

**BUTTERFLIES (ORD. LEPIDOPTERA, S. ORD. RHOPALOCERA) OF ZLAŞTI
VALLEY (POIANA RUSCĂ MOUNTAINS, WESTERN CARPATHIANS, ROMANIA)****SILVIA BURNAZ****Rezumat****Fluturi diurni (Ord. Lepidoptera, S. ord. Rhopalocera) din Valea Zlaşti
(Munții Poiana Ruscă, Carpații Occidentali, România)**

83 specii de fluturi diurni au fost identificate în habitate naturale ale Văii Zlaști, una dintre cele mai spectaculoase zone ale Munților Poiana Ruscă. Afluent al Cernei, râul Zlaști străbate atât o zonă calcaroasă cu aspect de defileu cât și zona montană propriu-zisă reprezentată de munți mici cu altitudini cuprinse între 700-850 m. Habitatele studiate sunt reprezentate de pajiști, stâncării cu substrat calcaros sau cristalin, liziera pădurilor de foioase, asociații arbustive și arinișuri din lungul văii. Lista sistematică a speciilor este însotită de date privind frecvența, exigențele ecologice ale speciilor, sursa trofică a larvelor și adulților. Temperaturile ridicate a lunilor iulie-august din anii 2005-2006 (peste 30°C) au permis existența unor efective populaționale ridicate ale majorității speciilor de lepidoptere diurne. Predomină speciile care au ca habitat preferențial liziera pădurilor, arinișurile și pajiștile situate de-a lungul râului. Între speciile cu o frecvență ridicată (peste 16 indivizi/zi) se numără: *Lycaena dispar rutila*, *Lycaena virgaureae*, *Scoliantides orion*, *Argynnис paphia*, *Argynnис aglaja*, *Issoria lathonia*, *Inachis io*, *Aglais urticae*, *Araschnia levana*, *Minois dryas*, *Hipparchia fagi*, etc. Frecvențe, mai ales la liziera și marginea drumurilor de pădure sunt: *Apatura iris*, *Apatura ilia*, *Vanessa atalanta*, *Vanessa cardui*, *Brinthesia circe pannnonica*. Pe stâncăriile calcaroase frecvențe sunt: *Polyommatus daphnis*, *Polyommatus bellargus* și *Polyommatus coridon*. Doar câteva specii sunt mai rare în zona cercetată: *Maculinea alcon*, *Satyrium w-album*, *Satyrium pruni*, *Neozephyrus quercus*, *Thecla betulae*, *Chazara briseis briseis*. Conform categoriilor de pericolitare ale IUCN unele

specii identificate de noi în Valea Zlaști ca: *Lycaena dispar rutila*, *Lycaena virgaureae*, *Lycaena thersamon*, *Thecla betulae*, *Neozephyrus quercus*, *Satyrium w-album*, *Satyrium pruni*, *Scoliantides orion lariana*, *Maculinea arion*, *Maculinea alcon*, *Brenthis daphne*, *Brenthis hecate*, *Apatura ilia ilia*, *Apatura iris*, *Chazara briseis* sunt considerate vulnerabile sau potențial amenințate.

Key words: Butterflies, Zlaști Valley, Poiana Ruscă Mountains, checklist

INTRODUCTION

The purpose of this study is the knowledge of the butterflies of Zlaști Valley, one of the most spectacular zones of the eastern part of Poiana Ruscă Mountains (Western Carpathians, Romania).

In 2003-2005 we have investigated the calcareous hills, that guarded downstream of the river, between the localities Boș and Groș. We published preliminary data in the periodical of the Romanian Lepidopterological Society. 83 species of Macrolepidoptera (S. ord. Rhopalocera) were recorded from these localities (BURNAZ SILVIA 2005).

In 2006 we studied the mountainous zone (700 m - 850 m altitude) situated between Ulm and Cerbăl localities.

Before our study, FOTESCU (1972) has published a small checklist of butterflies of Runcu, Govăjdie and Zlaști rivers.

RELIEF AND GEOLOGY

The investigated area is situated in the north-eastern part of Poiana Ruscă Mountains (OANCEA & all. 1987), near Hunedoara town. Zlaști River is one of the principal affluent of Cerna River, that crosses the mountainous and hillocky zone of Poiana Ruscă Mountains (KRAUTNER 1984).

The relief is represented by small mountains (700 m - 850 m altitude) and hills (400 - 500 m altitude) covered by forests of deciduous trees.

In the inferior and central sector of the valley, the calcareous rocks formed a small gorge. The geology of the mountainous zone is characterized by crystalline schists.

CLIMATE

The average of the temperature and precipitations: In the hillocky zone the average of temperature is 8-9°C. In the mountainous zone the average of the temperature is 6-7°C.

The average of precipitations is about 800 mm. In 2005 and 2006, the daily temperature was over 30°C, in June-August.

FLORA AND VEGETATION

As. *Carpino-Fagetum* PAUCĂ 1941, which covered the northern, northeastern and western part of the hills and mountains, form the forests of Zlaști Valley. The forests alternate with lawns and rocky zones. Shrubs are represented by *Coryletum avellanae* Soo 1927, *Pruno spinosae-Crataegetum monogynae* (Soó 1927) HUECK 1931 associations.

Mesophilous and mesoxerophilous associations (As. *Festuco rubrae-Agrostetum tenuis* CSÜROS-KAPLAN 1964) and *Festuco rubrae-Cynosuretum* (Tx. 40), Soó 57-62) form lawns.

Thymo comosi-Festucetum rupicolae (CSÜROS & GERGELY 1959) POP & HODIȘAN 1985 is the principal association in the limestone area of Zlaști Valley.

In the river meadow *Aegopodio – Alnetum glutinosae* KARPATI & JURKO 1961 and *Salici capreae - Sambucetum racemosae* SOÓ 1960 associations are identified.

MATERIAL AND METHODS

Samples were taken in different habitats (lawns, stones, the edge of the forests) using an entomological net.

5 types of habitats were studied:

1. Lawns situated across the valley, represented by mesophilous and mesoxerophilous associations;
2. Rocky area (crystalline stones) with xerothermophilous associations;
3. The edge of the deciduous forests;
4. Shrubs with *Prunus spinosa*, *Crataegus monogyna*, *Sambucus nigra*, *Sambucus racemosa*, *Sambucus ebulus*;
5. Zlaști Valley with *Alnus* and *Salix* phytocoenoses.

