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ANNOTATED CHECKLIST OF CROATIAN BUTTERFLIES WITH VERNACULAR NAMES

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In memory of
Lidija Mladinov (1922–2009)

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The aim of this paper is to present a checklist of Croatian butterflies with a list of vernacular names for all species. Recent attempts to document butterfly fauna and create a national database of butterfly distribution records in Croatia resulted in a list of 195 species. The checklist is based on records from published papers, butterfly collections from museums in Croatia, unpublished data (diaries of Zdravko Lorković, celebrated Croatian lepidopterist) and recent field surveys.

Keywords: butterflies, checklist, vernacular names, fauna, Croatia

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Cilj rada je prikazati popis vrsta danjih leptira do sada zabilježenih u fauni Hrvatske s hrvatskim imenom svake vrste. Analizom publiciranih radova, muzejskih zbirki, nepubliciranih podataka (dnevnici proslavljenog hrvatskog lepidopterologa Zdravka Lorkovića) te rezultata naših recentnih terenskih istraživanja nastoji se dokumentirati fauna danjih leptira te stvoriti nacionalna baza podataka o rasprostranjenju svake vrste. Tako je napravljen popis od 195 vrsta danjih leptira u Hrvatskoj.

Ključne riječi: leptiri, popis, hrvatska imena, fauna, Hrvatska

INTRODUCTION

The maintenance of biodiversity has become a key issue of global concern and information on fauna diversity can be used as a baseline for measuring changes in the environment. Butterflies are commonly used as indicators of the state of the environment because of their biological suitability (short lifecycles, identification simplicity) but also because of their popularity and beauty (VAN SWAAY *et al*., 2008).

The history of butterfly study in Croatia began in the 19th century and yet after three centuries of information gathering (JAKŠIĆ, 1983), knowledge of the distribution and especially the distribution trends of Croatian butterflies still remains incomplete.

From the beginning, most of the research was aimed at documenting butterfly diversity in certain regions while other areas remained unexplored. This is well seen in the provisional distribution maps of butterflies of the former Yugoslavia (JAKŠIĆ,

1988). These maps are based mainly on published data but many lepidopterists who added their unpublished records also contributed (JAKŠIĆ, 1988). The paper does not intend to diminish the work of many workers in the field who have studied Croatian butterflies most assiduously or to give a historical overview of butterfly research in Croatia, merely a review of the history of the creation of a national checklist.

The main aim of this paper is to compile the list of Croatian butterflies and provide vernacular names useful for the wider public.

MATERIALS AND METHODS

The checklist of Croatian butterflies is based on records from extensive data gathering from older literature (JAKŠIĆ, 1983) and recently published new findings (e.g. KUČINIĆ *et al.*, 1999; MIHOCI *et al.*, 2005, 2006; PERKOVIĆ, 2006; MICEVSKI & MICEVSKI, 2004/05; KOSMAČ & VEROVNIK, 2009; MIHOCI & ŠAŠIĆ, 2009; KOREN, 2010; TVRTKOVIĆ *et al.*, 2011), butterfly collections from museums in Croatia (Croatian Natural History Museum, Zagreb; Koprivnica City museum, Varaždin City Museum, and Badovinac collection at the Faculty of Forestry, Zagreb), unpublished data (diaries of Zdravko Lorković, celebrated Croatian lepidopterist) and our recent field surveys during last 15 years.

The nomenclature follows VAN SWAAY *et al.*, 2010.

RESULTS AND DISCUSSION

The first recent summary, mentioning but not listing 183 species of Croatian butterflies, was presented by celebrated lepidopterist Zdravko Lorković in 1989, who commented that this represented 99% of all the species (LORKOVIĆ, 1989). Later, he prepared a checklist of 186 butterflies for the Red Data Book of European butterflies (VAN SWAAY & WARREN, 1999). A decade after his death in 1998, a paper about the butterflies of Plitvice Lakes was published, based on his manuscript, with an annotated list of all Croatian species; however it consists of 185 species (LORKOVIĆ, 2009). The paper was first written in 1954 but later some handwritten notes were added.

