

REVISED INVENTORY OF THE BUTTERFLIES OF BOSNIA AND HERZEGOVINA (INSECTA: LEPIDOPTERA: HESPERIOIDEA, PAPILIONIDEA)

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Lelo, S.: Revised inventory of the butterflies of Bosnia and Herzegovina (Insecta: Lepidoptera: Hesperioidea, Papilionidea). Nat. Croat., Vol. 9, No. 2., 139–156, 2000, Zagreb.

This work presents a third revision of the inventory of butterflies of Bosnia and Herzegovina according to the **Karsholt – Razowski** system. The revision was carried out from analysis of the scientific literature and published field observations from B-H. The presence of *L. reali* (Reissinger, 1989) has been verified personally by the author in the course of his own field research and subsequent laboratory investigations.

Key words: Rhopalocera, Papilionoidea, Hesperioidea, variability, distributional checklist

Lelo, S.: Revidirani popis (»check list«) dnevnih leptira B-H (Insecta: Lepidoptera: Hesperioidea, Papilionidea). Nat. Croat., Vol. 9, No. 2., 139–156, 2000, Zagreb.

U ovom radu je izvršena treća revizija popisa dnevnih leptira u Bosni i Hercegovini po sistemu **Karsholt – Razowski**. Revizija je napravljena analizom stručne literature i objavljenih radova s terena u B-H. Prisutnost *L. reali* (Reissinger, 1989) autor je osobno utvrdio vlastitim terenskim istraživanjima te naknadnim laboratorijskim pretragama.

Ključne riječi: Rhopalocera, Papilionoidea, Hesperioidea, varijabilnost, rasprostranjenost

INTRODUCTION

Research on the *Rhopalocera* fauna of Bosnia and Herzegovina can be divided into four periods: the period before 1904, the period from 1904 to 1964, the period from 1964 to 1992 (the time of Dr Rizo Sijarić's work), and the wartime and post-war period (during which Dr Sijarić was killed). To the first two periods belong two exceptionally important works concerning the *Lepidoptera* fauna of Bosnia and Herzegovina. These are: »Spisak *Rhopalocera* B-H¹« (APFELBECK, 1892) and »Studien über die Lepidopterenfauna der Balkanländer, II Teil, Bosnien und Herzegovina« (REBEL, 1904). Rebel's work was the first scientific study which included all the collected material from this region, and is therefore of immeasurable scientific value.

HISTORY

In the first period numerous Austro-Hungarian entomologists began a systematic collection of organisms within the single region of Bosnia and Herzegovina. Among the first publications appears the work of H. Mitis on the *Lepidoptera* fauna of the region in the *Wiener Entomolog. Zeitung*, I, 1882. Besides the work of these entomologists there exist records of several people who by their own collecting and, more rarely, scientific activities contributed to the qualitative knowledge of the composition of the *Lepidoptera* fauna of Bosnia and Herzegovina, such as Dr Andrija Hensch, the above-mentioned Viktor Apfelbeck and H. Rebel, curators Othmar Werner and Arnold Wineguth, and also M. Hilf, Dr Arnold Penther, Oskar Simony and L. Schreitter. Important research results concerning the *Lepidoptera* fauna were obtained by Mary D. I. B. Nicholl, who from 1898 to 1901 travelled extensively in Bosnia and Herzegovina. She published two works on this fauna: »Butterfly hunting in Dalmatia, Bosnia and Herzegovina« (*Entom. Record*, XI, London, 1899) and »The Lepidoptera of Bosnia and Montenegro« (*Entom. Record*, XIV, London, 1902). Apart from these studies, other specialists worked on the available *Lepidoptera* material, and in so doing collected it together (Otto Leonhard and Dr Rudolf Sturany).

From 1898 to 1903 Dr H. Rebel undertook five journeys around Bosnia and Herzegovina for scientific purposes. 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, also Han-Pijesak, Vlasenica and Džile in eastern Bosnia, and Jajce and Banja Luka in the west. He was also given the right to revise and conduct 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 a very small number of specimens), by Dr Oskar Simony in the Fojnica and Vranica area, and by L. Schreitter in the area around Kalinovik, together with the material collected by Dr H. Rebel on all his own expeditions in Bosnia and Herzegovina, was placed at that time in the Naturhistorisches Museum. The material from southern Herzegovina collected by Dr A. Hensch is not in the National Museum in Sarajevo², and there is no information about where it was deposited. In the National Museum there exists from that time the greater part of the material collected by V. Apfelbeck, A. Winneguth and M. Hilf.

The above-mentioned study by Dr H. Rebel was issued in 1904, after which for a long time there were no publications about the butterfly fauna of Bosnia and Herzegovina. In that study were descriptions of 1,509 species of butterflies and moths

¹ »List of the *Rhopalocera* of Bosnia and Herzegovina« (translator's note)

² *Zemaljski muzej*, Sarajevo, normally translated as »National Museum«

from the region of Bosnia and Herzegovina. Out of this number 160 species are butterflies. These include *Erebia tyndarus* Esp., which Rebel mentions only from Maglić. However, it has been established that it is not this species which is found in the Balkans, but its very close relative *Erebia cassioides* R. u Hohw (SIJARIĆ, 1980).