Butterflies identification was made in the laboratory using the following books: SPULER (1909-1911), BERGMANN (1952), FORSTER & WOHLFAHRT (1955), NICULESCU (1961, 1963, 1965), HIGGINS & RILEY (1970, 1993), CHINERY (1996), STILL (1996), FELTWELL (2001), TOLMAN & LEWINGTON (2007). The checklist of the butterflies is according the actual classification of Macrolepidoptera species (SZÉKELY 1999; MIHUT 2000; RAKOSY 2002).

RESULTS AND DISCUSSIONS

The various habitats with different phytocoenoses and local climate offer favourable conditions for lepidoptera fauna, especially for butterflies. In 2005-2006 we identified 83 species of butterflies. The checklist of the species is accompanied by data about the flying period, ecological exigencies, the frequency of species, and larval and adult food plants (Tab. 2).

The frequency of the species is established according RÁKOSY & VIEHMANN (1991) classification.

The majority of the species identified in this area belongs to Nymphalidae (40 species) and Lycaenidae families (26 species) (Tab. 1).

Tab. 1 – The structure of Rhopalocera families in Zlaști area
(Poiana Ruscă Mountains)

Family	Number of species
Hesperiidae	7
Papilionidae	2
Pieridae	8
Lycaenidae	26
Nymphalidae	40

The analysis of the ecological exigencies emphasizes that the majority of the species are mesophilous (55%), followed by mesothermophilous (12%), mesohygrophilous (10%) and mesoxerothermophilous species (7%) (Fig. 1). These species are characteristic for natural habitats represented by the deciduous forests and lawns. Xerothermophilous species (11%) are: *Polyommatus coridon*, *Polyommatus daphnis* (in the limestone area), *Scoliantides orion*, *Minois dryas*, *Chazara briseis*, *Neozephyrus quercus*, *Pyronia tithonus* and *Polyommatus bellargus*.

The analysis of the frequency of the species shows us that the majority of the species are relative frequent species (5-10 individuals/day). *Lycaena alciphron*, *Papilio machaon*, *Colias croceus*, *Gonepteryx rhamni*, *Callophrys rubi*, *Cupido minimus*, *Everes argiades*, *Celastrina argiolus*, *Plebejus argyrognomon*, *Polyommatus daphnis*, *Polyommatus bellargus*, *Brenthis hecate*, *Brenthis daphne*, *Pyronia tithonus* are species with a relative frequency. Very frequent species (over 16 individuals/day) are *Lycaena dispar rutila*, *Lycaena virgaureae*, *Scoliantides orion*, *Polyommatus icarus*, *Maniola jurtina*, *Aphantopus hyperanthus*, *Melitaea athalia*, *Melitaea cinxia*, *Melitaea didyma*, *Ochlodes venatus faunus*, *Hesperia comma*, *Pieris napi*, *Pieris rapae*, *Pyrgus malvae*, *Argynnis paphia*, *Argynnis aglaja*, *Argynnis adippe*, etc. Frequent species (6-15 individuals/day) are: *Pyrgus carthami*, *Thymelicus sylvestris*, *Carterocephalus palaemon*, *Iphiclides podalirius*, *Colias hyale*, *Plebejus argus*, *Aricia agestis*, *Apatura iris*, etc. Rare species (1-5 individuals/day) and very rare species (1-4 individuals/generation) are: *Maculinea alcon*, *Chazara briseis*, *Neozephyrus quercus*, *Satyrium w-album*, *Satyrium pruni*, *Thecla betulae*.

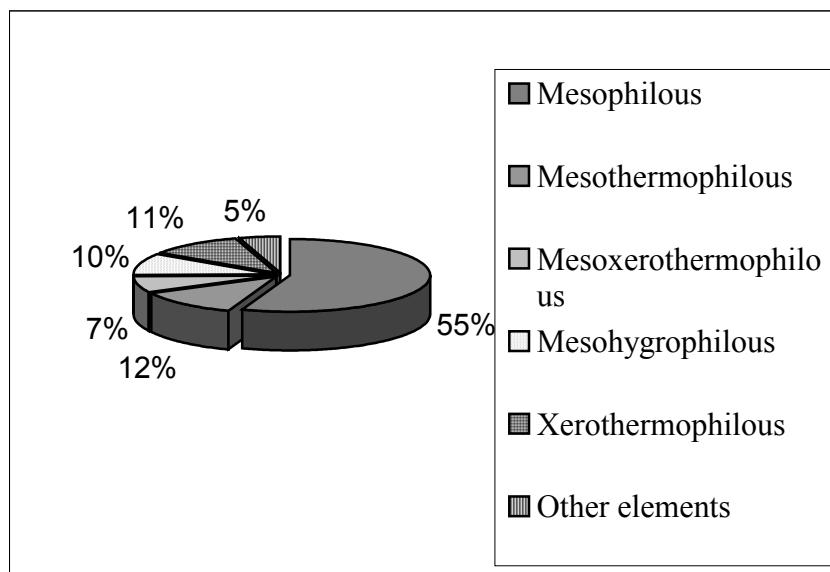


Fig. 1 – Ecological exigencies of species identified in Zlaști Valley (Poiana Ruscă Mountains)

All butterflies identified in the area of Zlaști Valley feed on plants in their larval stage. Most of them are oligophagous (58 species) and monophagous (14 species) but some species are polyphagous (11 species) (Fig. 2).

