MACROLEPIDOPTERA (INSECTA, LEPIDOPTERA) OF THE POZHYZHEVSKA SITE IN CHORNOGORA MTS

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The results of investigation upon butterflies and moths (Macrolepidoptera) in high-mountain habitats of the Pozhyzhevska site on NE sides of the Chornohora Mts are presented. The site is situated in the highest part of the Ukrainian Carpathians with average altitudes of 1300-1650 m, within transition zone from the spruce forest (*Piceeta abietis*) through dwarf wood (*Pineta mugi*, *Alneta viridis*) to subalpine meadow and heath (*Prata subalpina*) mountain belts of vegetation. The principal part of materials for the work were collected during 2007-2014 at Mountain Biological Station of Institute of Ecology of the Carpathians NAS of Ukraine on the Pozhyzhevska heath (48°09.26'N, 24°32.07'E, 1430 m a.s.l.), as well as in adjacent localities. Formerly there were 166 butterfly and moth species known due to investigations of M. Nowicki (1865), J. Fudakowski and W. Niesiolowsky (1935-1939). Recently 345 Macrolepidoptera species have been found at 2007-2014 and in particular 200 of them were formerly unknown from the area at the middle XIX – beginning XX century. The 21 species, which have not been found recently, are not characteristic for the mountain habitats only. Total checklist including 366 species is given. There are 6 Alpine, 6 Arctic-Alpine, 16 Montane and 35 Boreomontane specialist species. In total 43 species occur only in the Carpathians within Ukraine. About 70 species there are regular or occasional migrants. Other species found are widely distributed representatives of Temperate (Boreonemoral) ecogeographical complex previously. The species composition of Macrolepidoptera of the investigated area has been not impoverishing at retrospective view during the last century. Thus, it shows onto high level of habitat safety and seems to be an etalon for high-mountain ecosystems of the Ukrainian Carpathians. It looks clearly by the fact that the species checklist is far to be completed yet.

Key words: butterflies, moths, fauna, high-mountain habitats, the Ukrainian Carpathians

The Pozhyzhevska site is situated in the highest part of the Ukrainian Carpathians, on NE sides of Chornohora range with average altitudes of 1300-1650 m a.s.l. There are mountainsides, stream valleys and glacial hollows surrounded by higher mountain tops of Homul (1788 m), Dancer (1864 m), Pozhyzhevska (1822 m), Breskul (1912 m) from SW and lowering downward to the Prut river valley at Zarosliak site (1250 m) at the foothills of Hoverla Mt (2061 m). This terrain is characterized as transition zone from spruce forest (*Piceeta abietis*) through dwarf wood (*Pineta mugi, Alneta viridis*) to subalpine meadow and heath (*Prata subalpina*) mountain belts of vegetation.

Much remoteness as well as hard physical and climatic conditions of the area caused the lack of stationary nature investigations until 1920-s, when the Chornohora Reserve was founded with Botany and Agriculture Research Station (1923).

The first researcher of Lepidoptera in high mountains of Chornohora was M. Nowicki, who collected few butterfly species in subalpine and alpine zones near

Hoverla, Pozhyzhevska and Shpytzi Mts (Nowicki, 1865).

Then J. Fudakowski and W. Niesiolowski found 166 species of larger Lepidoptera on the area of Chornohora Reserve, generally at the Pozhyzhevska heath, in July 1932 and June-August 1934-1935 (Niesiolowski, 1935, 1939). At the same time, next two works devoted to a little known mountain species *Pieris bryoniae* and *Erebia manto* were published (Niesiolowski, 1936; Niesiolowski, Wojtusiak, 1937).

Contemporary data about Lepidoptera (Noctuoidea) of the investigated area are contained in the work of R. Bidychak (2008). The author adduced 31 species of Nolidae and Noctuidae, which were collected immediately on Pozhyzhevska Biological Station and in adjacent Tsybulnyk site at May 2007. More data about Lepidoptera of Pozhyzhevska heath and its vicinities are presented in common work of Yu. Geryak and R. Bidychak (2009), in which 120 species of Macrolepidoptera are pointed. The latest general checklist of 148 Macrolepidoptera species from Pozhyzhevska site including Drepanoidea, Bombycoidea and Noctuoidea superfamilies is presented in the work of Yu. Kanarsky, Yu. Geryak, E. Lyashenko (2011). Another data about Lepidoptera of Chornohora highlands are given in the next publications (Klyuchko et al., 2001; Bidzilia et al., 2006; Bidychak, Sirenko, 2008; Popov, 2008; Geryak, 2012, 2013, 2014).

Thus, the aim of the present work was ascertaining recent Macrolepidoptera species composition in the Pozhyzhevska site with estimation of its changes in comparison to former data, which were obtained here by the investigations made before World War II.

Materials and methods

The principal part of materials for this work were collected by the authors during 2007-2014 at Mountain Biological Station of Institute of Ecology of the Carpathians, which is situated on Pozhyzhevska heath (48°09.26' N, 24°32.07' E, 1430 m), as well as in other adjacent localities. The field investigations were carrying out by standard methods for the taxonomical group (Novak, 1969). The basic collecting method for nightly active moths was catching on the light screen using mercurium luminescent lamps with a share of UV in the spectrum (250/400 W). Also stationary light trap was mounted. Most of materials were collected at night, by the light screen and trap. There were following methods as attraction with aromatic forage baits and collection of imago on the flowers used. The last method was very useful in high-mountain conditions on the blooming *Chamaenerion angustifolium*, which is the main forage base for flying insects in late summer. The visual observations upon Lepidoptera with its collecting were pursuing at the daylight during itinerary investigations in adjacent localities. Additionally some data given kindly by colleagues-entomologists have been considered.

An abundance of the species was estimated relatively by the next way: when in the flight period more than 100 individuals are observed diary, then the species is the mass one; from 31 to 100 – abundant; 11-30 – common; 3-10 – uncommon, and 1-2 – solitary species. These criteria have been using in European Moth Nights Project (http://euromothnights.uw.hu).

Identification and systematic processing of the materials is made using modern sources (Fibiger et al., 1990, 1993, 1997, 2007, 2009, 2010; Ronkay et al., 1994, 1995, 2001; Tolman, Lewington, 1997; Nowacki, 1998; Hausmann, 2001, 2004; Hacker et al., 2002; Goater et al., 2003; Mironov, 2003; Macek et al., 2007, 2008, 2012; Schintlmeister, 2008 etc.). The genitalia preparations were processing for doublet species.

Results and discussion

Totally, there are 366 Macrolepidoptera species from 17 families and 8 superfamilies found reliably in Pozhyzhevska site at the present. Formerly, 166 species were known here due to investigations at the middle XIX – beginning XX century, but another 200 unknown species we have found at 2007-2014 (Table).

Table.

