

LEPIDOPTERA COLLECTED FROM DUMBRAVA SIBIU FOREST, PRESENTED IN COLLECTIONS OF THE MUSEUM OF NATURAL HISTORY IN SIBIU

Cristina STANCĂ-MOISE*

*"Lucian Blaga" University of Sibiu, Faculty of Agricultural Sciences, Food Industry and Environmental Protection, Sibiu, Romania
Corresponding author: Cristina Moise, "Lucian Blaga" University of Sibiu, Faculty of Agricultural Sciences, Food Industry and Environmental Protection, 5-7 Ion Ratiu, 550371 Sibiu, Romania, phone: 0040269234111, fax: 0040269234111, e-mail: cristinamoise1@yahoo.com

Abstract. This paper is a tribute to the memory of former lepidopterologists at the celebration of 120 years since the opening of the Museum of Natural History in Sibiu, but also an important contribution to the knowledge of the Lepidoptera's heritage in Romania. In the collections of Lepidoptera studied, were identified 481 specimens belonging to 12 families and 174 species. List of the 174 species collected between 1871-1970 from Dumbrava Sibiu Forest and degree of endangerment are of great scientific and documentary value. Systematic classification is updated in the *Catalog of Romania's Lepidoptera*.

Keywords: collections, Lepidoptera, museum anniversary

INTRODUCTION

By its geographical position, Transylvania is a well defined fauna region, where in addition to many elements in common with neighboring areas, there are also some characteristic species, which to date continues to maintain the status of "endemic"[15].

Previous decades were very important for the development of Lepidoptera's research in Sibiu and in Transylvania, especially in the postwar years. The richness of insect fauna and especially the numerous species of Lepidoptera, the knowledge of this group of insects sparked the curiosity of many researchers since the mid 19 century[2].

Currently *Lepidoptera* collections of Transylvanian Saxons from Sibiu are found in the Natural History Museum in Sibiu and are invaluable in terms of history, nationally and even internationally scientific documentary.

Historically, the value lies in the facts that are the oldest entomological collections in the country, some of them dating from 1827 [16]. Documentary and scientific value is quite exceptional because these collections of Lepidoptera illustrate the biogeographical character of Transylvania in general, and some areas from this region in particular [16]. About the entomological collections of the museum have written over the years other entomologists [1, 3, 6-16, 19, 20, 22-39, 42-45].

This paper addresses only existing species of Lepidoptera in museum collections, collected by Transylvanian Saxons naturalists in the past from the area of Dumbrava Sibiu Forest [3, 4, 15, 19-21, 39, 43-45].

MATERIALS AND METHODS

The main collections of Lepidoptera studied and which are subject of this study are kept in the entomological collection of the Natural History Museum in Sibiu. I studied the lepidopterological material stored in the following collections:

Dr. Daniel Czekelius Lepidoptera Collection from Transylvania

Dr. Daniel Czekelius (1857-1937) is considered the best researcher and expert in Transylvanian Lepidoptera. Data on Macrolepidoptera collection consists of 4474 specimens, are a comprehensive list, like a manuscript [3, 4]. Although close collaboration with Prof. Rebel guarantee determination, however, requires a systematic review and update of the nomenclature in most families, genera and species. They were made over time by Popescu-Gorj and various other national and foreign specialists [15]. Currently, Dr. Eckbert Schneider is working on making the first catalog of the collection mentioned above.

Dr. Eugen Worell Entomological Collection

Since 1920, Dr. Eugen Worell (1884-1961) becomes member of the Transylvanian Society of Natural Sciences, being appointed custodian of entomological collections of coleoptera and Lepidoptera and is considered one of the largest entomologist collector in the country during the period of the two world wars. The collected material is from all over the country; in Transylvania, he collects from Sibiu and its surroundings [11]. Another significant part of his collection comes from when he served as a doctor on ship [16], having the opportunity to collect a rich entomological material, examples of which are numerous species of Lepidoptera.

The value of the entomological collection Dr. Eugen Worell consists not only in the large number of specimens whose collected data contributed to spreading the knowledge of a large number of species, but also in that it comprises rare, little-known and new to science, in all Transylvania [44]. Sibiu Museum of Natural Sciences acquired the collection in 1957. A part from the entomological collection is in the "Grigore Antipa" Museum of Natural Sciences in Bucharest and Ploiesti [40].

Dr. Victor Weindel Transylvanian Lepidoptera Collection

Viktor Weindel (1887-1966) was a passionate lepidopterist collector who collected since he was a child; the oldest specimens in his collection come from the beginning of the century [41].

Although not a large collection that arose in Sibiu, it still contains specimens collected over 60 years and from many places in the remote surroundings of Sibiu,

from southern and eastern Transylvania, from Turnu Rosu and hills area [20]. In a note, entitled "Source of my butterflies" he says: "The cardinal points of my work of collecting are: Sibiu, Gusterita Viile Sibiului, Cisnadioara, Dumbrava Sibiu Forest, Sadu, Cisnădie, Păltiniș, Magura Cisnădiei".

Bio-geographically, this collection includes rare and very interesting species for the collecting areas. The Microlepidoptera collection needs to be processed, updated and published [22].

Henirch Hann von Hannenheim Entomological Collection

Heinrich von Hannenheim Hann (1895-1971) in the early 50s resumed his entomological collection, which began in his youth. The result is a collection of insects with representatives from various orders of approx. 5,700 specimens, of which 1,500 are butterflies. These come from the Southern Carpathians where he undertook trips with great pleasure, and around Sibiu. Specialists constantly consulted his collection, A. Popescu-Gorj from "Grigore Antipa" Museum has studied butterflies. This collection arrives in 1964 in the possession of the Natural History Museum in Sibiu where it is today.

A part of the Lepidopterological material of the collection, i.e. 1723 specimens belonging to 388 species, was published as a catalog in 2003 by Eckbert Schneider [21].

In studying the material on butterflies from the entomological collection of the museum, I found many specimens collected by Hannenheim in the Dr. D.Czekelius and Dr. E.Worell collections with data of

collection between the two world wars, when he did not have his own collection yet.

Prof. Rolf Weyrauch Entomological Collection

Rolf Weyrauch (1906-1984) in his collections of insects, especially butterflies, appears aesthetic features: special shapes and colors, rare and endemic species that were searched during his research trips and collection from the field [40].

Prof. Rolf Weyrauch Lepidoptera collection includes 278 species of Microlepidoptera, 14 specimens of exotic Lepidoptera and 5369 species of Macrolepidoptera.

W. Weber Lepidoptera Collection

Lepidoptera collection of pharmacist W. Weber is relatively small, comprising 348 specimens of butterflies purchased by the Natural History Museum in Sibiu in 1971 [16]. Butterflies in this collection belong to different taxonomic units, exotic and holarctic species, exclusively foreign to our country [42].

The material was obtained by direct exchange with foreign collectors and by own growth, from eggs received by exchange. Most of the material in the collection was collected in fresh state from the countries of origin [16].

In making his collection, the author has focused his attention on covering as complex as possible the representatives of some families particularly attractive such as Papilionidae, Morphidae and Saturniidae. These families include most spectacular species in terms of their shape and coloring.

