

## PRELIMINARY RESEARCH ABOUT OF THE COLEOPTERA (CERAMBYCIDAE AND LUCANIDAE) FOUND IN THE FOREST HABITATS OF THE GOVORA RIVER BASIN

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### ABSTRACT

The investigated area is situated in the Govora river basin (Valcea County). The studies on the field involved a good bibliographic documentation regarding the physical-geographical frame: the relief, the geology-lithology, the hydrographic network, the soils and the general and local climate. This area represent a real scientific interest, being an area not studied until now. Following research in the forest habitats of the Govora river basin, we have identified five species of the Coleoptera (Cerambycidae and Lucanidae), belonging to 5 genera and 3 subfamilies. The Cerambycidae family it is represented by two subfamilies - Cerambycinae and Prioninae. From the Cerambycinae subfamily was identified two species: *Cerambyx cerdo* (Linnaeus 1758) and *Rosalia alpina* (Linnaeus, 1758), and from the Prioninae subfamily, one species *Prionus coriarius* (Linnaeus, 1758). From the Lucanidae family, Lucaninae subfamily was identified two species: *Lucanus cervus* (Linnaeus, 1758) and *Dorcus parallelipedus* (Linnaeus, 1758). Installing species of the Coleoptera in this area on certain tree species is determined by their trophic preferences. Among the species identified, a particular interest is represented by the species: *Cerambyx cerdo* (Linnaeus, 1758), *Rosalia alpina* (Linnaeus, 1758) and *Lucanus cervus* (Linnaeus, 1758), which are protected species contained in Annex II of the Habitats Directive.

### INTRODUCTION

The territory that we have been studying (since 2016) is situated along the basin of the Govora River and it covers a surface of approximately 350 km<sup>2</sup> (fig. 1). Referring to the geo-morphological aspect, the basin of the Govora River comprises two distinct, well defined relief types: the mountainous area, pertaining to the Capatanii Mountains, in the Meridional Carpathians, and Subcarpathian area of Oltenia (Getics Subcarpathians of Valcea) (fig.1).

The perimeter of the analyzed surface has the following limits: in the North, *Suseni* (870 m.s.m), 45°11'07.75"N and 24°08'45.39"E, in the South and *Stuparei* (199 m.s.m), 44°59'51.99"N and 24°16'56.39"E. The most important hills and ridges of this area belonging to the basin of the Govora River, are the following: Piscupia, Baba Floarea, Pausesti, Barlogului, Huniei, Tătarul, Stogșor, Mosei, Mircii, Eforiei, Cornului (700 m.s.m), Zanelor, Turturelelor, Stanei, Radul Mielcii, Moaca, Ferigilor, Mierla, Rosca, Capul Ponorului, Suvara, Nici, Măgurii.

The hydrographic network of the investigated region is tributary to the *Valley of Govora River*. The *Govora River* gets its waters from the southern slope of *Capatana Mountains* and it flows into the *Olt River* near the village called *Stuparei* crossing in its way different types of relief. Its most important tributaries are *Hința*, *Cacova*, *Bunești*, *Pârâu Sărat* and *Soaselui*, which it receives in the Subcarpathian area of Oltenia.

Administratively, the land is owned by the county of Vâlcea and it comprises the precincts of 27 settlements: *Baile Govora*, *Prajila*, *Bunesti*, *Gatejesti*, *Barlogu*, *Dobriceni*,

Suseni, Budurasti, Mogosesti, Stoenesti, Piscu Mare, Gruieri, Deleni, Popesti, Gruiu, Neghinești, Zmeuratu, Gurisoara, Firesti, Titiresti, Scarisoara, Govora Village, Vulpuiesti, Birsesti, Negreni, Mihaesti, Buleta.



Fig. 1. Aspect of the forest from Govora River Basin (Foto L.Niculescu-2016)

### MATERIAL AND METHODS

The studies on the field involved a good bibliographic documentation regarding the physical-geographical frame: the relief, the geology-lithology, the hydrographic network, the soils and the general and local climate. These studies were conducted during May to September 2016. As a result of landslides was collected entomological material, were made brush sampling by age, consistency, cardinal position, the edge area and isolated secular trees. The collected material was determined using the following works: Forest Entomology (I. Mircea Ene, 1971) and Fauna R. P. R. (S. Panin and N. Savulescu, 1961).