Systematic checklist of Macrolepidoptera of the Pozhyzhevska site

Taxa	Locality[1]	Finds		Abundance[2]
		before 1939	after 2006	
1	2	3	4	5
Order **LEPIDOPTERA**				
Superfamily **HEPIALOIDEA**				
Family **HEPIALIDAE**				
Hepialus humuli (Linnaeus, 1758)	g	+	+	1
Pharmacis fusconebulosa (De Geer, 1778)	abg	+	+	1
Pharmacis carna ([Denis & Schiffermüller], 1775)	g	+	+	2
Phymatopus hecta (Linnaeus, 1758)	a	+	+	1
Superfamily **GEOMETROIDEA**				
Family **GEOMETRIDAE**				
Idaea serpentata (Hufnagel, 1767)	a	+	+	1
Idaea biselata (Hufnagel, 1767)	g		+	1
Idaea aversata (Linnaeus, 1758)	a		+	1
Scopula ternata (Schranck, 1802)	g		+	1
Timandra comae Schmidt, 1931	ag		+	1
Scotopteryx chenopodiata (Linnaeus, 1758)	a	+	+	1
Camptogramma bilineata (Linnaeus, 1758)	a		+	1
Xanthorhoe fluctuata (Linnaeus, 1758)	g	+	+	2
Xanthorhoe montanata ([Denis & Schiffermüller], 1775)	a-g	+	+	5
Xanthorhoe incursata (Hübner, [1813])	g		+	1
Xanthorhoe spadicearia ([Denis & Schiffermüller], 1775)	abg	+	+	2
Xanthorhoe designata (Hufnagel, 1767)	g	+	+	1
Euphyia unangulata (Haworth, 1810)	g	+	+	1
Epirrhoe molluginata (Hübner, [1813])	g	+	+	1
Mesoleuca albicillata (Linnaeus, 1758)	g	+	+	1
Entephria caesiata ([Denis & Schiffermüller], 1775)	b-g	+	+	5

Continuation of table.

1	2	3	4	5
Spargania luctuata ([Denis & Schiffermüller], 1775)	g	+	+	1
Hydriomena furcata (Thunberg, 1784)	bg	+	+	1
Hydriomena impluviata (Fabricius, 1775)	g	+	+	1
Hydriomena ruberata (Freyer, 1831)	g		+	1
Colostygia pectinataria (Knoch, 1781)	g		+	2
Colostygia kollariaria Herrich-Schäffer, 1848	g	+		
Colostygia aptata (Hübner, [1813])	g		+	1
Dysstroma truncata (Hufnagel, 1767)	bcdg	+	+	3
Dysstroma citrata (Linnaeus, 1758)	bcdg	+	+	3
Thera cognata (Thunberg, 1792)	g		+	2
Thera variata ([Denis & Schiffermüller], 1775)	bg	+	+	3
Thera vetustata (Denis & Schiffermüller], 1775)	g		+	2
Eulithis prunata (Linnaeus, 1758)	g	+	+	1
Eulithis populata (Linnaeus, 1758)	g	+	+	2
Ecliptopera silaceata ([Denis & Schiffermüller], 1775)	g	+	+	2
Minoa murinata (Scopoli, 1763)	g	+	+	1
Venusia cambrica Curtis, 1839	g	+	+	1
Rheumaptera hastata (Linnaeus, 1758)	ag	+	+	1
Triphosa dubitata (Linnaeus, 1758)	g	+	+	2
Horisme tersata ([Denis & Schiffermüller], 1775)	g	+	+	1
Mesotype verberata (Scopoli, 1763)	g	+	+	1
Perizoma affinitata (Stephens, 1831)	g		+	1
Perizoma alchemillata (Linnaeus, 1758)	g	+	+	1
Perizoma hydrata (Treitschke, 1829)	g		+	1
Perizoma minorata (Treitschke, 1828)	g	+	+	1
Perizoma blandiata ([Denis & Schiffermüller], 1775)	b	+	+	1
Perizoma albulata ([Denis & Schiffermüller], 1775)	bg	+	+	2
Perizoma obsoletata (Herrich-Schäffer, 1838)	g	+	+	1
Martania taeniata (Stephens, 1831)	g		+	1
Eupithecia tenuiata (Hübner, [1813])	a	+	+	1
Eupithecia abietaria (Goeze, 1781)	abg	+	+	2
Eupithecia plumbeolata (Haworth, 1809)	a	+		
Eupithecia pusillata ([Denis & Schiffermüller], 1775)	g	+	+	2
Eupithecia innotata (Hufnagel, 1767)	b	+		
Eupithecia extraversaria Herrich-Schäffer, 1852	g	+		
Eupithecia veratraria Herrich-Schäffer, 1848	g	+		
Eupithecia assimilata Doubleday, 1856	g		+	1
Eupithecia vulgata (Haworth, 1809)	g	+		
Eupithecia icterata (de Villers, 1789)	g		+	1
Odezia atrata (Linnaeus, 1758)	c	+	+	1
Aplocera praeformata (Hübner, [1826])	a-g	+	+	5
Lomaspilis marginata (Linnaeus, 1758)	abg		+	2
Ligdia adustata ([Denis & Schiffermüller], 1775)	g		+	1
Cabera pusaria (Linnaeus, 1758)	bg	+	+	2
Cabera exanthemata (Scopoli, 1763)	g		+	1
Selenia tetralunaria (Hufnagel, 1767)	abg		+	2
Odontopera bidentata (Clerck, 1759)	g	+	+	2

Continuation of table.

1	2	3	4	5
Crocallis elinguaria (Linnaeus, 1758)	bg	+	+	1
Opisthograptis luteolata (Linnaeus, 1758)	g	+	+	1
Plagodis pulveraria (Linnaeus, 1758)	bg	+	+	1
Pungeleria capreolaria ([Denis & Schiffermüller], 1775)	g		+	2
Hylaea fasciaria (Linnaeus, 1758)	abg	+	+	2
Campaea margaritata (Linnaeus, 1767)	abg		+	3
Macaria alternata ([Denis & Schiffermüller], 1775)	g	+	+	1
Macaria signaria (Hübner, 1809)	ab	+	+	1
Macaria liturata (Clerck, 1759)	g		+	1
Itame brunneata (Thunberg, 1784)	dg	+	+	3
Charissa glaucinaria (Hübner, [1799])	g	+		
Elophos operaria (Hübner, [1813])	cg	+		
Elophos dilucidaria ([Denis & Schiffermüller], 1775)	abg	+	+	2
Elophos vittaria (Thunberg, 1788)	cg	+		
Glacies alpinata (Scopoli, 1763)	cdeg	+	+	3
Psodos quadrifaria (Sulzer, 1776)	g	+		
Ematurga atomaria (Linnaeus, 1758)	abcfg	+	+	2
Angerona prunaria (Linnaeus, 1758)	ab	+	+	1
Peribatodes secundaria ([Denis & Schiffermüller], 1775)	g		+	1
Alcis repandata (Linnaeus, 1758)	bg	+	+	2
Alcis bastelbergeri (Hirschke, 1908)	bg	+	+	2
Alcis jubata (Thunberg, 1788)	g	+	+	1
Deileptenia ribeata (Clerck, 1759)	bg	+	+	1
Biston betularia (Linnaeus, 1758)	abg		+	1
Superfamily **DREPANOIDEA**				
Family **THYATIRIDAE**				
Thyatira batis (Linnaeus, 1758)	abg	+	+	1
Habrosyne pyritoides (Hufnagel, 1766)	abg		+	1
Tethea or ([Denis & Schiffermüller], 1775)	abg		+	1
Ochropacha duplaris (Linnaeus, 1761)	ag		+	1
Family **DREPANIDAE**				
Watsonalla cultraria (Fabricius, 1775)	abg		+	1
Drepana falcataria (Linnaeus, 1758)	abg		+	1
Superfamily **LASIOCAMPOIDEA**				
Family **LASIOCAMPIDAE**				
Trichiura crataegi (Linnaeus, 1758)	abg	+	+	2
Malacosoma neustria (Linnaeus, 1758)	g		+	1
Lasiocampa quercus (Linnaeus, 1758) f. alpina Freyer, 1880	g	+	+	4
Macrothylacia rubi (Linnaeus, 1758)	g		+	1*
Cosmotriche lobulina ([Denis & Schiffermüller], 1775)	abg	+	+	1
Dendrolimus pini (Linnaeus, 1758) f. montana Staudinger, 1871	abg		+	2

Continuation of table.

