STUDY OF THE COLEOPTERA (*CERAMBYCIDAE* AND *LUCANIDAE*) FOUND IN THE AMARADIA RIVER BASIN

Laurentiu NICULESCU[1], Mariana NICULESCU[2*]
National Forestry Administration - ROMSILVA, Dolj Forestry Division
Perișor Forest Manager's Office, Romania, launiculescu@yahoo.com
[2]*Faculty of Agronomy, University of Craiova, Romania*

*Corresponding author e-mail: mniculescum@yahoo.com

Abstract

The territory under study is located in the Amaradia river basin, between the localities of Roșia de Amaradia and Craiova. The Amaradia River is a watercourse that rises from Seciurile Hills in the territory of the Roșia de Amaradia locality in Gorj County. It flows into the Jiu River upstream of the municipality of Craiova. This area has been of particular interest for research over time, due to the characteristics listed previously. The vegetation in the Amaradia basin is characteristic of the Oltenia Plain and Getic Piedmont, respectively the main unit it crosses called the Jiu Hills, with some particularities conferred by relief, altitude, climate, nature of rocks and soil. So, the researched area totals 300 km^2, is individualized both by the presence of zonal and azonal soils, but also by the high temperatures and the low amount of precipitation recorded during the warm period of the year. Cerambycidae Latreille, 1802, is an important family of Coleoptera consisting of about 36,300 species in more than 5,300 genera and eight subfamilies (Tavakilian, 2015; Monne et al., 2017), spread over all continents except Antarctica (Linsley, 1959).

The long antennae present in most species, has generated the common name longicorns, longhorns, longicorn beetles (Monne et al., 2017). In Romania, the first mentions of Cerambycidae species date from the end of the 19th century in Transylvania, when Seidlitz published in 1891 Fauna Transsylvanica with identification keys for the 173 species known at that time (Panin & Săvulescu, 1961).

The aim of this study is to contribute to the knowledge of Cerambycidae biodiversity in the Amaradia river basin area and to highlight their taxonomic and biogeographical aspects. Following research in the forest habitats of the Amaradia river basin, we have identified a large number of species of the Coleoptera (Cerambycidae and Lucanidae). In the research area of this forest the most common species are: Lucanus cervus (Linnaeus, 1758), Dorcus parallelipipedus (Linnaeus, 1758), Morimus asper funereus (Mulsant, 1863), Plagionotus arcuatus (Linnaeus, 1758), Chlorophorus varius (Müller, 1766), Plagionotus floralis (Pallas, 1773), Cerambyx cerdo (Linnaeus 1758), Stenopterus rufus (Linnaeus, 1767), Saperda (Lopezcolonia) scalaris (Linnaeus, 1758), Stenurella (Nigrostenurella) nigra (Linnaeus, 1758), Stenurella bifasciata (Müller, 1776). From a taxonomic point of view, they consist of 8 genera, included in 6 tribes and 3 subfamilies.

Key words: *Cerambycidae*, *Lucanidae*, forest habitats, Amaradia river basin, ecology

INTRODUCTION

Cerambycidae Latreille, 1802, is an important family of Coleoptera consisting of about 36,300 species in more than 5,300 genera and eight subfamilies (Tavakilian, 2015; Monne et al., 2017), spread over all continents except Antarctica (Linsley,1959). The long antennae present in most species, has generated the common name *longicorns*, *longhorns*, *longicorn* beetles (Monne et al., 2017). In Romania, the first mentions of *Cerambycidae* species date from the end of the 19th century in

Transylvania, when Seidlitz published in 1891 Fauna Transsylvanica with identification keys for the 173 species known at that time (Panin & Săvulescu, 1961).

The aim of this study is to contribute to the knowledge of cerambycid biodiversity in the Amaradia river basin area and to highlight their taxonomic and biogeographical aspects.

