

Communities of nocturnal Lepidoptera from alluvial forests on the rivers Lăpuş (Săcălăşeni, Maramureş County) and Mureş (Ciugud, Alba County)

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Abstract

Alluvial forests are known for their high biodiversity, including rare and endangered taxons and Lepidoptera are not an exception. The majority of alluvial forests from Romania are still unknown, lepidopterologically speaking, because such studies are few. This paper includes two studies undertaken in two areas from Transylvania, Săcălăşeni commune (Maramureş county) and Ciugud commune (Alba county). We made a nocturnal macrolepidoptera species inventory, emphasizing their biogeographical spectrum, the ecological profile, the larval trophic spectrum and their conservation status.

Keywords: Macrolepidoptera, Romania, Ciugud Jud. Alba, Săcălăşeni Jud. Maramureş, faunistics, Wetlands.

Abstract

Zonele umede sunt cunoscute pentru diversitatea lor ridicată, inclusivând taxoni rari și periclități, dintre care lepidopterele nu fac excepție. Numeroase zone de acest fel din România sunt încă necunoscute din punct de vedere lepidopterologic, studii de acest gen fiind puține. Lucrarea de față cuprinde 2 studii, realizate în 2 zone ale Transilvaniei, și anume comuna Săcălășeni (județul Maramureș) și comuna Ciugud (județul Alba). Aici au fost inventariate speciile de macrolepidoptere nocturne, evidențiind spectrul lor biogeografic, profilul ecologic, baza trofică larvară, dar și statutul lor de pericolitate.

Keywords: Macrolepidoptera, Romania, Ciugud Jud. Alba, Săcălăşeni Jud. Maramureş, faunistică, zone umede.

Introduction

This paper presents the macrolepidoptera moths entomofauna from the village of Limba (Ciugud, Alba) and also from the area of the commune of Săcălășeni (Maramureş) (**Fig.1**).

The Limba village (**Fig. 2**) is part of Ciugud, Alba county, and is situated in the south-west of the Secașelor Plateau, a subdivision of Transylvania Plateau. Limba is bordered on the north-east by the village Ciugud, the village residence with the same name, on the

south-west by Oarda de Jos (a section of Alba Iulia), on the west by the Mures River, on south by Oarda de Sus and on south-east by the Daia Română village (BREAZ, 2004).

The Săcălășeni commune (**Fig. 3**) is located at an approximately 10 km distance south of Baia Mare (Maramureș county), on the lower left bank of the river Lăpuș. The commune is bordered to the north by the villages of Groși and Dumbrăvița, to the south by the village of Coaș, Remetea Chioarului, to the east by the village of Copalnic Mănăstur and to the west by the village of Colțău. Geographically speaking, it is located in Baia Mare depression, which is included in the Western Hills (Dealurile de Vest) (MACOVEI, 2001, 2002), with the following natural boundaries: at north – Gutâi Mountains; at east – Cavnic and Cărpinișului Hills, and the Preluca Mountains; at south – Curtuiuș Hills and Dealu Mare; at west – Codru-Făget Peak and Ticăului Hills.

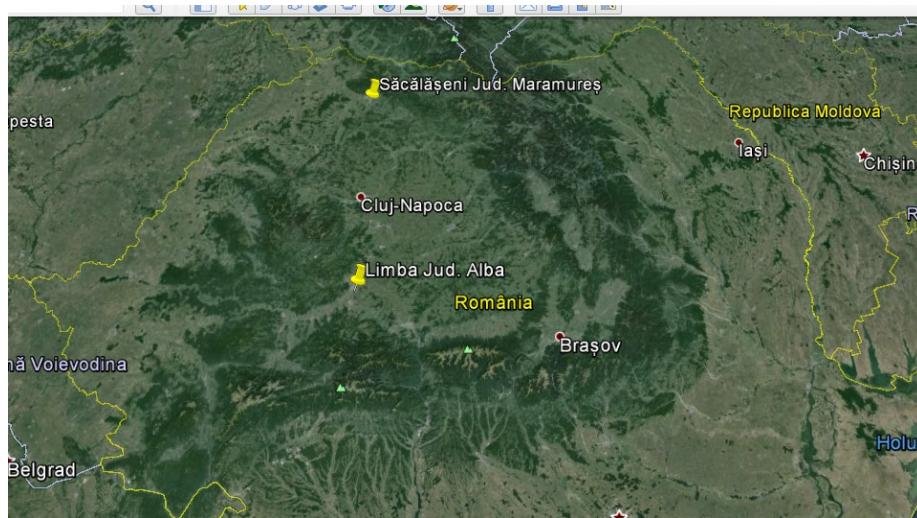


Fig.1. Locating the research areas



Fig.2. Locating the research sites of the Limba village area (Ciugud commune, Alba county)

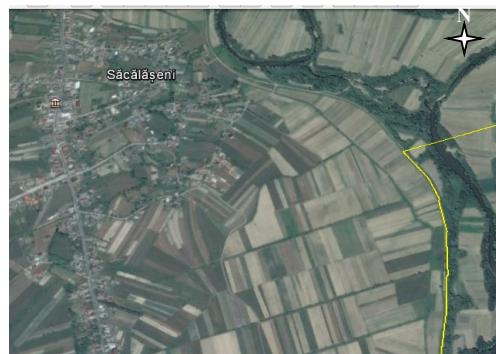


Fig.3. Locating the research site of Săcălășeni commune (Maramureș county)

During the study, several types of habitats have been investigated, namely: alluvial forests of *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, *Alnion incanae*, *Salicion alba*), gallery forests (riverside coppices) of *Salix alba* and *Populus alba* and alluvial meadows with a natural flooding regime (GAFTA & MOUNTFORD, 2008).