1	2	3	4	5
Superfamily **BOMBYCOIDEA**				
Family **SATURNIIDAE**				
Saturnia pavonia (Linnaeus, 1758)	g		+	1*
Family **SPHINGIDAE**				
Acherontia atropos (Linnaeus, 1758)	g		+	4* (3)
Agrius convolvuli (Linnaeus, 1758)	cdg		+	3
Hyloicus pinastri (Linnaeus, 1758)	abg		+	3
Laothoe populi (Linnaeus, 1758)	b	+	+	1*
Macroglossum stellatarum (Linnaeus, 1758)	g	+	+	2
Hyles galii (Rottemburg, 1775)	bg	+	+	3
Hyles livornica (Esper, 1779)	g		+	3 (4)
Deilephila elpenor (Linnaeus, 1758)	abg		+	1
Superfamily **NOCTUOIDEA**				
Family **NOTODONTIDAE**				
Furcula furcula (Clerck, 1759)	g		+	1
Stauropus fagi (Linnaeus, 1758)	g		+	1*
Notodonta dromedarius (Linnaeus, 1758)	abg		+	1
Notodonta torva (Hübner, 1803)	g		+	1
Notodonta ziczac (Linnaeus, 1758)	abg		+	2
Pheosia tremula (Clerck, 1759)	abg		+	1
Pheosia gnoma (Fabricius, 1776)	abg		+	1
Pterostoma palpina (Clerck, 1759)	abg		+	2
Ptilodon capucina (Linnaeus, 1758)	abg		+	1
Clostera pigra (Hufnagel, 1766)	ag		+	1
Clostera curtula (Linnaeus, 1758)	g		+	1*
Clostera anastomosis (Linnaeus, 1758)	g		+	1*
Clostera anachoreta ([Denis & Schiffermüller], 1775)	a		+	1*
Family **NOLIDAE**				
Pseudoips prasinana (Linnaeus, 1758)	ag		+	1
Nycteola revayana (Scopoli, 1772)	g	+	+	1
Family **EREBIDAE**				
Scoliopteryx libatrix (Linnaeus, 1758)	bg	+	+	2
Rivula sericealis (Scopoli, 1763)	g		+	1
Hypena proboscidalis (Linnaeus, 1758)	abg	+	+	2
Hypena rostralis (Linnaeus, 1758)	g		+	1
Hypena obesalis Treitschke, 1829	bg	+	+	1
Hypena crassalis (Fabricius, 1787)	bg		+	1
Calliteara pudibunda (Linnaeus, 1758)	g		+	1*
Orgyia antiqua (Linnaeus, 1758)	g		+	2
Euproctis similis (Fuessly, 1775)	g		+	2
Arctornis l-nigrum (Muller, 1764)	g		+	1*
Leucoma salicis (Linnaeus, 1758)	g		+	2
Lymantria monacha (Linnaeus, 1758)	abg		+	3

Continuation of table.

1	2	3	4	5
Spilosoma lubricipeda (Linnaeus, 1758)	g		+	1*
Diacrisia sannio (Linnaeus, 1758)	abg		+	1
Phragmatobia fuliginosa (Linnaeus, 1758)	abg		+	1
Parasemia plantaginis (Linnaeus, 1758)	c-g	+	+	4
Arctia caja (Linnaeus, 1758)	abg		+	2
Miltochrista miniata (Forster, 1771)	abg		+	2
Atolmis rubricollis (Linnaeus, 1758)	abg		+	5
Lithosia quadra (Linnaeus, 1758)	abg		+	2
Eilema depressa (Esper, 1787)	abg		+	2
Eilema griseola (Hübner, 1803)	abg		+	2
Eilema sororcula (Hufnagel, 1766)	abg		+	3
Eilema lurideola (Zincken, 1817)	abg		+	2
Herminia tarsipennalis Treitschke, 1835	g		+	1*
Polypogon tentacularia (Linnaeus, 1758)	ag		+	2
Lygephila viciae (Hübner, [1822])	g		+	1*
Parascotia fuliginaria (Linnaeus, 1761)	a		+	1*
Phytometra viridaria (Clerck, 1759)	g		+	1*
Laspeyria flexula ([Denis & Schiffermüller], 1775)	abg		+	1
Catocala nupta (Linnaeus, 1767)	g		+	1*
Catocala sponsa (Linnaeus, 1767)	g		+	1
Catocala promissa ([Denis & Schiffermüller], 1775)	g		+	1*
Euclidia glyphica (Linnaeus, 1758)	abg		+	1
Euclidia mi (Clerck, 1759)	g	+		
Family **NOCTUIDAE**				
Abrostola tripartita (Hufnagel, 1766)	g	+	+	1
Abrostola triplasia (Linnaeus, 1758)	bg	+	+	1
Macdunnoughia confusa (Stephens, 1850)	eg	+	+	2
Diachrysia chryson (Esper, [1789])	b		+	1*
Diachrysia chrysitis (Linnaeus, 1758)	abg		+	2
Diachrysia stenochrysis (Warren, 1913)	abg		+	2
Euchalcia variabilis (Filler, 1783)	bg		+	1
Autographa gamma (Linnaeus, 1758)	a-g	+	+	5
Autographa pulchrina (Haworth, 1809)	abg	+	+	2
Autographa buraetica (Staudinger, 1892)	bg		+	2
Autographa jota (Linnaeus, 1758)	bg		+	1
Autographa bractea ([Denis & Schiffermüller], 1775)	bcg	+	+	1
Syngrapha interrogations (Linnaeus, 1758)	bg	+	+	3
Plusia festucae (Linnaeus, 1758)	g	+		
Panthea coenobita (Esper, 1785)	abg		+	1
Colocasia coryli (Linnaeus, 1758)	abg		+	1
Acronicta alni (Linnaeus, 1767)	abg		+	1
Acronicta psi (Linnaeus, 1758)	abg		+	1
Acronicta leporina (Linnaeus, 1758)	abg		+	1
Acronicta megacephala ([Denis & Schiffermüller], 1775)	g		+	1

Continuation of table.