RESULTS

SYSTEMATIC LIST OF THE MACROLEPIDOPTERA (INSECTA: LEPIDOPTERA) FROM DUMBRAVA SIBIU FOREST

No	No Ro*	No. K.&R. **	Taxon	Area of România	Degree of endangerment
FAMILY LASIOCAMPIDAE (3306 Ro, K. & R.6722)					
1	3318 Ro	K. & R.6743	<i>Malacosoma neustria</i> Linnaeus, 1758 1spec.; 18.VII.1955 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	NT
FAMILY SATURNIIDAE (3344 RO, K. & R. 6785)					
2	3350 Ro	K. & R. 6793	<i>Saturnia pyri pyri</i> Denis&Schiffermüller, 1775 1♀, 6.V.1953 RW, 1♂, 8.V.1957 RW, 1♂, 12.V.1952 RW., 1♀, 17.V.1970 RW, 1♂, 20.V.1965 RW,1♂, 28.V.1957 RW, 1♀, 2.VI.1952 RW, 1♀, 3.VI.1955 RW	BT, CR, TR, MM, OT, MT, MD; DB	VU
FAMILY SPHINGIDAE (3361 RO, K. & R. 6812)					
3	3375 Ro	K. & R. 6830	<i>Acherontia atropos</i> Linnaeus, 1758 2♂♂, 10.VIII.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	VU
4	3377 Ro	K. & R. 6832	<i>Sphinx ligustri</i> Linnaeus, 1758 1spec.; 29.VI.1952 VW [11]	BT, CR, TR, MM, MT, MD; DB	NT

5	3379 Ro	K. & R. 6834	<i>Hyloicus pinastri pinastri</i> Linnaeus, 1758 15.VIII.1938 EW [10]	BT, CR, TR, MM, MT, MD	
6	3401 Ro	K. & R. 6863	<i>Deilephila porcellus</i> Linnaeus, 1758 2♂♂, 15.V.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
FAMILY HESPERIIDAE (3406 Ro, K. & R. 6875)					
7	3410 Ro	K. & R. 6879	<i>Erynnis tages tages</i> Linnaeus, 1758 2specs.; 23,25.VII.1921 VW; 1.VIII.1903 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
8	3413Ro	K. & R.6884	<i>Carcharodus laevatherae laevatherae</i> Esper, 1783 6♂♂, 20.V.1953; 3♂♂, 6.VII.1953 EW; 1♂, 27.VII.1952 EW [10]	BT, CR, TR, DB	VU
9	3414 Ro	K. & R. 6885	<i>Carcharodus floccifera</i> Zeller, 1847 1spec.; 13.VI.1907 VW[11]	BT, CR, TR, OT, MT, MD; DB	VU
10	3427 Ro	K. & R. 6904	<i>Pyrgus (P) malvae malvae</i> Linnaeus, 1758 2specs.; 5.IX.(without collecting), 9.VII.1907 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
11	3430 Ro	K. & R. 6912	<i>Pyrgus alveus alveus</i> Hübner, 1803 2 specs., 28.VIII.1962, HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
12	3442 RO	K. & R. 6928	<i>Hesperia comma</i> Linnaeus, 1758 4specs.; 15.VIII.1903 VW; 1.IX.1939 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
13	3444 Ro	K. & R. 6930	<i>Ochlodes venatus faunus</i> Turati, 1905 3 specs.; 22.VI.1980 VW; 9,19.VII.1907 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
FAMILY PAPILIONIDAE (3446 RO, K. & R. 6939)					
14	3458 Ro	K. & R. 6958	<i>Iphiclides podalirius podalirius</i> Linnaeus, 1758 1spec.; 27.V.1925 EW [10]; 1♀ 9.VI.2011; 1 spec., 14.VII.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	VU
15	3460 Ro	K. & R. 6960	<i>Papilio machaon machaon</i> Linnaeus, 1758 2 specs.; 17.V.1902 VW; 9.VII.1904 VW[11]; 1♂17.V.1939 EW; 1♂25.VII.1939 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	EN
FAMILY PIERIDAE (3461 RO, K. & R. 6963)					
16	3464 Ro	K. & R. 6966	<i>Leptidea sinapis sinapis</i> Linnaeus, 1758 1spec., 22.VII.1871 DC [8], 10 specs., IV. 1920, 21.V.1921, 29.V.1921, 2 spec., 14.VII.1904, 4.VII.1904, 4.VII. 1907, 7.VII.1918, 14.VII.1904, 8.VIII.1954 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
17	3469 Ro	K. & R. 6973	<i>Anthocaris cardamines meridionalis</i> Verity, 1908 1 spec., 25.V.1887 DC [8], 4specs., IV.1920 (non collection day) VW; 12.V.1904 VW; 17.V.1902 VW; 7.VI.1953 VW[11] 1 spec., 26.V.1957 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
18	3474 Ro	K. & R. 6993	<i>Aporia crataegi crataegi</i> Linnaeus, 1758 2 specs., 12.VI.1904 VW; 13.VI.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
19	3476 Ro	K. & R. 6995	<i>Pieris brassicae brassicae</i> Linnaeus, 1758 3specs., 21.V.1904 VW, 18.VII; 1.VIII.1903 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	VU
20	3478 Ro	K. & R. 6998	<i>Pieris rapae</i> Linnaeus, 1758 3spesc., IV:1920 (non collection day) VW, 11.V.1955 VW; 21.V.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	

21	3480 Ro	K. & R. 7000	<i>Pieris napi meridionalis</i> Heyne, 1895 2 specs., IV.1920 (non collection day) VW; 10.IV.1921 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
22	3490 Ro	K. & R. 7017	<i>Colias myrmidone myrmidone</i> Esper, 1780 17.VI.1908, DC [8], 2 specs., 29.V.1921 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	VU
23	3492 Ro	K. & R. 7021	<i>Colias hyale hyale</i> Linnaeus, 1758 1spec.; 12.V.1904 VW, 1spec., 15.VIII.1903 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
FAMILY LYCAENIDAE (3496 Ro, K. & R. 7027)					
24	3499 Ro	K. & R. 7030	<i>Hamearis lucina</i> Linnaeus, 1758 3specs.; IV.1920 (non collection day) VW; 12.V.1904 VW; 26.VII.1904 VW[11] 2 spec., 14.VII.1957, 29.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
25	3502 Ro	K. & R. 7034	<i>Lycaena phlaeas phlaeas</i> Linnaeus, 1761 2specs.; 21.V.1904 VW; 14.VII.1903,1904 VW[11]; 4♂♂, 24.VII.1952 EW; 2♂♂, 1♀, 25.VII.1938 EW; 26.VII.1953EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
26	3504 Ro	K. & R. 7036	<i>Lycaena dispar</i> Haworth, 1802 (sin. <i>L. dispar</i> <i>rutila</i> Wernebung, 1864) 1spec.; 11.VI.1879 DC [8]	BT, CR, TR, MM, OT, MT, MD; DB	VU
27	3505 Ro	K. & R. 7037	<i>Lycaena virgaureae virgaureae</i> Linnaeus, 1758 1spec.; 10.VI.1923 VW[11]; 1♂, 27.VII.1953 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	NT
28	3506 Ro	K. & R. 7039	<i>Lycaena tityrus tityrus</i> Poda, 1761) 3specs.; 21.V.1903, VW; 1spec., 1.VIII.1903 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
29	3510 Ro	K. & R. 7043	<i>Lycaena thersamon</i> Esper, 1784 1♀, 29.V.EW, 1♀ 31.V.1940 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	VU
30	3514 Ro	K. & R. 7049	<i>Neozephyrus quercus quercus</i> Linnaeus, 1758 1spec., 20.VIII.1892 DC [8] 5specs.; 9.VI.1907 VW; 9.VII.1907; 4.VII.1904; 2specs.; 8.VIII.1954 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	VU
31	3518 Ro	K. & R. 7058	<i>Callophrys rubi</i> Linnaeus, 1758 1spec.; 16.VI.1892 DC(Moise 2011a); 1spec.; 26.VI.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
32	3522 Ro	K. & R. 7064	<i>Strymonidia spini</i> Denis&Schifferrmüller, 1775 1spec.; 10.VI.1923 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
33	3547 Ro	K. & R. 7107	<i>Glaucopsyche alexis</i> Poda, 1761 1spec., 8.VI.1915 DC [8]; 2specs., 17.VII.1940 EW; 19,20.VI.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
34	3551 Ro	K. & R. 7112	<i>Maculinea arion</i> Linnaeus, 1758 3♂♂, 12.VIII.1840 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	NT
35	3554 Ro	K. & R. 7115	<i>Maculinea alcon</i> Denis&Schifferrmüller, 1775 1spec.; 29.VI.1907 DC [8]; 12.VIII.1940 EW [10]	BT, CR, TR, MM, OT, MD; DB	EN
36	3578 Ro	K. & R. 7163	<i>Polyommatus icarus</i> Rottemburg, 1775 1spec., 13.VII.1888 DC [8]; 5specs., 21.V.1904 VW; 2specs.; 19.VI.1907 VW; 27.VII, 2.X.1952	BT, CR, TR, MM, OT, MT, MD; DB	