MATERIALS AND METHODS

Area description

The territory under study is located in the Amaradia river basin, between the localities of Roșia de Amaradia and Craiova. The Amaradia River is a watercourse that rises from Seciurile Hills in the territory of the Roșia de Amaradia locality in Gorj County. It flows into the Jiu River upstream of the municipality of Craiova. This area has been of particular interest for research over time, due to the characteristics listed previously. The vegetation in the Amaradia basin is characteristic of the Oltenia Plain and Getic Piedmont, respectively the main unit it crosses called the Jiu Hills, with some particularities conferred by relief, altitude, climate, nature of rocks and soil. So, the researched area totals 300 km^2, is individualized both by the presence of zonal and azonal soils, but also by the high temperatures and the low amount of precipitation recorded during the warm period of the year.

The Jiu Hills are located in the western part of the Getic Piedmont, between the Motru (to the west) and Gilort (to the east) rivers. Made up of fluvial-lacustrine and loessoid deposits of Pleistocene age, the Jiu Hills present gentle shapes, with a North West-South East inclination, strongly fragmented by the Jiu, Amaradia, Cioiana, Racilor Valley, Jilţ, Borăscu and other rivers, with heights of around 400 m. Maximum altitude: 425 m. Covered with deciduous forests. Important coal (lignite) and oil-bearing area of the country.

Methods

The studies were carried out during May – August 2025. The status of the species was assessed based on *The IUCN Red List of Threatened Species*. The nomenclature and systematic classification of the *Cerambycidae* species were made in accordance with Sama (2013) in "Fauna Europaea", Danilevsky (2022), and Hoskovec et al. (2022)

RESULTS AND DISCUSSIONS

Following the researches, the following types of habitats were identified: **91E0*** *Alluvial forests with Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*, **92A0** *Salix alba* and *Populus alba* galleries, **91M0** *Pannonian-Balkanic turkey oak-sessile oak forests* and **9130** *Asperulo-Fagetum beech forests*. This area represents a real scientific interest, being an area not studied until now. Old trees of *Quercus* spp*., Fagus sylvatica, Carpinus betulus*, *Salix alba*, *Populus alba* etc., stumps, trunks, dry trees, wood stacks, litter, forest roads were inspected.

Following research in the forest habitats of the Amaradia river basin, we have identified a large number of species of the *Coleoptera* (*Cerambycidae* and *Lucanidae*). In the research area of this forest the most common species are: *Lucanus cervus* (Linnaeus, 1758), *Dorcus parallelipipedus* (Linnaeus, 1758), *Morimus asper funereus* (Mulsant, 1863), *Plagionotus arcuatus* (Linnaeus, 1758), *Chlorophorus varius* (Müller, 1766), *Plagionotus floralis* (Pallas, 1773), *Cerambyx cerdo* (Linnaeus 1758), *Stenopterus rufus* (Linnaeus, 1767), *Saperda* (*Lopezcolonia*) *scalaris* (Linnaeus, 1758), *Stenurella* (*Nigrostenurella*) *nigra* (Linnaeus, 1758), *Stenurella bifasciata* (Müller, 1776). From a taxonomic point of view, they consist of 8 genera, included in 6 tribes and 3 subfamilies (Table 1; Figure 1).

The larvae of these species feed on the dying or dead wood of deciduous trees, contributing to the decay of the wood and

consequently these insects play a major role in the forest ecosystem. It is estimated that 20-30% of all forest insects are saproxylic, and at the European level, the populations of saproxylic Coleoptera species are in decline due to the destruction or fragmentation of their habitats (Geiser, 1998).