1	2	3	4	5
Acronicta menyanthidis (Esper, [1789])	g		+	1*
Acronicta auricoma ([Denis & Schiffermüller], 1775)	g		+	1*
Acronicta rumicis (Linnaeus, 1758)			+	1
Craniophora ligustri ([Denis & Schiffermüller], 1775)	g		+	1*
Cucullia lactucae ([Denis & Schiffermüller], 1775)	g		+	1
Cucullia pustulata Eversmann, 1842	g		+	1*
Cucullia lucifuga ([Denis & Schiffermüller], 1775)	ag		+	1
Cucullia umbratica (Linnaeus, 1758)	g		+	1
Calliergis ramosa (Esper, [1786])	g		+	1*
Amphipyra pyramidea (Linnaeus, 1758)	g		+	2
Amphipyra berbera Rungs, 1949	bg		+	3 (5)
Amphipyra tragopoginis (Clerck, 1759)	g	+	+	3
Heliothis viriplaca (Hufnagel, 1766)	g		+	2
Heliothis adaucta Butler, 1878	g		+	1
Heliothis peltigera ([Denis & Schiffermüller], 1775)	g		+	1
Helicoverpa armigera (Hübner, [1808])	g		+	3
Pyrrhia umbra (Hufnagel, 1766)	bg		+	2
Caradrina clavipalpis (Scopoli, 1763)	g		+	1
Hoplodrina octogenaria (Goeze, 1781)	abg		+	2
Hoplodrina blanda ([Denis & Schiffermüller], 1775)	abg		+	2
Hoplodrina ambigua ([Denis & Schiffermüller], 1775)	abg		+	2
Rusina ferruginea (Esper, [1785])	g		+	1*
Enargia paleacea (Esper, [1788])	g		+	1*
Ipimorpha subtusa ([Denis & Schiffermüller], 1775)	g		+	1
Cosmia trapezina (Linnaeus, 1758)	abg	+	+	3
Dypterygia scabriuscula (Linnaeus, 1758)	g		+	1*
Trachea atriplicis (Linnaeus, 1758)	abg		+	2
Talpophila matura (Hufnagel, 1766)	g		+	1*
Hyppa rectilinea (Esper, [1788])	bg	+	+	2
Actinotia polyodon (Clerck, 1759)	g		+	2
Phlogophora scita (Hübner, 1790)	g		+	1
Phlogophora meticulosa (Linnaeus, 1758)	g		+	2
Euplexia lucipara (Linnaeus, 1758)	ag	+	+	2
Apamea monoglypha (Hufnagel, 1766)	a-g	+	+	5
Apamea crenata (Hufnagel, 1766)	abg	+	+	4
Apamea epomidion (Haworth, 1809)	g		+	1
Apamea lateritia (Hufnagel, 1766)	bg	+	+	1
Apamea maillardi (Geyer, [1834])	g	+	+	1
Apamea rubrirena (Treitschke, 1825)	bg	+	+	3
Apamea remissa (Hübner, [1808])	abg		+	2
Apamea illyria Freyer, 1846	g		+	1*
Apamea sordens (Hufnagel, 1766)	g	+	+	1*
Leucapamea ophiogramma (Esper, [1794])	g		+	1*
Oligia strigilis (Linnaeus, 1758)	abg		+	1
Oligia versicolor (Borkhausen, 1792)	abg		+	2
Oligia latruncula ([Denis & Schiffermüller], 1775)	abg	+	+	2
Mesapamea secalis (Linnaeus, 1758)	bg	+	+	2

Continuation of table.

1	2	3	4	5
Photedes captiuncula (Treitschke, 1825)	cg	+	+	5
Amphipoea oculea (Linnaeus, 1761)	g		+	1*
Helotropha leucostigma (Hübner, [1808])	g		+	1*
Brachylomia viminalis (Fabricius, 1777)	abg		+	2
Atypha pulmonaris (Esper, [1790])	g		+	2
Cirrhia icteritia (Hufnagel, 1766)	abg		+	2
Agrochola circellaris (Hufnagel, 1766)	abg		+	3
Agrochola litura (Linnaeus, 1758)	g		+	1*
Conistra vaccinii (Linnaeus, 1761)	abg		+	2
Lithophane consocia (Borkhausen, 1792)	g		+	1
Lithomoia solidaginis (Hübner, [1803])	g		+	1*
Eupsilia transversa (Hufnagel, 1766)	g		+	1*
Mniotype adusta (Esper, [1790])	abg	+	+	2
Orthosia incerta (Hufnagel, 1766)	g		+	1
Orthosia gothica (Linnaeus, 1758)	g		+	1
Cerapteryx graminis (Linnaeus, 1758)	abg		+	2
Anarta trifolii (Hufnagel, 1766)	g		+	1
Polia bombycina (Hufnagel, 1766)	g		+	1
Polia hepatica (Clerck, 1759)	g	+	+	2
Polia nebulosa (Hufnagel, 1766)	abg	+	+	2
Lacanobia w-latinum (Hufnagel, 1766)	g		+	1
Lacanobia thalassina (Hufnagel, 1766)	abg	+	+	2
Lacanobia contigua ([Denis & Schiffermüller], 1775)	g		+	1
Lacanobia suasa ([Denis & Schiffermüller], 1775)	bg	+	+	1
Lacanobia oleracea (Linnaeus, 1758)	g		+	1
Melanchra persicariae (Linnaeus, 1761)	abg		+	1
Ceramica pisi (Linnaeus, 1758)	b	+	+	1
Papestra biren (Goeze, 1781)	g		+	4
Hada plebeja (Linnaeus, 1761)	abg	+	+	3
Mamestra brassicae (Linnaeus, 1758)	g		+	3
Sideridis rivularis (Fabricius, 1775)	abg		+	1
Hecatera bicolorata (Hufnagel, 1766)	g		+	1*
Hadena compta ([Denis & Schiffermüller], 1775)	g		+	1
Hadena confusa (Hufnagel, 1766)	g		+	1*
Mythimna conigera ([Denis & Schiffermüller], 1775)	g		+	2
Mythimna pallens (Linnaeus, 1758)	abg		+	1
Mythimna impura (Hübner, [1808])	g		+	1*
Mythimna vitellina (Hübner, [1808])	g		+	1
Mythimna albipuncta ([Denis & Schiffermüller], 1775)	a-g		+	5
Mythimna ferrago (Fabricius, 1787)	g		+	1
Mythimna l-album (Linnaeus, 1767)	g		+	1
Leucania comma (Linnaeus, 1761)	abg		+	1
Lasionhada proxima (Hübner, [1809])	g		+	3
Peridroma saucia (Hübner, [1808])	g		+	1*
Dichagyris flammatra ([Denis & Schiffermüller], 1775)	g		+	1
Euxoa conspicua (Hübner, [1827]) [= *agricola* Boisduval, 1829]	g		+	1*

Continuation of table.