Fig. 4



Fig. 5



Fig. 6



Fig. 7

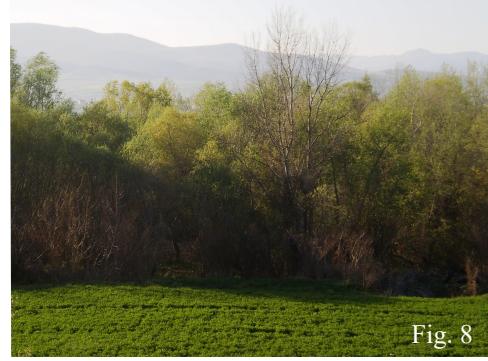


Fig. 8



Fig. 9

Fig.4. Mureş River

Fig.6. Gallery forest of *Salix alba* and *Populus alba* situated on the Mureş River bank

Fig.8. The investigated habitat in the area of Limba village- panoramic view.

Fig.5. Lăpuş River

Fig.7. Gallery forest of *Salix alba* and *Populus alba* situated on the Lăpuş River bank

Fig.9. The investigated habitat in the area of Săcălăşeni commune- panoramic view.

Materials and methods

Research for the current study was performed during 2007-2009, respectively 2011. The moths were collected once every two weeks, between March and October.

Light traps, as well as bright screen, were used in order to collect the entomological material. The light traps consisted of 40 Watt UV light tubes and 60 Watt fluorescent light tubes. Storage batteries and a 800 Watt power generator were used as an electricity source. For the bright screen, the following were used: bulbs rated between 125 W and 250 W with fluorescent light and with self-ignition, a lighting device with a lenght of 120 cm consisting of a fluorescent light tube with a 80 Watt power and a 40 Watt UV bulb light, all power supplied using an electrical power generator. The screen surface used was 1,5m².

The adults collected were killed using chloroform vapors based sealed jars. Inside the trap, chloroform and carbon tetrachloride were used in order to kill the moths. The collected material was determined using reference works from the literature (KOCH, M. 1958, KOCH, M. 1964, KOCH, M. 1976, VARGA, Z. 2010).

Results and discussions

During investigations, 210 species of macrolepidoptera were identified, belonging to 16 families, most of them being part of Noctuidae and Geometridae families (**Tab. 1**).

The 210 identified taxons represent a percentage of 17.7% of the total of 1507 species (RAKOSY et al, 2003) of macrolepidoptera currently known in Romania.

Tab.1. The situation of the identified species and the percentage they represent of the total known in Romania.

Nr. Crt	Family	The number of species identified	Percent
1	Fam. Hepialidae	2	0.96%
2	Fam. Psychidae	2	0.96%
3	Fam. Cymatophoridae	1	0.48%
4	Fam. Zygaenidae	1	0.48%
5	Fam. Cossidae	1	0.48%
6	Fam. Lasyocampidae	2	0.96%
7	Fam. Drepanidae	3	1.44%
8	Fam. Sphingidae	6	2.89%
9	Fam. Notodontidae	5	2.41%
10	Fam. Lymantridae	2	0.96%
11	Fam. Nolidae	5	2.41%
12	Fam. Arctiidae	10	4.83%

Nr. Crt	Family	The number of species identified	Percent
13	Fam. Pantheide	1	0.48%
14	Fam. Saturniide	1	0.48%
15	Fam. Geometridae	82	39.61%
16	Fam. Noctuidae	86	40.10%

The systematic list of identified species, the larval trophic basis the ecological character and the degree of endangerment of the species are presented in **table 2.**

Tab. 2. The systematic list of lepidoptera species taken from both of the studied zones.

Taxon	L1	L2	S	S. B.	C. E.	B. t.	L. R.
Fam. Hepialidae							
<i>Hepialis sylvinus</i> (Linnaeus, 1761)	+	+	+	Eua	M	PI	-
Fam. Psychidae							
<i>Megalophanes viciella</i> ([Den. & Sch.], 1775)	-	+	-	Eua	Mt	PI	-
<i>Psychae viciella</i> ([Den.&Sch.], 1775)	+	-	-	Eua	Mt	PI	-
Fam. Cymatophoridae							
<i>Habrosyne pyritooides</i> (Hufnagel, 1766)	+	+	+	Eua	M, Mh	PI	-
Fam. Zygaenidae							
<i>Procris globulariae</i> (Hubner, 1793)	+	-	-	Eua	Mt	PI	-
Fam. Cossidae							
<i>Phragmataecia castanea</i> (Hubner, 1790)	+	-	-	Eua	Mh	PI	-
Fam. Lasiocampidae							
<i>Macrothylacia rubi</i> (Linnaeus, 1758)	+	-	+	Eua	Mh	PI	NT
<i>Gastropacha quercifolia</i> (Linnaeus, 1758)	+	-	-	Eua	Mh	F	NT
<i>Lasiocampa trifolii</i> ([Den. & Sch.], 1775)	-	-	+	Eua	Mh	PI	-
Fam. Drepanidae							
<i>Tethea or</i> ([Den. & Sch.], 1775)	+	-	-	Eua	Mh	F	-
<i>Drepana harpagula</i> (Esper, 1786)	-	-	+	Eua	M	F	NT
<i>Cilix glaucata</i> (Scopoli, 1763)	-	-	+	Eua	Mt	A	-
Fam. Sphingidae							
<i>Agrius convolvuli</i> (Linnaeus, 1758)	-	+	+	Str	Mg	PI	-
<i>Deilephila elpenor</i> (Linnaeus, 1758)	-	+	+	Eua	M Mh	PI	NT
<i>Deilephila porcellus</i> (Linnaeus, 1758)	-	+	+	Eua	M	PI	-
<i>Laothoe populi</i> (Linnaeus, 1758)	-	+	+	Eua	M	F	-
<i>Smerinthus ocellata</i> (Linnaeus, 1758)	-	+	+	Eua	Mh	F, A	-
<i>Macroglossum stellatarum</i> (Linnaeus, 1758)	-	-	+	Eua	Mx Mg	PI	-
Fam. Notodontidae							
<i>Pterostoma palpinum</i> (Clerck, 1812)	+	+	+	Eua	M	F	-
<i>Furcula bicuspis</i> (Borkhausen, 1790)	-	+	-	E.Vas.	Mh	F	VU
<i>Furcula bifida</i> (Brahm, 1787)	-	+	-	Eua	M	F	
<i>Pheosia gnoma</i> (Fabricius, 1776)	-	+	-	Eua	M, Mh	F	NT
<i>Closteria curtula</i> (Linnaeus, 1758)	-	-	+	Eua	Mh	F	-
Fam. Lymantridae							
<i>Lymantria dispar</i> (Linnaeus, 1758)	+	-	-	Hol	M	F	-

