

SPECIES AND GENUS OF NOCTUIDAE (LEPIDOPTERA) NEW FOR BOSNIA AND HERZEGOVINA WITH RECORDS OF SOME OTHER MOTHS AND BUTTERFLIES

M. PLÓCIENNIK¹, S. LELO² AND R. JASKULA¹

¹Department of Invertebrate Zoology and Hydrobiology, University of Łódź, str. Banacha 12/16, Łódź 90-237, Poland, e-mail of first author: mplociennik10@wp.pl

²Department of Biology, Sarajevo University, Zmaja od Bosne 33-35, Sarajevo, Bosnia and Herzegovina

Abstract: A species and genus of Lepidoptera, *Trisateles emortualis* (Noctuidae), is here recorded from Bosnia and Herzegovina (Zenica-Doboj Canton) for the first time. In addition 24 other species of Lepidoptera were collected at the studied site, including two rarely recorded from this country: *Antheraea yamamai* (Saturnidae), an alien species introduced to Europe from Japan; and *Chiasmia clathrata* (Geometridae), whose occurrence is confirmed after 100 years.

Key words: Lepidoptera, Balkan Peninsula, faunistics, first record

INTRODUCTION

Research on the Lepidoptera fauna of Bosnia and Herzegovina can be divided into four periods: the period preceding 1904, the period from 1904 to 1945, the period from 1945 to 1992, and the war and post-war period. Two publications exceptionally important for the Lepidoptera fauna of Bosnia and Herzegovina belong to the first two periods. These are: "Spisak Rhopalocera BiH" (APFELBECK, 1892) and "Studien über die Lepidopterenfauna der Balkanländer, II Teil, Bosnien und Herzegovina" (REBEL, 1904). Rebel's publication was the first scientific study that included all the collected material from this region, and it is therefore of immeasurable scientific value (LELO, 2000). From 1898 to 1903, Dr. H. Rebel undertook five journeys around Bosnia and Herzegovina and published several papers (REBEL, 1898, 1901). In the course of these journeys, he visited the area around Sarajevo, Bjelašnica, Treskavica, Konjic, Prenj, the area around Mostar, Nevesinje, Gacko and its surroundings, Bileća, and Trebinje; Han-Pijesak, Vlasenica, and Džile in Eastern Bosnia; and Jajce and Banja Luka in the west. He was also entrusted with the task of revising and conducting scientific studies on all *Lepidoptera* material collected up until that time. Most of the material was taken to the Naturhistorisches Museum in Vienna. Thus all the material collected by Dr. A. Penther in Plasa and Prenj (apart from few specimens), that collected by Dr. Oskar Simony in the Fojnica and Vranica area, and specimens collected L. Schreitter in the area around Kalino-

vik, and those collected by Dr. H. Rebel on all his own expeditions in Bosnia and Herzegovina, were placed in the Vienna Naturhistorisches Museum. The material from Southern Herzegovina collected by Dr. A. Hensch is not in the National Museum in Sarajevo, and no information on its present location is available. Most of the material collected at that time by V. Apfelbeck, A. Winneguth, and M. Hilf exists in the National Museum (SIJARIĆ, 1980; LELO, 2000).

Following the publication of Dr. Rebel's study in 1904, there were no publications on the B&H butterfly fauna for quite a long time. His study specifies 1509 butterfly species on the territory of B&H.

New data on 1585 species of Lepidoptera were recorded in "Revision of Rebel's List of Lepidoptera of Bosnia and Herzegovina (LELO, 2004), and 1625 species have been recorded to date (LELO, 2006).

MATERIAL AND METHODS

On 27 September 2006 near Vareš (431 m a.s.l., N 44° 17' 21,54", E 18° 41' 38,4"), 25 species of Lepidoptera were collected (Fig. 1). All moth species were collected around light, butterflies mainly by hand net. The collecting site was a mountain forest with mostly *Quercus* spp. and



Fig.1 Map of Bosnia and Herzegovina with marked position of study site.

Alnus sp. tree species. There was a stream about 30 m from the collecting place. Determination of species was done according to WARING *et al.* (2004), GOATER *et al.* (1986), and LERUAT *et al.* (2003) and other keys.

RESULTS AND DISCUSSION

The Lepidoptera species (and genus) *Trisateles emortualis* (Noctuidae: Eustrotiinae; KARSHOLT and RAZOWSKI, 1996) here is recorded from Bosnia and Herzegovina for the first time. In addition, 24 other Lepidoptera species were collected at the studied site, including two rarely recorded from this country: *Antheraea yamamai* (Saturnidae), an alien species introduced to Europe from Japan; and *Chiasmia clathrata* (Geometridae), whose occurrence is confirmed after 100 years.

Trisateles emortualis (Denis & Schiffermüller, 1775)

This species is distributed throughout all of Europe. Till now, it was recorded from: Albania, Austria, Belgium, Bosnia and Herzegovina (?!), Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Moldova, Norway, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Netherlands, Ukraine, and Serbia and Montenegro (KARSHOLT and NIEUKERKEN, 2007; FAUNA EUROPAEA WEB SERVICE, 2004).