The second period from 1904 onwards is characterized almost exclusively by collecting activities. A curator of the National Museum at that time, Adolf Winneguth, and others began a systematic collection of butterflies and moths. On the basis of examination of material of known collection date it appears that Winneguth's collecting activities continued right up until 1940. Besides Winneguth, Viktor Apfelbeck, a keeper of the National Museum who otherwise studied *Coleoptera* also worked on the collection of butterflies and moths. On the specimens which he collected rarely is there any indication of the year and date (the final one is labelled with the year 1917), because the data were recorded in separate notes, and on the specimen was placed only the relevant number. Since these notes were not kept, such specimens remain with only their locality known to us, and for this reason we cannot reliably say until what date Apfelbeck carried out his research on the *Lepidoptera* collection. Because of this method of keeping records on collected material it is probably the case that there now exists in the National Museum a substantial amount of material with no indication of locality. This material, although well prepared and conserved, is of limited scientific value. To this second period also belongs the collection put together by P. Čuš, together with some material collected by Dr Protić. From the years 1947 and 1948 there exists a small number of butterflies and moths collected by V. Martino, and in 1949 by I. Sigel. At the end of the second period the collecting work of keeper Sonja Mikšić, curator Ruža Tintor and entomologist Reno Mikšić is significant.

In this period the work of physician K. Schawerda is of great importance. From 1906 until 1922 he published a series of works on the butterflies and moths of Bosnia and Herzegovina, and some of these single out highly specific populations (SCHAWERDA, 1908–1922). Besides Schawerda, in the above-mentioned period H. Fruhstorfer also did research into the *Lepidoptera* fauna of Bosnia and Herzegovina. From 1906 until 1910 he published several valuable works, and described about a fifth of the sub-species specific to this region, although many of these are still debatable.

At the end of the second period, and then throughout the third period from 1953 to 1990 the collection was examined several times by the eminent Croatian geneticist and lepidopterist Academician Dr Zdravko Lorković who thus revised the *Pieridae*, the *Erebia* and *Lycenidae* families and some of the *Hesperiidae*, finding six new species and one sub-species which previously were unknown in the territory of Bosnia and Herzegovina (LORKOVIĆ, 1953; 1955; 1957; 1968; 1974; 1975).

The third period from 1966 is distinguished by the name of Dr Rizo Sijarić who, as part of his professional and scientific activities as keeper of entomology and lepidopterology, worked on the systematic collection of butterflies and moths in various, then uncultivated regions of Bosnia and Herzegovina. The earlier part of this work was devoted to revision of the inventory of *Rhopalocera* of Bosnia and Herzegovina (SIJARIĆ, 1966; 1980). After that Rizo Sijarić began a quantitative studies of

butterflies from the aspects of ecology (SIJARIĆ, 1970a; 1970b; 1971a; 1971b; 1971c; 1974a; 1974b; 1974c; 1975; 1976a; 1976b; 1977; 1978a; 1978b; 1978c; 1979a; 1979b; 1979c; 1981; 1982a; 1982b; 1983; 1984b; 1984c; 1986/87; 1987; 1988a; 1988b; 1991a; 1991b; 1996a; 1996b; SIJARIĆ & MIHLJEVIĆ, 1972/73; 1978; 1980/81) and population genetics (LORKOVIĆ & SIJARIĆ, 1967; SIJARIĆ, 1972/73; 1974d; 1974e; SIJARIĆ 1984a; 1989; SIJARIĆ & CARNELUTTI 1976; 1979), uniting these various aspects into a single integrated whole. Although Dr Sijarić's death came during the most creative period of his life, he had completed 29 years' fundamental exploration of the area of Bosnia and Herzegovina, so that today we can say that the butterfly fauna of this area is well known.

In the course of his work Dr Sijarić was greatly assisted by the amateur entomologist Boro Mihljević from Sarajevo, who, over three decades, put together a very rich collection of butterflies and moths from Bosnia and Herzegovina and other countries as well. Information about this collection is given in SIJARIĆ & MIHLJEVIĆ, 1972/73; 1975 and especially in the catalogue of the collection (SIJARIĆ, 1991c).

In the fourth, postwar period, unfortunately we can only talk about elementary collecting activities, and virtually no research work. The country is politically and physically unsafe. Access to certain areas is impossible for political and security reasons (minefields). The number of entomologists in the country can be counted »on the fingers of one hand«, and previously collected material is not available, for various reasons, to individuals who might be willing to study it, or simply to assist in its care. This all shows that decisions are urgently needed to change the extremely reactionary and destructive attitude of the current professional group »responsible« for this problem.