Taxon	L1	L2	S	S. B.	C. E.	B. t.	L. R.
<i>Dasychira fascelina</i> (Linnaeus, 1758)	+	-	-	Eua	M	E, F, PI	NT
Fam. Nolidae							
<i>Meganola albula</i> (Den.&Sch., 1775)	+	-	-	Eua	Mh	L	NT
<i>Nola aerugula</i> (Hubner, 1793)	+	+	-	Eua	Mht	L	NT
<i>Nola cristatula</i> (Hubner, 1793)	+	-	-	Eua	M	L	-
<i>Nycteola asiatica</i> (Krulikovsky, 1904)	-	+	-	Eua	Mh	F	-
<i>Earias clorana</i> (Linnaeus, 1761)	-	-	+	Eua	Mh	F	-
Fam. Arctiidae							
<i>Phragmatobia fuliginosa</i> (Linnaeus, 1785)	+	+	+	Eua	M	PI	-
<i>Diacrisia sannio</i> (Linnaeus, 1758)	+	-	-	Eua	M	PI, E	-
<i>Spilosoma lubricipeda</i> (Linnaeus, 1758)	-	+	+	Eua	M	PI	-
<i>Spilosoma lutea</i> (Hufnagel, 1766)	-	+	+	Eua	M	PI, A	-
<i>Spilosoma urticae</i> (Esper, 1789)	-	+	-	Eua	M	PI	NT
<i>Eilema complana</i> (Linnaeus, 1758)	-	-	+	Eua	M	L	-
<i>Eilema sororcula</i> (Hufnagel, 1766)	-	-	+	Eua	Mh	L	-
<i>Lithosia quadra</i> (Linnaeus, 1758)	-	-	+	Eua	M	L	-
<i>Milthocrista miniata</i> (Forster, 1771)	-	-	+	Eua	M	L	-
<i>Pelosia muscerda</i> (Hufnagel, 1766)	-	-	+	Eua	M	L	-
Fam. Pantheide							
<i>Colocasia coryli</i> (Linnaeus, 1758)	-	+	-	Eua	M	F	-
Fam. Saturniidae							
<i>Eudia pavonia</i> (Linnaeus, 1758)	-	-	+	Eua	M, Mh	F	VU
Fam. Geometridae							
<i>Agriopis marginaria</i> (Fabricius, 1776)	-	+	+	Eua	M	F	-
<i>Angerona prunaria</i> (Linnaeus, 1758)	-	-	+	Eua	M	F	-
<i>Aplasta ononaria</i> (Fessly, 1775)	+	-	-	Eua	Mh	PI	VU
<i>Artiora evonymaria</i> ([Den. & Sch.], 1775)	-	-	+	Eua	M	A	VU
<i>Ascotis selenaria</i> ([Den. & Sch.], 1775)	-	+	+	Eua	M	PI, F	-
<i>Biston betularia</i> (Linnaeus, 1758)	-	-	+	Eua	M	F	-
<i>Cabera exanthemata</i> (Scopoli, 1763)	+	+	+	Eua	Mh	F	NT
<i>Cabera pusaria</i> (Linnaeus, 1758)	-	+	+	Eua	M	F, A	
<i>Calothysanis amata</i> (Schmidt, 1931)	+	-	+	Eua	M, Mh	PI	-
<i>Campaea marginata</i> (Linnaeus, 1758)	-	-	+	Eua	M	F	-
<i>Cataclysme riguata</i> (Hubner, 1813)	+	+	-	Eua	Xt	PI	-
<i>Catarhoe cuculata</i> (Hufnagel, 1767)	+	-	+	Eua	M	PI	-
<i>Chiasmia clathrata</i> (Linnaeus, 1758)	-	+	+	Eua	M	PI	-
<i>Chlorissa viridata</i> (Linnaeus, 1758)	+	-	+	Eua	Mt	F	-
<i>Comptogramma bilineata</i> (Linnaeus, 1758)	-	-	+	Eua	M	A	-
<i>Cidaria ferugata</i> (Clerck, 1759)	+	-	-	Eua	M	PI	-
<i>Cidaria fulvata</i> (Forster, 1771)	+	-	+	Eua	M	PI	-
<i>Cidaria ocellata</i> (Linnaeus, 1825)	+	-	-	Eua	M	PI	-
<i>Cidaria procellata</i> ([Den. & Sch.], 1775)	-	-	+	Eua	M	A	-
<i>Colostygia pectinataria</i> (Knoch, 1781)	-	+	+	Eua	M	PI	-
<i>Colotois pennaria</i> (Linnaeus, 1761)	-	+	-	Eua	M	F, A	-
<i>Comptogramma bilineata</i> (Linnaeus, 1758)	+	+	-	Eua	M, Mh	PI	-
<i>Cyclophora annularia</i> (Fabricius, 1775)	-	-	+	Eua	M	A	-
<i>Cyclophora pupillaria</i> (Hübner, 1799)	-	-	+	Eua	M, Mt	A	VU
<i>Ectropis bistortata</i> (Goeze, 1781)	-	+	-	Eua	M	PJ	-
<i>Ectropis crepuscularia</i> ([Den. & Sch.], 1775)	-	+	+	Eua	M	PI Co F	-
<i>Ematurga atomaria</i> (Linnaeus, 1758)	+	+	+	Eua	M	PI	-

