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CONTRIBUTION TO KNOWLEDGE OF THE FAUNA OF BUTTERFLIES IN BOSNIA AND HERZEGOVINA

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Over the last few years, the author has been working hard on analysis of existing data on butterflies in Bosnia and Herzegovina. The habitats of some rare species from this group in Bosnia and Herzegovina were described in the course of ths work. Unfortunately, collecting was for short periods and yielded very modest results. The main reason for this was a lack of funding, since the author was forced to pay for all investigations out of his own pocket. Nevertheless, these attempts resulted in the finding of a number of rare species which for a long time have not been recorded in Bosnia and Herzegovina, species such as: *Charaxes jasius* Linnaeus, *Gonepteryx cleopatra* Linnaeus, *Pyrgus sidae* Esper, *Polyommatus admetus* Esper, *Leptidea reali* Reissinger, *Leptidea morsei* Fenton, and *Kirinia roxelana* Cramer. Moreover, during field investigations in Popovo polje in 2006, one specimen (a male) of the species *Lycaena ottomanus* Lefebvre was found and collected for the first time in Bosnia and Herzegovina.

It can therefore be stated that 188 species of butterflies whose status is not in doubt and two species with doubtful status are now known to inhabit Bosnia and Herzegovina. The list compiled by the author in 2000 included 189 species, but the species *Euchloe crameri* Butler should be removed from that list and the species *Pyrgus trebeviciensis* Warren and *Maculinea alcon* Denis & Schiffermüller placed under the question mark, while the species *Spialia sertorius* Hoffmannsegg and *Lycaena ottomanus* Lefebvre should be added to the list.

KEY WORDS: butterflies, biodiversity, Bosnia and Herzegovina

INTRODUCTION

Investigations of the fauna of butterflies in Bosnia and Herzegovina have a very long tradition. For example, the species *Plebejus dardanus* Freyer was described back in 1844 on the basis of specimens from Mt. Čvrsnica (Herzegovina). With 125 mentioned species of butterflies in Bosnia and Herzegovina, the first list was published in 1892 (APFELBECK, 1892). Revisions of that list were carried out in 1904, when 160 species were recorded, (REBEL, 1904); in1980, when 186 species were recorded (SIJARIĆ, 1980); and in 2000, when 189 species were mentioned (LELO, 2000, 2005–2007). Complete data are presented in a reviewed (but still unpublished) monograph on butterflies in Bosnia and Herzegovina (LELO, 2007a) and in a complete overview of data on the butterflies of Bosnia and Herzegovina available to the author (LELO, 2004).

MATERIAL AND METHODS

Material from the author's private collection of Lepidoptera (the Lelo collection) was used in the preparation of this paper. Also used were data of several analyses of the entomological collection in the National Museum of Bosnia and Herzegovina in Sarajevo, with particular attention to the collection of B. Mihljević. In addition, numerous published papers were consulted, the most important of which being: APFELBECK, 1892; REBEL, 1904; SIJARIĆ, 1980, 1991a, 1991b; JAKŠIĆ, 1988, 1998; LELO, 2000, 2003, 2004, 2006, 2007a, and 2007b.

During 2006, the author carried out a special investigation in Popovo polje (LELO, 2007b) where the most important results were obtained.

The data are presented in the form of a biosystematical overview similar to that of KARSHOLT & RAZOWSKI (1996). Identification and classification of individuals and populations was done according to: HIGGINS & RILEY (1993) and TOLMAN & LEVINGTON (1997).

RESULTS AND DISCUSSION

The summarization of data on butterflies carried out for preparation the aforementioned monograph (LELO, 2007a) raised several issues about the qualitative composition of butterflies in Bosnia and Herzegovina. The author tried to cope with these issues in the past (LELO, 2000), but the lack of financial support was always an insurmountable difficulty. However, by revising of the list of butterflies in Bosnia and Herzegovina in conformity with the list of KARSHOLT &

RAZOWSKI (1996), the author was able to create a solid basis for further investigations of butterflies in Bosnia and Herzegovina.

Within the superfamily Hesperioidea, two taxa have constantly presented the greatest problem: *Pyrgus trebeviciensis* Warren and *Pyrgus sidae* Esper.

Pyrgus trebeviciensis Warren is a clearly separated species in a monograph (*Tagfalter und ihre Lebensräume*) on the butterflies of Switzerland (LEPIDOPTEROLOGEN–ARBEITSGRUPEN, 1997; Fig. 1).

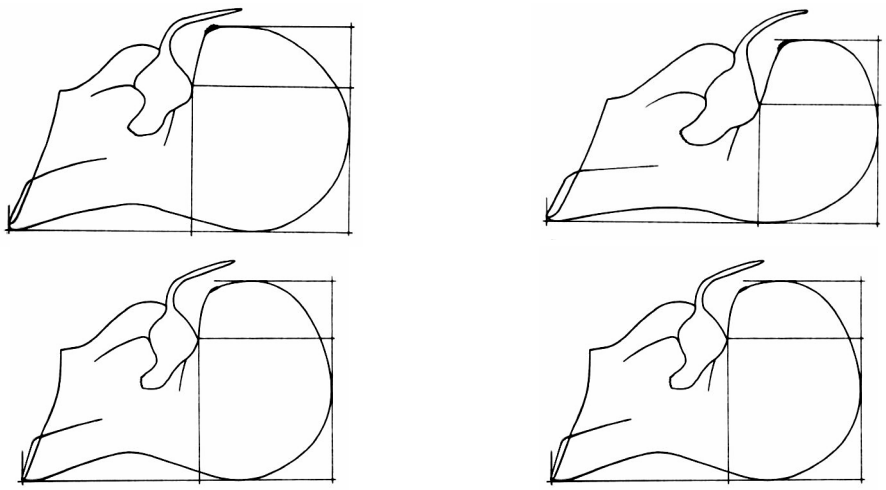
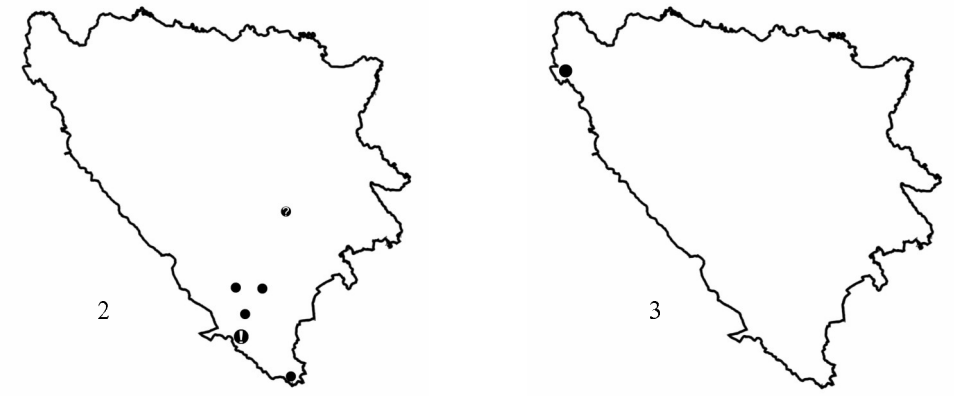