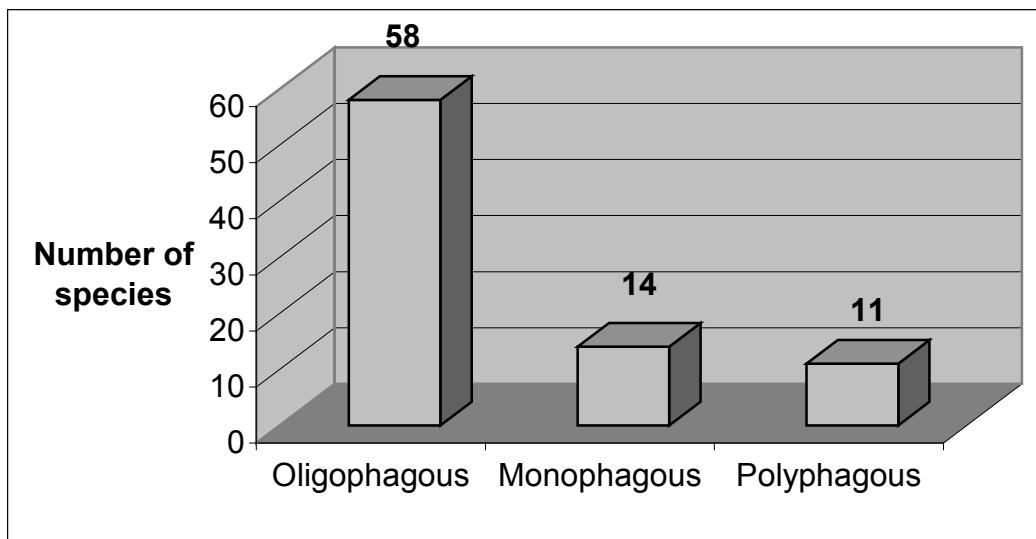


Fig. 2- The type of phagisme of butterflies larvae

Monophagous species like *Neozephyrus quercus*, *Thecla betulae*, *Scoliantides orion lariana*, *Polyommatus coridon*, *Satyrium pruni* are limited to particular habitats and form local colonies where their host plants occur.

Oligophagous species are especially Nymphalids but also Pierids and Lycaenids: *Apatura iris*, *Apatura ilia*, *Boloria euphrosyne*, *Boloria dia*, *Argynnис paphia*, *Argynnис adippe*, *Melitaea cinxia*, *Melitaea athalia*, *Erebia aethiops*, *Melanargia galathea*, *Aphantopus hyperanthus*, *Maniola jurtina*, *Minois dryas*, *Hipparchia semele*, *Coenonympha pamphilus*, *Coenonympha arcania*, *Coenonympha glycerion*, *Pieris brassicae*, *Pieris rapae*, *Pieris napi*, *Lycaena dispar rutila*, etc. So that, Poaceae are preferred by Satyrinae species and some Hesperiidae, e.g. *Hesperia comma*, *Ochlodes venatus faunus*, *Carterocephalus palaemon*, etc. Brassicaceae and Fabaceae are host plants for different Pierids and Lycaenids. Rhamnaceae are host plants for *Gonepteryx rhamni*. Violaceae, and especially Viola species are host plants for *Argynnис paphia*, *Argynnис aglaja*, *Argynnис adippe* and *Issoria lathonia*. Urtica species are host plants for *Vanessa atalanta*, *Vanessa cardui*, *Inachis io* and *Aglaia urticae*. Plantago species are host plants for *Melitaea athalia* and *Melitaea cinxia*.

The local occurrence of most butterflies depends on the occurrence of their host plants, in particular plant communities. The presence of any butterfly species depends not only on climatic data and the presence of suitable caterpillar food but also on appropriate adult nectar source or other food, the presence of certain symbiotic species, notably ants (OPLER & KRIZEK 1984).

Adult butterflies feed especially on nectar of flowers but some species, like *Nymphalis antiopa*, *Vanessa atalanta*, *Apatura iris*, *Apatura ilia* feed on other substances like: carrion, dung, tree sap, rotting fruits. *Thecla betulae* prefers aphid "honeydew" secretions.

The most visited flowers are: *Leucanthemum vulgare*, *Thymus comosus*, *Thymus serpyllum*, *Sambucus nigra*, *Sambucus racemosa*, *Sambucus ebulus*, *Scabiosa ochroleuca*, *Origanum vulgare*, *Telekia speciosa*, *Carduus candicans*, *Cirsium arvense*, *Cirsium canum*, *Rosa canina*, *Centaurea umbellatum*, *Rubus caesius*, *Rubus idaeus*, *Rubus fruticosus*, *Aster amellus*, *Mentha longifolia*, *Epilobium angustifolium*, *Eupatorium cannabinum*, *Salvia nemorosa*, *Melilotus officinalis*, *Galium verum*, *Vicia faba*, *Tanacetum vulgare*, *Viola tricolor*, *Potentilla reptans*, *Trifolium campestre*, *Verbascum thapsus*, *Linum catharticum*, *Dianthus carthusianorum*, *Medicago lupulina*, *Genista sagittalis*.

An interesting behaviour is of Lycaenidae species. Larvae or chrysalides of many species are tended by ants in a presumed mutualistic association (OPLER & KRIZEK 1984).

Tab. 2- Checklist of butterflies (Ord. Lepidoptera, S. ord. Rhopalocera)
of Zlaști Valley (Poiana Ruscă Mountains)

Taxa	P	E.E	LHP	Pf-Ns	F
HESPERIIDAE					
<i>Erynnis tages tages</i> (LINNAEUS, 1758)	VI-VIII	M	Fabaceae	Medicago lupulina, Melilotus officinalis, Trifolium campestre, Hypericum perforatum, Leucanthemum vulgare, Dianthus carthusianorum	VF
<i>Pyrgus carthami</i> (HÜBNER, 1813)	V-VIII	M	Potentilla sp., Alchemilla sp., Malva sp.	Potentilla reptans, Viola tricolor, Hypericum perforatum, Genista sagittaria, Lotus corniculatus	F
<i>Pyrgus malvae malvae</i> (LINNAEUS, 1758)	VII-VIII	M	Fragaria vesca, Potentilla recta, Agrimonia eupatoria, Rubus fruticosus	Hypericum perforatum, Linum catharticum, Potentilla reptans, Salvia nemorosa, Galium verum, Senecio vulgaris, Potentilla recta, Rubus caesius, R. fruticosus	VF
<i>Carterocephalus palaemon</i> (PALLAS, 1771)	VI-VII	M	Poaceae	Potentilla reptans, Galium verum	F
<i>Thymelicus sylvestris</i> (PODA, 1761)	VII-VIII	M	Poaceae	Geranium robertianum, Inula hirta, Senecio vulgaris, Leucanthemum vulgare, Salvia nemorosa, Galium verum, Vicia faba, Tanacetum vulgare, Hypericum perforatum, Aster amellus, Prunella vulgaris	F