EW [10]

FAMILY NYMPHALIDAE (3587 Ro, K. & R. 7196)					
37	3593 Ro	K. & R. 7202	<i>Argynnis (Argynnis) paphia paphia</i> Linnaeus, 1758 2specs., 20.VI.1921 DC, 7.VII.1922 DC [8]; 2spec., 3.VII.1903 VW; 14.VII.1903 VW[11]; 4specs., 29.VI.1948 EW 22.VII.1953 EW; 31.VII.1952 EW; 17.VIII.1953 EW [10] 2 spec., 18.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
38	3594Ro	K. & R.7203	<i>Pandoriana (Argynnis) pandora</i> Denis&Schifferrmüller, 1775 3specs., 24.VII.1953 EW; 17.VIII.1953 EW; 18.IX:1953 EW [10] 1 spec., 24.VIII.1963 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	VU
39	3595 Ro	K. & R. 7204	<i>Argynnis (Mesoacidalia) aglaja aglaja</i> Linnaeus, 1758 1spec., 25.V.1919 DC [8]; 2spec., 3.VII.1903 VW; 14.VII.1903 VW[11]; 3spec., 13.VII.1953 EW, 6,10.VIII.1938 EW, 2.VII:1953 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
40	3596Ro	K. & R.7205	<i>Argynnis (Fabriciana) addipe</i> Denis&Schifferrmüller, 1775 3 specs.; 10.VI.1923 VW, 3,15.VII.1903 VW[11] ; 1spec., 29.VI.1927 DC [8]; 7specs., 12.VII.1938 EW; 16.VII.1956 EW; 12.VIII.1938 EW; 25,29.VIII.1938 EW; 25.VIII.1940 EW; 29.VIII.1948 EW [10] 1spec., 18.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
41	3597 Ro	K. & R. 7206	<i>Argynnis (Fabriciana) niobe niobe</i> Linnaeus, 1758 1spec., 21.VI.1904 VW[11]; 1spec., 29.VI.1917 DC [8], 1spec. 2.VIII.1938 EW[10]	BT, CR, TR, MM, OT, MT, MD; DB	NT
42	3600 Ro	K. & R. 7210	<i>Issoria lathonia</i> Linnaeus, 1758 1spec., IV.1920 (non collection day) VW; 2specs., 3.VIII.1903 VW; 15.VIII.1903 VW[11]; 1spec., 25.VIII.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
43	3607 Ro	K. & R. 7220	<i>Clossiana euphrosyne</i> Linnaeus, 1758 3specs., 21.V.1904 VW; 7.VI.1953 VW; 13.VI.1907 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	VU
44	3609 Ro	K. & R. 7222	<i>Clossiana selene</i> Denis&Schifferrmüller, 1775 3specs., 21.V.1904 VW; 29.V.1903 VW; 13.VI.1907 VW[11] 1spec., 25.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
45	3610 Ro	K. & R. 7228	<i>Clossiana dia dia</i> Linnaeus, 1767 1spec., 29.VIII.1962 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
46	3616 Ro	K. & R. 7243	<i>Vanessa atalanta</i> Linnaeus, 1758 1spec., 20.VIII.1920 DC [8] 2specs.15.VII; 15.VIII.1951 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
47	3617 Ro	K. & R. 7245	<i>Vanessa cardui</i> Linnaeus, 1758 16.VIII.1916 DC [8]; 30.VII.1907 VW; 1.IX.1952 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	

48	3619 Ro	K. & R. 7248	<i>Inachis io</i> Linnaeus, 1758 1spec., 12.VII.1918 DC [8] 1spec., 23.VI.1953 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
49	3621 Ro	K. & R. 7250	<i>Aglais urticae</i> Linnaeus, 1758 1spec.; 12.III.1922 VW[11]; 1spec., 4.VI.1941 EW[10]	BT, CR, TR, MM, OT, MT, MD; DB	NT
50	3623 Ro	K. & R. 7252	<i>Polygonia c-album</i> Linnaeus, 1758 5 specs., 12.III.1922 VW; 29.III.1923 VW; IV:1920 (non collection day) VW, 15.IV.1956 VW; 26.IV.1904 VW[11], 2 specs., 17.VIII.1953 EW; 27.IX.1953 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	NT
51	3626 Ro	K. & R. 7255	<i>Araschnia levana</i> Linnaeus, 1758 1spec., 13.V.1920 DC [8]; 4 spec., 9.VII.1907 VW; 2spec., 14.VII.1903 VW; 14.VII.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
52	3630 Ro	K. & R. 7259	<i>Nymphalis xanthomelas</i> Esper, 1781 1spec., 9.VII.1904 VW[11]; 1spec., 9.VI.1947 EW [10]	BT, CR, TR, MM, MT, MD	CR
53	3636 Ro	K. & R. 7270	<i>Melitaea cinxia cinxia</i> Linnaeus, 1758 1spec., 25.V.1926 DC [8]; 2specs., 12.VI.1904 VW; 3.VII.1903 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
54	3637 Ro	K. & R. 7271	<i>Melitaea phoebe</i> Denis&Schifferrmüller, 1775 1spec.; 12.VI.1904 VW; 1spec., 3.VII.1904 VW[11]; 1spec., 16.VI.1922 DC; 1spec., 16.VIII.1921 DC [8]	BT, CR, TR, MM, OT, MT, MD; DB	NT
55	3641 Ro	K. & R. 7275	<i>Melitaea didyma didyma</i> Esper, [1778] 1spec.; 5.VI.1891 DC [8]; 1 spec., 26.VII.1904 VW[11], 1♀, 10.VI.1954 EW; 2♀, 10.VII.1938, 1948 EW; 1♂, 16.VII.1953 EW [10]; 22.VII.1960 RW; 2 specs., 25.VII.1958 HH, 29.VIII.1962 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
56	3645 Ro	K. & R. 7283	<i>Melitaea athalia athalia</i> Rottenburg, 1775 1spec.; 12.V.1926 DC [8]; 11spec.; 21.V.1904 VW; 3specs.; 29.V.1903, 1921 VW; 1spec.; 1.VI.1903 VW; 1spec.; 3.VI.1907 VW; 2spec.; 10.VI.1923 VW; 1spec.; 12.VI.1904 VW; 2specs.; 19.VI.1907 VW[11]; 1♀, 16.VII.1953 EW; 3♀, 2.VII.1953 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	NT
57	3648 Ro	K. & R. 7286	<i>Limnitis populi</i> Linnaeus, 1758 2specs., 5.VI.1902 DC; 10.VI.1906 DC [8]; 1spec., 12.VI.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD	VU
58	3652 Ro	K. & R. 7290	<i>Neptis sappo</i> Pallas, 1771 1spec., 7.V.1902 DC [8]	BT, CR, TR, MM, OT, MT, MD; DB	VU
59	3657 Ro	K. & R. 7298	<i>Apatura ilia ilia</i> Denis&Schifferrmüller, 1775 1 spec.; 14.VII.1904 VW; 1♀, 1.VII.1954 EW [10]	BT, CR, TR, MM, OT, MT, MD	VU
60	3658 Ro	K. & R. 7299	<i>Apatura iris</i> Linnaeus, 1758 1 spec., 28.VI.1821 DC [8], 14.VII.1904 VW[11]	BT, TR, MM, OT, MT, MD	VU
61	3665 Ro	K. & R. 7307	<i>Pararge (Pararge) aegeria tircis</i> Butler, 1867 1spec., 11.VI.1916 DC [8], 4specs.; IV.1920 (non collection day) VW; 12.V.1904 VW; 21.V.1904 VW, 1.VIII.1903 VW[11]; 3 specs., 22.V.1938 EW, 6.VIII.1939 EW, 16.V.1948 EW [10], 3	BT, CR, TR, MM, OT, MT, MD; DB	