Figure 1. Differences in structure of the genital apparatus of *Pyrgus trebeviciensis* Warren (left) and *P. alveus* Hübner (right) – after "Tagfalter und ihre Lebensräume".

On the other hand, strong opposition was voiced by one of the reviewers of our monograph on the butterflies of Bosnia and Herzegovina (the eminent lepidopterologist Dr. P. JAKŠIĆ: "My colleague Dr. Lelo should have manifested much more caution when he decided to accept some results of recent taxonomic changes in relation to the system of KARSHOLT & RAZOWSKI (1996). To be specific, it seems that the tendency of certain contemporary authors to treat former subspecies as separate species still does not have solid scientific foundations. Karsholt & Razowski do not consider *Pyrgus trebevicensis* Warren, 1926 as a separate species. The same opinion is shared even by the radical LAFRANCHIS (2004), who separates neither *trebevicensis* nor *accretus* from *P. alveus*. The haploid chromosome number in both taxa is the same – 24, but differences are present at the statistical level in structure of the genital apparatus. However, time and the use of new methods will prove the correctness of this attitude". For all of these reasons the author has changed his mind and now leaves the mentioned taxon/species under a question mark until further investigation.

The species *Pyrgus sidae* Esper has been recorded at several sites in Bosnia and Herzegovina (Trebević/?/, Blagaj, Stolac, Lakat (Nevesinje) – REBEL, 1904; Grab, Orašje – SCHAWERDA, 1916; Trebević, Mostar, Blagaj, Stolac, Lakat (Nevesinje) – SIJARIĆ, 1966; LELO, 2004). JAKŠIĆ (1988) recorded this species in SE Bosnia and Herzegovina on the UTM map of its distribution ex–Yugoslavia (probably for sites Grab and Orašje), while SIJARIĆ (1983) marked the Grab site with the (+) symbol, but there are no definite indications that this species was ever captured there, and the butterfly was not found in the collection of the National Museum of Bosnia and Herzegovina in Sarajevo. However, the present author collected three male specimens of the given species at the hill Bratogošac (June 17th, 2006) during field investigations in Popovo Polje, thereby resolved all dilemmas about its presence in Bosnia and Herzegovina (Fig. 2).

Within this group, the author considers as doubtful the presence of *Spialia sertorius* Hoffmannsegg which Sijarić recorded in the collection of B. Mihljević with three males and one female from the Jezero site near the city of Bihać (SIJARIĆ, 1991), while the given site is recorded on the UTM map of distribution of this species in ex–Yugoslavia in the overview given by JAKŠIĆ (1988). The author examined the collection of B. Mihljević, found the mentioned specimens, and confirmed their determination. This species should therefore be added (or returned) to the list of butterflies of Bosnia and Herzegovina (Fig. 3).



Figures 2 & 3. Distribution of *Pyrgus sidae* Esper (2) and *Spialia sertorius* Hoffmannsegg (3) in Bosnia and Herzegovina.

There are numerous problems within the superfamily Papilionoidea, and the author has managed to tackle just a few of them. Among representatives of the family Pieridae, the most important data are in my opinion, those pertaining to only one genus from the subfamily Dismorphiinae, namely the genus *Leptidea* Billberg. Although the author in a paper published in 2000 mentioned the species *L. reali* Reissinger as a new species in the fauna of Bosnia and Herzegovina

occuring in the wider area of the city of Sarajevo, today it can be stated without any doubt (for a complete explanation see LELO, 2003) that this species exists only in NE Bosnia, and has to date been found at the sites: Gradačac, Živinice, Đurđevik, Odorovići, and Vlasenica (Fig. 4). The author tried to publish registration of the given species as one new for the country in a manuscript submitted to the Herald of the National Museum of Bosnia and Herzegovina in Sarajevo in 1999, at which time was notified that the manuscript was accepted for publication. However, the paper was finally published only in 2006, without the date of its acceptance!? (LELO, 2006).

On the other hand, the author found (and captured) during a field investigation in 2006 (July 4th, 2006) a male of the species *L. morsei* Fenton (ssp. *L. m. major* Grund) in Bosanska Krupa (Fig. 6). This was only the second (besides Šehitluk near Banja Luka) absolutely positive site in the country where a representative of this species was found (Fig. 5). Unfortunately, since the author has neither a laboratory nor the possibility of storing material in a museum collection and lacks funds to buy adequate entomological boxes, the specimen has already been badly damaged by the activity of the species *Anthrenus museorum*.

Figures 4 & 5. Distribution of the genus *Leptidea* Billberg in Bosnia and Herzegovina (4 – *L. reali* Reissinger; 5 – *L. morsei* Fenton).

The next species from the family Pieridae which deserves detailed discussion is the species *Gonepteryx cleopatra* Linnaeus which SCHAWERDA (1922) recorded in in the vicinity of the city of Mostar and was also noted R. Sijarić in his numerous papers (SIJARIĆ, 1970, 1971, 1974, 1980, 1981, 1982, 1983). The author has made several attempts to find the mentioned species since the year 2000. Four butterflies (2♂♂ and 2♀♀) were collected by Memišević in the period of August 18–28th, 2000 in the wider area of the town of Neum. On June 4th, 2006, the author observed a male on the seashore in Neum. On May 12th, 2007 and July 19th, 2007, he noticed a male flying around bushes below the road by the cave

Vjetrenica in Zavala (Fig. 7). These sightings have definitely confirmed the presence of this species in Bosnia and Herzegovina.