MATERIALS AND METHODS

The data on the butterflies of Bosnia and Herzegovina given in this work are based on the existing literature (REBEL, 1904; FRUHSTORFER 1906–1907, 1908, 1908–1909, 1910; LORKOVIĆ, 1953; 1955; 1957; 1968; 1974; 1975; LORKOVIĆ & SIJARIĆ, 1967; SIJARIĆ, 1970a; 1970b; 1971a; 1971b; 1971c; 1972/73; 1974a; 1974b; 1974c; 1974d; 1974e; 1975; 1976a; 1976b; 1977; 1978a; 1978b; 1978c; 1979a; 1979b; 1979c; 1979d; 1980; 1981; 1982a; 1982b; 1983; 1984a; 1984b; 1984c; 1986/87; 1987; 1988a; 1988b; 1989; 1991a; 1991b; 1991c; 1996a; 1996b; SIJARIĆ & CARNELUTTI, 1976; SIJARIĆ & MIHLJEVIĆ, 1972/73; 1978; 1980/81; JAKŠIĆ 1983; 1988 etc.).

In the cited literature there were no data on the occurrence of the species *Leptidea reali* (REISSINGER, 1989), so the current work presents the author's own data on the occurrence of this species in Bosnia and Herzegovina. The species was identified from material collected in a wide area around Sarajevo during the period 1995–1998 (LELO, 1998 – in printing; LORKOVIĆ, 1927, 1930, 1993; TOLMAN, 1997; REAL, 1988; REISSINGER, 1989).

Regarding the occurrence of the species *Pyrgus trebeviicensis*, which Warren (WARREN, 1926) noted in 1926 (WARREN, 1926; TAGFALTER UND IHRE LEBEN-

SRÄUME, 1987) as being distinguishable from specimens designated as *Pyrgus alveus* Hübner, 1803, we can say that it is possible that it still exists today, and so it can be included in an inventory of the butterflies of Bosnia and Herzegovina.

LIST OF THE BUTTERFLIES OF BOSNIA AND HERZEGOVINA

This inventory of butterflies has been fundamentally revised according to the newest KARSHOLT – RAZOWSKI, 1996 system. There are differences that distinguish it from other published works that specifically describe the fauna of these regions, and it differs only slightly from Sijarić's inventory. (SIJARIĆ, 1980).

1. Superfam. *HESPERIOIDEA* Latreille, 1809

1. Fam. *HESPERIIDAE* Latreille, 1809

Subfam. *PYRGINAE* Burmeister, 1878

1. *Erynis tages* (Linnaeus, 1758)
2. *Carcharodus alceae* (Esper, 1780)
3. *Carcharodus lavatherae* (Esper, 1783)
4. *Carcharodus floccifera* (Zeller, 1847)
5. *Spialia orbifer* (Hübner, 1823)
6. *Pyrgus carthami* (Hübner, 1813)
analogus (Alberti, 1938)?
7. *Pyrgus sidae* (Esper, 1784)
8. *Pyrgus andromedae* (Wallengren, 1853)
9. *Pyrgus malvae* (Linnaeus, 1758)
10. *Pyrgus serratulae* (Rambur, 1839)
persicus (Reverdin, 1913)
11. *Pyrgus armoricanus* (Oberthür, 1910)
12. *Pyrgus alveus* (Hübner, 1803)
13. *Pyrgus trebeviciensis* (Warren, 1926)

Subfam. *HETEROPTERINAE* Aurivillius, 1925

14. *Heteropterus morpheus* (Pallas, 1771)
15. *Carterocephalus palaemon* (Pallas, 1771)

Subfam. *HESPERIINAE* Latreille, 1809

16. *Thymelicus lineola* (Ochsenheimer, 1808)
17. *Thymelicus sylvestris* (Poda, 1761)
18. *Thymelicus actaeon* (Rotenburg, 1775)
19. *Hesperia comma* (Linnaeus, 1758)
20. *Ochlodes venata* (Bremer & Grey, 1853)
21. *Gegenes pumilio* (Hoffmannsegg, 1804)

2. Superfam. PAMILIONOIDEA Leach, 1819

2. Fam. PAMILIONIDAE Latreille, 1809

Subfam. PARNASSIINAE Swainson, 1817

Tribus LUEHDORFIINI

22. *Zerynthia* (subgen. *Zerynthia* Ochsenhimer 1816) *polyxena* (D. & S., 1775)
bryki Eisner, 1954
bosniensis Eisner, 1974
nigra Sijarić, 1989
23. *Zerynthia* (Subgen. *Allancastria* Bryk, 1934) *cerisyi ferdinandi* Stichel, 1907
mihljevici Sijarić, 1989

Tribus PARNASSIINI

24. *Parnassius mnemosyne* (Linnaeus, 1758)
leonhardiana Fruhstorfer, 1916?
bosniacus Rotschild, 1918?
serbicus Bryk & Eisner, 1932?
25. *Parnassius apollo liburnicus* Rebel & Rogenhofer, 1892
bosniensis Stichel, 1899?
hercegovinensis Schawerda, 1912