			specs., 12,17.V.1956 RW; 1spec., 9.VI.1961 RW		
62	3667 Ro	K. & R. 7309	<i>Pararge (Lisioimmata) megera megera</i> Linnaeus, 1767 1spec., 21.V.1904 VW[11], 4♂♂1.V.; 8.V; 15.V; 16.V.1939 EW [10] 1 spec. 20.VII.1958, HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
63	3670 Ro	K. & R. 7315	<i>Pararge (Lopinga) achine achine</i> Scopoli, 1763 2specs.; 19.VI.1907 VW[11]; 1 spec., 26.V.1913 (leg. ?) HH [21], 1spec., 26.VI.1921 DC [8]	BT, CR, TR, MM, OT, MT, MD	VU
64	3674 Ro	K. & R. 7325	<i>Caenonympha arcania arcania</i> Linnaeus, 1761 5specs., 9.VII.1907 VW; 15.VII.1903 VW; 19.VII.1907 VW; 14.VIII.1904 VW; 15.VIII.1903 VW[11], 7specs., 15.VI.1938 EW; 3♀♀, 1.VII.1954 EW; 2♀♀, 6.VII.1953 EW; 1spec., 17.VII.1940 EW[10]	BT, CR, TR, MM, OT, MT, MD; DB	
65	3675 Ro	K. & R. 7326	<i>Caenonympha glycerion glycerion</i> Borkhausen, 1788 1spec., 2.VIII.1899 DC [8], 7specs.; 24.VI.1938 VW; 16.VII.1948 VW; 10,17.VI.1923 VW, 22.VIII.1945 VW; 25.VIII.1939 VW; 18.IX.1953 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
66	3677 Ro	K. & R. 7334	<i>Coenonympha pamphilus</i> Linnaeus, 1758 3specs.; 12.V.1904 VW; 29.V.1903 VW; 14.VII.1904 VW[11]; 1spec., 12.VIII.1940 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
67	3682 Ro	K. & R. 7344	<i>Aphantopus hyperanthus</i> Linnaeus, 1758 4specs.; 9.VII.1907 VW; 14.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
68	3684 Ro	K. & R. 7350	<i>Maniola jurtina jurtina</i> Linnaeus, 1758 4specs.; 17.VI.1923 VW; 9.VII.1907 VW; 14.VII.1903 VW; 15.VIII.1903 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
69	3695 Ro	K. & R. 7372	<i>Erebia aethiops aethiops</i> Esper, 1777 1spec., 22.VII.1929 DC [8]; 4♂♂, 10.V; 2.VIII; 1,13.VIII.1903 VW[11] 2 specs., 25.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
70	3704 Ro	K. & R. 7415	<i>Melanargia galathea scolis</i> Fruhstorfer, 1917 1spec.; 17.V.1923 VW; 4♀♀, 10.VI.1948 EW; 2♂♂, 25.VI.1938 EW; 3specs.; 14.VII.1904 VW	BT, CR, TR, MM, OT, MT, MD; DB	
71	3710 Ro	K. & R. 7436	<i>Hipparcia semele semele</i> L. 1 spec. 29.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
72	3728 Ro	K. & R. 7486	FAMILY DREPANIDAE (3720 RO, K. & R. 7478) <i>Tethea or Denis&Schiffermüller</i> , 1775 2specs., 25.VII.1904 VW; 18.VIII.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
73	3749 Ro	K. & R. 7508	<i>Drepana falcataria</i> Linnaeus, 1758 1♂, 21.V.1939 EW; 2♀♀, 1.VI.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD	NT
74	3753Ro	K. & R. 7512	<i>Cilix glaucata</i> Scopoli, 1763(sin. <i>C. spinula</i> Denis&Schiffermüller, 1775) 1spec. 13.V.1890 DC [8], 1spec. IV. 1920 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	

FAMILY GEOMETRIDAE (3755 RO, K. & R. 7514)					
75	3758 Ro	K. & R. 7517	<i>Archiearis parthenias</i> Linnaeus, 1761 2 specs. 12.III.1922 VW, 29.III.1923 VW[11]	BT, TR, OT, MT, MD	NT
76	3759 Ro	K. & R. 7518	<i>Archiearis notha</i> Hübner, [1803] 3spec. 12.III.1923 VW [11] 1 spec., 20.III.193? HH, Dr. Worell [21]	BT, CR, TR, MM, OT, MD	NT
77	3767 Ro	K. & R. 7527	<i>Lomaspilis marginata</i> Linnaeus, 1758 1spec.;12.V.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
78	3807 Ro	K. & R. 7607	<i>Plagodis dolabraria</i> Linnaeus, 1767 1 spec.; 12.V.1904 VW [11]	BT, CR, TR, MM, MT, MD; DB	NT
79	3816 Ro	K. & R. 7620	<i>Pseudopanthera macularia</i> Linnaeus, 1758 3specs.; 21.V; 18.VI.1903 VW; 29.V.1921 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
80	3826 Ro	K. & R. 7633	<i>Ennomos quercinaria</i> Hufnagel, 1767 2 specs. 20.VII.1958 [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
81	3834 Ro	K. & R. 7643	<i>Selenia tetralunaria</i> Hufnagel, 1767 1spec.; 25.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
82	3849 Ro	K. & R. 7663	<i>Colotois pennaria</i> Linnaeus, 1761 1spec.; 14.VII.1904 VW [11]	BT, CR, TR, MM, MT, MD; DB	
83	3851 Ro	K. & R. 7665	<i>Angerona prunaria</i> Linnaeus, 1758 1spec.; 13.VI.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
84	3860 Ro	K. & R. 7685	<i>Biston strataria strataria</i> Hufnagel, 1767 2specs.; 26.III.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
85	3861 Ro	K. & R. 7686	<i>Biston betularia</i> Linnaeus, 1758 2specs.; 19.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
86	3863 Ro	K. & R. 7693	<i>Agriopsis leucophaearia</i> Denis&Schifferrmüller, 1775 1 spec. 16.II.1957 [21]	BT, CR, TR, MM, OT, MD; DB	NT
87	3866 Ro	K. & R. 7696	<i>Agriopsis marginaria</i> Fabricius, 1776 2specs.; 26.III.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
88	3903 Ro	K. & R. 7783	<i>Boarmia roboraria</i> Denis&Schifferrmüller, 1775 1spec.; 30.VIII (without collecting) VW [11]	BT, CR, TR, MM, MT, MD; DB	
89	3912 Ro	K. & R. 7796	<i>Ectropis bistortata</i> Goeze, 1781 2 specs., 20.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
90	3920 Ro	K. & R. 7804	<i>Ematurga atomaria atomaria</i> Linnaeus, 1758 1spec. 12.V.1904 VW; 3spec.; IV.1920 (non collection day) VW[11] 1 spec. 20.VII.1958 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
91	3929 Ro	K. & R. 7824	<i>Cabera pusaria</i> Linnaeus, 1758 2specs.;12.V.1904 VW; 18.VI.1903.VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
92	3937 Ro	K. & R. 7836	<i>Campaea margaritata</i> Linnaeus, 1767 1spec.; 6.VIII.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB	
93	3980 Ro	K. & R. 7916	<i>Siona lineata</i> Scopoli, 1763 4specs.; 29.V.1921 VW; 13.VI.1904 VW;	BT, CR, TR, MM, OT, MT, MD; DB	