1	2	3	4	5
Euxoa birivia ([Denis & Schiffermüller], 1775)	ag	+	+	1
Agrotis exclamationis (Linnaeus, 1758)	abg	+	+	2
Agrotis segetum ([Denis & Schiffermüller], 1775)	abg	+	+	3
Agrotis ipsilon (Hufnagel, 1766)	g	+	+	2
Axylia putris (Linnaeus, 1761)	g		+	1
Ochropleura plecta (Linnaeus, 1761)	g		+	2
Diarsia dahlii (Hübner, [1813])	g		+	1
Diarsia brunnea ([Denis & Schiffermüller], 1775)	abg	+	+	3
Diarsia mendica (Fabricius, 1775)	abg	+	+	2
Diarsia florida (F. Schmidt, 1859)	g		+	3
Rhyacia simulans (Hufnagel, 1766)	b	+	+	2
Rhyacia lucipeta ([Denis & Schiffermüller], 1775)	g	+	+	1
Chersotis rectangula ([Denis & Schiffermüller], 1775)	g		+	1
Noctua pronuba (Linnaeus, 1758)	a-g	+	+	5
Noctua fimbriata (Schreber, 1759)	a-g		+	5
Noctua orbona (Hufnagel, 1766)	g		+	1
Noctua interposita (Hübner, 1790)	g		+	4
Noctua interjecta Hübner, 1803	g		+	1
Noctua janthina ([Denis & Schiffermüller], 1775)	g		+	1
Noctua janthe (Borkhausen, 1792)	g		+	1
Eurois occulta (Linnaeus, 1758)	abg	+	+	2
Anaplectoides prasina ([Denis & Schiffermüller], 1775)	abg		+	4
Xestia baja ([Denis & Schiffermüller], 1775)	abg	+	+	1
Xestia collina (Boisduval, 1840)	ag	+	+	1
Xestia sexstrigata (Haworth, 1809)	g		+	1
Xestia c-nigrum (Linnaeus, 1758)	a-g	+	+	5
Xestia ditrapezium ([Denis & Schiffermüller], 1775)	ag	+	+	1
Xestia triangulum (Hufnagel, 1766)	g		+	1*
Xestia rhaetica (Staudinger, 1871)	g		+	2
Xestia speciosa (Hübner, [1813])	g	+	+	3
Eugraphe sigma ([Denis & Schiffermüller], 1775)	g		+	1*
Protolampra sobrina (Duponchel, 1813)	g		+	1
Superfamily **HESPERIOIDEA**				
Family **HESPERIIDAE**				
Pyrgus malvae (Linnaeus, 1758)	ab		+	1
Pyrgus alveus (Hübner, 1823)	cg	+	+	1*
Carterocephalus palaemon (Pallas, 1771)	ag	+		
Thymelicus lineola (Ochsenheimer, 1808)	abg		+	1
Ochlodes venata (Bremer & Grey, 1853)	abg		+	1
Hesperia comma (Linnaeus, 1758)	a	+		
Superfamily **PAPILIONOIDEA**				
Family **PAPILIONIDAE**				
Parnassius mnemosyne (Linnaeus, 1758)	b	+	+	1
Papilio machaon Linnaeus, 1758	ag	+	+	1

Continuation of table.

1	2	3	4	5
Family **PIERIDAE**				
Leptidea sinapis (Linnaeus, 1758)	a	+		
Anthocharis cardamines (Linnaeus, 1758)	ag	+	+	2
Aporia crataegi (Linnaeus, 1758)	ag	+		
Pontia edusa Fabricius, 1777	ag	+	+	2
Pieris brassicae (Linnaeus, 1758)	abg	+	+	1
Pieris (*Artogeia*) *napi* (Linnaeus, 1758)	a-g	+	+	3
Pieris (*Artogeia*) *bryoniae* (Hübner, [1806])	c-g	+	+	3
Pieris (*Artogeia*) *rapae* (Linnaeus, 1758)	a-g	+	+	3
Colias hyale (Linnaeus, 1758)	abg	+	+	1
Colias crocea (Fourcroy, 1785)	ag	+	+	1
Gonepterix rhamni (Linnaeus, 1758)	a-g	+	+	3
Family **LYCAENIDAE**				
Lycaena phlaeas (Linnaeus, 1761)	ag		+	1
Heodes tityrus (Poda, 1761)	a-g	+	+	2
Heodes hippothoe (Linnaeus, 1761)	c	+		
Celastrina argiolus (Linnaeus, 1758)	abg	+	+	1
Maculinea arion (Linnaeus, 1758)	c	+		
Polyommatus icarus (Rottemburg, 1775)	a-g	+	+	3
Cyaniris semiargus (Rottemburg, 1775)	g	+	+	1
Family **NYMPHALIDAE**				
Apatura iris (Linnaeus, 1758)	ab		+	1
Neptis rivularis (Scopoli, 1763)	ab	+	+	1
Limenitis camilla (Linnaeus, 1764)	ab		+	1
Argynnis paphia (Linnaeus, 1758)	abg	+	+	3
Mesoacidalia aglaja (Linnaeus, 1758)	abg	+	+	2
Fabriciana adippe (Rottemburg, 1775)	abcg	+	+	2
Fabriciana niobe (Linnaeus, 1758)	abg		+	1
Issoria lathonia (Linnaeus, 1758)	abg	+	+	2
Brenthis ino (Rottemburg, 1775)	a	+		
Clossiana euphrosyne (Linnaeus, 1758)	abg	+	+	1
Clossiana selene ([Denis & Schiffermüller], 1775)	abg		+	1
Polygonia c-album (Linnaeus, 1758)	abg	+	+	2
Nymphalis xanthomelas (Esper, 1781)	g		+	1
Nymphalis polychloros (Linnaeus, 1758)	ab	+	+	1
Nymphalis antiopa (Linnaeus, 1758)	abg		+	1
Inachis io (Linnaeus, 1758)	a-g	+	+	3
Aglais urticae (Linnaeus, 1758)	a-g	+	+	2
Vanessa atalanta (Linnaeus, 1758)	abg	+	+	1
Cynthia cardui (Linnaeus, 1758)	a-g	+	+	3 (6)
Araschnia levana (Linnaeus, 1758)	ab	+		
Family **SATYRIDAE**				
Pararge aegeria (Linnaeus, 1758)	ab	+	+	1
Lasiommata maera (Linnaeus, 1758)	ab	+	+	1

Continuation of table.

1	2	3	4	5
Lasiommata megera (Linnaeus, 1767)	g		+	1*
Melanargia galathea (Linnaeus, 1758)	abg		+	1
Coenonympha pamphilus (Linnaeus, 1758)	abg	+	+	1
Coenonympha tullia (Muller, 1764)	f	+		
Erebia ligea (Linnaeus, 1758)	abg	+	+	1
Erebia euryale (Esper, [1805])	a-g	+	+	5
Erebia manto ([Denis & Schiffermüller], 1775)	g	+	+	3
Erebia medusa ([Denis & Schiffermüller], 1775)	g	+	+	3
Maniola jurtina (Linnaeus, 1758)	abg		+	1
Aphantopus hyperantus (Linnaeus, 1758)	abg		+	1

[1]**a** – Prut river valley below Zarosliak site (~1000 m a.s.l.); **b** – Zarosliak site (1150-1250 m); **c** – Breskul Mt (1650-1800 m); **d** – Danzer Mt (~1600 m); **e** – Hoverla Mt; **f** – Tsybul'nyk site (~1350 m); **g** – Pozhyzhevska heath (1350-1450 m). [2]At the present: 1 – solitary, 2 – uncommon, 3 – common, 4 – abundant, 5 – mass species; 1* – once seen species. [(3)]A dozens of vagrant individuals registered at some autumn day at the 1990-s (message by L. Holobin). [(4)]Registered twice during migrations: at 2007 (abundant) and 2014 (uncommon). [(5)]It was mass at 2013. [(6)]It was mass during migrations at 2009, 2013.

The species of Temperate (e.g. Boreonemoral) ecogeographical complex are prevail in Lepidoptera fauna of the Chornohora range (Kanarskyi, Geryak, Lyashenko, 2011). However, Alpine and Montane species as well as Arctic-Alpine and Boreomontane ones with disjunctive ranges are characteristic elements in the fauna of European mountain systems. These species are resident and much inherent for higher mountain habitats. Most of them are locally distributed and sthenotopic ones, which inhabit natural or less disturbed localities of upper forest, subalpine and alpine vegetation belts.

There are 6 species belonging to Alpine complex: *Elophos operaria*, *Psodos quadrifaria*, *Glacies alpinata* (Geometridae); *Euxoa birivia* (Noctuidae); *Pieris* (*Artogeia*) *bryoniae* (Pieridae); *Erebia manto* (Satyridae).

