoicus) viridicollis</i> (Fabricius, 1801)	1	-	3.VI	2	
		-	2	3.VI	3	
		9	8	5.VI	3	
		3	1	3.VI	4	
		5	8	4.VI	4	
		1	1	3.VI	8	
		17	11	4.VI	6	
		10	15	4.VI	9	
		2	4	4.VI	10	
		9	10	5.VI	5	
		7	10	5.VI	7	
49.	<i>Phyllobius (s. str.) betulinus betulinus</i> (Bechstein & Scharfenberg, 1805)	-	1	3.VI	4	
50.	<i>Phyllobius (s. str.) pyri</i> (Linnaeus, 1758)	3	3	4.VI	6	
		14	3	4.VI	9	
		1	-	5.VI	5	
Polydrusini						
51.	<i>Polydrusus (Eudipnus) mollis</i> (Stroem, 1768)	-	5	3.VI	3	
		-	1	5.VI	3	
		-	1	3.VI	13	
		-	1	3.VI	14	
		-	1	3.VI	15	
		-	1	4.VI	4	
		-	1	4.VI	6	
		-	1	5.VI	5	
52.	<i>Polydrusus (Eustolus) pterygomalis</i> Boheman, 1840	1	-	3.VI	2	
53.	<i>Polydrusus (s. str.) picus</i> (Fabricius, 1792)	1	-	3.VI	4	
		3	4	3.VI	13	
		1	-	3.VI	15	
54.	<i>Polydrusus (Neoeustolus) pilosus</i> Gredler, 1866	3	3	3.VI	2	
		6	1	3.VI	3	
		3	2	4.VI	4	
		3	3	4.VI	6	
55.	<i>Polydrusus (s. str.) tereticollis</i> (De Geer, 1775)	1	-	3.VI	3	
		1	1	3.VI	4	
		2	1	4.VI	4	
		3	1	3.VI	8	
		1	-	3.VI	15	
		1	2	4.VI	9	
56.	<i>Liophloeus (Liophloeodes) liptoviensis</i> (J. Weise, 1894)	1	-	5.VI	3	Carp
Sciaphilini						
57.	<i>Brachysomus villosulus</i> (Germar, 1824)	1	4	3.VI	3	
		-	2	5.VI	3	
		-	1	5.VI	1	

Nr. crt.	Classification/species	N		Date	Hab	Obs
		♂♂	♀♀			
58.	<i>Sciaphilus asperatus</i> (Bonsdorff, 1785)	2	4	3.VI	3	
		-	1	5.VI	1	
		-	1	5.VI	5	
	Sitonini					
59.	<i>Sitona (s. str.) humeralis</i> Stephens, 1831	1	-	3.VI	4	
60.	<i>Sitona (s. str.) lepidus</i> Gyllenhal. 1834	1	-	5.VI	7	
61.	<i>Sitona (s. str.) sulcifrons</i> (Thunberg, 1798)	1	-	3.VI	8	
	Tropiphorini					
62.	<i>Tropiphorus elevatus</i> (Herbst, 1795)	-	1	5.VI	3	
		1	-	5.VI	7	
	Hyperinae					
	Tribul Hyperini					
63.	<i>Donus (s. str.) oxalidis</i> (Herbst, 1795)	1	-	3.VI	13	
	Lixinae					
	Tribul Lixini					
64.	<i>Lixus (Ortholixus) angustatus</i> (Herbst, 1795)	1	-	3.VI	8	
	Molytinae					
	Tribul Molytini					
	Leiosomatina					
65.	<i>Leiosoma oblongulum</i> (Boheman, 1842)	1	-	5.VI	3	rs
	Subtribul Plinthina					
66.	<i>Aparopion costatum</i> (Fahreus, 1843)	-	1	4.VI	12	rs
	Hylobiini					
	Hylobiina					
67.	<i>Lepyrus capucinus</i> (Schaller, 1783)	-	1	5.VI	7	

Abbreviations: Hab = researched habitats: **1** – *Piceo-Fagetum*, Scorotei Gorge; **2** – *Piceo-Fagetum*, Câmpușel; **3** – *Piceo-Fagetum*, Câmpușel end of the road; **4** – Steep rocks, Stânca Roșie (Red Rock); **5** – *Piceo-Fagetum*, Retezatul Calcaros; **6** – Marshes with blue *Carex*; **7** – Spruce forest – Entrance in “Domogled – Vally Cerna” National Park; **8** – Shrubbery, clearings of beach forest; **9** – Meadow with *Rumex alpinus*; **10** – Beech forest with *Luzula* (*Luzulo-Fagetum* 1); **11** – Beech forest with *Luzula* (*Luzulo-Fagetum* 2); **12** – *Aceri-Fraxinetum*; **13** – Deciduous forest, at Cerna springs; **14** – Mountain meadows, near Cerna springs; **15** – Beech forest, Iovan’s lake. **N** = number of collected individuals, **Obs** = observations about the species: **Carp** = Carpathian endemic species, **rs** = rare species.