Taxa	P	E.E	LHP	Pf-Ns	F
<i>Hesperia comma</i> (LINNAEUS, 1758)	VII-VIII	M	Poaceae: Festuca	Aster amellus, Leucanthemum vulgare, Viola tricolor, Mentha longifolia, Tanacetum vulgare, Lotus corniculatus, Vicia faba, Sedum hispanicum	VF
<i>Ochlodes venatus faunus</i> (TURATI, 1905)	VII-VIII	Mt	Poaceae	Hypericum perforatum, Aster amellus, Leucanthemum vulgare, Trifolium pratense, Trifolium repens, Genista sagitalis, Thymus sp	VF
PAPILIONIDAE					
<i>Iphiclides podalirius</i> (LINNAEUS, 1758)	VI-VIII	Mxt	Prunus sp.	Epilobium angustifolium, Eupatorium cannabinum, Mentha longifolia	F
<i>Papilio machaon</i> (LINNAEUS, 1758)	IV-VIII	M	Umbelliferae	Cirsium canum, Telekia speciosa, Verbascum thapsus, Dipsacus fullonum	RF
PIERIDAE					
<i>Leptidea sinapis sinapis</i> (LINNAEUS, 1758)	IV-IX	M	Fabaceae	Lotus corniculatus, Salvia pratensis, Trifolium pratense, Aster amellus, Scabiosa columbaria, Eupatorium cannabinum, Mentha longifolia, Leucanthemum vulgare, Sambucus racemosa, Sambucus nigra, Dianthus carthusianorum, Chamaespartium sagittale	VF
<i>Pieris rapae</i> (LINNAEUS, 1758)	IV-IX	M, Eu	Brassicaceae	Hypericum perforatum, Leucanthemum vulgare, Linum hirsutum, Inula hirta, Dianthus carthusianorum, Digitalis grandiflora, Trifolium pratense, Trifolium repens, Lotus corniculatus, Chamaespartium sagittale, Epilobium hirsutum, Thymus comosus, T. serpyllum, Cytisus nigricans	VF
<i>Pieris napi napi</i> (LINNAEUS, 1758)	IV-IX	M	Brasicaceae	Trifolium campestre, Lotus corniculatus, Dianthus carthusianorum, Epilobium hirsutum, Mentha arvensis, Mentha longifolia, Telekia speciosa	VF
<i>Pontia edusa</i> (Fabricius, 1777)	IV-IX	M	Brassicaceae	Trifolium campestre, Lotus corniculatus, Chamaespartium sagittale, Aster amellus	VF

Taxa	P	E.E	LHP	Pf-Ns	F
<i>Colias croceus</i> (FOURCROY, 1758)	IV-IX	Mxt	Fabaceae	<i>Lotus corniculatus</i> , <i>Chamaespartium sagittale</i> , <i>Trifolium pratense</i> , <i>Trifolium repens</i> , <i>Coronilla varia</i> , <i>Hieracium pilosella</i> , <i>Leucanthemum vulgare</i> , <i>Tanacetum vulgare</i> , <i>Dianthus carthusianorum</i> , <i>Telekia speciosa</i> , <i>Digitalis grandiflora</i> , <i>Prunella vulgaris</i> , <i>Silene vulgaris</i> , <i>Genista tinctoria</i> , <i>Centaurea phrygia</i> , <i>Lotus corniculatus</i> , <i>Galium verum</i>	RF
<i>Colias hyale</i> (LINNAEUS, 1758)	IV-IX	M	Fabaceae	<i>Scabiosa columbaria</i> , <i>Telekia speciosa</i> , <i>Leucanthemum vulgare</i> , <i>Senecio arvensis</i> , <i>Dianthus carthusianorum</i> , <i>Trifolium pratense</i> , <i>Sanguisorba officinalis</i> ,	F
<i>Gonepteryx rhamni</i> (LINNAEUS, 1758)	IV-IX	M	Rhamnaceae	<i>Carduus nutans</i> , <i>Origanum vulgare</i> , <i>Solidago virgaurea</i> , <i>Scabiosa columbaria</i> , <i>Centaurea cyanus</i> , <i>Sambucus nigra</i> , <i>Sambucus racemosa</i> <i>racemosa</i> , <i>Rosa canina</i> , <i>Rubus idaeus</i> , <i>Rubus caesius</i> , <i>Crataegus monogyna</i>	RF
LYCAENIDAE					
<i>Hamearis lucina</i> (LINNAEUS, 1758)	V-VIII	M	<i>Primula vulgaris</i> , <i>P. veris</i>	<i>Taraxacum officinale</i> , <i>Fragaria vesca</i> , <i>Salvia pratensis</i>	VF
<i>Lycaena phlaeas</i> <i>phlaeas</i> (LINNAEUS, 1761)	VI-VIII	M	Polygonaceae: <i>Rumex acetosella</i> , <i>R. acetosa</i>	<i>Salvia pratensis</i> , <i>Trifolium arvense</i> , <i>Trifolium repens</i> , <i>Leucanthemum vulgare</i>	RF
<i>Lycaena dispar</i> <i>rutila</i> (WERNEBURG, 1864)	VI-VIII	Hg	Polygonaceae: <i>Rumex</i> sp.	<i>Epilobium montanum</i> , <i>Epilobium angustifolium</i> , <i>Menta longifolia</i>	VF
<i>Lycaena virgaureae</i> <i>virgaureae</i> (LINNAEUS, 1758)	VI-VIII	M	<i>Rumex acetosa</i>	<i>Eupatorium cannabinum</i> , <i>Mentha longifolia</i> , <i>Mentha arvensis</i> , <i>Filipendula ulmaria</i> , <i>Thymus serpyllum</i> , <i>Galium verum</i> , <i>Epilobium angustifolium</i>	VF
<i>Lycaena alciphron</i> (Rottemburg, 1775)	VI-VII	Mh	<i>Rumex acetosa</i>	<i>Epilobium montanum</i> , <i>Epilobium angustifolium</i> , <i>Menta longifolia</i>	RF