Subfam. PAMILIONINAE Latreille, 1809

26. *Iphiclides podalirius* (Linnaeus, 1758)
27. *Papilio machaon* Linnaeus, 1758
28. *Papilio alexanor magna* Verity, 1911

3. Fam. PIERIDAE Duponchel, 1832, Boisduval, 1829

Subfam. DISMORPHIINAE Godman & Salvin, 1886

29. *Leptidea sinapis* (Linnaeus, 1758)
30. *Leptidea reali* Reissinger, 1989
31. *Leptidea morsei major* (Grund, 1905)

Subfam. PIERINAE Swainson, 1840, Boisduval, 1829

Tribus ANTHOCHARINI

32. *Anthocharis cardamines meridionalis* Verity, 1908 (= *adriatica* Schaverda, 1911)
33. *Euchloe crameri* (Butler, 1869)
34. *Euchloe* (subgen. *Euchloe* Hübner 1819) *ausonia* Hübner 1804

Tribus PIERINI

35. *Aporia crataegi* (Linnaeus, 1758)
36. *Pieris brassicae* (Linnaeus, 1758)
37. *Pieris mannii* (Mayer, 1851)
38. *Pieris rapae* (Linnaeus, 1758)
39. *Pieris ergane* (Geyer, 1828)

40. *Pieris napi* (Linnaeus, 1758)
41. *Pieris balcana* (Lorković, 1968)
42. *Pontia daplidice* (Linnaeus, 1758) *edusa* Fabricius, 1777 – by Tolman 1997

Subfam. COLIADINAE Swainson, 1827

43. *Colias croceus* (Geoffroy in Fourcroy, 1785)
44. *Colias caucasica* (Staudinger, 1871) *balcanica caucasica* Rebel, 1903 by Tolman
45. *Colias hyale* (Linnaeus, 1758)
46. *Colias alfacariensis* (Ribbe, 1905)
47. *Gonepteryx rhamni meridionalis* Röber, 1906
48. *Gonepteryx cleopatra europaea* Verity, 1913

4. FAM. LYCENIDAE Leach, 1815

Subfam. RIODININAE Grote, 1895

49. *Hamearis lucina* (Linnaeus, 1758)

Subfam. LYCAENINAE Leach, 1815

Tribus LYCAENINI Leach, 1815

50. *Lycaena phlaeas* (Linnaeus, 1761)
51. *Lycaena dispar rutila* (Werneburg, 1864)
52. *Lycaena virgaureae* (Linnaeus, 1758)
53. *Lycaena tityrus* (Poda, 1761)
54. *Lycaena alciphron* (Rottemburg, 1775)
melibaeus Staudinger, 1879
chairemon Fruhstorfer, 1917
55. *Lycaena hippothoe* (Linnaeus, 1761)
56. *Lycaena candens leonhardi* Fruhstorfer, 1917
57. *Lycaena thersamon* (Esper, 1784)

Tribus THECLINI Butler, 1869

58. *Thecla betulae* (Linnaeus, 1758)
59. *Neozephyrus quercus* (Linnaeus, 1758)

Tribus EUMAEINI Tutt, 1907

60. *Callophrys rubi* (Linnaeus, 1758)
61. *Satyrium w-album* (Knoch, 1782)
62. *Satyrium pruni* (Linnaeus, 1758)
63. *Satyrium spini* (Denis & Schiffermüller, 1775)
64. *Satyrium ilicis* (Esper, 1779)
65. *Satyrium acaciae* (Fabricius, 1787)

Tribus: POLYOMMATINI Swainson, 1827

66. *Lampides boeticus* (Linnaeus, 1767)
67. *Leptotes pirithous* (Linnaeus, 1767)
68. *Tarucus balkanica* (Freyer, 1844)
69. *Cupido* (subgen. *Cupido* Schrank, 1801) *minimus* (Fuessly, 1775)