Earlier data indicating the occurrence of this species in Bosnia and Herzegovina were based on records from Yugoslavia in general, and no definite locality from this country was documented till now (LELO, 2004).

It prefers mature natural deciduous forests with damaged branches and rich litter. The species overwinters as a pupa in a cocoon buried in litter (WARING *et al.*, 2004). Host plants of the caterpillar are *Quercus* spp., *Fagus sylvatica*, *Carpinus betulus*, and *Rubus* spp. (BĚLÍN, 2003).

Material examined: 1 ♀. Length of forewing 11 mm. Labial palps long, ascending. Fore wing ochreous to olive green, with transverse pattern of light inner and outer lines. Hind wing the same colour as the fore wings with transverse, somewhat arched light line.

Antheraea yamamai (Guérin-Ménéville, 1861)

The given species was described from Japan and was originally known only from the Far East. At the end of 19th century it was introduced to Europe (Slovenia). It found good conditions and spread, especially on the Balkan Peninsula. Till now it was recorded from 10 European countries: Austria, Bosnia and Herzegovina, the Czech Republic, Croatia, Hungary, Italy, Romania, Slovenia, Serbia and Montenegro, and Germany. It inhabits lowland deciduous forests and tree-rich landscapes. Host plants of caterpillars are mainly trees from the families Fagaceae and Corylaceae: *Quercus* spp., *Fagus sylvatica*, *Castanea sativa*, and *Carpinus* spp.; and plants belonging to the family Rosaceae: *Rosa* spp. and *Crataegus* spp. (KARSHOLT and NIEUKERKEN, 2007; FAUNA EUROPAEA WEB SERVICE, 2004; SATURNIIDAE OF EUROPE WEB SERVICE, 2007).

Material examined: 13 ♂♂, 4 ♀♀. Length of the fore wing of collected females ranges from 65 to 78 mm. They are sandy-yellow or brownish-yellow with red coating. Length of the fore wing of males ranges from 65 to 74 mm. Males are sandy-yellow or brownish-grey. *Antheraea yamamai* has been recorded from Bosnia and Herzegovina only from six localities so far: Breza, Fojnica, Kakanj, Kiseljak, Visoko, and Vareš (LELO, 2004 and unp. data).

***Chiasmia clathrata* (Linnaeus, 1758)**

This species is distributed in the Western Palearctic. In Europe it has not been recorded only from islands around the continent and some small countries or regions like: Gibraltar, the Kaliningrad Region, the Republic of Moldova, Monaco, San Marino, Vatican City. In central and northern parts of the continent, it is a common moth recorded especially near fields of alfalfa. Caterpillars feed on *Medicago* and *Trifolium*. It is also abundant in open areas, including calcareous grasslands and acidic heath lands (KARSHOLT and NIEUKERKEN, 2007; WARING *et al.*, 2004; FAUNA EUROPAEA WEB SERVICE, 2004).

Material examined: 2 ♂♂ (length of fore wing 10-13 mm). Wing background is yellowish-white. There is a characteristic network on the upper and underside of the wings created by brown (in males) veins and cross-veins. Outer bands of the forewing are joined to form a distorted swastika. On the costa and base of the fore wing, brown scales create an irregular spotted pattern. The fringe is checkered. The collected specimens probably belong to the second generation. In Bosnia and Herzegovina, it was previously recorded only by H. REBEL (in 1904, as *Phasiane clathrata*) from Derventa, Bočac, Sarajevo, Mt. Igman, Kalinovik, Mt. Prenj, and Gacko.

At the collecting site, 22 other species of Lepidoptera were also found (listed here according to KARSHOLT and RAZOWSKI, 1996): **CRAMBIDAE**: 6682 *Diasemia reticularis* (Scopoli, 1763); **SPHINGIDAE**: 6824 *Laotloe populi* (Linnaeus, 1758), 6853 *Hyles euphorbiae* (Linnaeus, 1758); **LYCAENIDAE**: 7093 *Cupido argiades* (Pallas, 1771); **NYMPHALIDAE**: 7334 *Coenonympha pamphilus* (Linnaeus, 1758); **DREPANIDAE**: 7481 *Thyatira batis* (Linnaeus, 1758); **THYATIRIDAE**: 7483 *Habrosyne pyritoides* (Hufnagel, 1766); **GEOMETRIDAE**: 8024 *Cyclophora linearia* (Hübner, 1799); **NOCTUIDAE**: 8789 *Craniophora ligustri* (Denis & Schiffermüller, 1775), 8846 *Herminia grisealis* (Denis & Schiffermüller, 1775), 8849 *Polypogon tentacularia* (Linnaeus, 1758), 9049 *Diachrysia chryson* (Esper, 1789), 9460 *Spodoptera exigua* (Hübner, 1808), 9501 *Trachea atriplicis* (Linnaeus, 1758), 9748 *Apamea monoglypha* (Hufnagel, 1766), 10007 *Mythimna pallens* (Linnaeus, 1758), 10082 *Axylia putris* (Linnaeus, 1761), 10086 *Ochropleura plecta* (Linnaeus, 1761), 10199 *Xestia c-nigrum* (Linnaeus, 1758); **ARCTIDAE**: 10475 *Mitochrista miniata* (Forster, 1771), 10485 *Lithosia quadra* (Linnaeus, 1758), 10566 *Spilosoma lutea* (Hufnagel, 1766).