The Entiminae subfamily is best represented in terms of species number (34 species), subfamily from which, in the researched area there were numerous mountainous species especially from Otiorychnini tribe (fig. 12, tab. 1). Also well represented were Curculioninae (11 species), Apioninae (8 species), Ceutorhynchinae (8 species) subfamilies. Next in line is Molytinae subfamily (3 species) and subfamilies: Cryptorhynchinae, Hyperinae and Lixinae each with just 1 species (fig. 12, tab. 1).

The researched habitats accommodate a large number of species of Curculionidae (fig. 13, tab. 1). However remarkable through its' plentiful diversity is *Piceo-Fagetum* association from Câmpușel (habitat 3) with 24 species and the steep rocks from Stânca Roșie (Red Rock) (habitat 4) with 23 species, followed by habitat 7, spruce forest with clearings – Entrance in Domogled – Cerna Valley National Park (14 species), habitat 11, beech forest with *Luzula* (*Luzulo-Fagetum*) (14 species), habitat 1 *Piceo-Fagetum* from Scorotei Gorge (13 species) and habitat 8, Shrubbery, clearings of beach forest (13 species).

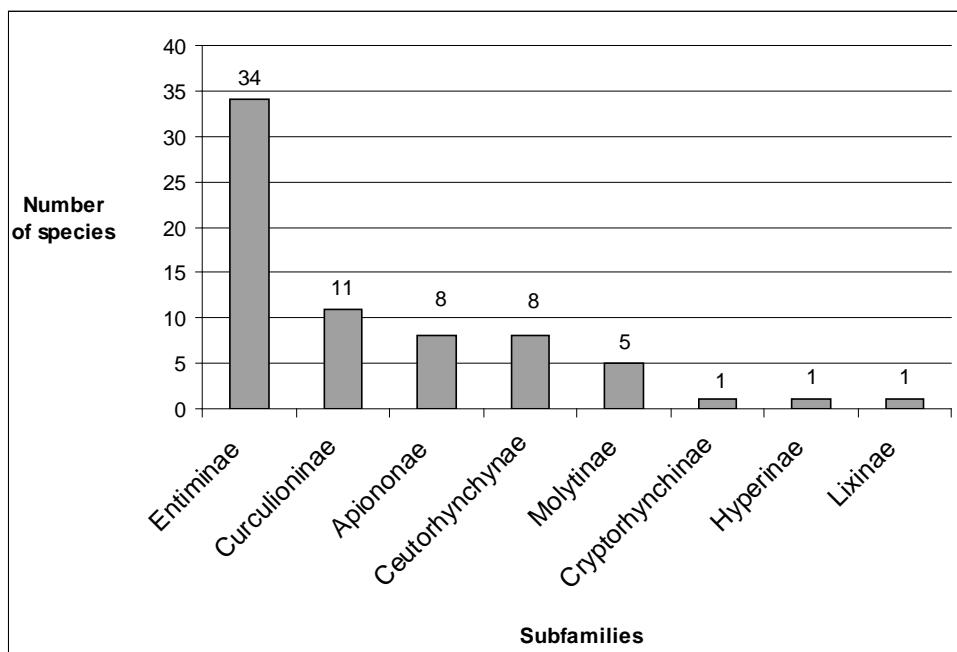


Fig. 12 Percentage of Curculionoidea subfamilies according to the number of species, in Câmpul lui Neag – Cerna Valley area.