70. *Cupido osiris* (Meigen, 1829)
 71. *Cupido* (subgen. *Everes* Hübner 1819) *argiades* (Pallas, 1771)
 72. *Cupido decolorata* (Staudinger, 1886)
 73. *Cupido alcetas* (Hoffmannsegg, 1804)
 74. *Celastrina argiolus* (Linnaeus, 1758)
 75. *Pseudophilotes vicrama* (Moore, 1865)
 schiffermuelleri Hemming, 1929
 76. *Scolitantides orion* (Pallas, 1771)
 77. *Glaucopsyche alexis* (Poda, 1761)
 78. *Iolana iolas* (Ochsenheimer, 1816)
 79. *Maculinea arion* (Linnaeus, 1758)
 obscura Christ, 1878
 antesion Fruhstorfer, 1917
 80. *Maculineaalcon* (Denis & Schiffermüller, 1775)
 tolistus Fruhstorfer, 1917
 81. *Maculinea rebeli* (Hirschke, 1904)
 82. *Plebeius* (subgen. *Plebeius* Kluk, 1780) *argus* (Linnaeus, 1758)
 83. *Plebeius idas* (Linnaeus, 1761)
 croatica Grund, 1913
 84. *Plebeius argyrognomon* (Bergsträsser, 1779)
 85. *Plebeius* (subgen. *Agriades* Hübner, 1819) *pyrenaica dardanus* Freyer, 1844
 86. *Aricia eumedon* (Esper, 1780)
 87. *Aricia agestis* (Denis & Schiffermüller, 1775)
 88. *Aricia artaxerxes allous* Geyer, 1837
 89. *Aricia anteros* (Freyer, 1838)
 90. *Polyommatus* (subgen. *Cyaniris* Dalman, 1816) *semiargus* (Rottemburg, 1775)
 91. *Polyommatus* (subgen. *Polyommatus* Latreille, 1804) *escheri dalmatica* Speyer, 1882
 92. *Polyommatus dorylas* (Denis & Schiffermüller, 1775)
 93. *Polyommatus amandus* (Schneider, 1792)
 94. *Polyommatus thersites* (Cantener, 1834)
 95. *Polyommatus icarus* (Rottemburg, 1775)
 96. *Polyommatus eros* (Ochsenheimer, 1808)
 97. *Polyommatus* (subgen. *Meleageria* Sagarra, 1925) *daphnis* (D. & S., 1775)
 98. *Polyommatus bellargus* (Rottemburg, 1775)
 99. *Polyommatus coridon* (Poda, 1761)
 100. *Polyommatus* (subgen. *Agrodiaetus* Hübner 1822) *admetus* (Esper, 1783)
 101. *Polyommatus ripartii ripartii* Freyer, 1830
 102. *Polyommatus damon* (Denis & Schiffermüller, 1775)

5. Fam. NYMPHALIDAE Swainson, 1827

Subfam. LIBYTHEINAE Boisduval, 1840

103. *Libythea celtis* (Laicharting, 1782)

Subfam. HELICONINAE Duponchel, 1844

104. *Argynnis paphia* (Linnaeus, 1758)

105. *Argynnis pandora* (Denis & Schiffermüller, 1775)
106. *Argynnis aglaja* (Linnaeus, 1758)
107. *Argynnis adippe* (Denis & Schiffermüller, 1775)
108. *Argynnis niobe* (Linnaeus, 1758)
- laranda* Fruhstorfer, 1910
109. *Issoria lathonia* (Linnaeus, 1758)
110. *Brenthis ino* (Rottemburg, 1775)
111. *Brenthis daphne* (Denis & Schiffermüller, 1775)
112. *Brenthis hecate* (Denis & Schiffermüller, 1775)
triburniana Fruhstorfer, 1908(?)
113. *Boloria* (subgen. *Clossiana* Reuss, 1920) *euphrosyne* (Linnaeus, 1758)
114. *Boloria titania cypris* Meigen, 1828
bosnia Fruhstorfer, 1908
dinara Fruhstorfer, 1908
115. *Boloria selene* (Denis & Schiffermüller, 1775)
116. *Boloria dia* (Linnaeus, 1767)
117. *Boloria* (subgen. *Boloria* Moore, 1900) *pales palustris* Fruhstorfer, 1909
118. *Boloria graeca balcanica* (Rebel, 1903)
- Subfam. NYMPHALINAE Swainson, 1827
- Tribus: NYMPHALINI Swainson, 1827
119. *Vanessa atalanta* (Linnaeus, 1758)
120. *Vanessa cardui* (Linnaeus, 1758)
121. *Inachis io* (Linnaeus, 1758)
122. *Aglais urticae* (Linnaeus, 1758)
123. *Polygonia c-album* (Linnaeus, 1758)
124. *Polygonia egea* (Cramer, 1775)
125. *Araschnia levana* (Linnaeus, 1758)
126. *Nymphalis antiopa* (Linnaeus, 1758)
127. *Nymphalis polychloros* (Linnaeus, 1758)
128. *Nymphalis xanthomelas* (Denis & Schiffermüller, 1781)
129. *Nymphalis vau-album* (Denis & Schiffermüller, 1775)
- Tribus. MELITAEINI Reuter, 1896
130. *Euphydryas maturna* (Linnaeus, 1758)
idunides Fruhstorfer, 1917
131. *Euphydryas aurinia* (Rottemburg, 1775)
balcanica Schawerda, 1908
132. *Melitaea cinxia* (Linnaeus, 1758)
133. *Melitaea phoebe malvida* Fruhstorfer, 1909
narenta, Fruhstorfer, 1916(?)
134. *Melitaea trivialis* Denis & Schiffermüller 1775
lathon Fruhstorfer, 1916(?)
135. *Melitaea didyma meridionalis* Staudinger, 1870
dalmatina Staudinger, 1861

136. *Melitaea diamina* Lang 1789
 137. *Melitaea aurelia* Ickerl 1850
 138. *Melitaea athalia* Rottenburg 1775
 limera Fruhstorfer, 1916(?)