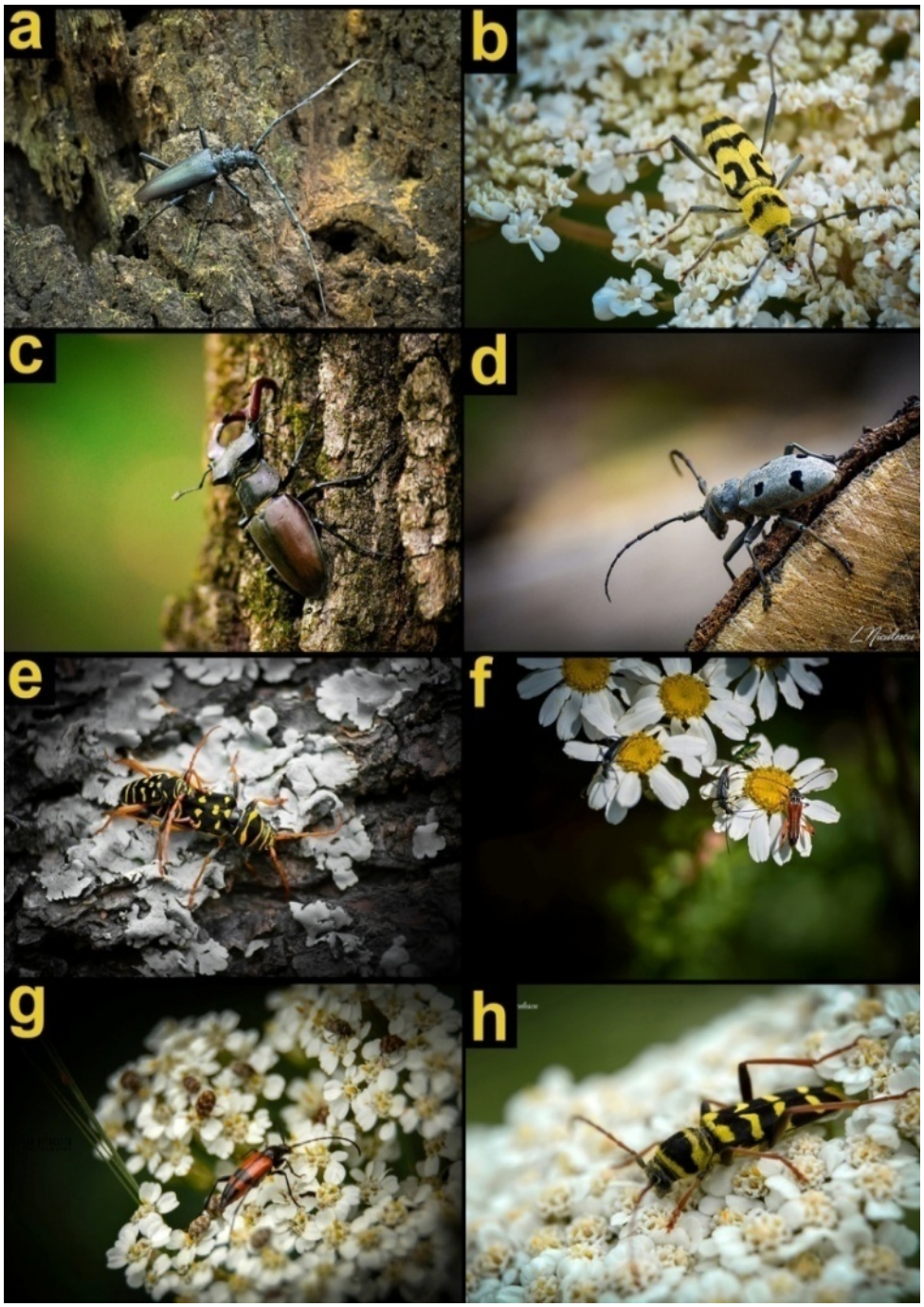

Figure 1. **a**. *Cerambyx cerdo*; **b**. *Chlorophorus varius*; **c**. *Lucanus cervus*; **d**. *Morimus asper funereus*; **e**. *Plagionotus arcuatus (in copula)*; **f**. *Stenurella nigra* (left) and *Stenopterus rufus* (right); **g**. *Stenurella bifasciata*; **h**. *Plagionotus floralis* (photo: Laurențiu Niculescu)