During the last two decades many efforts have been made to fill the gaps in the knowledge of the distribution of butterflies in Croatia. This led to the discovery of several new species for our fauna: *Coenonympha oedippus* (Fabricius, 1787) (KUČINIĆ *et al.*, 1999), *Lycaena ottomana* (Lefèbvre, 1830) (MIHOCI *et al.*, 2005), *Polyommatus damon* (Denis and Schiffermüller, 1775) (MIHOCI *et al.*, 2006), *Hipparchia senthes* (Fruhstorfer, 1908) (MICEVSKI & MICEVSKI, 2004/05), *Danaus chrysippus* (Linnaeus, 1758) (PERKOVIĆ, 2006), *Lasiommata petropolitana* (Fabricius, 1787) (MIHOCI & ŠAŠIĆ, 2009), *Cacyreus marshalli* Butler, 1898 (KOSMAČ & VEROVNIK, 2009) and *Polyommatus ripartii* (Freyer, 1830) (KOREN, 2010), *Colias caucasica* Staudinger, 1871 (TVRTKOVIĆ *et al.*, 2011). This brings the species count up to 195 known butterfly species of Croatia. The overall number represents 40 % of the European fauna of 483 butterfly species (VAN SWAAY *et al.*, 2010) and not many more additions to the list are expected. However, changes in taxonomy can change the overall number (WAKEHAM-DAWSON *et al.*, 2004; DINCA *et al.*, 2011).

The distribution of many species and subspecies is still poorly known because many regions of Croatia have not been surveyed adequately. This especially be-

came clear when we were assessing the poorly-documented fauna for the national red list (ŠAŠIĆ & KUČINIĆ, 2004). We found the skippers, the Hesperiidae, especially problematic, because they are hard to identify and are often missed or neglected during the field studies.

For some of the species there are no recent records, but they are kept on the list because we believe that historical evidence, in combination with the lack of recent investigations, should prevent them being excluded. Our future activities will be focused on confirmation of older historical records of some of these species. The example of *Proterebia afra dalmata* (Godart, [1824]) shows how recent efforts changed the view on the distribution and also on the threat status of this species. For two centuries it was believed that this subspecies appears only at two sites near the towns of Zadar and Šibenik in the Croatian coastal region in central Dalmatia. Because of its early spring flight period it was only rarely listed in many historical publications about the fauna of this region (NICHOLL, 1899; STAUDER, 1922; SIJARIĆ, 1991). During recent field surveys the Dalmatian ringlet has been found at many new sites, completely changing the picture of the known range of the subspecies. It has been found from the island of Pag in the north down to Mt Biokovo and further inland to Gračac (MIHOCI & ŠAŠIĆ, 2005; ZAKŠEK, 2005; ČELIK *et al.*, 2006; MIHOCI & ŠAŠIĆ, 2007; DELIĆ, 2010; KOREN *et al.*, 2010).

Two species whose presence in Croatia is doubtful have been removed from this list. These are:

Leptidea duponcheli (Staudinger, 1871) – there is a specimen of this species from the island of Unije in the Central Butterfly Collection of Croatian Natural History Museum. However, we believe it is a mislabelled specimen as it belongs to the first generation of the species which flies in the southern Balkan Peninsula from April to May, and yet was collected in September, 1964. This record was also not published together with the other records from the same fieldtrip (MLADINOV, 1967) and also was not published in the catalogue of the collection (MLADINOV, 1973). For further details see KUČINIĆ *et al.* (2009). There are no reliable records (published or collected) for this species for the Croatian islands (WITHRINGTON & VEROVNIK, 2008). We do not exclude the possibility of finding this species in the extreme south-eastern part of Dalmatia.

Coenonympha tullia (Müller, 1764) – the species was first mentioned for Croatia by KOČA (1901) for Slavonia. This record has been doubted by LORKOVIĆ (2009) as there is no voucher specimen in Koča's collection, which is hosted in the Croatian Natural History Museum. After conducting field trips, Lorković concluded that it was probably a misidentified *Coenonympha glycerion* (LORKOVIĆ, 2009; LORKOVIĆ, unpublished records). REBEL (1904) found this species in Bosanski Brod in Bosnia close to the Croatian border, but since the species is considered extinct in Bosnia (LELO, 2008) and the habitat in this part of Croatia has changed remarkably during the 20th century we believe this species is not part of the Croatian fauna.