Taxon	L1	L2	S	S. B.	C. E.	B. t.	L. R.
<i>Epione repandaria</i> (Hufnagel, 1767)	-	-	+	Eua	Mh	A	NT
<i>Epirhoe rivata</i> (Hubner, 1813)	+	+	-	Eua	Mht	PI	-
<i>Epirrhoe alternata</i> (Müller, 1764)	-	+	+	Eua	MhT	PI	-
<i>Epirrhoe galitata</i> ([Den. & Sch.], 1775)	-	+	-	Eua	Mht	PI	-
<i>Epirrita dilutata</i> ([Den. & Sch.], 1775)	-	+	-	Eua	Mht	F	-
<i>Euchloris smaragdaria</i> (Fabricius, 1787)	+	-	-	Eua	M	PI	-
<i>Eulithis pyraliata</i> ([Den.&Sch.], 1775)	+	-	-	Eua	Mh	PI	-
<i>Heliomata glarearia</i> ([Den. & Sch.], 1775)	-	+	-	Eua	Mt	PI	-
<i>Hemistola chrysoprasaria</i> (Esper, 1795)	-	+	+	Eua	M	A	-
<i>Hemithea aestivaria</i> (Hubner, 1789)	+	-	-	Eua	M, Mht	F	-
<i>Horisme corticata</i> (Treitschke, 1835)	+	-	-	Eua	M	PI	-
<i>Hypomecis roboraria</i> ([Den. & Sch.], 1775)	-	+	+	Eua	Mt	F	-
<i>Idaea versata</i> (Linnaeus, 1758)	-	-	+	Eua	Mxt	PI	-
<i>Idaea laevigata</i> (Scopoli, 1763)	+	-	-	Eua	Mt	PI	NT
<i>Idaea ochrata</i> (Scopoli, 1763)	+	-	-	Eua	Xt, Mxt	PI, G	NT
<i>Idaea rufaria</i> (Hubner, 1799)	+	-	-	Eua	Mt	PI	NT
<i>Ligdia adustata</i> ([Den. & Sch.], 1775)	-	+	+	Eua	M	A	-
<i>Lomographa cararia</i> (Hübner, 1790)	-	-	+	Eua	M	F	-
<i>Losmaspilis marginata</i> (Linnaeus, 1758)	+	+	+	Eua	M	F	-
<i>Lycia hirtaria</i> (Clerck, 1759)	-	-	+	Eua	M	A, F	NT
<i>Melanthis procellata</i> ([Den. & Sch.], 1775)	-	+	-	Eua	M	A	-
<i>Mesoleuca albicillata</i> (Linnaeus, 1758)	-	+	+	Eua	Mh	A	NT
<i>Mesotype virgata</i> (Hufnagel, 1767)	+	-	-	Eua	M	PI	-
<i>Minoa murinata</i> (Scopoli, 1763)	+	-	-	Eua	Mx	PI	-
<i>Orthonama ostipata</i> (Fabricius, 1794)	+	+	-	Eua	M	PI	-
<i>Orthonama vittata</i> (Borkhausen, 1794)	+	-	-	Eua	M	PI	NT
<i>Ourapteryx sambucaria</i> (Linnaeus, 1758)	-	-	+	Eua	M	A	CR
<i>Peribatodes rhomboidaria</i> ([Den. & Sch.], 1775)	-	-	+	Eua	M		
						F	-
<i>Peribatodes secundaria</i> ([Den. & Sch.], 1775)	-	+	-	Eua	M	Co	-
<i>Pseudoterpnia pruinata</i> (Hufnagel, 1767)	+	-	-	Eua	M	PI	-
<i>Rodostrophia vibicaria</i> (Clerck, 1759)	+	+	-	Eua	Xt	F, PI	-
<i>Scopula biselata</i> (Hufnagel, 1767)	+	-	-	Eua	M	F, PI, G	-
<i>Scopula floslactaria</i> (Howorth, 1809)	+	-	+	Eua	M, Mht	E, F, PI	NT
<i>Scopula immorata</i> (Linnaeus, 1758)	+	+	+	Eua	Mt, Mht	PI, E	-
<i>Scopula immutata</i> (Linnaeus, 1758)	+	-	-	Eua	Mh	PI	-
<i>Scopula rubiginata</i> (Hufnagel, 1707)	+	-	-	Eua	Xt, Mxt	PI	-
<i>Scopula ternata</i> (Schrank, 1802)	+	+	+	Eua	M, Mht	E	NT
<i>Scopula virgulatta</i> ([Den.&Sch.], 1775)	+	-	-	Pm	T	G	-
<i>Scotopteryx vicinaria</i> (Duponchel, 1830)	-	-	+	Vam	Xt	F	NT
<i>Selenia lunaria</i> ([Den. & Sch.], 1775)	-	+	+	Eua	M	F,A	NT
<i>Selenia tetralunaria</i> (Hufnagel, 1767)	-	+	+	Eua	M	F	NT
<i>Semiothisa clathrata</i> (Linnaeus, 1758)	+	-	+	Eua	M	PI	-
<i>Semiothisa glarearia</i> ([Den.&Sch.], 1775)	+	-	-	Eua	M	PI	-
<i>Semiothisa liturata</i> (Clerck, 1759)	+	-	-	Eua	M	CO	-
<i>Siona lineata</i> (Scopoli, 1763)	+	-	-	Eua	M	PI	-
<i>Synopsia sociaria</i> (Hubner, 1799)	+	+	-	Eua	M	PI	-
<i>Tephrina arenaceria</i> ([Den.&Sch.], 1775)	+	-	-	Eua	Mt	PI	NT
<i>Thalera fimbrialis</i> (Scopoli, 1763)	+	+	-	Eua	Xt, Mt	PI	-
<i>Timandra amata</i> Schmidt, 1931	-	-	+	Eua	M, Mh	PI	-