Table 1. Species of *Cerambycidae* in Amaradia river basin area

No.	Subfamily	Tribus	Genus	Species
1.	Lepturinae Latreille, 1802	Lepturini Latreille, 1804	*Stenurella* Villiers, 1974	*Stenurella bifasciata* (Müller, 1776)
2.			*Stenurella* Villiers, 1974	*Stenurella (Nigrostenurella) nigra* (Linnaeus, 1758)
3.	Cerambycinae Latreille, 1802	Cerambycini Latreille, 1804	*Cerambyx* Linnaeus, 1758	*Cerambyx cerdo* (Linnaeus, 1758)
4.		Clytini Mulsant, 1839	*Chlorophorus* Chevrolat, 1863	*Chlorophorus varius* (Müller, 1766)
5.			*Plagionotus* Latreille, 1829	*Plagionotus arcuatus* (Linnaeus, 1758)
6.			*Plagionotus* Mulsant, 1839	*Plagionotus floralis* (Pallas, 1773)
7.		Stenopterini Fairmaire, 1868	*Stenopterus* Illiger, 1804	*Stenopterus rufus* (Linnaeus, 1767)
8.	Lamiinae Latreille, 1825	Lamiini Latreille, 1825	*Morimus* Brullé, 1832	*Morimus asper funereus* (Mulsant, 1862)
9.		Saperdini Mulsant, 1839	*Saperda* Fabricius, 1775	*Saperda (Lopezcolonia) scalaris* (Linnaeus, 1758)

CONCLUSIONS

In the forests of the Amaradia river basin, 9 species of *Cerambycidae* and 2 species of Lucanidae were identified. The climate with sub-Mediterranean influences favors the presence of some thermophilous species, such as *Stenopterus rufus*. All

these saproxylic species are listed on the IUCN Red List of Threatened Species. According to IUCN, *Lucanus cervus*, *Cerambyx cerdo,* and *Morimus asper funereus* are assessed to global level as Vulnerable category (VU) and were included in the list of Natura 2000 species

REFERENCES

Althoff J., Danilevsky M. L. (1997). A check list of Longicorn beetles (Coleoptera, *Cerambycidae*) of Europe. Slovensko Entomološko Društvo Štefana Michielija, Ljubljana, 64 pp.

Bărbuceanu, D., Niculescu, L., Prunar, F., Ţîbîrnac, M, Steiu, C., Florea, E., Niculescu, M. (2022). Preliminary data regarding the saproxylic species of *Cerambycidae* (Insecta: Coleoptera) in ROSCI0045 Coridorul Jiului, Romania, Annals of the University of Craiova-Agriculture Montanology Cadastre Series, Vol. 52 (2): 7-20.

Bărbuceanu, D., Prunar, F Niculescu, M., Niculescu, L. (2025). Genus *Cerambyx* L., 1758 (coleoptera: cerambycidae) in ROSAC0045 Coridorul Jiului (Romania), Current Trends in Natural Sciences, Vol. 14 (27): 56-67.

Beldie, A. (1953). Plantele lemnoase din R.P.R. Ed. Agro-Silvică de Stat, Bucureşti.

Bercea, I., Niculescu, M. (2013). Evolution of thickness of mixed Hungarian (*Quercus frainetto*) and turkey oak (*Quercus cerris*) trees following the woodland stage. Annals of the University of Craiova - Agriculture, Montanology, Cadastre Series, Vol. 43 (1), 54-60.

Brustel H., Berger P., Cocquempot C. (2002). Catalogue des Vesperidae et des Cerambycidae de la faune de France (Coleoptera). Ann. Soc. Entomol. Fr. (n.s), 38 (4): 443-461.

Ciocârlan V. (2000). Flora ilustrată a României. Pteridophyta et Spermatophyta. Edit. Ceres, Bucureşti: 1138 pp.