Hereafter we give the comments for species with questionable occurrence in Croatia and the reason why they were not excluded from the list.

Zerynthia cerisy dalmacijae (Sala & Bollino, 1994) – despite many attempts to locate the only collecting site of this species/ subspecies in Croatia published by SALA & BOLLINO (1994) it has never been rediscovered. Nevertheless, we treat this species as a member of Croatian fauna as it is known from nearby localities in Bosnia and Herzegovina (SIJARIĆ, 1989).

Papilio alexanor Esper, 1800 – this species had no recent records apart from the observation from Mt Biokovo (MIHOCI *et al*., 2011).

Boloria titania (Esper, 1793) – there are no recent records of this species in Croatia; the only record is from Ruda poljana on Lička Plješivica Mt from 1922 collected by Z. Badovinac, held in the Badovinac collection of the Faculty of Forestry, University of Zagreb. There have been no recent attempts to find this species and the area has possibly not changed much in the recent years; therefore we believe the species is still present there.

Melitaea britomartis Assmann, 1847 – the distribution of this species overlaps with the presence of a very similar *M. aurelia* so further efforts have to be made to clarify their distribution. There is no doubt that the species is present in Croatia.

Erebia stiria (Godart, 1824) – two endemic subspecies are present in Croatia, for further information see (MIHOCI *et al*, 2007b; LORKOVIĆ, 2009).

Hipparchia senthes (Fruhstorfer, 1908) – because of the European distribution the record of this species on Cres Island (MICEVSKI & MICEVSKI, 2004/05) is questionable and further field research is needed.

Additionally, in the systematics we followed (VAN SWAAY *et al*., 2010), the taxa *Phengaris alcon* (Denis & Schiffermüller, 1775) and *P. rebeli* (Hirschke, 1904) are treated as the single species *Phengaris alcon* (Denis & Schiffermüller, 1775) following ALS *et al.* (2004), BEREZCKI *et al.* (2005) and FRIC *et al.* (2007) because of little morphological and no genetic differentiation. These taxa utilize different habitats and usually different larval host plants, and were therefore treated as separated species for many years, also in the Croatian literature (ŠAŠIĆ KLJAJO, 2004; MIHOCI *et al*., 2007a). In addition, *Pyrgus trebevicensis* (Warren, 1924) listed in LORKOVIĆ (2009) is considered a synonym of *P. alveus* (Hübner, 1803) (KARSHOLT & RAZOWSKI, 1996; VAN SWAAY *et al*., 2010)

Because of the many questions about vernacular names arising during our work, we also present the list of Croatian names for all butterfly species for the first time. In defining vernacular names we accepted historical names that have been previously published in works by VUKOTINOVIĆ (1879), LANGHOFFER (1919–1920), KRANJČEV (2009) if they were within the present spirit of the language e.g. *P. aegeria* (Linnaeus, 1758) – lugar (VUKOTINOVIĆ, 1879) but also several additional principles like: Latin or English name (e.g. *Proterebia afra dalmata* (Godart, [1824]) dalmatinski okaš), geographical distribution (e.g. *Papilio alexanor* Esper, 1800 južni lastin rep), author (e.g. *Pieris balcana* Lorković, 1968 Lorkovićev bijelac), morphological feature (e.g. *Pieris napi* (Linnaeus, 1758) crnožili bijelac) or larval host plant (e.g.. *Scolitantides orion* (Pallas, 1771) žednjakov plavac).

Furthermore, we give here the vernacular names of five endemic subspecies because we consider their presence to be a valuable part of local biodiversity. These are:

– *Zerynthia cerisy dalmacijae* (Sala & Bollino, 1994) dalmatinski uskršnji leptir

– *Erebia gorge vagana* Lorković, 1954 velebitski planinski okaš

– *Erebia stiria kleki* Lorković, 1955 klekovski okaš;

– *Erebia stiria gorana* Lorković, 1985 goranski okaš

– *Erebia oeme megaspodia* Mladinov & Lorković, 1979 kupski okaš

– and *Proterebia afra dalmata* (Godart, [1824]) – dalmatinski okaš, whose distribution exceeds Croatian borders (KOREN & TRKOV, 2011).