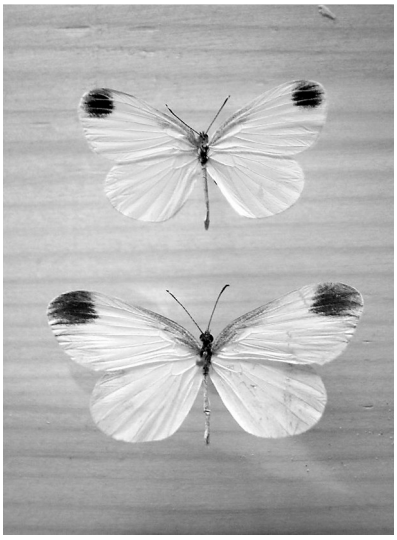
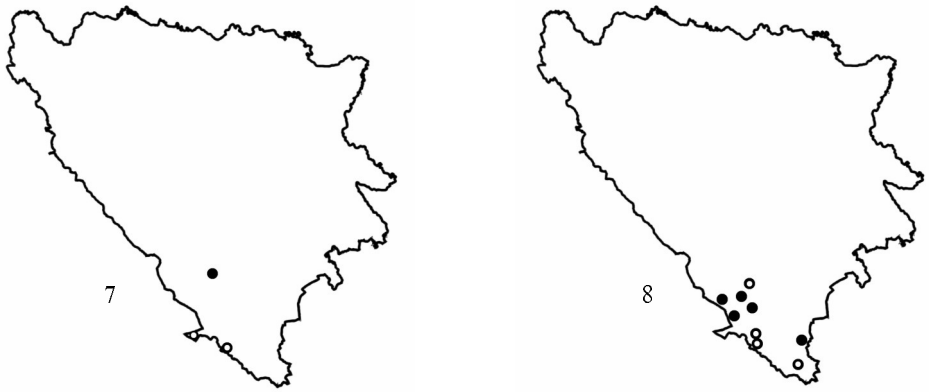


Figure 6. *Leptidea* Billberg butterflies from the vicinity of Bosanska Krupa (above – *L. sinapis* Linnaeus, below – *L. morsei* Fenton). Leg. and photo: S. Lelo.

Discussion of species from the family Pieridae in Bosnia and Herzegovina must here also inlcude data on representatives of the genus *Euchloe*. To be specific, SIJARIĆ (1980) in his overview of butterflies in Bosnia and Herzegovina as discerned from the collection of B. Mihljević indicated the presence of two species in the country: *E. crameri* Butler and *E. orientalis* Bremer. Since he noted below the species *E. crameri* Butler "ssp. *graeca* Vrty", it is clear that this is an error and that it is in fact the species *E. ausonia* Hübner. However, the statement about *E. orientalis* Bremer "Buna near the city of Mostar: June 18th, 1968 – 5♂♂ g. ae. *maxima* and April 20th, 1969 – 2♂♂ and 1♀", together with the specification of synonyms: "= *crameri* Butler", induces the author to think that this is really the species *E. crameri* Butler, especially in combination with the above–mentioned data. However, today it is well known that the taxon "*maxima*" (genus *Euchloe*) marks the subspecies *Euchloe ausonia maxima* Verity, 1908, which lives in the Crimea. For all of these reasons, it is necessary to remove from the list of butterflies in Bosnia and Herzegovina the species *Euchloe crameri* Butler, i. e., it should be clearly specified that all members of the genus *Euchloe* Hübner in Bosnia and Herzegovina belong to the species *E. ausonia* Hübner, that is to the subspecies *E. ausonia graeca* Verity, 1908.

It should be noted that the distribution of this species in Bosnia and Herzegovina has not been fully clarified. The author's earlier list of sites for this species

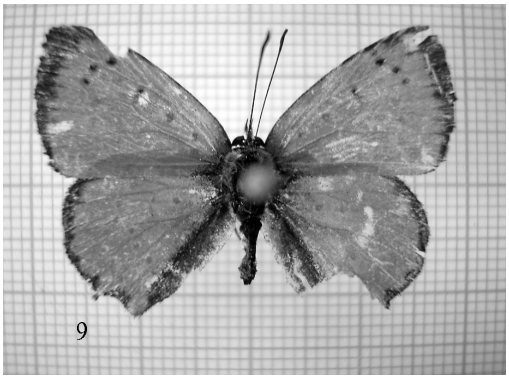
included Blagaj, Stolac, Žitomislići, Kručevići, Ljubuški, Gabela, and Bileća (LELO, 2004), which essentially agrees with the data of JAKŠIĆ (1988). However, he has also found specimens of these species in Čičevo near Trebinje and Zavala [that is on the eastern and western sides of Popovo polje (LELO, 2007b)] in 2006, and at the entrance to the settlement of Ravno (at the junction of the Ljubinje – Trebinje road and the road to Ravno and Zavala) in 2007. Finally, the author has in his collection specimens from Blagaj collected in March and April of 2002 (Fig. 8).

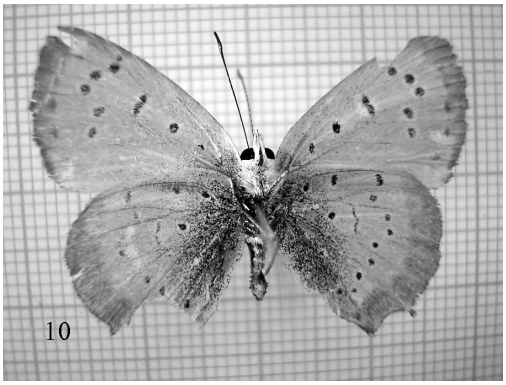


Figures 7 & 8. Distribution of *Gonepteryx cleopatra* Linnaeus (7) and *E. ausonia* Hübner (8) in Bosnia and Herzegovina. Black marks represent the author's findings.