Next 11 species are Montane: *Xanthorhoe incursata*, *Colostygia kollariaria, Thera cognata*, *Th. vetustata*, *Venusia cambrica*, *Mesotype verberata*, *Perizoma affinitata*, *P. obsoletata*, *Elophos dilucidaria* (Geometridae); *Calliergis ramosa, Phlogophora scita* (Noctuidae). Another 5 of Montane xerophile (e.g. xeromontane) species have to be distinguished especially: *Dichagyris flammatra*, *Euxoa conspicua*, *Rhyacia simulans*, *Rh. lucipeta, Chersotis rectangula* (Noctuidae). They are probably non-resident, but standing temporary colonies in high mountain terrains during migrations.

Arctic-Alpine species are inherit to Polar tundra zone and distributed in high mountain areas above the tree line on the south. There are 6 species found at Pozhyzhevska site: *Entephria caesiata*, *Eupithecia veratraria*, *Elophos vittaria* (Geometridae); *Apamea maillardi*, *Xestia collina*, *X. rhaetica* (Noctuidae). The last species was found here for the first time in the Ukrainian Carpathians at 2013 (Geryak, 2013).

Boreomontane species are often widely distributed within Taiga zone but apart they inhabit upper forest zones of European mountain systems. It is caused by simi-

lar ecological conditions and paleohistorical nexus between these remoted parts of the species ranges. Boreomontane complex is presented with 35 species found in the investigated area (*Pharmacis carna* (Hepialidae); *Scopula ternata*, *Spargania luctuata*, *Rheumaptera hastata*, *Colostygia aptata*, *Perizoma minorata*, *Martania taeniata*, *Odontopera bidentata*, *Alcis jubata* (Geometridae); *Cosmotriche lobulina* (Lasiocampidae); *Hypena obesalis* (Erebidae); *Parasemia plantaginis* (Arctiidae); *Diachrysia chryson*, *Euchalcia variabilis*, *Autographa buraetica*, *A. bractea*, *Syngrapha interrogationis*, *Panthea coenobita*, *Acronicta menyanthidis*, *Cucullia lucifuga*, *Apamea rubrirena*, *A. illyria*, *Photedes captiuncula*, *Lithophane consocia*, *Lithomoia solidaginis*, *Brachylomia viminalis*, *Mniotype adusta*, *Papestra biren*, *Lasionhada proxima*, *Eurois occulta*, *Xestia speciosa*, *Protolampra sobrina* (Noctuidae); *Erebia ligea*, *E. euryale* (Satyridae)).

A special contribution to Macrolepidoptera diversity of investigated area is given by migratory species. In the work of U. Eitchberger et al. (1991) species inclined to migration are divided into regular and occasional vagrants, which compose four groups. Regular vagrants are seasonal of 1- or 2-order. Seasonal vagrants of 1-st order undertake annual migrations from south to north, from the breeding regions to the regions of temporary occurrence, where they leave a posterity, which turns back occasionally. There are few species registered in Pozhyzhevska site: *Acherontia atropos*, *Agrius convolvuli* (Sphingidae); *Autographa gamma*, *Agrotis ipsilon* (Noctuidae); *Vanessa atalanta*, *Cynthia cardui* (Nymphalidae).

Another group is seasonal vagrants of 2-nd order. They leave its resident localities and migrate for the enduring hard seasonal conditions (wintering or summering). However, after the hibernation period they come back to the places of breeding. In the investigated area, there are probably next species, which have partial summer diapause: *Dichagyris flammatra*, *Euxoa conspicua*, *Rhyacia simulans*, *R. lucipeta*, *Chersotis rectangula*, *Noctua* spp. (Noctuidae).

Irregular migrations are characteristic for so-called emigrants, which individuals visit new areas occasionally, but does not return. They are: *Macroglossum stellatarum*, *Hyles gallii*, *H. livornica* (Sphingidae); *Macdunnoughia confusa*, *Heliothis viriplaca*, *H. adaucta*, *H. peltigera*, *Helicoverpa armigera*, *Hoplodrina ambigua*, *Phlogophora meticulosa*, *Helotropha leucostigma*, *Mythimna conigera*, *M. pallens*, *M. vitellina*, *Peridroma saucia* (Noctuidae); *Aporia crataegi*, *Pieris brassicae*, *P. napi*, *P. rapae*, *Pontia edusa*, *Colias hyale*, *C. crocea*, *Gonepteryx rhamni* (Pieridae); *lssoria lathonia*, *Aglais urticae*, *Inachis io* (Nymphalidae). These species become migrants from diverse causes as hard weather conditions or lack of forage, excessive breeding, etc.

Probably the following species belong to this category too: *Calliteara pudibunda*, *Euclidia glyphica*, *E. mi*, *Catocala nupta*, *C. promissa* (Erebidae); *Plusia festucae*, *Acronicta rumicis*, *Craniophora ligustri*, *Rusina ferruginea*, *Enargia paleacea*, *Cosmia trapezina*, *Talpophila matura*, *Amphipoea oculea*, *Lacanobia w-latinum*, *Hecatera bicolorata*, *Xestia triangulum* (Noctuidae). They are known from high mountain areas by sporadic finds, but widely distributed and common in lower terrains.

Other group of vagrant species consists of those inclined to range expansion, which are peculiar by sharp number of fluctuations and changes of range areas. Next of them are found: *Catocala sponsa* (Erebidae); *Cucullia pustulata*, *Amphipyra pyramidea*, *A. berbera*, *Caradrina clavipalpis*, *Hoplodrina blanda*, *Mamestra brassicae*, *Mythimna albipuncta*, *M. ferrago*, *M. l-album*, *Noctua interjecta*, *Xestia sexstrigata*, *X. c-nigrum* (Noctuidae); *Papilio machaon* (Papilionidae); *Polygonia c-album*, *Nymphalis antiopa*, *N. xanthomelas*, *N. polychloros* (Nymphalidae). *Noctua interjecta* also should be noted, so far as it shows much expansion in Central Europe at last decade (Blaik et al., 2009).

The part of migratory species, which have Steppe, Mediterranean or even Tropical origin and inhabit warm and dry open steppe or forest-steppe habitats, find kind conditions for standing temporary diasporas populations in open high-mountain heath areas during migrations – Mediterranean hawkmoth *Hyles livornica* (Sphingidae), for example. The common flight of "fresh" individuals of this species were registered on Pozhyzhevska heath at August of 2007 and 2014. So these individuals could not be wintering here in neither life stage, they are posterity of southern vagrants, but its pre-imaginal growth passed out in local conditions.

Among 366 Macrolepidoptera species found reliably in the investigated area, 43 occur only in Carpathians within Ukraine. They are: *Pharmacis carna*, *Scopula ternata*, *Spargania luctuata*, *Rheumaptera hastata*, *Epirrhoe molluginata*, *Xanthorhoe incursata*, *Colostygia aptata*, *C. kollariaria*, *Thera cognata*, *Th. vetustata*, *Venusia cambrica*, *Mesotype verberata*, *Perizoma affinitata*, *P. minorata*, *P. obsoletata*, *Martania taeniata*, *Entephria caesiata*, *Aplocera praeformata*, *Eupithecia veratraria*, *Odontopera bidentata*, *Alcis bastelbergeri*, *A. jubata*, *Pungeleria capreolaria*, *Glacies alpinata*, *Psodos quadrifaria*, *Charissa glaucinaria*, *Elophos dilucidaria*, *E. vittaria*, *E. operaria*, *Euxoa birivia*, *Calliergis ramosa*, *Phlogophora scita*, *Photedes captiuncula*, *Apamea maillardi*, *A. rubrirena*, *A. illyria*, *Lasionycta proxima*, *Xestia collina*, *X. speciosa*, *X. rhaetica*, *Pieris bryoniae*, *Erebia euryale*, *E. manto*.