### RESULTS AND DISCUSSIONS

From the perimeter investigated were identified the following types of forest habitats:

- **91E0\***- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) - CLAS. PAL.: 44.3, 44.2 și 44.13; RO habitat type code: R4401, R4402, R4405, R4407, R4408;
- **9110** - *Luzulo-Fagetum* beech forests; CLAS. PAL.41.11; RO habitat type code: R4102, R4105-4107, R4110;
- **9130** - *Asperulo-Fagetum* beech forests; CLAS. PAL.: 41.13; RO habitat type code: R4118, R4119, R4120;
- **9170** - *Galio-Carpinetum* oakhornbeam forests; CLAS. PAL.: 41.261, 41.262; RO habitat type code: R4123, R4128;
- **91M0** - *Pannonian-Balkan* turkey oak sessile oak forests; CLAS. PAL.: 41.76; RO habitat type code: R4132, R4133, R4134, R4136, R4137, R4140, R4142,

R4149, R4150, R4151, R4152, R4153, R4154, R4155; (Gafta and Mountford, coord, 2008)

Following research in the forest habitats of the Govora river basin, we have identified five species of the Coleoptera (Cerambycidae and Lucanidae), belonging to 5 genera and 3 subfamilies. The distribution of the species was observed in habitats edified by the following species: *Quercus petraea*, *Q. dalechampii*, *Q. cerris*, *Carpinus betulus*, *Fagus sylvatica*. During the observations in the entire area, from May to September 2016, 255 individuals were identified, both males and females, dead and alive and numerous fragments and exoskeleton. The statistic on individuals of the Coleoptera species identified in the Govora river basin is shown in the following table (Table no. 1).

**Table no. 1**

**The statistic on individuals of the Coleoptera species identified in the Govora river basin**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
FAMILY, SUBFAMILIE SPECIES	TYPE OF WOOD		TREE	AREA		LOCATION			PHYSIOLOGICAL CONDITIONS			STAGE	DURING FLIGHT	DEVELOPMENT CYCLE
	QUERCUS SP.	OTHER DECIDUOUS		WOOD	BARK	ROOTS	TRUNK	BRANCHES	ON LEG	BEAT	WOODEN STUMPS			
<b>Fam. CERAMBYCIDAE</b>														
Subfam. CERAMBYCINAE														
1. <i>Cerambyx cerdo</i> L.	*		/*	*	*		*		*			l,i	VI-VII	3-5
2. <i>Rosalia alpina</i>		*	/*				*		*			i	VI-IX	2-3
Subfam. PRIONINAE														
3. <i>Prionus coriarius</i>		*	/*									i		2-4
<b>Fam. LUCANIDAE</b>														
Subfam. LUCANINAE														
4. <i>Lucanus cervus</i> L.	*		/*				*	*	*			l,i	VI	4-5
5. <i>Dorcus parallelipedus</i>		*	/*				*				*	l,i	V-VIII	3-5

LEGEND: l = larva  
i = imago

I. *Lucanus cervus* (Linnaeus 1758) (Fig. 2) - Lucanidae Family, Coleoptera Order. Status: Habitats Directive 92/43/CEE, Annex II; in Romania - OUG 57/2007 Annex 3.

Biology and ecology. This species prefers old forests of oaks and also the beech forest and other deciduous forest.

Distribution. In the area, the species was observed in the following types of forest habitats: 9130, 9170 and 9110, in Barlogu, Baile Govora, Negreni, Bunesti, Govora Village and Prajila.

II. *Dorcus parallelipedus* (Linnaeus, 1758) Lucanidae Family, Coleoptera Order. Status: common species.

Biology and ecology. This species prefers in the beech forest and other deciduous forest.



Distribution. In the area, the species was observed in the following types of habitats: 9130 and 9110, in Barlogu, Băile Govora, Negreni, Govora Village, Vulpuiesti and Prajila.