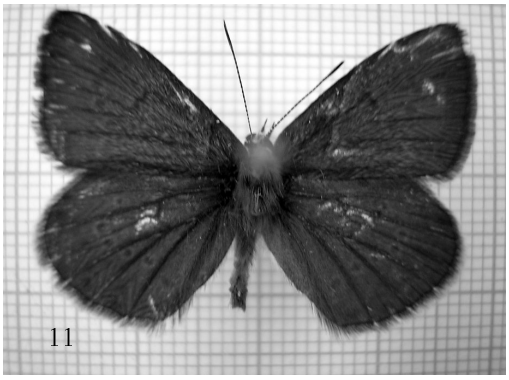
Another attractive news for mentioned group in Bosnia and Herzegovina is the new finding of the species Lycaena ottomanus Lefebvre. A male of this species was collected on August 18th, 2006 at the Zavala site in Popovo Polje (the Lelo collection, Figs. 9, 10 and 13). Existance of this species in Bosnia and Herzegovina is marked on UTM map presented by JAKŠIĆ (1998) and it is preciesly cited for the Grab site on Mt. Orjen and Visočnik–Makoze (JAKŠIĆ, 2003).

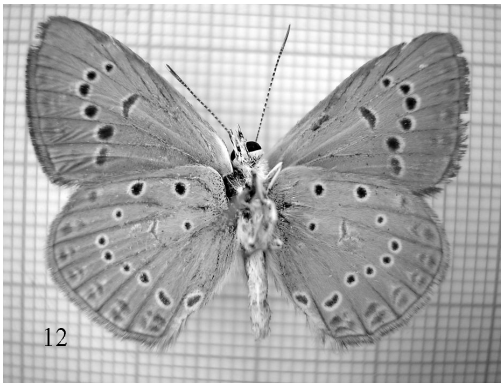
The author also considers as very important a new finding of the species *Polyommatus* (*Agrodiaetus* Hübner, 1822) *admetus* (Esper, 1783), and a male of which was collected on July 23rd, 2006 at the Kotezi site in Popovo Polje (the Lelo Collection, Figs. 11 and 12). This species was previously recorded in Bosnia and Herzegovina from the surroundings of the city of Mostar (SCHAWERDA, 1908–1922) (Fig. 14).





Figures 9 & 10. *Lycaena ottomanus* Lefebvre, from Zavala, August 18th, 2006. Leg. and photo: S. Lelo.





Figures 11 & 12. *Polyommatus admetus* Esper, from Kotezi, July 23rd, 2006. Leg. and photo: S. Lelo.

Figures 13 &14: Distribution of *Lycaena ottomanus* Lefebvre (13) and *Polyommatus admetus* Esper (14) in Bosnia and Herzegovina. Circles represent the author's findings.

Here it is necessary to reconsider the status of species from the genus *Maculinea* Eecke in Bosnia and Herzegovina. Until the publication of the author's earlier list (LELO, 2000) there were data indicating the presence of *Maculinea arion* Linnaeus and *Maculinea alcon* Denis & Schiffermüller in Bosnia and Herzegovina, and the author added the species *M. rebeli* Hirschke after analyzing of butterflies from the collection of B. Mihljević. The given opinion is supported by oral statements from our colleague M. KUČINIĆ, who reported to the author that without any doubt he collected a specimen of the given species on the Bosnian side of Dinara Mountain. He reiterated this in his review of the author's monograph on the butterflies of Bosnia and Herzegovina ("...In addition, on a visit to Mt. Dinara in 1987, I collected a specimen of blue butterfly from the genus *Maculinea* which in my opinion belongs to *M. Rebeli* on the road to Troglav at an altitude of 1200 m on the Bosnian side of the mountain..."). The statement of the author from the year 2000 was thereby confirmed, but this opened doubts about the presence of the species *Maculinea alcon* Denis & Schiffermüller in Bosnia and Herzegovina. The author accepts scientific comments from colleagues, particularly from Dr. Jakšić and Dr. Kučinić, and leaves the species *Maculinea alcon* Denis & Schiffermüller under a question mark. However, since it is known that the northern parts of Bosnia and Herzegovina are home to its ovipository plant (*Gentiana pneumonanthe*) while the species *M. alcon* Denis & Schiffermüller was confirmed at the site Grubišnopoljska Bilogora in the Pannonian part of Croatia in August 2006 (MIHOCI *et al.*, 2007) the presence of this species seems certain.

Formerly, the only published data on the species *Charaxes jasius* Linnaeus were from the papers REBEL (1904) (from Podvelež) and SCHAWERDA (1922) (from Široki Brijeg). These data are cited in a series of papers by Sijarić [SIJARIĆ (1983) for example]. Later, the presence of this species was indicated for the area of Mostar and its southern surroundings and Trebinje and its southern surroundings on the map of its distribution given by JAKŠIĆ (1988), but there have been no precise findings in new investigations. The author has tried in vain to find this species on several occasions, but the only specimens (8♂♂ and 4♀♀) seen by him were those collected by E. MEMIŠEVIĆ during the period of August 18–28th, 2000 in the wider area of the town of Neum. I have to mention that a paper reporting new findings of this species and the species *Gonepteryx cleopatra* Linnaeus by the author (in collaboration with E. MEMIŠEVIĆ) was submitted to the Herald of the National Museum in 2001, but no notification or review of this paper was ever received (Fig. 17).

The author can on this occasion present another new finding, namely that of the species *Kirinia roxelana* Cramer, 1777. In Bosnia and Herzegovina this species was formerly known only from published data, from Stolac and Domanovići (REBEL, 1904). This is stated by Sijarić in his papers (SIJARIĆ, 1983, for example). The present author collected two males on June 18th, 2006 in the settlement of Zavala (the Lelo collection, Figs. 15,16 and 18).

I can also report a new finding of the species *Arethusana arethusa* (Denis & Schiffermüller, 1775), which was collected on August 10–11th, 2007 in the wider area of the town of Livno. The first finding of this species was reported by SIJARIĆ (1991a), and referred to three specimens (1♂ and 2♀♀) collected at the Potočani locality (to the south and in the vicinity of the town of Livno). The present author collected some 30 specimens of this species and noticed many more at several sites near Livno: Podgradina, Prolog, Vaganj, Čaići, and Čelebić (Figs. 19 and 20). Detailed data on these findings will be published in separate paper.