17.VI.1923 VW [11]					
94	3997 Ro	K. & R. 7953	<i>Alsophila aescularia</i> Denis&Schifferrmüller, 1775 2 specs.; 12.III.1922 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
95	4006 Ro	K. & R. 7965	<i>Pseudoterpna pruinata</i> Hufnagel, 1767 1spec. 9.VII.1907 VW [11]	BT, CR, TR, MM, MT, MD	
96	4017 Ro	K. & R. 7982	<i>Chlorissa viridata</i> Linnaeus, 1758 1spec. 18.VI.1903 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
97	4040 Ro	K. & R. 8022	<i>Cyclophora punctaria</i> Linnaeus, 1758 1 spec. 27.IV.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
98	4044 Ro	K. & R. 8028	<i>Timandra comae</i> A. Schmidt, 1931, 1spec. 7.VII.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
99	4046 Ro	K. & R. 8036	<i>Scopula immorata</i> Linnaeus, 1758 3specs.; 10.VI.1923; 18.VI.1903 VW; 19.VI.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
100	4052 Ro	K. & R. 8042	<i>Scopula nigropunctata</i> Hufnagel, 1767 1ex; 9.VII.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
101	4056 Ro	K. & R. 8051	<i>Scopula decorata decorata</i> Denis&Schifferrmüller, 1775 1spec. 6.VIII.1904 VW [11]	BT, CR, TR, OT, MT, MD; DB	NT
102	4077 Ro	K. & R. 8099	<i>Idaea ochrata</i> Scopoli, 1763 3 specs.; 18.VI.1903 VW; 19.VI.1907 VW; 7.VII.1908 [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
103	4105 Ro	K. & R. 8184	<i>Idaea aversata aversata</i> Linnaeus, 1758 1spec.; 6.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
104	4118 Ro	K. & R. 8221	<i>Lythria purpuraria</i> Linnaeus, 1758 1spec.; 14.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
105	4132 Ro	K. & R. 8241	<i>Scotopteryx luridata</i> Hufnagel, 1767 2specs.; 21.V.1904 VW; 7.VI.1953 VW[11]	BT, TR, MM, MT, MD; DB	NT
106	4141 Ro	K. & R. 8253	<i>Xanthorhoe ferrugata</i> Clerck, 1759 (1spec., 18.VI leg. Czekelius (without collecting) VW [11])	BT, CR, TR, MM, OT, MT, MD; DB	
107	4154 Ro	K. & R. 8274	<i>Epirrhoe tristata</i> Linnaeus, 1758 2specs.; 29.V.1903 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
108	4155 Ro	K. & R. 8275	<i>Epirrhoe alternata</i> Müller, 1764 1spec.; 19.VI.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
109	4162 Ro	K. & R. 8289	<i>Camptogramma bilineata</i> Linnaeus, 1758 1spec.; 17.VI.1923 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
110	4177 Ro	K. & R. 8314	<i>Pelurga comitata</i> Linnaeus, 1758 1spec.; 13.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT

111	4221 Ro	K. & R. 8371	<i>Colostygia aptata</i> Hübner, 1813 1 spec., 9.IX.1957, HH [21]	BT, CR, TR, MM, MT, MD	NT
112	4257 Ro	K. & R. 8432	<i>Philereme vetulata</i> Denis&Schifferrmüller, 1775 2specs.; 29.V.1921 VW; 24.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
113	4269 Ro	K. & R. 8447	<i>Operophtera brumata</i> Linnaeus, 1758 1spec.; 2.XII.1956 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
114	4274 Ro	K. & R. 8458	<i>Perizoma alchemillata</i> Linnaeus, 1758 2specs.; 9.VII.1907 VW; 10.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD	
115	4281 Ro	K. & R. 8464	<i>Perizoma flavofasciata</i> Thunberg, 1792 14.VIII.1957, HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
116	4392 Ro	K. & R. 8631	<i>Odezia atrata</i> Linnaeus, 1758 1spec.; 13. VI.1907 VW [11]	TR, MM, MT, MD	NT
117	4424 Ro	K. & R. 8679	<i>Nothocasis sertata</i> Hübner, 1817 9.XI.1957 (det. Krampl, 1976) HH [21]	BT, CR, TR, MT, MD	NT
FAMILY NOCTUIDAE (4429 RO, K. & R. 8686)					
118	4514 Ro	K. & R. 8787	<i>Acrionicta rumicis</i> Linnaeus, 1758 1spec.; 25.IV.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
119	4516 Ro	K. & R. 8789	<i>Craniophora ligustri ligustri</i> Denis&Schifferrmüller, 1775 2specs.; 6,8.VIII.1904; VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
120	4544 Ro	K. & R. 8839	<i>Paracolax derivalis</i> Hübner, 1796 1spec., 14.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
121	4552 Ro	K. & R. 8849	<i>Polypogon tentacularia</i> Linnaeus, 1758 4spec.; 29.V.1921 VW, 10.VI.1923 VW; 19.VI.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
122	4570 Ro	K. & R. 8871	<i>Catocala sposa</i> Linnaeus, 1767 3specs.; 23.VII.1907 VW; 26.VII.1904 VW; 2specs.; 8,11.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
123	4574 Ro	K. & R. 8877	<i>Catocala elocata elocata</i> Esper, 1787 1spec.; 16.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
124	4576 Ro	K. & R.8882	<i>Catocala promissa promissa</i> Denis&Schifferrmüller, 1775 2specs.; 8.VII.1907 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	NT
125	4585 Ro	K. & R. 8879	<i>Minucia lunaris lunaris</i> Denis&Schifferrmüller, 1775 1spec.; 3.V.1912 VW [11] 1 spec., 26.V.1957 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
126	4617 Ro	K. & R.8969	<i>Euclidia glyphica</i> Linnaeus, 1758 1spec.; IV:1920 (non collection day) VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
127	4626 Ro	K. & R. 8984	<i>Scoliopteryx libatrix</i> Linnaeus,1758 1spec.; 15.IV.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
128	4633 Ro	K. & R. 8994	<i>Hypena (H) proboscidalis</i> Linnaeus, 1758 1spec.; 14.VI.1903 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	

129	4638 Ro	K. & R. 9006	<i>Phytometra viridaria</i> Clerck, 1759 2specs.; IV:1920 (non collection day) VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
130	4803 Ro	K. & R. 9307	<i>Amphipyra pyramidea</i> Linnaeus, 1758 2specs.; 6.VIII.1904 VW [11] 1 spec. 12.VIII.1938 Worell, HH [21]	BT, CR, TR, MM, OT, MT, MD; DB
131	4871 Ro	K. & R. 9450	<i>Hoplodrina blanda</i> Denis&Schifferrmüller, 1775 3specs.; 8,11,27.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
132	4892 Ro	K. & R. 9483	<i>Rusina ferruginea</i> Esper, 1785 1spec.; 6.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
133	4901 Ro	K. & R. 9496	<i>Thalpophila matura</i> Hufnagel, 1776 2specs.; 17.VIII.1904 VW [11] 1 spec. 24.VIII. 1963 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB
134	4905 Ro	K. & R. 9501	<i>Trachea atriplicis</i> Linnaeus, 1758 1spec.; 18.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
135	4946 Ro	K. & R. 9550	<i>Cosmia trapezina</i> Linnaeus, 1758 2specs.; 17,18.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
136	4948 Ro	K. & R. 9748	<i>Apamea monoglypha</i> Hufnagel, 1766 1spec.; 27.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
137	4980 Ro	K. & R. 9789	<i>Mesapamea secalis</i> Linnaeus, 1758 2specs.; 17,18.VIII.1904 VW[11]	BT, CR, TR, MM, OT, MT, MD; DB
138	5000 Ro	K. & R. 9828	<i>Amphipoea oculea</i> Linnaeus, 1761 1spec.; 11.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD
139	5052 Ro	K. & R. 9993	<i>Polia nebulosa</i> Hufnagel, 1766 1spec.; 11.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
140	5080 Ro	K. & R. 9987	<i>Mamestra brassicae</i> Linnaeus, 1758 1spec.; 18.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
141	5133 Ro	K. & R. 10000	<i>Mythimna conigera</i> Denis&Schifferrmüller, 1775 1spec.; 6.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD
142	5134 Ro	K. & R. 10007	<i>Mythimna pallens</i> Linnaeus, 1758 1 spec., 24.VIII.1963 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB
143	5144 Ro	K. & R. 10002	<i>Mythimna albipuncta</i> Denis&Schifferrmüller, 1775 3specs.; 11,18,24.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
144	5168 Ro	K. & R. 10039	<i>Orthosia cruda</i> Denis&Schifferrmüller, 1775 3specs.; 26,III.1904; 29.III.1905 VW; 2.IV (without collecting) VW; 4,15.IV.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
145	5171 Ro	K. & R. 10048	<i>Orthosia gracilis</i> Denis&Schifferrmüller, 1775 1spec.; 2.IV. (without collecting) VW[11]	BT, CR, TR, MM, MT, MD
146	5174 Ro	K. & R. 10038	<i>Orthosia gothica</i> Linnaeus, 1758 3specs.; 13,14.IV.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
147	5176 Ro	K. & R. 10050	<i>Orthosia munda</i> Denis&Schifferrmüller, 1775 6specs.; 26.III.1904 VW; 29,30.III.1904 VW; 13,15.IV.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB
148	5216 Ro	K. & R. 9600	<i>Conistra (C.) vaccinii</i> Linnaeus, 1761 5specs.; 11, 26.III.1904; 5spec.; 4,9,	BT, CR, TR, MM, OT, MT, MD; DB