Subfam. LIMENITININAE Butler, 1869

139. *Limenitis populi* (Linnaeus, 1758)
 140. *Limenitis camilla* (Linnaeus, 1764)
 141. *Limenitis reducta* (Staudinger, 1901)
 142. *Neptis sappho* (Pallas, 1771)
 143. *Neptis rivularis* (Scopoli, 1763)

Subfam. CHARAXINAE Guénée, 1865

144. *Charaxes jasius* (Linnaeus, 1767)

Subfam. APATURINAE Boisduval, 1840

145. *Apatura ilia* (Denis & Schiffermüller, 1775)
 146. *Apatura iris* (Linnaeus, 1758)

Subfam. SATYRINAE Boisduval, 1833

Tribus: ELYMNIINI

147. *Kirinia roxelana* (Cramer, 1777)
 148. *Pararge aegeria tircis* Butler, 1867
 149. *Lasiommata megera* (Linnaeus, 1767)
 lyssa Boisduval, 1833
 150. *Lasiommata petropolitana* (Fabricius, 1787)
 151. *Lasiommata maera* (Linnaeus, 1758)
 silymbria Fruhstorfer, 1909
 panonica Lorković, 1928
 152. *Lopinga achine* (Scopoli, 1763)

Tribus: COENONYMPHINI Tutt, 1896

153. *Coenonympha tullia lorkovici* Sijarić & Cernelutti, 1976
 philoxenoides Schawerda, 1908 (= *bosniae* Davenport, 1941 – ex)
 154. *Coenonympha rhodopensis occupata* Rebel, 1903
 155. *Coenonympha arcania* (Linnaeus, 1761)
 insubrica Freyer, 1882
 156. *Coenonympha glycerion* Borkhausen, 1788
 157. *Coenonympha gardetta orientalis* Rebel, 1913
 158. *Coenonympha pamphilus* (Linnaeus, 1758)

Tribus: MANIOLINI Grote, 1897

159. *Pyronia tithonus* (Linnaeus, 1767)
 160. *Aphantopus hyperantus* (Linnaeus, 1758)
 161. *Maniola jurtina* (Linnaeus, 1758)
 162. *Hyponephele lycaon* (Kühn, 1774)
 163. *Hyponephele lupinus* (Costa, 1836)

Tribus: *EREBIINI* Tutt, 1896

164. *Erebia ligea herculeana* Warren, 1931
carthusianorum Fruhstorfer, 1909
165. *Erebia euryale syrmia* Fruhstorfer, 1909
166. *Erebia manto osmanica* Schawerda, 1909
167. *Erebia epiphron aetheria* Esper, 1805
168. *Erebia aethiops* (Esper, 1777)
169. *Erebia triaria rebeli* Warren, 1932
170. *Erebia medusa euphrasiae* Fruhstorfer, 1917
171. *Erebia gorge hercegovinensis* Rebel, 1903
172. *Erebia ottomana balcanica* Rebel, 1903
173. *Erebia cassioides illyrica* Lorković, 1953
174. *Erebia pronoe fruhstorferi* Warren, 1933
175. *Erebia melas schawerdae* Fruhstorfer, 1918
176. *Erebia oeme vetulonia* Fruhstorfer, 1917
177. *Erebia pandrose* (Borkhausen, 1788)

Tribus: *MELANARGIINI* Wheeler, 1903

178. *Melanargia galathea procida* (Herbst, 1783)
syntelia Fruhstorfer, 19175
179. *Melanargia larissa herta* Geyer, 1828

Tribus: *SATYRINI* Boisduval, 1833

180. *Satyrus ferula* (Fabricius, 1793)
181. *Minois dryas* (Scopoli, 1763)
182. *Hipparchia fagi* (Scopoli, 1763)
183. *Hipparchia syriaca* (Staudinger, 1871)
184. *Hipparchia semele cadmus* Fruhstorfer, 1908
185. *Hipparchia statilinus lorkovići* Moucha, 1965
186. *Arethusana arethusa* (Denis & Schiffermüller, 1775)
187. *Brintesia circe* (Fabricius, 1775)
188. *Chazara briseis meridionalis* Staudinger, 1886
189. *Pseudochazara anthelea schawerdae* Fruhstorfer, 1909

COMMENTS

1. Up to the present, 189 species of butterfly have been identified in Bosnia and Herzegovina (with subspecies, about 210) which are classified within two superfamilies, 5 families, 20 subfamilies and 16 tribes.

2. The total number of species in Bosnia and Herzegovina by systematic categories is as follows: the 21 species of the superfamily *Hesperioidea* are included within one family *Hesperiidae*; while 168 species of the superfamily *Papilionoidea* are found in four families (*Papilionidae* 7, *Pieridae* 20, *Lycaenidae* 54, *Nymphalidae* 87; according to KARSHOLT & RAZOWSKI, 1996).

3. In relation to the previous inventory (SIJARIĆ, 1980) several differences exist. In the current list there are more species recognised, and also two new endemic subspecies. In the period after 1980 Sijarić observed the occurrence of a further three species of butterfly in Bosnia and Herzegovina: *Gegenes pumilio* (Hoffmannsegg, 1804), *Agrodietus thersites* (Cantener, 1834) and *Arethusana arethusana* (Denis & Schiffermüller, 1775). Also, the subspecies recorded in Bosnia and Herzegovina by Fruhstorfer and Schawerda have been added.