Taxon	L1	L2	S	S. B.	C. E.	B. t.	L. R.
<i>Xanthorhoe biriviata</i> (Borkhausen, 1794)	-	+	-	Eua	M	PI	NT
<i>Xanthorhoe ferrugata</i> (Clerck, 1759)	-	+	-	Eua	M	PI	-
Fam. Noctuidae							
<i>Abrostola triplasia</i> Linnaeus, 1758	-	-	+	Eua	M	PI	-
<i>Acronicta megacephala</i> ([Den. & Sch.], 1775)	-	+	-	Eua	Mh	F	-
<i>Acronicta rumicis</i> (Linnaeus, 1758)	-	+	-	Eua	Mh	A, F	-
<i>Aedia funesta</i> (Esper, 1786)	+	-	+	Pm	Mht	PI	NT
<i>Agrochola litura</i> (Linnaeus, 1761)	-	-	+	Pm	M	PI, A, F	-
<i>Agrotis exclamationis</i> (Linnaeus, 1758)	+	+	+	Eua	M	R	-
<i>Allophyes oxyacanthea</i> (Linnaeus, 1758)	-	+	-	Vam	Mt	F, A	-
<i>Amphipyra feruginea</i> (Esper, 1785)	-	-	+	Eua	Mh	F	-
<i>Amphipyra livida</i> ([Den. & Sch.], 1775)	-	+	-	Eua	Mt	PI	-
<i>Archana dissoluta</i> (Treitschke, 1825)	-	+	-	Eua	Mh	E	-
<i>Athetis gluteosa</i> (Treitschke, 1835)	+	-	+	Vam	Mth	PI	NT
<i>Axilia putris</i> (Linnaeus, 1758)	+	+	+	Eua	M, Mh	PI, G, R	-
<i>Bena prasinana</i> (Fessly, 1775)	+	-	-	Pm	Mxt	F	-
<i>Calophasia lunula</i> (Linnaeus, 1761)	-	+	-	Hol	Mt	PI	-
<i>Caradrina blanda</i> ([Den. & Sch.], 1775)	-	-	+	Eua	M	PI	-
<i>Caradrina morpheus</i> (Hufnagel, 1766)	-	+	-	Eua	Mh	PI	-
<i>Catocala electa</i> (Vieweg, 1790)	-	+	-	Vam	Mht	F	VU
<i>Catocala fulminea</i> Fabricius, 1777	-	-	+	Eua	Mh	A, F	NT
<i>Catocala nupta</i> (Linnaeus, 1767)	-	+	-	Eua	Mh	F	NT
<i>Chersotis margaritacea</i> (Villers, 1789)	-	+	-	Vam	Xt	PI	-
<i>Colocasia coryli</i> (Linnaeus, 1758)	-	+	-	Eua	M	F	-
<i>Conistra rubiginosa</i> (Scopoli, 1763)	+	+	+	Eua	M	F	-
<i>Conistra vaccinii</i> (Linnaeus, 1761)	+	+	+	Eua	M	F	-
<i>Cororthosia gracilis</i> ([Den. & Sch.], 1775)	-	+	-	Eua	M	F	-
<i>Cucullia umbratica</i> (Linnaeus, 1758)	-	-	+	Eua	M	PI	-
<i>Deltote bankiana</i> (Fabricius, 1775)	-	+	+	Eua	Mh	G	-
<i>Diatarxia oleracea</i> (Linnaeus, 1758)	-	+	-	Eua	Mht	PI	-
<i>Dypterygia scabriuscula</i> (Linnaeus, 1758)	-	+	-	E. Vas.	Mh	PI	-
<i>Egira conspicillaris</i> (Linnaeus, 1758)	-	+	-	Vam	M	PI	-
<i>Elaphria venustula</i> (Hübner, 1790)	-	+	-	Eua	Mt	PI	-
<i>Emmelia trabealis</i> (Scopoli, 1763)	+	-	+	Eua	Mxt	PI	-
<i>Eublemma purpurina</i> (Den. & Sch., 1775)	+	-	-	Eua	Mt	PI	-
<i>Eucarta amethystina</i> (Hubner, 1803)	+	+	+	Pm	Mht	F	VU
<i>Eucarta virgo</i> (Treitschke, 1835)	-	+	-	Pm	Mht	PI	VU
<i>Euplexia lucipara</i> (Linnaeus, 1758)	-	+	-	Eua	M, Mh	P	-
<i>Eupsilia transversa</i> (Hufnagel, 1766)	+	+	+	Eua	M	F	-
<i>Eustrotia candidula</i> ([Den. & Sch.], 1775)	-	-	+	Eua	M	PI	-
<i>Eustrotia olivana</i> (Fabricius, 1775)	+	-	-	Eua	Mh	PI	-
<i>Hadena bicruris</i> (Hufnagel, 1776)	-	+	-	Eua	M	PI	-
<i>Hadena comptta</i> ([Den. & Sch.], 1775)	-	-	+	Eua	M	PI	-
<i>Hadena rivularis</i> (Fabricius, 1775)	-	-	+	Eua	M	PI	-
<i>Hoplodrina alsines</i> (Brahm, 1758)	+	+	-	Eua	M	PI	-
<i>Herminia grisealis</i> ([Den. & Sch.], 1775)	-	+	-	Eua	M	A, F, PI	-
<i>Herminia tarsicrinalis</i> (Knoch, 1782)	-	+	-	Eua	Mh	X	NT
<i>Hoplodrina ambigua</i> ([Den. & Sch.], 1775)	-	-	+	Vam	Mt	PI	-
<i>Hoplodrina blanda</i> (Linnaeus, 1758)	-	-	+	Pm	Mxt	PI	-
<i>Hoplodrina octogenaria</i> (Goeze, 1781)	-	+	+	Pm	Mxt	PI	-