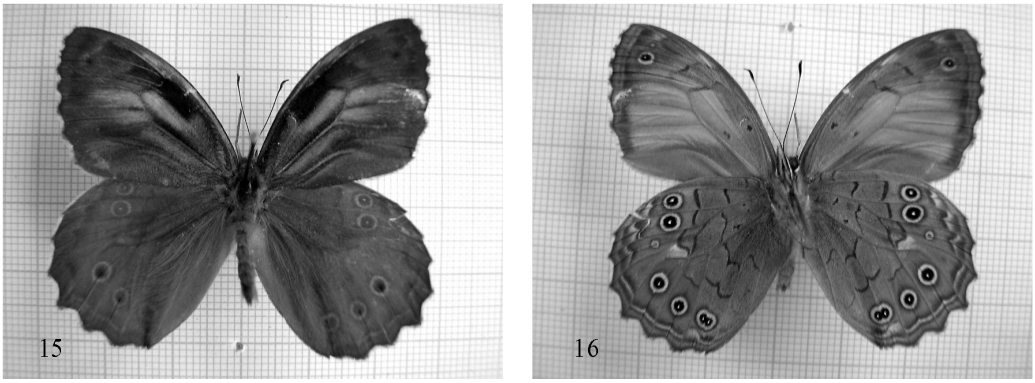
In conclusion I would like to make a change in the list, in response to a suggestion of P. Jakšić in his review of the above–mentioned monograph on the butterflies of Bosnia and Herzegovina: "...Finally, it is necessary to make a change in the taxon *Hipparchia semele* (Linnaeus, 1758). In the extensive study by WAKEHAM–DAWSON *et al.* (2004) the view is expressed that the Balkan Peninsula is not home to the taxon *H. semele* L., but instead is inhabited by the taxon *H. delattini* Kudrna, 1975".

Certain species which have been accepted in numerous recent papers but are not cited in the Karsholt – Razowski system the author considers in the light of the latest findings and marks with an asterisk sign (*) these species in the list: *Pontia edusa* Fabricius, *Colias balcanica* Rebel, and *Polyomatus* (*Agriades*) *dardanus* Freyer.

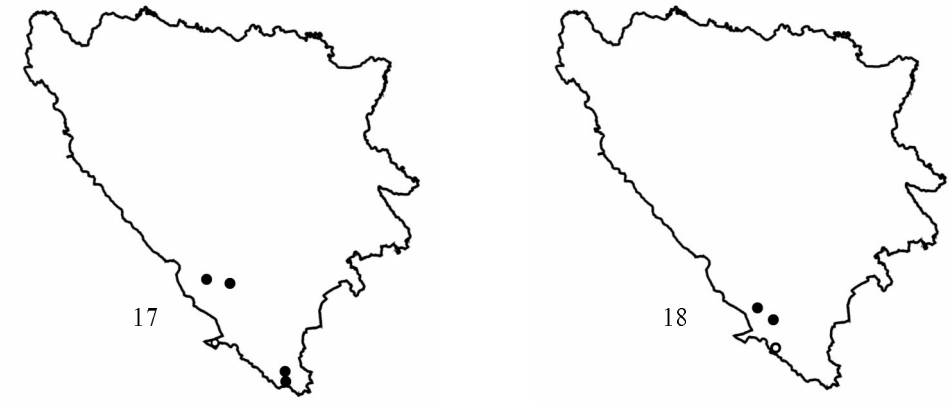
CONCLUSION

Long–term investigations of butterflies in Bosnia and Herzegovina have resulted in a good understanding of the qualitative composition of the given fauna, and the obtained results have been presented in a reviewed (but still unpublished) monograph which was just recently (38 months after its acceptance) scheduled to be issued by the University of Sarajevo Press as a book entitled "Butterflies of Bosnia and Herzegovina (Lepidoptera: Papilionoidea and Hesperioidea)" by Suvad Lelo (LELO, 2007a).

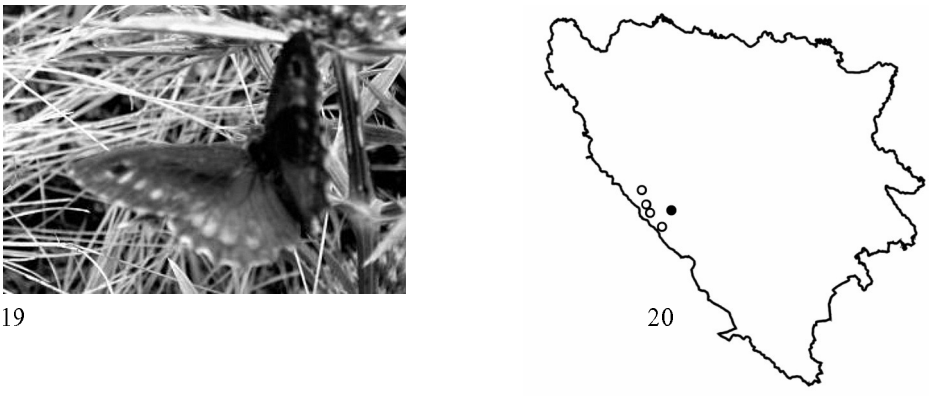
The data from the above–mentioned monograph supplemented by the results of new investigations represent a revision of the author's overview from the year 2000 (LELO, 2000). These "new investigations" have indicated and confirmed the existence of several rare species in Bosnia and Herzegovina, species such as: *Charaxes jasius* Linnaeus, *Gonepteryx cleopatra* Linnaeus, *Pyrgus sidae* Esper, *Polyommatus admetus* Esper, *Leptidea reali* Reissinger, *Leptidea morsei* Fenton, and *Kirinia roxelana* Cramer. Moreover, during field investigations in Popovo polje in 2006, one specimen (a male) of the species *Lycaena ottomanus* Lefebvre was found and captured for the first time in Bosnia and Herzegovina.



Figures 15 & 16. *Kirinia roxelana* Cramer, from Zavala, June 18th, 2006. Leg. and photo: S. Lelo.



Figures 17 & 18. Areas of distribution of *Charaxes jasius* Linnaeus (17) and *Kirinia roxelana* Cramer (18) in Bosnia and Herzegovina. Black marks represent author's findings.



Figures 19 & 20. Photograph of *Arethusana arethusa* Denis & Schiffermüller from Podgradina (19, photo: S. Lelo), and the map of distribution of given species in Bosnia and Herzegovina (20).