After the publication of the Red List of Threatened Butterflies of Croatia (ŠAŠIĆ & KUČINIĆ, 2004) and the statutory protection of threatened species (Official Gazette, No. 70/05, 99/09), the list is one of the steps towards conservation of butterflies in Croatia. While worldwide more and more scientific results become available about the ecological requirements of butterflies and the effects of nature management practice, in Croatia there are big gaps even in the knowledge about species distribution, not to mention habitat requirements and management. Some species have also suffered major losses in distribution in Croatia and large numbers of butterflies are threatened due to rapid changes in land use. We need to identify sites important for such species which then need to be protected by statute for their survival to be ensured. Our future aim is to develop a monitoring network in order to assess the status of butterflies in Croatia, to document and halt their loss.

Systematic list of Croatian butterflies with vernacular names (nomenclature follows: VAN SWAAY *et al.*, 2010)

fam. Hesperiidae – debeloglavci

1. *Erynnis tages* (Linnaeus, 1758) tamni debeloglavac
2. *Carcharodus alceae* (Esper, 1780) sljezov debeloglavac
3. *Carcharodus lavatherae* (Esper, 1783) čistacov debeloglavac
4. *Carcharodus flocciferus* (Zeller, 1847) Zellerov debeloglavac
5. *Carcharodus orientalis* Reverdin, 1913 istočni debeloglavac
6. *Spialia sertorius* (Hoffmannsegg, 1804) crvenkasti debeloglavac
7. *Spialia orbifer* (Hübner, 1823) zelenkasti debeloglavac
8. *Muschampia proto* (Ochsenheimer, 1808) pelinov debelovac
9. *Pyrgus carthami* (Hübner, 1813) obični debeloglavac
10. *Pyrgus sidae* (Esper, 1784) narančasti debeloglavac
11. *Pyrgus malvae* (Linnaeus, 1758) sijedi debeloglavac
12. *Pyrgus serratulae* (Rambur, 1839) zagasiti debeloglavac
13. *Pyrgus armoricanus* (Oberthür, 1910) zujavac
14. *Pyrgus alveus* (Hübner, 1803) veliki sijedi debeloglavac
15. *Heteropterus morpheus* (Pallas, 1771) močvarni debeloglavac
16. *Carterocephalus palaemon* (Pallas, 1771) žutopjegi debeloglavac
17. *Thymelicus lineola* (Ochsenheimer, 1808) smeđi debeloglavac
18. *Thymelicus sylvestris* (Poda, 1761) srebreni debeloglavac
19. *Thymelicus acteon* (Rottemburg, 1775) Rottemburgov debeloglavac
20. *Hesperia comma* (Linnaeus, 1758) livadni debeloglavac
21. *Ochlodes sylvanus* (Esper, 1777) šareni debeloglavac
22. *Gegenes pumilio* (Hoffmannsegg, 1804) opskurni debeloglavac
23. *Gegenes nostrodamus* (Fabricius, 1793) mediteranski debeloglavac

porodica Papilionidae – lastinrepci

24. *Zerynthia polyxena* (Denis & Schiffermüller, 1775) uskršnji leptir
25. *Zerynthia cerisy* (Godart, 1824) istočni uskršnji leptir
26. *Parnassius mnemosyne* (Linnaeus, 1758) crni apolon
27. *Parnassius apollo* (Linnaeus, 1758) apolon
28. *Iphiclides podalirius* (Linnaeus, 1758) prugasto jedarce