Gafta, D., Mountford, O. Coord. (2008). Romanian Manual for interpretation of Eu habitats, ED. Risoprint, Cluj-Napoca, pp. 101.

Nicolin, A. L., Niculescu, M., Imbrea, I. M., Arsene, G. G., Bădescu, B., Bărbos, M/ I., Filipaș. L. (2014). Biodiversity, spatial and conservation status assessment on alluvial gallery-forests within the Natura 2000 site, Research Journal of Agricultural Science, Vol. 46 (2): 222-232.

Niculescu, M., Bercea, I., Matei, G., Nuta, S. I., Iovu, I., Ciupitu, S. A., Salceanu, C. (2009). Researches about *Quercus cerris* forests situated in the North-East of Dolj County, Analele Universitatii din Craiova, Agricultura, Montanologie/ Annals of the University of Craiova, Agriculture, Montanology, Cadastre series, http://old.agro-craiova.ro/index.php/aamc/article/view/322/300 , vol. XXXIX/B.

Niculescu, M., Cojoacă F. D. (2018). Diversity, distribution and ecology of the forest natural habitats in the Bratovoesti forest, Dolj county. Scientific Papers. Series A. Agronomy, vol. 61: 453-457.

Niculescu, M., Nuță, I. S. (2018). The corology, ecology and phytosociology of the 91I0 forest habitat from the Danube Valley, between Ciuperceni and Ghidici settlements, Dolj County. Scientific Papers. Series A. Agronomy, vol. 61:128-13.

Niculescu, M. (2020). The distribution and structure of the plant communities found in the Dobriceni and Jgheaburi forests of the Govora River Basin, Romania. Scientific Papers. Series A. Agronomy, vol. 63(2): 289-293.

Niculescu M. (2023). The alluvial forest vegetation disturbed by the invasive alien plants, in the Danube valley, between Cetate and Calafat, Scientific papers, Series A, Agronomy. 2023; vol. LXVI, no. 1: 787-792.

Niculescu, M. (2023). Chorology, ecology and phytosociology of the *Ruscus aculeatus* L. in forest habitats from the South of Oltenia, Romania. *Scientific Papers. Series A. Agronomy*, vol. 66 (2): 499-504.

Niculescu, M., Florea E., coord., (2023). Monografia ariilor naturale protejate ROSAC(ROSCI)0045 Coridorul Jiului, ROSPA0023 Confluența Jiu-Dunăre, ROSPA0010 Bistreț și Rezervațiile Naturale

- Locul fosilifer Drănic și Pădurea Zăval. Ed. Sitech, Craiova, 215 pp.

Oberdorfer E (1992) Süddeutsche Pflanzen – gesellschaften, Teil IV: Wälder und Gebüsche 2, Stark berabeilete Auflage Texband, Gustav Fischer Verlang Jena, New York.

Panin, S., Savulescu, N., 1961-Insecta, Coleoptera, Fam. Cerambycidae, vol. X, fasc. 3, Ed. Academiei R.P.R., 523 pp.

Rodwell, J. S. et al. (2002). The Diversity of European Vegetation. Raport EC-LNV nr. 2002/054, Wangeningen

Sanda, V., Popescu, A., Barabaş, N. (1997). Cenotaxonomia şi caracterizarea grupărilor vegetale din România. St. Com., Muz. Şt. Nat. Bacău, 14: 5-366.

Săvulescu, T. coord., (1952). Flora României, Vol. I, Ed. Acad. Române, Bucureşti.

Tutin, T.G. et al. (eds.) (1968-1993). Flora Europaea, Vols. 2-5 and Vol. 1, 2nd ed. Cambridge University Press, Cambridge.

***List Threats, Pressures and Activities (final version)

https://www.cerambycoidea.com/foto.asp?Id=1546

http://bd.eionet.europa.eu/activities/Reporting/Article_17/reference_portal

https://inpn.mnhn.fr/espece/cd_nom/12480/tab/taxo

http://www.iucnredlist.org/details/157595/1