Certain records must be considered "doubtful" (the assertion of R. Sijarić that Euchloe crameri Butler is present in Blagaj and the indication of R. Sijarić and P. Jakšić that the species *Spialia sertorius* Hoffmannsegg occurs in the vicinity of Bihać), justification for separation of the species *Pyrgus trebeviciensis* Warren, is questionable , and doubts exist as to whether the species *Maculinea alcon* Denis & Schiffermüller in Bosnia and Herzegovina should be recorded exclusively as *Maculinea rebeli* Hirschke (SIJARIĆ, 1991; JAKŠIĆ, 1988; LELO, 2000, 2007a). Together with the results of recent investigations carried out by the author (LELO, 2007b), these facts enable us to state 188 unquestionable and two doubtful species of butterflies live in Bosnia ans Herzegovina. The list prepared by the author in 2000 included 189 species. The species *Euchloe crameri* Butler should be excluded from the list, the species *Pyrgus trebeviciensis* Warren and *Maculinea alcon* Denis & Schiffermüller should be placed under a question mark, and the species *Spialia sertorius* Hoffmannsegg and *Lycaena ottomanus* Lefebvre should be added to the list. Moreover, certain changes need to be made within species from the genus *Hipparchia* Fabricius, e. g., *H. delattini* Kudrna, 1975 should be used instead of *Hipparchia semele* L.

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APPENDIX (Current list of butterflies in Bosnia and Herzegovina)

Superfamily Hesperioidea Latreille, 1809

Family Hesperiidae Latreille, 1809

Subfamily Pyrginae Burmeister, 1878

Genus *Erynnis* Schrank, 1801
E. tages (Linnaeus, 1758)

Genus *CarchaGenusus* Hübner, 1819
C. alceae (Esper, 1780)
C. lavatherae (Esper, 1783)
C. floccifera (Zeller, 1847)

Genus *Spialia* Swinhoe, 1912
S. sertorius Hübner, 1823
S. orbifer (Hübner, 1823)

Genus *Pyrgus* Hübner, 1819
P. carthami (Hübner, 1813)
P. sidae (Esper, 1784)
P. andromedae (Wallengren, 1853)
P. malvae (Linnaeus, 1758)
P. serratulae (Rambur, 1839)
P. armoricanus (Oberthür, 1910)
P. alveus (Hübner, 1803)
? *P. trebeviciensis* Warren, 1926

Subfamily Heteropterinae Aurivillius, 1925

Genus *Heteropterus* Duméril, 1806
H. morpheus (Pallas, 1771)

Genus *Carterocephalus* Lederer, 1852
C. palaemon (Pallas, 1771)

Subfamily Hesperiinae Latreille, 1809

Genus *Thymelicus* Hübner, 1819
Th. lineola (Ochsenheimer, 1808)
Th. sylvestris (Poda, 1761)
Th. acteon (Rottemburg, 1775)

Genus *Hesperia* Fabricius, 1793
H. comma (Linnaeus, 1758)

Genus *Ochlodes* Scudder, 1872
O. sylvanus (Esper, 1777)

Genus *Gegenes* Hübner, 1819
G. pumilio (Hoffmannsegg, 1804)

Superfamily Papilionoidea Latreille, 1802

Family Papilionidae Latreille, 1802

Subfamily Parnassiinae Swainson, 1817

Tribe Luehdorfiini Chapman, 1895

Genus *Zerynthia* Ochsenheimer, 1816

Subgenus *Zerynthia* Ochsenheimer, 1816
Z. polyxena (Denis & Schiffermüller, 1775)

Subgenus *Allancastria* Bryk, 1934
Z. cerisy (Godart, 1824)

Tribe Parnassiini Duponchel, 1835

Genus *Parnassius* Latreille, 1804
P. mnemosyne (Linnaeus, 1758)
P. apollo (Linnaeus, 1758)

Subfamily Papilioninae Latreille, 1809

Genus *Iphiclides* Hübner, 1819
I. podalirius (Linnaeus, 1758)

Genus *Papilio* Linnaeus, 1758
P. machaon Linnaeus, 1758
P. alexanor Esper, 1800

Family Pieridae Boisduval, 1829

Subfamily Dismorphiinae Godman & Salvin, 1886

Genus *Leptidea* Billberg, 1820
L. sinapis (Linnaeus, 1758)
L. reali Reissinger, 1989
L. morsei Fenton, 1881

Subfamily Pierinae Boisduval, 1829

Tribe Antocharini Tutt, 1896

Genus *Anthocharis* Boisduval, 1835
A. cardamines (Linnaeus, 1758)

Genus *Euchloe* Hübner, 1823

Subgenus *Euchloe* Hübner, 1823
E. ausonia (Hübner, 1804)

Tribe Pierini Godman & Salvin, 1889

Genus *Aporia* Hübner, 1820
A. crataegi (Linnaeus, 1758)

Genus *Pieris* Schrank, 1801
P. brassicae (Linnaeus, 1758)
P. mannii (Mayer, 1851)
P. rapae (Linnaeus, 1758)
P. ergane (Geyer, 1828)
P. napi (Linnaeus, 1758)
P. balcana Lorkovic, 1970

Genus Pontia Fabricius, 1807
** P. edusa* (Fabricius, 1777)

Subfamily Coliadinae Swainson, 1827

Genus *Colias* Fabricius, 1807
C. croceus (Fourcroy, 1785)
* *C. balcanica* (Rebel, 1903)
C. hyale (Linnaeus, 1758)
C. alfacariensis Ribbe, 1905

Genus *Gonepteryx* Leach, 1815
G. rhamni (Linnaeus, 1758)
G. cleopatra (Linnaeus, 1767)

Family Lycaenidae Leach, 1809

Subfamily Riodininae Grote, 1895

Genus *Hamearis* Hübner, 1818
H. lucina (Linnaeus, 1758)

Subfamily Lycaeninae Leach, 1815

Tribe Lycaeini Leach, 1815

Genus *Lycaena* Fabricius, 1807
L. phlaeas (Linnaeus, 1761)
L. dispar (Haworth, 1802)
L. virgaureae (Linnaeus, 1758)
L. ottomanus (Lefebvre, 1830)
L. tityrus (Poda, 1761)
L. alciphron (Rottemburg, 1775)
L. hippothoe (Linnaeus, 1761)
L. candens (Herrich–Schäffer, 1844)
L. thersamon (Esper, 1784)

Tribe Theclini Butler, 1869

Genus *Thecla* Fabricius, 1807
Th. betulae (Linnaeus, 1758)