Besides, there are 8 species included to the Red Data Book of Ukraine (2009) – *Parnassius mnemosyne*, *Papilio machaon*, *Apatura iris*, *Erebia manto*, *Saturnia pavonia*, *Acherontia atropos*, *Catocala sponsa*, *Euchalcia variabilis*, as well as next 5 – to the Red Data Book of the Ukrainian Carpathians (2011): *Pieris bryoniae*, *Maculinea arion*, *Phlogophora scita*, *Apamea maillardi*, *A. illyria*.

Comparing the present species composition with 75-80 years old data (Niesiolowsky, 1935, 1939) we can see that unlike of most plain localities, which suffered from intensive anthropogenic influences, fauna of Macrolepidoptera of the Pozhyzhevska site has not been exposed to negative changes during last century, but it seems like to be enriched here. Particularly, 145 species have been found recently from 166 of those which were known at 1930-s. Moreover, 200 registered species were unknown formerly from the area. The 21 species, being unfound, are not characteristic particularly to mountain habitats.

However, it must be used amendment for more prolonged investigation period at present time as well as for use of more effective collecting methods, e.g. attrac-

tion of insects by mercurium luminescent lamps, which gives incomparably better results than equipment available 80 years ago.

At the same time, the Macrolepidoptera diversity of Pozhyzhevska site has not been studied completely, because not all season periods have been included into investigations. For example, species of spring phenology group left unknown as well as autumnal and early-summer groups were studied insufficiently. Besides, the hard physical conditions as often rainfalls, cold weather, storm winds and fogs hinder investigations essentially. It was pointed by W. Niesiolowsky yet at 1935-39.

Conclusions

There are 366 Macrolepidoptera species known from the Pozhyzhevska site currently. There were 166 species known due to former investigations at the middle XIX – beginning XX century, but another 200 unknown species we have found in 2007-2014. 63 specialist species with Alpine, Arctic-Alpine, Montane and Boreo-montane ranges found, and 43 of them occur in Ukraine only in the Carpathians. Another about 70 species, which have been found, are regular or occasional migrants. The species composition of Macrolepidoptera of the investigated area has been not impoverishing during the last century. It shows onto high level of habitat safety and seems to be an etalon for high-mountain ecosystems of the Ukrainian Carpathians. It looks clearly by the fact that the species checklist is far to be completed yet.

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BIDYCHAK R. M. Some results of the study upon Noctuid fauna (Lepidoptera, Noctuidae s. l.) in high mountains of Ukrainian Carpathians, on the base of "Pozhyzhevska" Biological Station // Significance and the perspectives of stationary investigations for the biodiversity conservation / Proceedings of International conference devoted to 50-th anniversary of high-mountain Biologacal Station "Pozhyzhevska" (Lviv-Pozhyzhevska, September 23-27, 2008). – Lviv, 2008. – P. 39-40 [in Ukrainian].

BIDYCHAK R. M., SIRENKO A. G. Some results of the study upon owlet moths (Lepidoptera, Noctuidae s.l.) of Ukrainian Carpathians // Proceedings of the Kharkiv Entomological Society. – 2007 (2008). – Vol. 15, Pt. 1-2. – Kharkiv, 2008. – P. 168-170 [in Ukrainian].

BIDZILIA O. V., BUDASHKIN YU. I., KLYUCHKO Z. F., KOSTYUK I. Y., KULBERG J. To the fauna of Lepidoptera of the SE part of Ukrainian Carpathians // Publ. Zool. Museum of the Taras Shevchenko Kyiv National University. – 2006. – Vol. 4. – P. 21-53 [in Ukrainian].

BLAIK T., MALKIEWICZ A., DOBRZAŃSKI X. Ekspansja Noctua interjecta Hübner, [1803] (Lepidoptera: Noctuidae) w południowo-zachodniej Polsce w latach 2001-2009 // Acta entomologica silesiana. – Vol. 17. – 2009. – S. 19-23.

EITSCHBERGER U., REINHARD R., STEINIGER H., BREHM G. Wanderfalter in Europa. Zugleich Aufruf für eine internationale Zusammenarbeit an der Erforschung des Wan-

derphänomens bei den Insekten // Atalanta. – Band 22, Heft 1. – München, 1991. – 67 S.
FIBIGER M. Noctuidae Europaea. Vol. 1. Noctuinae I. – Soro: Entomological press, 1990. – 208 p.
FIBIGER M. Noctuidae Europaea. Vol. 2. Noctuinae II. – Soro: Entomological press, 1993. – 230 p.
FIBIGER M. Noctuidae Europaea. Vol. 3. Noctuinae III. – Soro: Entomological press, 1997. – 418 p.
FIBIGER M., HACKER H. Noctuidae Europaea. Vol. 9. Amphipyrinae, Condicinae, Eriopinae, Xyleninae. – Soro: Entomological press, 2007. – 410 p.
FIBIGER M., RONKAY L., STEINER A., ZILLI A. Noctuidae Europaea. Vol. 11. Pantheinae, Dilobinae, Acronictinae, Eustrotiinae, Nolinae, Bagisarinae, Acontiinae, Metoponinae, Heliothinae and Bryophilinae. – Soro: Entomological press, 2009. – 504 p.
FIBIGER M., RONKAY L., YELA J. L., ZILLI A. Noctuidae Europaea. Vol. 12. Rivulinae – Phytometrinae, and Micronoctuidae, incl. Supplement to Noctuidae Europaeae, Vol-s 1-11. – Soro: Entomological press, 2010. – 451 p.
GERYAK YU. M. New and little known Noctuoidea species (Lepidoptera, Insecta) of Ukrainian Carpathians // Scientific Bulletin of Uzhgorod University. – Series Biology, Vol. 33. – 2012. – P. 105-119 [in Ukrainian].
GERYAK YU. M. To the Noctuoidea fauna (Lepidoptera, Insecta) of Ukrainian Carpathians // Scientific Bulletin of Uzhgorod University. – Series Biology, Vol. 35. – 2013. – P. 73-83 [in Ukrainian].
GERYAK YU. M. New data on the species composition and distribution of Noctuoidea (Insecta: Lepidoptera) in Ukrainian Carpathians // Scientific Bulletin of Uzhgorod University. – Series Biology. – 2014. – in litt. [in Ukrainian].
GERYAK YU. M., BIDYCHAK R. M. The moths of Noctuoid complex (Insecta, Lepidoptera, Noctuoidea) of the high-mountain areas of Ukrainian Carpathians // Bulletin of Vasyl Stefanyk Precarpathian National University (Ser. Biology). – Ivano-Frankivsk, 2009. – Vol. 14. – P. 39-57 [in Ukrainian].
GOATER B., RONKAY L., FIBIGER M. Noctuidae Europaea. Vol. 10. Catocalinae & Plusiinae. – Soro: Entomological press, 2003. – 452 p.
HACKER H., RONKAY L., HREBLAY M. Noctuidae Europaea Vol. 4. Hadeninae I. – Soro: Entomological press, 2002. – 419 p.
HAUSMANN A. The Geometrid Moths of Europe. Vol. 1: Introduction to the series. Archiearinae, Oenochrominae, Geometrinae. – Apollo Books, Stenstrup, 2001. – 282 p.
HAUSMANN A. The Geometrid Moths of Europe. Vol. 2: Sterrhinae. – Apollo Books, Stenstrup, 2004. – 600 p.
KANARSKYI YU., GERYAK YU., LYASHENKO E. Ecogeographic structure of the moth fauna (Lepidoptera, Drepanoidea, Bombycoidea, Noctuoidea) in upper Tisa river basin and adjacent areas (Ukraine) // Transylv. Rev. Syst. Ecol. – Res.11: "The Upper Tisa River Basin". – 2011. – P. 143-168.
KLYUCHKO Z. F., PLYUSHCH I. G., SHESHURAK P. N. Annotated catalogue of the owlet moths (Lepidoptera, Noctuidae) of Ukraine. – Kyiv: I. Shmalhausen Institute of Zoology, NAS Ukraine, 2001. – 884 p. [in Russian].
MACEK J., DVOŘÁK J., TRAXLER L., ČERVENKA V. Motýli a housenky střední Evropy. Noční motýli I. – Praha: Academia, 2007. – 376 s.
MACEK J., DVOŘÁK J., TRAXLER L., ČERVENKA V. Motýli a housenky střední Evropy. Noční motýli II – můrovití. – Praha: Academia, 2008. – 492 s.
MACEK J., PROCHÁZKA J., TRAXLER L. Motýli a housenky střední Evropy. Noční motýli III – Píďalkovití / Vyd. 1. – Praha: Academia, 2012. – 424 s.