			14,15.IV.1904; 29.III.1905 VW [11]		
149	5218 Ro	K. & R. 9603	<i>Conistra rubiginosa</i> Scopoli, 1763 1spec.; 26.III.1904 VW [11]	BT, CR, TR, MM, MT, MD; DB	
150	5224 Ro	K. & R. 9611	<i>Dasycampa erythrocephala</i> Denis&Schifferrmüller, 1775 4 specs.; 29,30.III.1905; 4spec.; 13,16:IV.1904; 1spec.; 9.III. (without collecting) VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
151	5233 Ro	K. & R. 9660	<i>Lithophane ornitopus ornitopus</i> Hufnagel, 1766 2 specs.; 15.IV.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
152	5257 Ro	K. & R. 9694	<i>Dichonia aprilina</i> Linnaeus, 1758 1spec.; 28.IX (without collecting) leg. Czekelius, VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
153	5313 Ro	K. & R. 10096	<i>Noctua pronuba</i> Linnaeus, 1758 2specs.; 20.VIII.1910 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
154	5365 Ro	K. & R. 10204	<i>Xestia baja</i> Denis&Schifferrmüller, 1775 4 specs.; 8.VIII.1904 VW; 17,18.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD	
155	5379 Ro	K. & R. 10228	<i>Naenia typica</i> Linnaeus, 1758 1spec.; 25.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	VU
156	5423 Ro	K. & R. 10346	<i>Agrotis ipsilon</i> Hufnagel, 1766 2 specs.; 18.VIII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
157	5427 Ro	K. & R. 10351	<i>Agrotis segetum</i> Denis&Schifferrmüller, 1775 3 specs.; 18.VIII.1904 VW; 21.VIII.1938 EW [10] 1 spec., 24.VIII.1963, HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
158	5456 Ro	K. & R. 10397	<i>Orgyia antiqua</i> Linnaeus, 1758 1spec.; 25.X.1955 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
159	5460 Ro	K. & R. 10406	<i>Euproctis similis</i> Fuessly, 1775 2specs.; 7.VII.1908 VW; 27.VII.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
160	5462 Ro	K. & R. 10408	<i>Penthopha morio</i> Linnaeus, 1758 1 spec. 15.VI.1962 [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
161	5480 Ro	K. & R. 10431	<i>Nola aerugula</i> Hübner, 1793 1 spec. 20.VII.1958 [21]	BT, CR, TR, MM, OT, MT, MD; DB	NT
			FAMILY ARCTIIDAE (5498 RO, K. & R. 10461)		
162	5505 Ro	K. & R. 10475	<i>Miltocrista miniata</i> Forster, 1771 1♂, 6.VII.1953 EW; 1♀, 6.VIII.1939 EW; 2♀♀, 12.VIII.1940 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
163	5507 Ro	K. & R. 10477	<i>Cybosia mesomella</i> Linnaeus, 1758 1♂, 2.VI.1932 EW; 5♂♂, 7.VI.1945 EW, 1♀, 8.VI.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD	
164	5512 Ro	K. & R. 10483	<i>Atolmis rubricollis</i> Linnaeus, 1758 1spec.; 13.VI.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
165	5518 Ro	K. & R. 10489	<i>Eilema lurideola</i> Zincken, 1817 1spec.; 19.VII.1907 VW [11]	BT, CR, TR, MM, MT, MD	
166	5519 Ro	K. & R. 10490	<i>Eilema complana</i> Linnaeus, 1758 1spec.; 20.VI.1953 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	

167	5525 Ro	K. & R. 10499	<i>Eilema sororcula</i> Hufnagel, 1766 5specs.; 29.V.1921 VW [11] [11]	BT, CR, TR, MM, OT, MT, MD; DB	
168	5527 Ro	K. & R. 10509	<i>Setina irrorella</i> Linnaeus, 1758 2♂♂, 2.VII.1932 EW; 2♂♂ și 2♀♀, 8.VIII.1940 EW [10]	BT, CR, TR, OT, MT, MD	
169	5552 Ro	K. & R. 10552	<i>Phragmatobia luctifera</i> Gőeze, 1781 1spec.; 21.V.1904 VW [11]	BT, CR, TR, MM, OT, MT, MD; DB	
170	5559 Ro	K. & R. 10567	<i>Spilosoma lubricipeda</i> , Linnaeus, 1758 2♂♂, 15.V.1938 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	
171	5564 Ro	K. & R.10572	<i>Diaphora mendica</i> Clerck, 1759 2specs.; 17,22.V.1930 DC [8]	BT, CR, TR, MM, OT, MT, MD; DB	
172	5572 Ro	K. & R. 10583	<i>Diacrisia sannio</i> Linnaeus, 1758 1spec.8.VI.1888 DC [8]; 1spec. 20.V.1903 VW; 1 spec.29.V.1921 VW; 1spec.13.VI.1907 VW[11] , 1 spec., 22.V.1975 HH [21]	BT, CR, TR, MM, OT, MT, MD; DB	
173	5576 Ro	K. & R. 10595	<i>Pericallia matronula</i> Linnaeus, 1758 1spec.; 29.VI.1888 DC [8]	CR, TR, MT, MD	VU
174	5584 Ro	K. & R. 10605	<i>Euplagia quadripunctaria</i> Poda, 1761 1 spec., 2.VIII.1888 DC [8], 2specs., 11.VIII.1904 VW[11], 15.VIII.1903 VW, 6 specs., 16.V.1939 EW, 10.VI.1945 EW; 13.VI.1938 EW, 27, 28.VII.1953 EW; 17.VIII.1953 EW [10]	BT, CR, TR, MM, OT, MT, MD; DB	

The following abbreviations are used in the text:

* = Corresponding serial number from the catalog of butterfly species Romania [17, 18], ** = Classification and nomenclature proposed by [5, 46-48], DC = Daniel Czekelius lepidoptera collection, EW = Eugen Worell lepidoptera collection, VW = Viktor Weindel lepidoptera collection, HH = Heinrich Hann von Hanneheim lepidoptera collection, RW = Rolf Weyrauch lepidoptera collection, Geography: BT = Banat, CR = Crișana, TR = Transilvania, MM = Maramureș, OT = Olt, MT = Muntenia, MD = Moldova, DR = Dobrogea. The butterfly species from Sibiu County and their status according to the Romanian Red List (NT - Near threatened; VU - Vulnerable; EN - Endangered).

DISCUSSION

After studying the five collections of Lepidoptera to identify species collected over the years from Dumbrava Sibiu Forest area, we identified 174 species in 481 specimens distributed as follows: 35 species and 39 specimens of Macrolepidoptera collected from Sibiu

Dumbrava Forest, between 1871-1930 [8] in Dr. Daniel Czekelius Lepidoptera collection in Transylvania; 51 species and 184 specimens collected between 1903-1958 [10], in entomological collection of Dr. Eugen Worell in Sibiu; 142 species and 385 specimens collected between 1903-1954 [11] in Transylvanian Lepidoptera collection Dr. Victor Weindel; 10 species and 14 specimens collected between 1957-1963 in the H.v. Hanneheim collection of butterflies; 4 species and 12 specimens collected between 1956-1961 [13, 38] in the collection of butterflies Prof. Rolf Weyrauch, after studying the collections of W. Weber and Schneider Eckbert we have not identified specimens collected from Dumbrava Sibiu Forest.