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REFERENCES

- APFELBECK, V., 1892: Dojako u južnoj BiH opažane vrste *Rophalocera* (Dnevni leptirovi). GZM 4: 192-196.
- BĚLÍN, V., 2003: *Noční motýli České a Slovenské republiky*. Kabourek, Zlín. 260 pp.
- FAUNA EUROPAEA WEB SERVICE, 2004: Fauna Europaea. Version 1.1, Available online at <http://www.faunaeur.org>
- GOATER, B., SENIOR, G. & R. DYKE 1986: *British Pyralid Moths. A Guide to the Identification*. Harley Books, Colchester, 73 pp.

- KARSHOLT, O. & E. VAN NIEUKERKEN, 2007: Fauna Europaea: Hexapoda, Insecta, Lepidoptera, Noctuidae. Version 1.3, <http://www.faunaeur.org>.
- KARSHOLT, O. & J. RAZOWSKI, (Eds.), 1996: *The Lepidoptera of Europe – A Distributional Checklist*. Apollo Books Aps., Stenstrup, Denmark, 380 pp.
- LELO, S., 2000: Revised inventory of the butterflies of Bosnia and Herzegovina (*Insecta: Lepidoptera: Hesperioidea, Papilionoidea*). *Natura Croatica*, 9(2): 139-156.
- LELO, S., 2004: *Revizija Rebelovog popisa leptira Bosne i Hercegovine*. Coron's, Sarajevo. 295pp.
- LELO, S., 2006: *Fauna Bosne i Hercegovine – Biosistematski pregledi*. Drugo interno izdanje Udruženja za inventarizaciju i zaštitu životinja, Ilijaš, Kanton Sarajevo, pp. 310-409.
- LERUAT, P., BLANCHOT, P., & G. HODEBERT., 2003: *Le guide entomologique*. Delachux et niestlé. Lonay, Paris. pp. 368-369.
- REBEL, H., 1898: Bericht über eine lepidopterologische Reise nach Bosnien und der Herzegowina. *Ann. Naturh. Hofm.*, 13: 54-56.
- REBEL, H., 1901: Neue Lepidopteren aus Bosnien und der Herzegowina. *Verh. zool.-bot. Ges.*, 798-804.
- REBEL, H., 1904. Studien über die Lepidopterenfauna der Balkanländer. II. Teil. Bosnien und Herzegowina. *Annln naturh. Mus. Wien* 19: 97—377, Taf. IV—V.
- SATURNIIDAE OF EUROPE WEB SERVICE, 2007: Available online at <http://tpittaway.tripod.com/silk/satlist.htm>
- SIJARIĆ, R., 1980: Fauna lepidoptera Bosne i Hercegovine. Akademija nauka i umjetnosti Bosne i Hercegovine, Posebna izdanja, knjiga XLVII, Odjeljenje Prirodnih i matematičkih nauka, knjiga 8., Savjetovanje - Problemi inventarizacije životinjskog svijeta BiH - stanje i perspektive, pp 83-98.
- WARING, P., TOWNSEND, M. & R. LEWINGTON, 2004: *Field Guide to the Moths of Great Britain and Ireland*. British Wildlife Publishing, Lower Barn, Rooks Farm, Rotherwick, Hook, Hampshire. 432 pp.

**НОВА ВРСТА И РОД ИЗ ФАМИЛИЈЕ NOCTUIDAE (LEPIDOPTERA)
ЗА ФАУНУ БОСНЕ И ХЕРЦЕГОВИНЕ СА ЈОШ НЕКИМ НАЛАЗИМА
ДНЕВНИХ И НОЋНИХ ЛЕПТИРА**

М. ПЛОЋЕНИК, С. ЛЕЛО И Р. ЈАСКУЛА

ИЗВОД

Недалеко од Вареша (Босна и Херцеговина), 27. септембра 2006. године сакупљено је (пored светиљке и/или помоћу лепидоптеролошке мреже) 25 врста лептира. Међу сакупљеним лептирима констатован је нови род (*Trisateles* Tams, 1939) и нова врста (*Trisateles emortualis* (Denis & Schiffermüller, 1775)) за босанскохерцеговачку фауну лептира. Поред поменутих врста сакупљене су још две интересантне врсте лептира, за босанскохерцеговачку фауну, : *Antheraea yamatani* (Guérin-Méneville, 1861) – алохтона врста која је интродукована у Европу из Јапана, и *Chiasmia clathrata* (Geometridae) – чија је присутност у БиХ потврђена после више од 100 година.

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