Taxa	P	E.E	LHP	Pf-Ns	F
<i>Thecla betulae</i> (LINNAEUS, 1758)	VI-VIII	Mt	<i>Prunus spinosa</i> ; Chrysalides attended by <i>Lasius niger</i>	Sambucus nigra (fruits) ; Sweet and sticky honey-dew from aphids (STILL, 1996)	VR
<i>Neozephyrus quercus quercus</i> (LINNAEUS, 1758)	VI-VIII	Xt	<i>Quercus robur</i>	Rarely on <i>Sambucus racemosa</i> and <i>Sambucus nigra</i>	VR
<i>Callophrys rubi</i> (LINNAEUS, 1758)	VI-VIII	Mt	<i>Genista tinctoria</i> , <i>Cytisus scoparius</i> , <i>Anthyllis vulneraria</i>	<i>Lotus corniculatus</i> , <i>Medicago sativa</i> , <i>Geranium robertianum</i> , <i>Trifolium arvense</i>	RF
<i>Satyrium w-album</i> (KNOCH, 1782)	VI-VIII	M	<i>Rhamnus catharticum</i>	Rarely on <i>Geranium robertianum</i> , <i>Sambucus nigra</i> , <i>Sambucus racemosa</i> fruits, <i>Rubus caesius</i> , <i>R. idaeus</i> , <i>R. fruticosus</i> fruits.	R
<i>Satyrium pruni</i> (LINNAEUS, 1758)	V-VII	Mt	<i>Prunus spinosa</i>	Rarely on <i>Rubus fruticosus</i> , <i>R. caesius</i>	R
<i>Cupido minimus minimus</i> (FUESSLY, 1775)	VI-VIII	Mt	<i>Anthyllis vulneraria</i> ; Larvae attended by <i>Lasius niger</i> , <i>Formica fusca</i> , <i>Myrmica rubra</i>	<i>Geranium robertianum</i> , <i>Viola tricolor</i> , <i>Hypericum perforatum</i> , <i>Tanacetum vulgare</i> , <i>Trifolium pratense</i> , <i>Lotus corniculatus</i>	RF
<i>Everes argiades</i> (PALLAS, 1771)	VI-VIII	M	<i>Fabaceae</i>	<i>Tanacetum vulgare</i> , <i>Potentilla reptans</i> , <i>Trifolium campestre</i>	RF
<i>Celastrina argiolus</i> (LINNAEUS, 1758)	V-VI; VII-VIII	M	<i>Rubus fruticosus</i> , <i>R. idaeus</i> , <i>Filipendula ulmaria</i> , <i>Astragalus glycyphyllos</i> , <i>Medicago sativa</i>	<i>Tanacetum vulgare</i> , <i>Potentilla reptans</i> , <i>Trifolium campestre</i> , <i>Sambucus racemosa</i> , <i>Aster tripolium</i> , <i>Valeriana officinalis</i> , <i>Galium verum</i> , <i>Achillea millefolium</i> , <i>Prunella vulgaris</i> , <i>Potentilla reptans</i> , <i>Myosotis sp.</i> , <i>Stellaria graminea</i> , <i>Potentilla erecta</i>	RF
<i>Scoliantides orion lariana</i> FRUHSTORFER, 1910	VI-VII	Xt	<i>Sedum album</i> ; <i>Sedum hispanicum</i> , <i>Sedum telephium</i> ; Larvae attended by <i>Camponotus vagus</i> , <i>C. aethiops</i>	<i>Hieracium pilosella</i> , <i>Sedum hispanicum</i> , <i>Lotus corniculatus</i> , <i>Prunella vulgaris</i> , <i>Teucrium chamaedrys</i> , <i>Polygala comosa</i> , <i>Potentilla recta</i>	VF

Taxa	P	E.E	LHP	Pf-Ns	F
<i>Glaucopsyche alexis</i> (PODA, 1761)	V-VII	M	Fabaceae; Larvae attended by <i>Lasius alienus</i> , <i>Formica pratensis</i> , <i>Camponotus aethiops</i> , etc.	<i>Lotus corniculatus</i> , <i>Medicago sativa</i> , <i>Potentilla reptans</i> , <i>Hypericum perforatum</i>	RF
<i>Maculinea arion</i> (LINNAEUS, 1758)	VII-VIII	Mht	Thymus serpyllum; Larvae and chrysalids attended by <i>Myrmica sabuleti</i>	<i>Filipendula ulmaria</i> , <i>Agrimonia eupatoria</i> , <i>Leucanthemum vulgare</i> , <i>Linum flavum</i> , Thymus serpyllum, <i>Potentilla reptans</i> , <i>Lotus corniculatus</i>	R
<i>Maculinea alcon</i> (DENIS & SCHIFFERMÜLLER, 1775)	VII-VIII	Mh	Gentiana pneumonanthe, <i>G. cruciata</i> ; Larvae attended by <i>Myrmica rubra</i>	<i>Teucrium chamaedrys</i> , <i>Thymus comosus</i> , <i>Aster amellus</i> , <i>Centaurea scabiosa</i> , <i>Cardamine pratensis</i> , <i>Arabis hirsuta</i>	VR
<i>Plebeius argus argus</i> (LINNAEUS, 1758)	VI-VIII	Mh	Fabaceae; Cistaceae; larvae attended by <i>Lasius niger</i>	<i>Chamaespartium sagittale</i> , <i>Lotus corniculatus</i> , <i>Potentilla recta</i> , <i>Viola tricolor</i> , <i>Medicago lupulina</i> , <i>Mentha</i> sp.	F
<i>Plebeius argyrogynomon</i> (BERGSTRASSER, 1779)	V-VI; VI-VII	M	Astragalus glycyphyllos; Larvae attended by <i>Lasius</i> , <i>Myrmica</i>	<i>Lotus corniculatus</i> , <i>Medicago sativa</i> , <i>Trifolium pratense</i> , <i>Mentha arvensis</i>	RF
<i>Aricia agestis agestis</i> (DENIS & SCHIFFERMÜLLER, 1775)	VI-VIII	Mxt	Helianthemum nummularium, <i>Erodium cicutarium</i> , <i>Geranium robertianum</i>	<i>Lotus corniculatus</i> , <i>Medicago sativa</i> , <i>Trifolium pratense</i> , <i>Mentha arvensis</i> , <i>M. longifolia</i> , <i>Genista sagittalis</i> , <i>Potentilla reptans</i>	F
<i>Polyommatus semiargus semiargus</i> (ROTTEMBURG, 1775)	VI-VIII	M	Trifolium pratense; Larvae attended by <i>Lasius niger</i>	<i>Medicago sativa</i> , <i>Hypericum perforatum</i> , <i>Lotus corniculatus</i> , <i>Potentilla reptans</i> , <i>Leucanthemum vulgare</i> , <i>Solidago virgaurea</i> , <i>Senecio vulgaris</i> , <i>Aster amellus</i>	RF
<i>Polyommatus icarus</i> (ROTTEMBURG, 1775)	V-IX	M	Fabaceae; Larvae attended by <i>Lasius alienus</i> , <i>L niger</i>	<i>Genista tinctoria</i> , <i>Aster amellus</i> , <i>Viola tricolor</i> , <i>Potentilla recta</i> , <i>Leucanthemum vulgare</i>	VF