The species identified are of inestimable value, being considered treasures, some of them are very old and are considered the only documentary evidence of the biosphere's unrecoverable past, which is becoming more and more endangered (*Saturnia pyri pyri*

Denis&Schiffermüller, 1775; *Acherontia atropos* Linnaeus, 1758; *Carcharodus laevatherae laevatherae* Esper, 1783; *Carcharodus floccifera* Zeller, 1847; *Iphiclides podalirius podalirius* Linnaeus, 1758; *Pieris brassicae brassicae* Linnaeus, 1758; *Colias myrmidone myrmidone* Esper, 1780, *Lycaena dispar* Haworth, 1802 (sin. *L. dispar rutila* Werneburg, 1864); *Lycaena thersamon* Esper, 1784; *Neozephyrus quercus quercus* Linnaeus, 1758; *Pandoriana (Argynnis) pandora* Denis&Schiffermüller, 1775; *Clossiana euphrosyne* Linnaeus, 1758; *Limenitis populi* Linnaeus, 1758; *Neptis sappo* Pallas, 1771; *Apatura ilia ilia* Denis&Schiffermüller, 1775; *Apatura iris* Linnaeus, 1758; *Parage (Lopinga) achine achine* Scopoli, 1763; *Naenia typica* Linnaeus, 1758; *Pericallia matronula* Linnaeus, 1758) some of which are extinct species; the existence of 174 species in the collections studied and collected from Dumbrava Sibiu Forest are testimonies of the entomological biodiversity of the past centuries. Using classification according to IUCN in the list of species is useful and important to give reference to the status of the species in terms of the degree of endangerment: 46 species NT, 19 species VU, 2 species EN and 1 specie CR and 174 species found in the forest area [13, 14, 38, 39].

Publication of this paper, which through data on species of butterflies collected from Dumbrava Sibiu

Forest in the past, may be available to specialists, representing an activity necessary and useful, a duty of collection's holders, as keepers of the cultural and scientific values of humankind over centuries and millennia of existence; the exploitation of the data helps spreading the knowledge of species of butterflies around Sibiu, Transylvania and surrounding areas.

Acknowledgements: The current management of the Natural History Museum, Head of Department Dr. Rodica Ciobanu, Doctor in biology Mrs. Carmen Stanescu former custodian of collections of Diptera, who accompanied me 16 years ago to study and decipher the labels of Lepidoptera collections, Ms. Gabriela Cuzepan current custodian of the entomological collections that helped me to make the electronic inventory of collections. In memory of all former collectors, whose contribution made this material possible.

REFERENCES

- [1] Bucșa, C., Tăușan, I., (2011): Istoricul cercetărilor entomologice din împrejurimile Sibiului. In: Volumul Lucrării Simpozionului Biodiversitatea și Managementul insectelor din România, Bacău pp. 179-200.
- [2] Ciocchia, V., Stancă-Moise, C., (2002): Contributions to the knowledge of the Macrolepidoptera from Natural Complex "Dumbrava Sibiului". In: Scientific session dedicated to celebrating 75 years since the establishment of Marine Biological Station "Prof. Dr. Ioan Borcea" Agigea-Constanta. 19-20 october 2001. Analele Științifice ale Universității "Al.I.Cuza" Iași Biologie Animală, Tom XLVIII: 29-43.
- [3] Czekelius, D., (1897): Kritisches Verzeichnis der Schmetterlinge Siebenbürgens. In: Verhandlungen und Mitteilungen des siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt, 47: 1-78.
- [4] Czekelius, D., (1917): Beiträge zur Schmetterlingsfauna Siebenbürgens. In: Verhandlungen und Mitteilungen des siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt. 67(1-6): 1-56.
- [5] Karsholt, O., Razowski J., (1996): The lepidoptera of Europe - a distributional checklist. In: Apollo Books. Stenstrup, 380 p.
- [6] Moise, C., (2011): The protected species of Lepidoptera in the oak forest "Dumbrava Sibiului", Romania. Buletin USAMV Agriculture, 68(1): 216-223.
- [7] Moise, C., (2011): Macrolepidoptera (Insecta: Lepidoptera) indicator of climate changes. Buletin USAMV Agriculture, 68(1): 420.
- [8] Moise, C., (2011): Lepidoptera (Insecta: Lepidoptera) in the Collection of Daniel Czekelius from Natural History Museum of Sibiu collected from "Dumbrava Sibiului" Forest, Romania. Analele Universității din Oradea, Fascicula Biologie, 18(2): 104-110.
- [9] Moise, C., (2011): Study on contributions to the knowledge of the fauna siebenbürger saxons of lepidoptera in siebenbürger and around Sibiu, entomology collections of the Museum of Natural History in Sibiu". 18th International Economic Conference -Iecs 2011, Sibiu, pp: 179-187.
- [10] Moise, C., (2011): Lepidoptera (Insecta: Lepidoptera) in the Collection of Eugen Worell from Natural History Museum of Sibiu, collected from "Dumbrava Sibiului" forest. Lucrari stiintifice, seria Horticultura, "Ion Ionescu de la Brad". Iași, 54(2): 571-576.
- [11] Moise, C., (2011): Study on the Macrolepidoptera Collected from the Dumbrava Sibiului forest existing within the Collection of Dr. Viktor Weindel. Muzeul Olteniei Craiova, Studii și comunicări, Științele Naturii, 27(2): 96-104.
- [12] Moise, C., (2011): Impact of climate factors and anthropogenic on Macrolepidoptera activity of the Forest Dumbrava Sibiu, Romania. Proceedings of the 7th International Conference. Integrated Systems for Agri-Food Production. SIPA 11, November 10-12, 2011, Nyiregyhaza Hungary, pp. 95-99.
- [13] Moise, C., Sand, C., (2012): Research on Macrolepidoptera species (Insecta:Lepidoptera) collected in Dumbrava Sibiului Forest (Romania) in conditions of the year 2011 and their status line in IUCN 2001 system, Analele Universității din Oradea, Fascicula Biologie, 19(1): 55-66.
- [14] Moise, C., (2014): The butterflies Red List (Insecta: Lepidoptera) collected from Dumbrava Sibiului forest (Romania) during 2001-2012, Analele Universității din Oradea, Fascicula Biologie, 21(1): 39-44.
- [15] Popescu-Gorj, A., (1970): Hundert Jahre Schmetterlingsforschung im Rahmen des Siebenbürgischen Vereins für Naturwissenschaften. In: Studii și Comunicări Științele Naturii Muzeul Brukenthal Sibiu. 15:91-96.
- [16] Pascu, M., Schneider, E., (1998): Colecțiile entomologice ale Muzeului de Istorie Naturală din Sibiu, In: Studii și Comunicări Științe Naturale Muzeul Brukenthal Sibiu. 27: 201-218.
- [17] Rákossy, L., (2002): Lista rosie pentru fluturii diurni din România. In: Buletinul Informativ Societatea Lepidopterologica Română 13(1-4). Cluj-Napoca pp. 9-26.
- [18] Rákossy, L., Goia, M., Kovács, Z., (2003): Catalogul lepidopterelor României. In: Societatea Lepidopterologica Română, Cluj-Napoca, 446 p.
- [19] Schneider, E., (1996): Zur Schmetterlingsforschung in Hermannstadt in der Jahren 1945 bis 1985, Beiträge zur naturwissenschaftlichen Erforschung Siebenbürgens (IV). Lienzener Tagung- Mai 1994. Stapfia 45 p.
- [20] Schneider, E., (1984): Die Gross-schmetterlinge der Sammlung "Dr. V. Weindel" – Ein Beitrag zur Faunistik der Lepidopteren Südsiebenbürgens und angrenzender Gebiete. In: Studii și Comunicări Științele Naturii, Muzeul Brukenthal Press Sibiu, 26: 289-316.
- [21] Schneider, E., (2003): Die Schmetterlingssammlung Heinrich von Hanenheim im Naturwissenschaftlichen Museum in Hermannstadt. In: Studii și Comunicări Științe Naturale Muzeul Brukenthal Sibiu, 28: 201-230.
- [22] Stancă-Moise, C., (2002): The entomologists from Sibiu their contribution to the knowledge of the Lepidoptero-fauna of Sibiu-Surroundings collections. Lepidoptera. Macrolepidoptera. Analele Științifice ale Universității "Al. I. Cuza" Iasi. Secțiunea I Biologie Animala, TOM XLVIII: 7-12.
- [23] Stancă-Moise, C., (2003): Structura și dinamica Macrolepidopterelor din Complexul Natural Dumbrava Sibiului. pp. 293-301. In: Proceedings of 6th National Conference on Environmental Protection in Biological and Biotechnical Methods and Means and the 3rd National Conference Ecosanogenese, (in romanian) 31 of May 2003, Brașov.
- [24] Stancă-Moise, C., (2003): Propunere în vederea realizării listei roșii a Macrolepidopterelor din Complexul Natural Dumbrava Sibiului. Pp. 301-309. In: Proceedings of 6th National Conference on Environmental Protection in Biological and Biotechnical Methods and Means and the 3rd National Conference Ecosanogenese, (in Romanian) 31 of May 2003. Brașov.