4. In the European literature the existence of the species *Pyrgus trebevičensis* (Warren, 1926) is a widely accepted fact that has also gone into the literature. It is a matter of a species of butterfly collected and identified, as its name suggests, in localities around the city of Sarajevo, so that we are free to include it in this inventory.

5. The species *Lycaena hippothoe* (Linnaeus, 1761) today is distinguished from the species *Lycaena (Palaeochrysopterus) hippothoe* (Linnaeus, 1761) and *Lycaena (Palaeochrysopterus) candens leonhardi* (Fruhstorfer, 1917).

6. Today it is widely thought that the subspecies *Spialia sertorius orbifer* (Hübner, 1823) represents a separate species *Spialia orbifer* (Hübner, 1823) in relation to *Spialia sertorius* (Hoffmannsegg, 1804), which is how it appears in this list.

7. Further, the subspecies *Maculineaalcon rebeli* (Hirsche, 1904) has been raised to the level of the species *Maculinea rebeli* (Hirsche, 1904) so that it is included as a »new« species for this region.

8. The final »new« species is *Leptidea reali* (Reissinger, 1989), which was identified from populations of the species *Leptidea sinapis* (Linnaeus, 1758), and observed by the author in material collected from a wide area around Sarajevo.

9. The subspecies *dardanus* (Freyer, 1844) which was previously listed under *Albulina orbitulus* is really a subspecies of the species *Plebeius* (subgen. *Agriades* Hübner, 1819) *pyrenaica* (Boisduval, 1840), and many authors argue for its recognition as a separate species *Plebeius dardanus* (Freyer, 1844).

10. Compared with the previous inventory (SIJARIĆ, 1980) a significantly smaller number of genera is recognized, for example in the case of the tribe *Lyceniini*, where the genera *Heodes*, *Thersamonia*, *Palaeochrysopterus*, have been »returned« to the original genus *Lycena*.

11. In this inventory we have followed the opinion of respected lepidopterologists who in these regions recorded endemic populations at the level of subspecies, which in this inventory are listed with a question mark, and which are not widely accepted. These are:

- Pyrgus carthami analogus* (Alberti, 1938) – Trebević – Sarajevo;
- Parnassius mnemosyne bosniacus* (Rotschild, 1918) – Mahnjača;
- Parnassius apollo bosniensis* (Stichel, 1899) – Trebević, Korična, Benak;
- Parnassius apollo hercegovinensis* (Schawerda, 1912) – Vučja Bara, Prenj, Dinara;
- Lycaena alciphron chairemon* (Fruhstorfer, 1917) – Herzegovina;
- Maculinea arion antesion* (Fruhstorfer, 1917) – Bosnia;
- Maculineaalcon tolistus* (Fruhstorfer, 1917) – Bosnia;
- Brenthis hecate triburniana* (Fruhstorfer, 1908) – Gacko, Bočac;

Boloria titania Bosnia (Fruhstorfer, 1908) – Trebević – Sarajevo;
Boloria titania dinara (Fruhstorfer, 1908) – Herzegovina;
Melitaea phoebe malvida (Fruhstorfer, 1909) – Bosnia;
Melitaea phoebe narenta (Fruhstorfer, 1916) – Jablanica;
Melitaea athalia limera (Fruhstorfer, 1916) – Korična – Bosnia.

12. SIJARIĆ (1989) identified a new endemic subspecies from populations of the species *Zerynthia polyxena* (Denis & Schiffermüller, 1775) from the Trebević area. This subspecies is named *Zerynthia polyxena* ssp. *nigra* (SIJARIĆ, 1989).

13. In the same work SIJARIĆ (1989) identified another new endemic subspecies from populations of the species *Zerynthia cerisyi* (Denis & Schiffermüller, 1775) from localities in Herzegovina. This subspecies is named as *Zerynthia cerisyi* ssp. *mihljevici* (Sijarić, 1989).

14. We can state with certainty that within the territory of Bosnia and Herzegovina the following endemic subspecies live:

Plebeius pyrenaicus dardanus (Freyer, 1844) – Čabulja, Vranica,
Coenonimpha tullia lorkovici (Sijarić & Carneluti, 1976)–Livanjsko, Glamočko polje,
Allancastria cerisyi mihljevici (Sijarić, 1989) – Herzegovina – Buna, Neretva!,
Zerynthia polyxena nigra (Sijarić, 1989) – Trebević – Sarajevo;

and it is known that in the area around Bosanski Brod the endemic subspecies *Coenonimpha tullia philoxenoides* (Schawerda, 1908) – Bosanski Brod used to live, but became extinct following the destruction of its natural habitat.