Taxa	P	E.E	LHP	Pf-Ns	F
<i>Polyommatus daphnis</i> (DENIS & SCHIFFERMÜLLER, 1775)	VI-VIII	Xt	Thymus sp., Astragalus sp.; Larvae attended by <i>Lasius alienus</i> , <i>Formica pratensis</i>	Hypericum hirsutum, Leucanthemum vulgare, Aster amellus, Genista tinctoria, Inula hirta	RF
<i>Polyommatus bellargus</i> (ROTTENBURG, 1775)	V-VI; VII-VIII	Xt	Hippocrepis comosa; Larvae attended by <i>Lasius niger</i> , <i>L. alienus</i> , <i>Myrmica sabuleti</i>	Dianthus carthusianorum, Hypericum perforatum; Leucanthemum vulgare, Solidago virgaurea, Senecio vulgaris, Aster amellus	RF
<i>Polyommatus coridon</i> (PODA, 1761)	VII-VIII	Xt	Hippocrepis comosa; Larvae attended by ants	Dianthus carthusianorum, Hypericum perforatum, Sedum hispanicum, Sedum album	F
NYMPHALIDAE					
<i>Argynnis paphia</i> (LINNAEUS, 1758)	VII-VIII	M	Viola sp.	Carduus nutans, Cirsium arvense, Tanacetum vulgare, Leucanthemum vulgare, Centaurea cyanus, Cychorium intybus	VF
<i>Argynnis aglaja</i> (LINNAEUS, 1758)	VI-VII	M	Viola sp.	Leucanthemum vulgare, Aster amellus, Solidago virgaurea, Origanum vulgare, Scabiosa ochroleuca, Thymus comosus, Centaurea phrygia	VF
<i>Argynnis adippe</i> (DENIS & SCHIFFERMÜLLER, 1775)	VI-VIII	Mt	Viola sp.	Leucanthemum vulgare, Artemisia austriaca, Telekia speciosa, Aster amellus, Senecio nemorensis, Solidago virgaurea, Epilobium sp.	VF
<i>Argynnis niobe</i> (LINNAEUS, 1758)	VI-VIII	M	Viola, Plantago	Leucanthemum vulgare, Artemisia austriaca, Telekia speciosa, Aster amellus, Senecio nemorensis, Solidago virgaurea, Mentha longifolia, Epilobium montanum	VF
<i>Issoria lathonia</i> (LINNAEUS, 1758)	V-VIII	M	Viola sp.	Leucanthemum vulgare, Telekia speciosa, Aster amellus, Senecio nemorensis, Senecio vulgaris, Solidago virgaurea, Tanacetum vulgare, Dianthus carthusianorum	VF

Taxa	P	E.E	LHP	Pf-Ns	F
Brenthis daphne (DENIS & SCHIFFERMÜLLER, 1775)	VI- VIII	Xt	Rubus fruticosus, R. idaeus	Aster amellus Leucanthemum vulgare, Dianthus carthusianorum, Tanacetum vulgare, Linum tenuifolium,	RF
Brenthis hecate (DENIS & SCHIFFERMÜLLER, 1775)	VI- VII	M	Filipendula ulmaria	Leucanthemum vulgare, Telekia speciosa, Aster amellus, Senecio nemorensis, Senecio vulgaris, Solidago virgaurea	RF
Boloria euphrosyne (LINNAEUS, 1758)	V- VIII	M	Viola sp.	Digitalis grandiflora, Lotus corniculatus, Medicago sativa, Dianthus carthusianorum, Mentha longifolia, Mentha aquatica, Hypericum perforatum, Leucanthemum vulgare, Galium odoratum, Galium verum, Achillea millefolium, Senecio vulgaris, Aster amellus, Centaurea phrygia	VF
Boloria selene (DENIS & SCHIFFERMÜLLER, 1775)	V- VIII	M	Viola sp.	Leucanthemum vulgare, Senecio vernalis, Lamium purpureum, Hesperis tristis, Galium odoratum, Achillea millefolium, Solidago virgaurea, Vicia cracca, Silene vulgaris, Stellaria holostea, Cirsium arvense	VF
Boloria dia dia (LINNAEUS, 1767)	V- VIII	M	Viola, Rubus	Potentilla recta, Medicago lupulina, Trifolium pratense, Trifolium repens, Leucanthemum vulgare, Linaria vulgaris, Origanum vulgare, Senecio nemorensis	VF
Vanessa atalanta (LINNAEUS, 1758)	VI- IX	U, Mg	Urtica sp.	Carduus nutans, Cirsium arvense, Rotten fruits	F
Vanessa cardui (LINNAEUS, 1758)	VII- VIII	U, Mg	Carduus, Cirsium	Carduus nutans, Carduus candidans, Centaurea cyanus, Cirsium arvense, Telekia speciosa	VF
Inachis io (LINNAEUS, 1758)	VI- IX	M, Eu	Urtica sp.	Fermeting fruits, Telekia speciosa, Leucanthemum vulgare, Rubus caesius	VF
Aglais urticae (LINNAEUS, 1758)	VI- VIII	Eu, Mg	Urtica sp.	Carduus nutans, Cyrsium arvense, Hypericum perforatum, Urtica dioica, Sedum album, Salvia nemorosa, Centaurea phrygia	VF