- [25] Stancă-Moise, C., (2003): Influența factorilor antropici asupra evoluției Macrolepidopterelor din Pădurea Dumbrava Sibiului. pp. 309-311. In: Proceedings of 6th National Conference on Environmental Protection in Biological and Biotechnical Methods and Means and the 3rd National Conference Ecosanogenese (in Romanian), 31 of May 2003, Brașov.
- [26] Stancă-Moise, C., (2004): Importanța Macrolepidopterelor în cadrul ecosistemului Pădurii de stejar „Dumbrava Sibiului”. Oltenia. Studii și Comunicări Științela Naturii, Press Sitech Craiova, 20: 190-222.
- [27] Stancă-Moise, C., (2005): Date privind speciile de Macrolepidoptere pereclitate semnalate în Pădurea „Dumbrava Sibiului” și problema ocrotirii acestora. Proceedings of 7th National Conference on Biotechnology and Environmental Protection by 4-Ecosanogenese National Conference, (in Romanian), 27-28 of May 2005, Brașov, 2: 827-834.
- [28] Stancă-Moise, C., (2005): The phenology of the Macrolepidoptera (Lepidoptera: Insecta) from the natural Park „Dumbrava Sibiului”. pp. 565-568. In: Jubilee Conference with international participation "Science. Processes and Technologies Agro-Food (in romanian) 12-13 May 2005, Sibiu.
- [29] Stancă-Moise, C., (2005): Ecological study about the evolution of the species *Papilio machaon machaon* L., 1758 (Lepidoptera, papilionidae) in ecosystem of the oak forest „Dumbrava Sibiului” and the importance of its protection. pp. 569-572. In: Jubilee Conference with international participation "Science. Processes and Technologies Agro-Food.(in romanian). 12-13 of May 2005 Sibiu.
- [30] Stancă-Moise, C., (2005): A preliminary study on ecological diversity of the Lepidopterofauna in the Natural Reservation „Dumbrava Sibiului” by means of the specific indexes. Biotehnologie și Biodiversitate, Agroprint Press, Timișoara, pp. 165-169.
- [31] Stancă-Moise C., (2005): Dinamica zborului la Macrolepidoptere (Insecta, Lepidoptera) din pădurea „Dumbrava Sibiului” în perioada 2001-2004, Fam. Nymphalidae. Muzeul Olteniei. Craiova. Oltenia Studii și Comunicări Științele Naturii, 21: 87-97.
- [32] Stancă-Moise, C., (2005): Studiu ecologic privind diversitatea lepidopterelor din Pădurea „Dumbrava Sibiului” cu ajutorul indicilor specifici. Proceedings of 7th National Conference on Biotechnology and Environmental Protection by 4-Ecosanogenese National Conference with international participation. in romanian", 27-28 of May 2005, Brașov, 2: 835-836.
- [33] Stancă-Moise, C., (2006): Date privind prezenta papilionidelor (Insecta: Lepidoptera: Papilionidae) in fauna Padurii Dumbrava Sibiului in perioada 2001-2005. Muzeul Olteniei, Craiova, Oltenia Studii și Comunicări Științele Naturii, 22: 203-206.
- [34] Stancă-Moise, C., (2006): A preliminary study on ecological diversity of the Lepidopterofauna in the Natural Reservation „Dumbrava Sibiului” by means of the specific indexes, Biotehnologie și Biodiversitate. Press Agroprint Timișoara, pp: 165-169.
- [35] Stancă-Moise, C., (2007): Biodiversitatea faunei de Macrolepidoptere (Insecta, Lepidoptera), din ecosistemul Pădurii “Dumbrava Sibiului” în perioada anilor 2001-2006. pp: 64-66. In: The works of the 8th National Conference for Biotechnology and Environmental Protection by 5-Ecosanogenese National Conference (in Romanian), 26-27 of May 2007.
- [36] Stancă-Moise C., (2007): Noi contribuții la cunoașterea Macrolepidopterelor din complexul forestier “Dumbrava Sibiului”. pp: 59-63. In: The works of the 8th National Conference for Biotechnology and Environmental Protection by 5-Ecosanogenese National Conference (in romanian), 26-27 of May 2007.
- [37] Stancă-Moise, C., (2007): The specific index in wiew of ecological diversity analisys of the lepidopterofauna populations in the natural Reservation „Dumbrava Sibiului”. pp. 439-442. In: Proceeding of the Internationl Conerence „Agricultural anf Food Sciences, Process and Technologies” with theme „Agriculture and food Industry within the Context of European Integration”, April 26-28, 2007.
- [38] Stancă-Moise, C., (2012): Macrolepidopterele din Pădurea Dumbrava Sibiului, In: Editura Universității “Lucian Blaga” din Sibiu, 271 p.
- [39] Stancă-Moise, C., (2015): Information on the Macrolepidoptera fauna of Dumbrava Sibiului oak Forest (Sibiu, Romania). Analele Universitatii din Oradea, Fascicula Biologie, 22(1): 33-46.
- [40] Székely, L., (2004): Noutăți Lepidopterologice din sud-estul Transilvaniei. In: Buletin Informare Entomologică 14-15, Cluj-Napoca, pp. 41-56.
- [41] Székely, L., (2008): The Butterflies of Romania – Fluturii de zi din România. In: Brastar Print, Brașov, 305 p.
- [42] Székely, L., (2014): Istoria Lepidopterologiei din România. Brastar Print, Brașov, 297 p.
- [43] Vlad- Antonie, I., (2000): Karl Fuss, der Begründer der Entomologie in Siebenbürgens. Entomologica Basiliensis, 22 Basel, pp: 9-14.
- [44] Vlad-Antonie, I., Ciobanu, R., (2004): Der Arzt Viktor Weindel als Insektenkundler (1887-1966), Siebenbürgisch Sächsische Naturwissenschaftler. Ed. Universității „Lucian Blaga” Sibiu, pp: 139-143.
- [45] Vlad-Antonie, I., (2004): Eugen Worell, Militärarzt und Entomologe. (Ein außergewöhnlicher Lebensweg) Siebenbürgisch Sächsische Naturwissenschaftler. Ed. Universității „Lucian Blaga” Sibiu, pp: 144-159.
- [46] IUCN 1994. IUCN Red List categories and criteria: Version 2.3, IUCN species survival commission. IUCN, Gland.
- [47] IUCN 2001. IUCN Red List categories and criteria: Version 3.1. IUCN species survival commission. IUCN, Gland and Cambridge.
- [48] IUCN 2003. Guidelines for application of iucn red list criteria at regional levels: version 3.0. IUCN species survival commission IUCN, Gland and Cambridge.

Received: 6 October 2015

Accepted: 28 November 2015

Published Online: 30 November 2015

Analele Universității din Oradea, Fascicula Biologie

<http://www.bioresearch.ro/revistaen.html>

Print-ISSN: 1224-5119

e-ISSN: 1844-7589

CD-ISSN: 1842-6433

University of Oradea Publishing House