Taxon	L1	L2	S	S. B.	C. E.	B. t.	L. R.
<i>Hypena proboscidalis</i> (Linnaeus, 1758)	-	+	+	Eua	M, Mh	PI	-
<i>Hyphilare albipuncta</i> ([Den. & Sch.], 1775)	-	+	-	Eua	M	G	-
<i>Lacanobia w-latinum</i> (Hufnagel, 1766)	-	+	+	Eua	M	PI	-
<i>Lacanobia oleracea</i> (Linnaeus, 1758)	-	-	+	Eua	M	PI	-
<i>Leptologia lota</i> (Clerck, 1759)	-	+	-	Eua	M	F	-
<i>Lithophane semibrunnea</i> (Haworth, 1809)	-	+	-	Eua	M	F	-
<i>Lygephila pastinum</i> (Treitschke, 1826)	-	+	-	Eua	T	PI	NT
<i>Meristis trigramica</i> (Hufnagel, 1766)	+	-	-	Pm	M	PI, G	-
<i>Mesogona oxalina</i> (Hübner, 1803)	-	-	+	Eua	Xt	F	-
<i>Mniotiyte satula</i> ([Den. & Sch.], 1775)	-	-	+	Eua	M	PI, F	-
<i>Monima cerasi</i> (Fabricius, 1775)	-	+	-	Eua	M	F	-
<i>Mormo maura</i> (Linnaeus, 1758)	-	-	+	Eua	Mh	PI, F, A	VU
<i>Mythimna albipuncta</i> ([Den. & Sch.], 1775)	-	-	+	Vam	M	G	-
<i>Mythimna ferrago</i> (Fabricius, 1787)	-	-	+	Eua	Mh	G	-
<i>Mythimna turca</i> (Linnaeus, 1761)	-	+	+	Eua	Mh	G	-
<i>Noctua pronuba</i> Linnaeus, 1758	-	-	+	Eua	M, Mg	PI	-
<i>Ochropleura plecta</i> (Linnaeus, 1761)	+	+	+	Hol	M	PI	-
<i>Oligia strigilis</i> (Linnaeus, 1758)	+	-	-	Eua	M, Mh	G	-
<i>Orthosia incerta</i> (Hufnagel, 1766)	-	+	+	Eua	M	F	-
<i>Ortosia cerasi</i> (Fabricius, 1775)	-	-	+	Eua	M	A, F	-
<i>Ortosia gothica</i> (Linnaeus, 1758)	-	-	+	Eua	M	PI, F	-
<i>Paracolax tristalis</i> (Fabricius, 1794)	-	+	+	Eua	M	X	-
<i>Paradrina clavipalpis</i> (Scopoli, 1763)	-	+	-	Eua	Mg	PI	-
<i>Pechipogo strigilata</i> (Linnaeus, 1758)	-	+	-	Eua	M	X	-
<i>Phlogophora fuliginaria</i> (Linnaeus, 1758)	-	-	+	Eua	M	PI	-
<i>Polypogon tentacularia</i> (Linnaeus, 1758)	+	+	+	Eua	M h	G	-
<i>Protodeltote pygarga</i> (Hufnagel, 1766)	-	+	-	Eua	Mh	G	-
<i>Rivula sericealis</i> (Scopoli, 1763)	+	+	+	Eua	Mh	G	-
<i>Scoliopteryx libatrix</i> (Linnaeus, 1758)	-	+	+	Hol	Mh	F	-
<i>Talpophila matura</i> (Hufnagel, 1766)	+	-	-	Pm	M	G	-
<i>Tholera caespitis</i> (Den.&Sch., 1775)	+	-	+	Eua	M	G, R	-
<i>Tholera decimalis</i> (Poda, 1761)	+	+	+	Eua	M	G	-
<i>Trachea atriplicis</i> (Linnaeus, 1758)	-	+	-	Eua	M	PI	-
<i>Trisateles emortualis</i> ([Den. & Sch.], 1775)	-	+	-	Eua	M	X	-
<i>Tyta luctuosa</i> (Den.&Sch., 1775)	+	+	+	Eua	Xt	PI	-
<i>Xestia c-nigrum</i> (Linnaeus, 1758)	-	+	+	Eua	Mg	PI	-
<i>Xestia ditrapezium</i> ([Den. & Sch.], 1775)	-	+	+	Eua	M	PI	-
<i>Xestia xanthographa</i> ([Den. & Sch.], 1775)	-	+	-	Eua	M	PI, G	-
<i>Zanclognatha tarsipennalis</i> (Treitschke, 1835)	-	+	-	Eua	Mh	X	-

Abbreviations:

Biogeographic component: Eua= eurasian; Hol= holarctic sp.; Vam= West-Asian-Mediterranean; Pm= Pontomediterranean; E. Vas.= European-West-Asian; Str.= subtropical

The ecological character: M= mesophilous; Xt= xero-thermophilous; Mh= mesohygrophilous; Mht= meso-hygro-thermophilous; Mg= migrant species; T= thermophilous; Mxt= meso-xero-thermophilous;

The trophic basis PI= low herbaceous plants; G= gramineae; F= deciduous trees defoliators; A= shrubs defoliators; R= endophagous in roots; CO= coniferous defoliators; L= lichens; X= sapro-lignicol ET= endophagous in stem;
The Red List: CR= Critically Endangered; VU= Vulnerable; NT= Near Threatened;
L1= Limba village, first site of the collecting process; L2= Limba village, second site; S= Săcălășeni commune.