Genus *Neozephyrus* Fabricius, 1807
N. quercus (Linnaeus, 1758)

Tribe Eumaeini Tutt, 1907

Genus Callophrys *Billberg, 1820*
C. rubi (Linnaeus, 1758)

Genus Satyrium Scudder, 1876
S. w–album (Knoch, 1782)
S. pruni (Linnaeus, 1758)
S. spini (Denis & Schiffermüller, 1775)
S. ilicis (Esper, 1779)
S. acaciae (Fabricius, 1787)

Tribe Polyommatini Swainson, 1827

Genus *Lampides* Hübner, 1819
L. boeticus (Linnaeus, 1767)

Genus *Leptotes* Scudder, 1876
L. pirithous (Linnaeus, 1767)

Genus *Tarucus* Moore, 1881
T. balkanica (Freyer, 1844)

Genus *Cupido* Schrank, 1801

Subgenus *Cupido* Schrank, 1801
C. minimus (Fuessly, 1775)
C. osiris (Meigen, 1829)

Subgenus *Everes* Hübner, 1819
C. argiades (Pallas, 1771)
C. decolorata (Staudinger, 1886)
C. alcetas (Hoffmannsegg, 1804)

Genus *Celastrina* Tutt, 1907
C. argiolus (Linnaeus, 1758)

Genus *Pseudophilotes* Beuret, 1958
P. vicrama (Moore, 1865)

Genus *Scolitantides* Hübner, 1819
S. orion (Pallas, 1771)

Genus *Glaucopsyche* Scudder, 1872
G. alexis (Poda, 1761)

Genus *Iolana* Baker, 1914
I. iolas (Ochsenheimer, 1816)

Genus *Maculinea* Eecke, 1915
M. arion (Linnaeus, 1758)
M. rebeli (Hirschke, 1904)
? *M. alcon* (Denis & Schiffermüller, 1775)

Genus *Plebejus* Kluk, 1802

Subgenus *Plebejus* Kluk, 1802
P. argus (Linnaeus, 1758)
P. idas (Linnaeus, 1761)
P. argyrognomon (Bergsträsser, 1779)

Subgenus *Agriades* Hübner, 1819
* *P. dardanus* Frejer, 1844

Genus *Aricia* Reichenbach, 1817
A. eumedon (Esper, 1780)
A. agestis (Denis & Schiffermüller, 1775)
A. artaxerxes (Fabricius, 1793)
A. anteros (Freyer, 1838)

Genus *Polyommatus* Latreille, 1804

Subgenus *Cyaniris* Dalman, 1816
P. semiargus (Rottemburg, 1775)

Subgenus *Polyommatus* Latreille, 1804
P. escheri (Hübner, 1823)
P. dorylas (Denis & Schiffermüller, 1775)
P. amandus (Schneider, 1792)
P. thersites (Cantener, 1835)
P. icarus (Rottemburg, 1775)
P. eros (Ochsenheimer, 1808)

Subgenus *Meleageria* Sagarra, 1925
P. daphnis (Denis & Schiffermüller, 1775)
P. bellargus (Rottemburg, 1775)
P. coridon (Poda, 1761)

Subgenus *AgGenusiaetus* Hübner, 1822
P. admetus (Esper, 1783)
P. ripartii (Freyer, 1830)
P. damon (Denis & Schiffermüller, 1775)

Family Nymphalidae Swainson, 1827

Subfamily Libytheinae Boisduval, 1840

Genus *Libythea* Fabricius, 1807
L. celtis (Laicharting, 1782)

Subfamily *Heliconinae Duponchel, 1844(?)*

Genus *Argynnis* Fabricius, 1807
A. paphia (Linnaeus, 1758)
A. pandora (Denis & Schiffermüller, 1775)
A. aglaja (Linnaeus, 1758)
A. adippe (Denis & Schiffermüller, 1775)
A. niobe (Linnaeus, 1758)

Genus *Issoria* Hübner, 1819
I. lathonia (Linnaeus, 1758)

Genus *Brenthis* Hübner, 1818
B. ino (Rottemburg, 1775)
B. daphne (Denis & Schiffermüller, 1775)
B. hecate (Denis & Schiffermüller, 1775)

Genus *Boloria* Moore, 1900

Subgenus *Clossiana* Reuss, 1920
B. euphrosyne (Linnaeus, 1758)
B. titania (Esper, 1793)
B. selene (Denis & Schiffermüller, 1775)
B. dia (Linnaeus, 1767)

Subgenus *Boloria* Moore, 1900
B. pales (Denis & Schiffermüller, 1775)
B. graeca (Staudinger, 1870)

Subfamily Nymphalinae Swainson, 1827

Tribe Nymphalini Swainson, 1827

Genus *Vanessa* Fabricius, 1807
V. atalanta (Linnaeus, 1758)
V. cardui (Linnaeus, 1758)

Genus *Inachis* Hübner, 1819
I. io (Linnaeus, 1758)

Genus *Aglais* Dalman, 1816
A. urticae (Linnaeus, 1758)

Genus *Polygonia* Hübner, 1819
P. c–album (Linnaeus, 1758)
P. egea (Cramer, 1775)

Genus *Araschnia* Hübner, 1819
A. levana (Linnaeus, 1758)

Genus *Nymphalis* Kluk, 1780
N. antiopa (Linnaeus, 1758)
N. polychloros (Linnaeus, 1758)
N. xanthomelas (Esper, 1781)
N. vaualbum (Denis & Schiffermüller, 1775)

Tribe Melitaeini Reuter, 1896

Genus *Euphydryas* Scudder, 1872
E. maturna (Linnaeus, 1758)
E. aurinia (Rottemburg, 1775)

Genus *Melitaea* Fabricius, 1807
M. cinxia (Linnaeus, 1758)
M. phoebe (Denis & Schiffermüller, 1775)
M. trivia (Denis & Schiffermüller, 1775)
M. didyma (Esper, 1778)
M. diamina (Lang, 1789)
M. aurelia Nickerl, 1850
M. athalia (Rottemburg, 1775)

Subfamily Limenitininae Butler, 1869

Genus *Limenitis* Fabricius, 1807
L. populi (Linnaeus, 1758)
L. camilla (Linnaeus, 1764)
L. reducta Staudinger, 1901