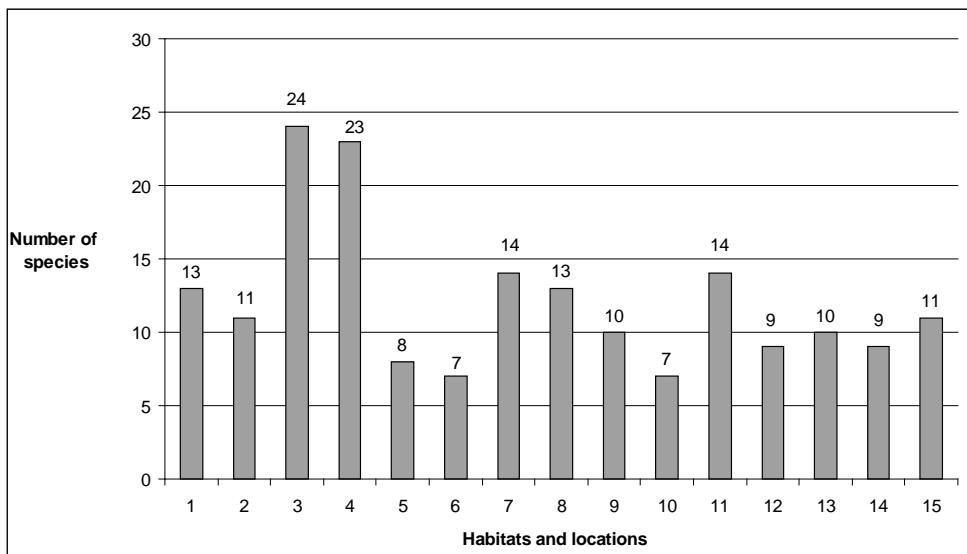


Fig. 13 Numeric distribution of weevil species by habitats and locations: 1-15 (see material and methods). **Habitats and locations:** **1** – *Piceo-Fagetum*, Scorotei Gorge; **2** – *Piceo-Fagetum*, Câmpușel; **3** – *Piceo-Fagetum*, Câmpușel end of the road; **4** – Steep rocks, Stânca Roșie (Red Rock); **5** – *Piceo-Fagetum*, Retezatul Calcaros; **6** – Marshes with blue *Carex*; **7** – Spruce forest – Entrance in “Domogled – Cerna Valley” National Park; **8** – Shrubbery, clearings of beach forest; **9** – Meadow with *Rumex alpinus*; **10** – Beech forest with *Luzula* (*Luzulo-Fagetum* 1); **11** – Beech forest with *Luzula* (*Luzulo-Fagetum* 2); **12** – *Aceri-Fraxinetum*; **13** – Deciduous forest, at Cerna springs; **14** – Mountain meadows, near Cerna springs; **15** – Beech forest, Iovan’s lake.

From the 67 species of weevils identified in the area, 3 are Carpathian endemics *Otiorhynchus (Magnanotius) kollari* (Gyll.) (fig. 14 a), *O. (Prilisvanus) opulentus* Germ. (fig. 14 b), *Liophloeus (Liophloeodes) liptoviensis* J. Weise (fig. 14 g), and 4 are rare species: *Limatogaster (Limatogaster) pachyscelis* Stierl. (fig. 14 c), *Leiosoma oblongulum* (Boh.), *Aparopion costatum* (Fahreus) (fig. 14 e) and *Kyklioacalles aubei* (Boh.) (fig. 14 f).

In habitats from that area some common species are well represented: *Nedyus quadrimaculatus* (L.), *Strophosoma (s. str.) melanogrammum* (FORSTER), but also some from *Otiorhynchus*, *Phyllobius* and *Polydrusus* genera, (tab. 1, fig. 14 d, h, i). Amongst endemic species, *Otiorhynchus (Prilisvanus) opulentus* GERM. is widespread in the area. The other endemic and rare species are especially present in spruce and beech association from Câmpușel (habitat 3) and on herbaceous vegetation from Stânca Roșie (Red Rock) (habitat 4).