From the biogeographic spectrum analysis of identified species (**Fig. 10.**), we have observed the dominance of the Eurasian elements with a percentage of 88% for Ciugud commune (AB), respectively 89% for Săcălășeni commune (MM). This is due to geographical location and climatic characteristics of our country and it is consistent with the data known so far about the biogeographical origin of the Romanian lepidoptera species (RÁKOSY, 1997).

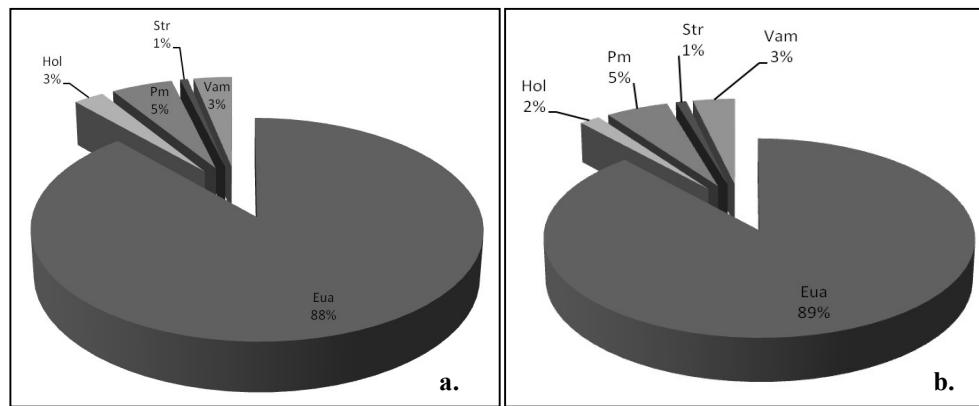


Fig.10. The graphical representation of the biogeographic spectrum:
a. Ciugud Commune (AB), b. Săcălășeni Commune (MM).

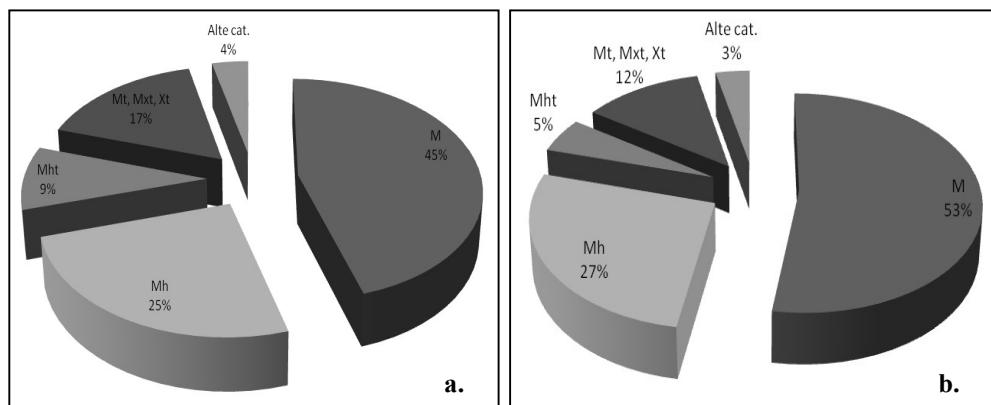


Fig.11. The graphical representation of the ecologic character: a. Ciugud Commune (AB), b. Săcălășeni Commune(MM).

The eurasian elements are followed by pontomediterranean (5%) and west – asian-mediterranean (3%), due to the Black Sea's influence on the overall climate. Development of corridors in the Carpathians Mountains have allowed the circulation of western air flows with higher temperature and humidity, thus creating favorable conditions for the development of these species (RÁKOSY, 1997).

To highlight the ecological profile (**Fig. 11**) of all species identified in the studied area, their requirements against major abiotic factors have been taken into consideration: humidity and temperature (RÁKOSY, 1997).

The dominance of the mesophile species, in the Ciugud Commune (45%) and in the Săcălășeni Commune (53%), is predictable given the geographical location and the altitude at which the research was conducted, being a consequence of temperate continental climate that characterizes the area.

The presence of the species that prefers a higher moisture regime (meso-hygrophilous and meso-hygro-thermophilous) in large numbers, 34% in Ciugud to 31% Sacalaseni, is mainly due to the habitat where the research has been carried out.

Xerothermophilous species make a total of 17% for the Ciugud Commune and 12% for Sacalaseni. Their presence can be explained by the heterogeneity of the microhabitats and high insolation, favoring xerothermophilous species.

Analyzing the larval trophic basis of the identified species (**Fig. 12**), the dominance of the herbaceous plants consumers can be seen, 49% in Ciugud and 37% in Săcălășeni, followed by the defoliators, 23% in both cases.

The high percentage of low herbaceous plants consumers is consistent with high specific diversity of herbaceous species, other than Gramineae. The high percentage of deciduous trees defoliators species is related to the presence of alluvial forests with *Salix*, *Populus* and *Alnus*.

Gramineae consumers identified here (7% in Ciugud and 10% in Sacalaseni) indicate the anthropic influence on the study areas through the use of easily flooded and fertile lands for agriculture, from the meadow areas, to the detriment of alluvial forests.