Genus *Neptis* Fabricius, 1807
N. sappho (Pallas, 1771)
N. rivularis (Scopoli, 1763)

Subfamily Charaxinae Guénée, 1865

Genus *Charaxes* Ochsenheimer, 1816
Ch. jasius (Linnaeus, 1767)

Subfamily Apaturinae Boisduval, 1840

Genus *Apatura* Fabricius, 1807
A. ilia (Denis & Schiffermüller, 1775)
A. iris (Linnaeus, 1758)

Subfamily Satyrinae Boisduval, 1833

Tribe Elymniini Herrich–Schäffer, 1864

Genus *Kirinia* Moore, 1893
K. roxelana (Cramer, 1777)

Genus *Pararge* Hübner, 1819
P. aegeria (Linnaeus, 1758)

Genus *Lasiommata* Westwood, 1841
L. megera (Linnaeus, 1767)
L. petropolitana (Fabricius, 1787)
L. maera (Linnaeus, 1758)

Genus *Lopinga* Moore, 1893
L. achine (Scopoli, 1763)

Tribe Coenonymphini Tutt ,1896

Genus *Coenonympha* Hübner, 1819
C. tullia (Müller, 1764)
C. rhodopensis Elwes, 1900

C. arcania (Linnaeus, 1761)
C. glycerion (Borkhausen, 1788)
C. gardetta (Prunner, 1798)
C. pamphilus (Linnaeus, 1758)

Genus *Pyronia* Hübner, 1819
P. tithonus (Linnaeus, 1767)

Genus *Aphantopus* Wallengren, 1853
A. hyperantus (Linnaeus, 1758)

Genus *Maniola* Schrank, 1801
M. jurtina (Linnaeus, 1758)

Genus *Hyponephele* Muschamp, 1915
H. lycaon (Rottemburg, 1775)
H. lupinus (O. Costa, 1836)

Tribe Erebiini Tutt, 1896

Genus *Erebia* Dalman, 1816
E. ligea (Linnaeus, 1758)
E. euryale (Esper, 1805)
E. manto (Denis & Schiffermüller, 1775)
E. epiphron (Knoch, 1783)
E. aethiops (Esper, 1777)
E. triaria (Prunner, 1798)
E. medusa (Denis & Schiffermüller, 1775)
E. gorge (Hübner, 1804)
E. ottomana Herrich–Schäffer, 1847
E. cassioides (Reiner & Hochenwarth, 1792)
E. pronoe (Esper, 1780)
E. melas (Herbst, 1796)
E. oeme (Hübner, 1804)
E. pandrose (Borkhausen, 1788)

Tribe Melanargiini Wheeler, 1903

Genus *Melanargia* Meigen, 1828
M. galathea (Linnaeus, 1758)
M. larissa (Geyer, 1828)

Tribe Satyrini Boisduval, 1833

Genus *Satyrus* Latreille, 1810
S. ferula (Fabricius, 1793)

Genus *Minois* Hübner, 1819
M. dryas (Scopoli, 1763)

Genus *Hipparchia* Fabricius, 1807
H. fagi (Scopoli, 1763)
H. syriaca (Staudinger, 1871)
H. delattini Kudrna, 1975
H. statilinus (Hufnagel, 1766)

Genus *Arethusana* Lesse, 1951
A. arethusa (Denis & Schiffermüller, 1775)

Genus *Brintesia* Fruhstorfer, 1911
B. circe (Fabricius, 1775)

Genus *Chazara* Moore, 1893
Ch. briseis (Linnaeus, 1764)

Genus *Pseudochazara* Lesse, 1951
P. anthelea (Hübner, 1824)

ПРИЛОГ ПОЗНАВАЊУ ФАУНЕ ДНЕВНИХ ЛЕПТИРА БОСНЕ И ХЕРЦЕГОВИНЕ

СУВАД ЛЕЛО

ИЗВОД

Дугогодишња истраживања дневних лептира у Босни и Херцеговини резултирала су добрим познавањем квалитативног састава припадајуће фауне, а сабрани резултати представљени су у рецензираној (али још увек не и публикованој) монографији (која је недавно, након 38 месеци од покретања процедуре, проглашена „Универзитетском књигом"): „Дневни лептири Босне и Херцеговине (Lepidoptera: Papilionoidea и Hesperioidea)", аутора Сувада Лела (LELO, 2007a).

Подаци из поменуте монографије, допуњени накнадним истраживањима, представљају ревизију ауторовог прегледа из 2000. године (LELO, 2000). Поменутим „накнадним истраживањима" констатовано је (и потврђено постојање) неколико ретких босанскохерцеговачких врста, попут: *Charaxes jasius* Linnaeus, *Gonepteryx cleopatra* Linnaeus, *Pyrgus sidae* Esper, *Polyommatus admetus* Esper, *Leptidea reali* Reissinger, *Leptidea morsei* Fenton, *Kirinia roxelana* Cramer и *Lycaena ottomanus* Lefebvre.

Дакле, након анализе неколико „спорних" података (навод Р. Сијарића о постојању *Euchloe crameri* Buttler у Благају, навод Р. Сијарића и П. Јакшића о постојању врсте *Spialia sertorius* Hoffmannsegg у околини Бихаћа, оправданост издвајања врсте *Pyrgus trebeviciensis* Warren, постојања сумње да уместо података о врсти *Maculinea alcon* Denis & Schiffermüller у БиХ треба уписивати искључиво врсту *Maculinea rebeli* Hirschke итд.; SIJARIĆ, 1991; JAKŠIĆ, 1988; LELO, 2000, 2007a) уз последња истраживања аутора (LELO, 2007b), можемо рећи да се у Босни и Херцеговини неспорно може наћи 188 врста (уз две двојбене) дневних лептира. Попис аутора из 2000. године обухвата 189 врста, а са пописа треба избацити врсту *Euchloe crameri* Buttler, оставити под упитником врсте *Pyrgus trebeviciensis* Warren и *Maculinea alcon* Denis & Schiffermüller те додати врсте *Spialia sertorius* Hoffmannsegg и *Lycaena ottomanus* Lefebvre. Поред поменутог, треба направити измену и унутар врста рода *Hiparchia*, Fabricius, односно уместо таксона *Hipparchia semele* Linnaeus треба користити *H. delattini* Kudrna, 1975.

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