Taxa	P	E.E	LHP	Pf-Ns	F
<i>Polygonia c-album</i> (LINNAEUS, 1758)	V-VIII	M	Ribes, Urtica, Salix, Corylus	Urtica dioica, Mentha longifolia, Leucanthemum vulgare, Telekia speciosa, Hieracium pilosella, Dipsacus fullonum, Succisa pratensis, Rubus caesius, Rubus idaeus	VF
<i>Apatura ilia</i> (DENIS & SCHIFFERMÜLLER, 1775)	VII-VIII	Mh	Salicaceae	Damp ground, tree-sap, carrion	F
<i>Apatura iris</i> (LINNAEUS, 1758)	VII	Mh	Salicaceae	Carrion, dung and tree-sap	F
<i>Araschnia levana</i> (LINNAEUS, 1758)	VI-VIII	Mh	Urtica	Telekia speciosa, Aster amellus, Urtica dioica, Hypericum perforatum	VF
<i>Nymphalis antiopa</i> (LINNAEUS, 1758)	V-VIII	Mh	Salicaceae	Rarely on Sambucus nigra	R
<i>Melitaea cinxia cinxia</i> (LINNAEUS, 1758)	V-VIII	Mt	Plantago	Lotus corniculatus, Medicago sativa, Hypericum perforatum, Leucanthemum vulgare, Tanacetum vulgare	VF
<i>Melitaea phoebe</i> (DENIS & SCHIFFERMÜLLER, 1758)	VI-VIII	Mt	Scabiosa columbaria, Cirsium arvense	Lotus corniculatus, Medicago sativa, Hypericum perforatum, Leucanthemum vulgare, Genista tinctoria, Aster amellus, Galium verum, Salvia pratensis	VF
<i>Melitaea didyma didyma</i> (ESPER, 1778)	V-VIII	Mxt	Primula, Plantago	Lotus corniculatus, Medicago sativa, Hypericum perforatum, Leucanthemum vulgare, Salvia pratensis, Aster amellus, Centaurium umbellatum, Prunella vulgaris, Thymus commosus	VF
<i>Melitaea athalia</i> (ROTTEMBURG, 1775)	V-VIII	M	Plantago	Lotus corniculatus, Medicago sativa, Leucanthemum vulgare, Veronica jacquinii, Salvia pratensis	VF
<i>Neptis hylas</i> (LINNAEUS, 1758)	V-VIII	Mh	Lathyrus vernus, L. niger	Rarely on Cirsium arvense	VF
<i>Pararge aegeria tircis</i> BUTLER, 1867	V-IX	M	Poaceae	Telekia speciosa, Tanacetum vulgare, Inula conyza, Leucanthemum vulgare	VF
<i>Lasiommata megera megera</i> (LINNAEUS, 1767)	V-VIII	M	Poaceae	Rarely on Urtica dioica, Leucanthemum vulgare, Tanacetum vulgare, Lotus corniculatus, Sambucus racemosa	VF

Taxa	P	E.E	LHP	Pf-Ns	F
<i>Lasiommata maera</i> <i>maera</i> (LINNAEUS, 1758)	V-VIII	M	Poaceae	<i>Urtica dioica</i> , <i>Leucanthemum vulgare</i> , <i>Tanacetum vulgare</i> , <i>Lotus corniculatus</i> , <i>Taraxacum officinale</i> , <i>Ranunculus repens</i>	VF
<i>Coenonympha arcana arcana</i> (LINNAEUS, 1761)	V-VIII	M	Poaceae	<i>Achillea millefolium</i> , <i>Trifolium pratense</i> , <i>Trifolium repens</i> , <i>Centaurea cyanus</i> , <i>Medicago lupulina</i> , <i>Lotus corniculatus</i> , <i>Veronica spicata</i> , <i>Digitalis grandiflora</i> , <i>Vicia faba</i>	VF
<i>Coenonympha glycerion glycerion</i> (BORKHAUSEN, 1788)	VI-VIII	M	Poaceae	<i>Trifolium repens</i> , <i>Centaurea cyanus</i> , <i>Medicago lupulina</i> , <i>Lotus corniculatus</i> , <i>Veronica spicata</i> , <i>Digitalis grandiflora</i>	RF
<i>Coenonympha pamphilus</i> (LINNAEUS, 1758)	V-IX	M	Poaceae	<i>Leucanthemum vulgare</i> , <i>Dianthus carthusianorum</i> , <i>Hypericum perforatum</i>	VF
<i>Pyronia tithonus</i> (LINNAEUS, 1767)	VII-VIII	Xt	Poaceae	<i>Dianthus carthusianorum</i> <i>Aster amellus</i> , <i>Filipendula hexapetala</i>	RF
<i>Aphantopus hyperantus</i> (LINNAEUS, 1758)	V-IX	M	Poaceae	<i>Leucanthemum vulgare</i> , <i>Dianthus carthusianorum</i> , <i>Aster amellus</i> , <i>Cirsium arvense</i> , <i>Carduus candicans</i> , <i>Lotus corniculatus</i> , <i>Rubus sp.</i> , <i>Origanum vulgare</i> , <i>Hypericum perforatum</i> , <i>Galium verum</i>	VF
<i>Maniola jurtina</i> (LINNAEUS, 1758)	V-IX	M	Poaceae	<i>Telekia speciosa</i> , <i>Carduus acanthoides</i> , <i>Centaurea cyanus</i> , <i>Lotus corniculatus</i> , <i>Cirsium arvense</i> , <i>Origanum vulgare</i> , <i>Filipendula hexapetala</i> , <i>Galium verum</i>	VF
<i>Erebia aethiops</i> <i>aethiops</i> (ESPER, 1777)	VII-VIII	M	Poaceae	<i>Geranium sanguineum</i> , <i>Senecio nemorensis</i> , <i>Aster amellus</i> , <i>Digitalis grandiflora</i> , <i>Chamaespantium sagittale</i>	F
<i>Melanargia galathea</i> (LINNAEUS, 1758)	V-I	M	Poaceae	<i>Leucanthemum vulgare</i> , <i>Aster amellus</i> , <i>Digitalis grandiflora</i> , <i>Galium verum</i> , <i>Dianthus carthusianorum</i> , <i>Salvia pratensis</i> , <i>Lotus corniculatus</i> , <i>Origanum vulgare</i> , <i>Thymus comosus</i> , <i>Filipendula hexapetala</i>	VF
<i>Minois dryas</i> (SCOPOLI, 1763)	VII-VIII	Xt	Poaceae	Fruits of <i>Sambucus nigra</i> and <i>Sambucus racemosa</i>	VF

Taxa	P	E.E	LHP	Pf-Ns	F
Hipparchia fagi (SCOPOLI, 1763)	VII-VIII	Mt	Poaceae	Hypericum perforatum, Digitalis grandiflora, Verbascum phlomoides.	VF
Hipparchia semele semele (LINNAEUS, 1758)	VII-VIII	M	Poaceae	Rarely on Sambucus and Telekia speciosa	R
Brintesia circe pannonica FRUHSTORFER, 1911	VII-VIII	Xt	Poaceae	Rarely on Verbascum phlomoides, Hypericum Telekia speciosa	F
Chazara briseis briseis (LINNAEUS, 1764)	VII-VIII	Xt	Poaceae	Rarely on Telekia speciosa	R

Abbreviations: EE= Ecological exigencies: M-Mezofilous species; Mt-Mezotermofilous species; Xt-Xerotermofilous species, U-Ubiquist; Eu- Euritope; Mg- Migratory Species; STL- Larval Food Plants; PF-NS-Plant flowers-Nectar Source; F = Frequency: VF = Very Frequent species (over 16 individuals/day); RF = Relativ frequent species (5-10 individuals/day); F = Frequent species (5-10 individuals/day); R = Rare species; VR = Very Rare species (1-4 individuals/generation)

Rare species in Zlaști Valley

Maculinea alcon (DENIS & SCHIFFERMÜLLER, 1775) - 2♂♂ 14.07.2005. The butterflies prefer lawns, meadows. In its early stage larvae feed on *Gentiana* sp. In the next stages, ants attend them. Pupation takes place inside the nest of ants.