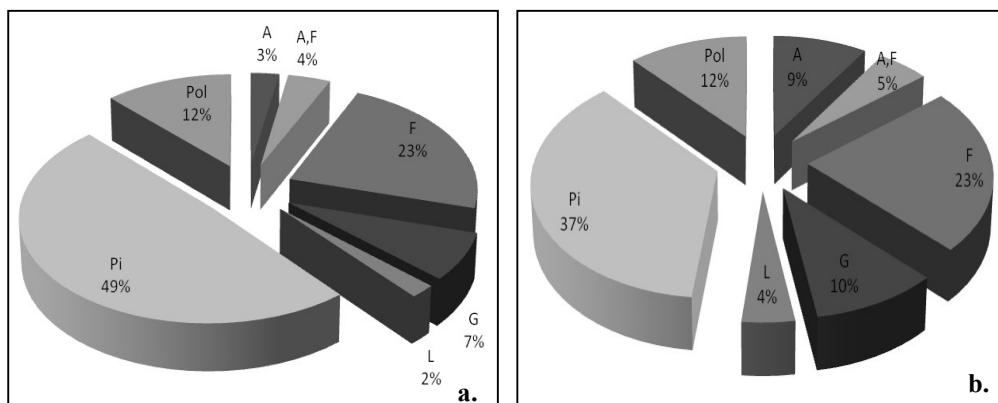


Fig.12. Representation of the larvae trophic basis of identified lepidoptera in the study areas: a. Ciugud Commune (AB), b. Săcălășeni Commune (MM).

Of all the 210 identified species, 40 (19%) have varying degrees of endangerment (CR-1, NT-30, VU-9). Graphical representation of the categories of endangerment for the Lepidoptera identified in the two areas studied is illustrated in **Fig.13**.

The only identified species that is critically endangered is *Ourapteryx sambucaria* (Linnaeus, 1758) from the Geometridae family. Among the vulnerable species, we note *Furcula bicuspis* (Borkhausen, 1790) (Notodontidae fam.), *Eudia pavonia* (Linnaeus, 1758) (Saturniidae fam.), *Aplasta ononaria* (Fessly, 1775) (Geometridae fam.), *Euplexia lucipara* (Linnaeus, 1758) (Noctuidae fam.). *Nola cristatula* (Hubner, 1793) (Nolidae fam.), *Spilosoma urticae* (Esper, 1789) (Arctiidae fam.), *Cabera exanthemata* (Scopoli, 1763) (Geometridae fam.), *Catocala fulminea* Fabricius, 1777 (Noctuidae fam.) are near threatened species.

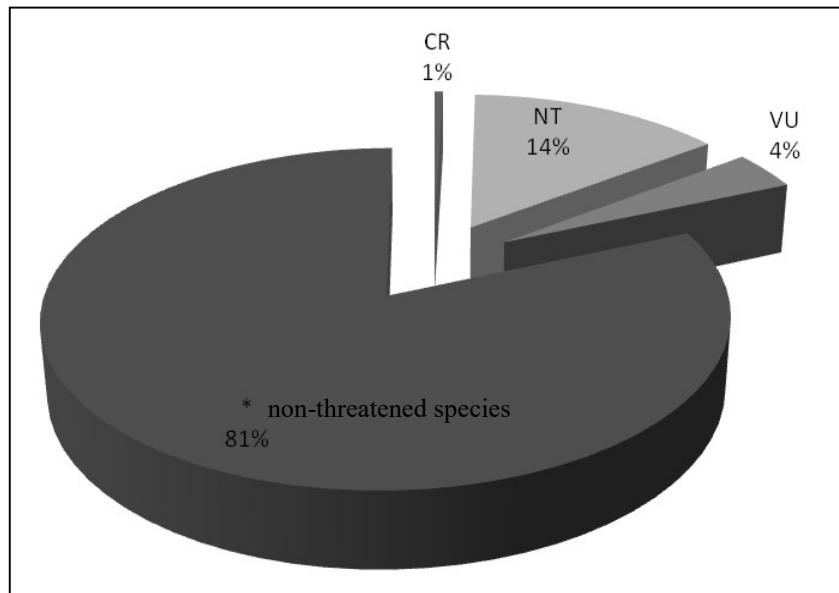


Fig. 13. The percentage values of the endangered species in the studied areas.

Conclusions

This paper presents the results of moth macrolepidoptera biodiversity's study from Limba village area (Ciugud commune, Alba country) and from Săcălașeni commune area (Maramureș county). The types of habitats from which the material was collected are

represented by the alluvial forests of *Alnus glutinosa* and *Fraxinus excelsior*, riverside coppices (forest galleries) of *Salix alba* and *Populus alba* and alluvial meadows with natural flooding regime.

Following the research, we have identified 207 species of moths belonging to 16 families.

From a biogeographical perspective, the eurasian species are dominant (88%) because of the geographical location and the climatic characteristics of the country. The eurasian elements are followed by the ponto-mediterranean (5%) and the west-asian-mediterranean (3%). The holarctic and the subtropical elements have a low weight.

The analysis of the ecological profile of the species shows that the mezophile species are dominant (54%) as a consequence of the geographical location and altitude at which the samplings were made. The species that prefer a high humidity regime make a high percentage (approximately 29%) due to the types of habitats in which the sampling occurred.

From the analysis of the larval trophic base, one can observe the dominance of the low herbaceous plants consumers (50%), due to high specific diversity of herbaceous species. Defoliating species that live on both the trees and the shrubs also have a high percentage (25%).

According to the Red List of Romanian butterflies, 40 species have been identified belonging to 3 categories of endangerment: NT (30), VU (9) and CR (1).

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