29. *Papilio machaon* Linnaeus, 1758 lastin rep
30. *Papilio alexanor* Esper, 1800 južni lastin rep

porodica Pieridae – bijelci

31. *Leptidea sinapis* (Linnaeus, 1758) gorušičin bijelac
32. *Leptidea reali* Reissinger, 1989 Realov zagasiti bijelac
33. *Leptidea morsei* (Fenton, 1881) šumski bijelac
34. *Anthocharis cardamines* (Linnaeus, 1758) zorica
35. *Euchloe ausonia* (Hübner, 1804) čipka
36. *Aporia crataegi* (Linnaeus, 1758) glogov bijelac
37. *Pieris brassicae* (Linnaeus, 1758) kupusov bijelac
38. *Pieris mannii* (Mayer, 1851) ognjičin bijelac
39. *Pieris rapae* (Linnaeus, 1758) repičin bijelac
40. *Pieris ergane* (Geyer, 1828) mali bijelac
41. *Pieris napi* (Linnaeus, 1758) crnožili bijelac
42. *Pieris balcana* Lorković, 1968 Lorkovićev bijelac
43. *Pontia daplidice* (Linnaeus, 1758) zeleni bijelac
44. *Colias erate* (Esper, 1805) limunasti poštar
45. *Colias crocea* (Geoffroy, 1785) obični poštar
46. *Colias myrmidone* (Esper, 1781) narančasti poštar
47. *Colias caucasica* Staudinger, 1871 planinski poštar
48. *Colias hyale* (Linnaeus, 1758) zagasiti poštar
49. *Colias alfacariensis* Ribbe, 1905 zlatni poštar
50. *Gonepteryx rhamni* (Linnaeus, 1758) žućak
51. *Gonepteryx cleopatra* (Linnaeus, 1767) kleopatra

porodica Riodinidae – pirgavci

52. *Hamearis lucina* (Linnaeus, 1758) smeđi pirgavac

porodica Lycaenidae – plavci

53. *Lycaena phleas* (Linnaeus, 1761) mali vatreni plavac
54. *Lycaena dispar* (Haworth, 1802) kiseličin vatreni plavac
55. *Lycaena virgaureae* (Linnaeus, 1758) obični vatreni plavac
56. *Lycaena ottomana* (Lefèbvre, 1830) grčki vatreni plavac
57. *Lycaena tityrus* (Poda, 1761) točkasti vatreni plavac
58. *Lycaena alciphron* (Rottemburg, 1775) ljubičasti vatreni plavac
59. *Lycaena hippothoe* (Linnaeus, 1761) bjelooki vatreni plavac
60. *Lycaena candens* (Herrich-Schäffer, 1844) balkanski plavac
61. *Lycaena thersamon* (Esper, 1784) Esperov vatreni plavac
62. *Thecla betulae* (Linneaus, 1758) brezin plavac
63. *Favonius quercus* (Linnaeus, 1758) hrastov repić
64. *Callophrys rubi* (Linnaeus, 1758) zeleni kupinar
65. *Satyrium w-album* (Knoch, 1782) brijestov repić
66. *Satyrium pruni* (Linnaeus, 1758) trninin repić
67. *Satyrium spini* (Denis & Schiffermüller, 1775) plavkasti repić
68. *Satyrium ilicis* (Esper, 1779) hrastov repić