III. *Cerambyx cerdo* (Linnaeus 1758) - Cerambycidae Family, Coleoptera Order. Status: Habitats Directive 92/43/EEC, Annex II and IV; in Romania - OUG 57/2007 Annex 3 and 4A.

Biology and ecology. This species prefers old forests of oaks and also the beech forest and other deciduous forest.

Distribution. In the area, the species was observed in the following types of forest habitats: 91M0, 9170, 9130, and 9110, in Birlogu, Baile Govora, Negreni, Gruisoara, Vulpuiesti, Bunesti, Govora Village and Prajila.

IV. *Rosalia alpina* (Linnaeus, 1758) (fig. 3), Cerambycidae Family, Coleoptera Order Status: Habitats Directive 92/43/EEC, Annex II and IV in Romania - OUG 57/2007 Annex 3 and 4A.

Biology and ecology. This species prefers the beech forest.

Distribution. In this area, the species was observed in the following types of forest habitat: 9110, in Prajila.

V. *Prionus coriarius* (Linnaeus, 1758) (fig. 4), Cerambycidae Family, Coleoptera Order Status: common species.

Biology and ecology. This species prefers old forests of oaks and also the beech forest and other deciduous forest.

Distribution. In the area, the species was observed in the following types of forest habitats: 9170, 9130, 9110 and 91E0, in Birlogu, Băile Govora, Vulpuiesti, Bunesti, Govora Sat and Prajila.



Fig. 2. *Lucanus cervus* (Foto L. Niculescu-2016)



Fig. 3. *Rosalia alpina* (Foto L. Niculescu-2016)



Fig. 4. Colected *Prionus coriarius* (Foto L.Niculescu-2016)

#### **Conservation status and human impact**

In the investigated area this species and forest habitats is characterized by the following data on the conservation status and human impact:

Conservation status of this species and forest habitats: from favorable up to unfavorably-inappropriate;

Development trend of species and forest habitats: from stable up to decreasing;



Human impact and current pressures: B02 - forest and Plantation management & use; B01.02 - artificial planting on open ground (non-native trees); B03 - forest exploitation without replanting or natural regrowth; D01.02 - roads, motorways; G05.07- missing or wrongly directed conservation measures; D.06- Other forms of transportation and communication; A04.01.04- intensive goat grazing; H05.01- garbage and solid waste; F04.02.02- hand collection; E03.01- disposal of household/recreational facility waste; A.06.01.02- non- intensive annual crops for food production; D.06- Other forms of transportation and communication; E01 - Urbanised areas, human habitation; E01.01- continuous urbanization; G01- Outdoor sports and leisure activities, recreational activities; I01- invasive non-native species; K01.01- Erosion; K02- Biocenotic evolution, succession; M02.01- habitat shifting and alteration; M01 - Changes in abiotic conditions (*List Threats, Pressures and Activities*).

Future threats: E01 - Urbanised areas, human habitation; G01- Outdoor sports and leisure activities, recreational activities; E03.01- disposal of household / recreational facility waste; E01.01- continuous urbanization; D.06 - Other forms of transportation and communication; F.03.02.09 - other forms of taking animals; H05.01- garbage and solid waste; I01 - invasive non-native species; K01.01- Erosion; K02- Biocenotic evolution, succession; M02.01- habitat shifting and alteration, M02.04 - migration of species (natural newcomers); M02.03 - decline or extinction of species (*List Threats, Pressures and Activities*).

## CONCLUSIONS

Following research in the forest habitats of the Govora river basin, we have identified five species of the Coleoptera (Cerambycidae and Lucanidae), belonging to 5 genera and 3 subfamilies.

Installing species of the Coleoptera in this area on certain tree species is determined by their trophic preferences. Among the species identified, a particular interest is represented by the species: *Cerambyx cerdo* (Linnaeus, 1758), *Rosalia alpina* (Linnaeus, 1758) and *Lucanus cervus* (Linnaeus, 1758), which are protected species contained in Annex II of the Habitats Directive

The diversity of beetles in the investigated area is abundant because of the types of trees and forest habitats that provide favorable environmental conditions for the development of the identified species. These species are closely correlated with the types of biota found in these forests, in which are found elderly trees, trunks of felled trees and rotting wood.

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