MIRONOV V. The Geometrid Moths of Europe. Vol. 4: Larentinae II. – Stenstrup: Apollo Books, 2003. – 464 p.

NIESIOLOWSKI W. Motyle (Lepidoptera). Przyczynek do znajomosti fauny Czarnohory // Rozprawy i sprawozdania. Instytut badawczy lasów państwowych. – № 8. – Ser. A. – Warszawa. – 1935. – S. 72-79.

NIESIOLOWSKI W. *Pieris napi* L. subsp. *bryoniae* Ochs. ze szczególnem uwzględnieniem form karpatckich // Annales musei zoologici polonici. – Warszawa. – 1936. – T. 11. – S. 213-236.

NIESIOLOWSKI W. Motyle wieksze (Macrolepidoptera). Przyczynek drugi do znajomosci fauny Czarnohory // Rozprawy i sprawozdania. Instytut badawczy lasów państwowych. – № 42. – Ser. A. – Warszawa. – 1939. – S. 13-26.

NIESIOLOWSKI W., WOJTUSIAK R. J. Rozprestrzenienie geofraficznych form gatunku Erebia manto Esp. Ze szczegolnym uwzglednieniem Karpat wschodnich // Bull. Acad. Polon Sci. – Krakow, 1937. – Ser. B. – S. 111-126.

NOVAK K. (red). Metody sběru a preparace hmyzu. – Praha: Academia, 1969. – 244 s.

NOWACKI J. The Noctuids (Lepidoptera, Noctuidae) of Central Europe. – Bratislava, 1998. – 551 p.

NOWICKI M. Beitrag zur Lepidopterenfauna Galiziens / Verch. Zool.-Bot. Ges. Wien. – Wien, 1865. – XV. – S. 175-192.

POPOV S. G. Butterflies of the Transcarpathian Floodplain Ecosystem: Monitoring, Ecology and Conservation. – Uzhgorod: Art Line, 2008. – 124 p.

RED DATA BOOK of Ukraine. Animal Kingdom / ed. A. Akimov. – Kyiv: Globalconsalting, 2009. – 600 p. [in Ukrainian].

RED DATA BOOK of Ukrainian Carpathians. Animal Kingdom / eds O. Mateleshko, L. Potish. – Uzhgorod: Karpaty, 2011. – 336 p. [in Ukrainian].

RONKAY G., RONKAY L. Noctuidae Europaea Vol. 7. Cuculliinae II. – Soro: Entomological press, 1995. – 224 p.

RONKAY G., RONKAY L. Noctuidae Europaea Vol. 6. Cuculliinae I. – Soro: Entomological press, 1994. – 282 p.

RONKAY L., YELA J. L. & HREBLAY M. Noctuidae Europaeae. Vol. 5. Hadeninae II. – Soro: Entomological press, 2001. – 452 p.

SCHINTLMEISTER A. Notodontidae. Palaearctic Macrolepidoptera. – Vol. 1. – Stenstrup: Apollo Books, 2008. – 480 p.

TOLMAN T., LEWINGTON R. Butterflies of Britain & Europe. Collins Field Guide. – London: Harper Collins Publishers, 1997. – 328 p.

МАКРОЛУСКОКРИЛІ (INSECTA, MACROLEPIDOPTERA) ПОЛОНИНИ ПОЖИЖЕВСЬКОЇ В ГІРСЬКОМУ МАСИВІ ЧОРНОГОРИ

Ю. В. КАНАРСЬКИЙ, Ю. М. ГЕРЯК

Представлені результати досліджень лускокрилих у високогірних оселищах полонини Пожижевської та околиць (північно-східний макросхил хр. Чорногора). Протягом 2007-2014 рр. тут виявлено 345 видів Macrolepidoptera, причому 200 видів не були вказані для цієї місцевості в джерелах середини XIX – початку XX ст. Натомість 21 вид, що не був знайдений у сучасності, не є притаманним суто для гірських теренів. Наведено систематичний список лускокрилих, що нараховує 366 видів. Серед них 6 альпійських, 6 аркто-альпійських, 16 монтанних і 35 бореомонтанних видів. Загалом 43 види лускокрилих, виявлених на дослідженій території, в Україні поширені лише в Карпатах. Ще близько 70 видів є регулярними або нерегулярними мігранта-

ми. Сучасний видовий склад макролепідоптер вказує на високий рівень збереженості біотопів і може вважатися еталонним для високогір'я Українських Карпат.

Ключові слова: булавовусі та різновусі лускокрилі, фауна, високогір'я, Українські Карпати

МАКРОЧЕШУЕКРЫЛЫЕ (INSECTA, MACROLEPIDOPTERA) ПОЛОНИНЫ ПОЖИЖЕВСКОЙ В ГОРНОМ МАССИВЕ ЧЕРНОГОРЫ

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Представлены результаты исследований чешуекрылых в высокогорных местообитаниях полонины Пожижевской и окрестностей (северо-восточный макросклон хр. Черногора). За период 2007-2014 г. здесь обнаружено 345 видов Macrolepidoptera, причем 200 видов не были указаны для этой местности в источниках середины XIX – начала XX ст. Вместе с тем, 21 не обнаруженных при современных исследованиях видов не являются приуроченными исключительно для горных местообитаний. Составлен систематический список макрочешуекрылых, который насчитывает 366 видов, в том числе – 6 альпийских, 6 аркто-альпийских, 16 монтанных и 35 бореомонтанных видов. 43 вида, обнаруженных на исследованной территории, в Украине распространены только в Карпатах. Также примерно 70 видов являются регулярными или нерегулярными мигрантами. Современный видовой состав макролепидоптер указывает на высокий уровень ненарушенности биотопов и может считаться эталонным для высокогорья Украинских Карпат.

Ключевые слова: булавоусые и разноусые чешуекрылые, фауна, высокогорье, Украинские Карпаты

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