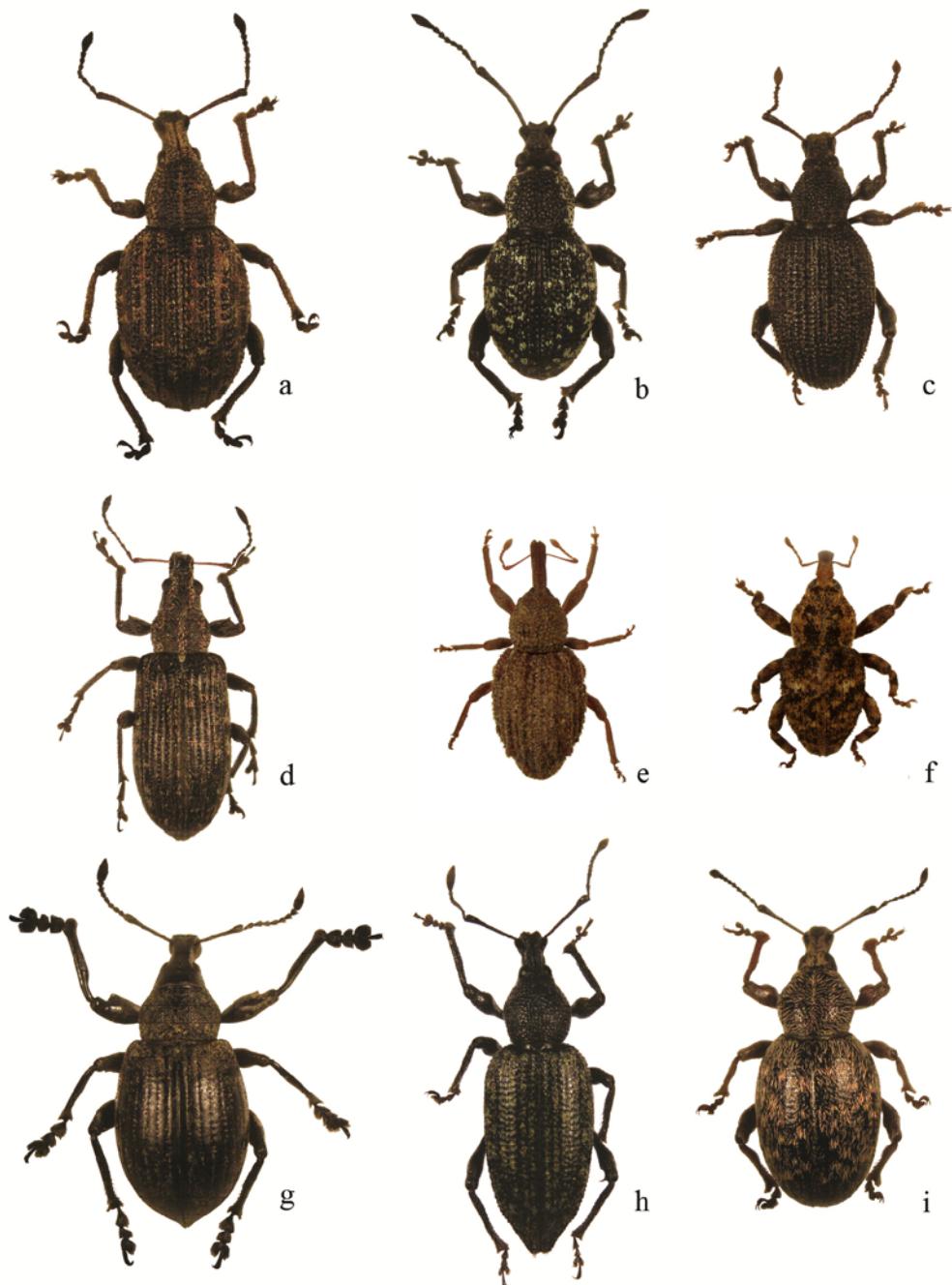


Fig. 14 **a.** *Otiorhynchus (Magnanotius) kollari* (GYLL.), 11 mm; **b.** *Otiorhynchus (Prilisvanus) opulentus* GERM., 8 mm; **c.** *Limatogaster (Limatogaster) pachyscelis* STIERL., 8 mm; **d.** *Polydrusus (Neoeustolus) pilosus* Gredl., 6 mm; **e.** *Aparopion costatum* (FAHREUS), 5 mm; **f.** *Kyklioacalles aubei* (BOH.), 4.5 mm; **g.** *Liophloeus (Liophloeodes) liptoviensis* J. WEISE, 9 mm; **h.** *Otiorhynchus (Thalycryncalus) perdix* (OLIV.), 11 mm; **i.** *Otiorhynchus (Tithonus) chrysocomus* GERM., 9 mm.

Conclusions

Among the endemic species *Otiorhynchus (Prilisvanus) opulentus* GERM. is widespread, well represented, and in large number of individuals on *Rumex* sp. .

The other endemic and rare species are quartered in the beech forest from Câmpușel at the end of the asphalted area, and also on herbaceous vegetation from Stâncă Roșie (Red Rock).

At Red Rock, among the rich diversity of weevils and the presence of rare or endemic species, there is notable floristic diversity which favours the presence of a big number of insects from diverse orders.

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