CONCLUSIONS

1. After 30 years' work by Dr Rizo Sijarić, which built on the research of Apfelbeck and Rebel at the beginning of this century, and which included the whole territory of Bosnia and Herzegovina, we can say that the butterfly fauna of our country is well known and that significant changes are not anticipated.

2. Within the territory of Bosnia and Herzegovina live 189 species of butterfly classified within 2 superfamilies, 5 families, 20 subfamilies and 16 tribes.

3. In relation to the inventory of 1980, in this work several additional species are noted:

Spialia orbifer (Hübner, 1823),
Gegenes pumilio (Hoffmannsegg, 1804),
Pyrgus trebeviciensis (Warren, 1926),
Leptidea reali (Reissinger, 1989),
Lycaena (Palaeochrysophanus) candens leonhardi (Fruhstorfer, 1917),
Maculinea rebeli (Hirschke, 1904)
Agrodietus thersites (Cantener, 1834),
Arethusana arethusa (Denis & Schiffermüller, 1775),

and two which are listed in the 1980 inventory are omitted: *Pyrgus cirsii* (Rambur, 1839) and *P. onopordi* (Rambur, 1839).

4. In Bosnia and Herzegovina the following endemic subspecies and forms live:
Plebeius pyrenaicus dardanus (Freyer, 1844) – Čabulja, Vranica,
Coenonympha tullia lorkovici (Sijarić & Carneluti, 1976) – Livanjsko, Glamočko
 polje,

Allancastria cerisyi mihljevići (Sijarić, 1989) – Herzegovina – Buna, Neretva!,
Zerynthia polyxena nigra (Sijarić, 1989) – Trebević – Sarajevo;

and we know of the former existence of the now extinct endemic subspecies
Coenonympha tullia philoxenoides (Schawerda, 1908) – Bosanski Brod.

5. It is possible that in Bosnia and Herzegovina more endemic subspecies exist
 and need to be re-examined, among them subspecies described earlier that are not
 widely accepted in the European and world literature. There are at least 13 of these:

Pyrgus carthami analogus (Alberti, 1938) – Trebević – Sarajevo;

Parnassius mnemosyne bosniacus (Rotschild, 1918) – Mahnjača;

Parnassius apollo bosniensis (Stichel, 1899) – Trebević, Korična, Benak;

Parnassius apollo hercegovinensis (Schawerda, 1912) – Vučja Bara, Prenj, Dinara;

Lycaena alciphron chairemon (Fruhstorfer, 1917) – Herzegovina;

Maculinea arion antesion (Fruhstorfer, 1917) – Bosnia;

Maculinea alcon tolistus (Fruhstorfer, 1917) – Bosnia;

Brenthis hecate triburniana (Fruhstorfer, 1908) – Gacko, Bočac;

Boloria titania bosnia (Fruhstorfer, 1908) – Trebević – Sarajevo;

Boloria titania dinara (Fruhstorfer, 1908) – Herzegovina;

Melitaea phoebe malvida (Fruhstorfer, 1909) – Bosnia;

Melitaea phoebe narenta (Fruhstorfer, 1916) – Jablanica;

Melitaea athalia limera (Fruhstorfer, 1916) – Korična – Bosnia.

Received May 10, 1999

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SAŽETAK

Revidirani popis (»check list«) dnevnih leptira B-H (Insecta: Lepidoptera: Hesperioidea, Papilionidea)

S. Lelo

Kada je u pitanju znanstveno-istraživački rad u području entomologije dnevnih leptira Bosne i Hercegovine možemo reći da je on bio na visini samo u dva perioda: prvom – kada je na tom dijelu entomologije radio APFELBECK (1892), a zatim REBEL (1904), i drugom – periodu života i rada dr. Rize Sijarića (poginuo 1993. godine). Osim toga moramo spomenuti da je u ovom periodu zbirku Zemaljskog muzeja i neke krajeve Bosne i Hercegovine posjećivao veliki hrvatski entomolog dr. Zdravko Lorković koji je u tim posjetima obavio vrlo značajne poslove oko sređivanja zbirke *Pieridae*-a, *Lycenidae*-a i *Satirinae*-a.

Ovim radom je utvrđeno postojanje 189 vrsta leptira u Bosni i Hercegovini koji su hijerarhijski poredani u 2 nadfamilije, 5 familija, 20 podfamilija i 16 tribusa.

U odnosu na prethodni popis ovaj najnoviji daje nekoliko vrsta više i to:

Spialia orbifer (Hübner, 1823),

Gegenes pumilio (Hoffmannsegg, 1804),

Pyrgus trebeviciensis (Warren, 1926),

Leptidea reali (Reissinger, 1989),

Lycaena (Palaeochrysophanus) candens leonhardi (Fruhstorfer, 1917),

Maculinea rebeli (Hirschke, 1904)

Agrodietus thersites (Cantener, 1834),

Arethusana arethusana (Denis & Schiffermüller, 1775),

Također, u ovom radu, a u odnosu na prethodni, više se ne pojavljuju vrste *Pyrgus cirsii* (Rambur, 1839) i *Pyrgus onopordi* (Rambur, 1839).