Maculinea arion (LINNAEUS, 1758) - 2♂♂ 1.07. 2006. Adults prefer rough grasslands wherever the food plant grows, in conjunction with suitable ant nests (STILL 1996).

Neozephyrus quercus (LINNAEUS, 1758)- 1♂ 20.07.2006. It is a woodland butterfly, found in oak forest. Larvae feed on *Quercus robur*. The adults feed on sticky „honey-dew” from aphids but also on *Sambucus racemosa* fruits.

Thecla betulae (LINNAEUS, 1758)- 1♂ 24.07.2005. Butterflies prefer the edge of the forest. Larvae feed on *Prunus spinosa*. STILL (1996) considers that the butterfly is not attracted to flowers but we found them on flowers of *Sambucus racemosa*.

Chazara briseis briseis (LINNAEUS, 1764): 1♂ 20.07.2006. The butterfly prefers dry lawns and the edge of the forests. Larvae feed on Poaceae. Adults rarely visit *Telekia speciosa*.

CONCLUSIONS

83 species belonging to S.ord. Rhopalocera were reported from Zlaști Valley (Poiana Ruscă Mountains). The majority of the species are relative frequent or frequent in this area. The abundance of the populations of the majority of the species is due to the high temperature

of Juin-August (over 30°C). According to different IUCN categories of endanglement (RÁKOSY 2002), some of recorded species of Zlaști Valley are near threatened, vulnerable or endangered. *Lycaena dispar rutila*, *Lycaena virgaureae*, *Lycaena thersamon*, *Thecla betulae*, *Neozephyrus quercus*, *Satyrium w-album*, *Satyrium pruni*, *Scoliantides orion lariana*, *Maculinea arion*, *Maculinea alcon*, *Brenthis daphne*, *Brenthis hecate*, *Apatura ilia*, *Apatura iris* and *Chazara briseis* are included in the Red List of Butterflies of Romania. Rare species recorded from Zlaști Valley are: *Maculinea arion*, *Maculinea alcon*, *Neozephyrus quercus*, *Thecla betulae* and *Chazara briseis*. These species must be protected in their natural habitats.

REFERENCES

- BERGMANN A. 1952. Die Grossschmetterlinge Mitteldeutschlands. Urania Verlag, GmbH., Jena Bd. 2, 495 p.
- BURNAZ SILVIA. 2005. Data about butterflies (Ord. Lepidoptera, S. ord. Rhopalocera) of Zlaști Valley (Poiana Ruscă Mountains, Romania). Bul. Inf. Entomol., **16**: 35-54.
- CHINERY M. 1996. Insects of Britain & Western Europe. Harper Collins Publishers, London.
- FELTWELL J. 2001. The illustrated encyclopedia of butterflies. Chartwell Books. Ed. New Jersey.
- FORSTER W. & WOHLFAHRT T. A. 1955. Die Schmetterlinge Mitteleuropas. 2: Tagfalter, Stuttgart.
- FOTESCU R. 1972. Contribuții la cunoașterea faunei de lepidoptere din bazinul Cernei și împrejurimile orașului Hunedoara. Sargetia, Acta Mus. Dev., Ser. Sci. Nat., Deva, **9**: 117-130.
- HIGGINS L.G. & RILEY N. D. 1970. A field guide to the Butterflies of Britain and Europe, London.
- HIGGINS L.G. & RILEY N. D. 1993. Butterflies of Britain and Europe. Harper Collins Publishers, London.
- KRAUTNER H. G. 1984. Munții Poiana Ruscă. Ghid turistic. Edit. Sport - Turism, București.
- MIHUȚ S. 2000. Biological, ecological and zoogeographical considerations on Romanian Butterflies. Evolution and Adaptation, Cluj-Napoca, **6**:45-78.
- NICULESCU E.V. 1961. Lepidoptera. Familia Papilionidae. Fauna R.P.R., Edit. Acad. Rom., Insecta, **11**(5).
- NICULESCU E.V. 1963. Lepidoptera. Familia Pieridae. Fauna R.P.R., Edit. Acad. Rom., București, **11**(6).
- NICULESCU E.V. 1965. Lepidoptera. Familia Nymphalidae. Fauna R.S.R., Edit. Acad. Rom., București, **11**(7).

- NICULESCU E.V. & KÖNIG FR. 1970. Lepidoptera. Partea generală. În: Fauna R.S.R., Edit. Academiei, **11**(10): 1-300.
- OANCEA D., VELCEA VALERIA, CALOIANU N., DRAGOMIRESCU S., DRAGU G., MIHAI ELENA, NICULESCU G., SENCU V. & VELCEA I. 1987. Geografia României. III. Carpați Românești și Depresiunea Transilvaniei. Edit. Academiei, București, 303-306.
- OPLER P.A. & KRIZEK G.O. 1984. Butterflies. East of the Great Plains. The Johns Hopkins University Press. Baltimore and London.
- RÁKOSY L. 2002. Lista roșie pentru fluturii diurni din România. Bul. Inf. Soc. Lepid. Rom., Cluj-Napoca, **13**(1-4): 9-26.
- RÁKOSY L. & VIEHMANN J. 1991. Arguments for Tur Gorges nature reserve. Ocrot. Nat. Med. Inconj., București, **35**(1-2):15-25.
- SPULER A. 1908-1910. Die Schmetterlinge Europas. Bd. I - IV, Stuttgart.
- STILL J. 1996. Butterflies & Moths. Collins wild Guide. Harper Collins Publishers. London.
- SZÉKELY L. 1999. Actualizarea sistematicii fluturilor diurni din România (Lepidoptera, Rhopalocera). Bul. Inf. Soc. Lepid. Rom., Cluj-Napoca, **10**(1-4): 225-226.
- TOLMAN T. & LEWINGTON R. 2007. Guide des papillons d'Europe et d'Afrique du Nord. Ed. Delachaux et Niestlé SA., Paris.

Silvia Burnaz
Museum of Dacian and Roman Civilisation
39, 1 Decembrie Street Deva, Hunedoara County, Romania
E-mail: muzeucdr.deva@gmail.com