69. *Satyrium acaciae* (Fabricius, 1787) bagremov repić
70. *Lampides boeticus* (Linnaeus, 1767) veliki tigrasti plavac
71. *Cacyreus marshalli* Butler, 1898 pelargonijin plavac
72. *Leptotes pirithous* (Linnaeus, 1767) mali tigrasti plavac
73. *Tarucus balkanicus* (Freyer, 1844) balkanski plavac
74. *Cupido minimus* (Fuessly, 1775) mali strjeličar
75. *Cupido osiris* (Meigen, 1829) grahorkin strjeličar
76. *Cupido argiades* (Pallas, 1771) kratkorepi strjeličar
77. *Cupido decoloratus* (Staudinger, 1886) vijin strjeličar
78. *Cupido alcetas* (Hoffmannsegg, 1804) grašarov strjeličar
79. *Celastrina argiolus* (Linnaeus, 1758) vrijeskov plavac
80. *Pseudophilotes vicrama* (Moore, 1865) istočni plavac
81. *Scolitantides orion* (Pallas, 1771) žednjakov plavac
82. *Glaucopsyche alexis* (Poda, 1761) zelenokrili plavac
83. *Iolana iolas* (Ochsenheimer, 1816) pucavac
84. *Phengaris arion* (Linnaeus, 1758) timijanov plavac
85. *Phengaris teleius* (Bergsträsser, 1779) veliki livadni plavac
86. *Phengaris nausithous* (Bergsträsser, 1779) zagasiti livadni plavac
87. *Phengaris alcon 'alcon'* (Denis & Schiffermüller, 1775) močvarni plavac
Phengaris alcon 'rebeli' (Hirschke, 1904) gorski plavac
88. *Plebejus argus* (Linnaeus, 1758) trnonogi plavac
89. *Plebejus idas* (Linnaeus, 1761 glatkonogi plavac
90. *Plebejus argyrognomon* (Bergsträsser, 1779) sjajni plavac
91. *Aricia eumedon* (Esper, 1780) mrki plavac
92. *Aricia agestis* (Denis & Schiffermüller, 1775) obični mrki plavac
93. *Aricia artaxerxes* (Fabricius, 1793) planinski mrki plavac
94. *Aricia anteros* (Freyer, 1838) igličin mrki plavac
95. *Cyaniris semiargus* (Rottemburg, 1775) djetelinin plavac
96. *Polyommatus escheri* (Hübner, 1823) dalmatinski plavac
97. *Polyommatus dorylas* (Denis & Schiffermüller, 1775) ranjenikov plavac
98. *Polyommatus amandus* (Schneider, 1792) amandin plavac
99. *Polyommatus thersites* (Cantener, 1835) grahorkin plavac
100. *Polyommatus icarus* (Rottemburg, 1775) obični plavac
101. *Polyommatus eros* (Ochsenheimer, 1808) planinski plavac
102. *Polyommatus daphnis* (Denis & Schiffermüller, 1775) zupčasti plavac
103. *Polyommatus bellargus* (Rottemburg, 1775) blistavi plavac
104. *Polyommatus coridon* (Poda, 1761) tirkizni plavac
105. *Polyommatus admetus* (Esper, 1783) veliki smeđi plavac
106. *Polyommatus ripartii* (Freyer, 1830) Ripartijev smeđi plavac
107. *Polyommatus damon* (Denis & Schiffermüller, 1775) sivorubi prugavac

porodica Nymphalidae – šarenci

108. *Libythea celtis* (Laicharting, 1782) koprivićnjak
109. *Argynnis paphia* (Linnaeus, 1758) zelena sedefica
110. *Argynnis pandora* (Denis & Schiffermüller, 1775) pandorin šarenac
111. *Argynnis aglaja* (Linnaeus, 1758) velika sedefica
112. *Argynnis adippe* (Denis & Schiffermüller, 1775) adipina sedefica

113. *Argynnis niobe* (Linnaeus, 1758) niobina sedefica
114. *Issoria lathonia* (Linnaeus, 1758) obična sedefica
115. *Brenthis ino* (Rottemburg, 1775) končarin šarenac
116. *Brenthis daphne* (Bergsträsser, 1780) kupinin šarenac
117. *Brenthis hecate* (Denis & Schiffermüller, 1775) dvotočkasti šarenac
118. *Boloria euphrosyne* (Linnaeus, 1758) proljetna šarenac
119. *Boloria titania* (Esper, 1793) planinski šarenac
120. *Boloria selene* (Denis & Schiffermüller, 1775) bisernica
121. *Boloria dia* (Linnaeus, 1767) tkalčev šarenac
122. *Vanessa atalanta* (Linnaeus, 1758) ljepokrili admiral
123. *Vanessa cardui* (Linnaeus, 1758) stričkovac
124. *Aglais io* (Linnaeus, 1758) danje paunče
125. *Aglais urticae* (Linnaeus, 1758) koprivina riđa
126. *Polygonia c-album* (Linnaeus, 1758) kontinentalna riđa
127. *Polygonia egea* (Cramer, 1775) mediteranska riđa
128. *Araschnia levana* (Linnaeus, 1758) šumska riđa
129. *Nymphalis antiopa* (Linnaeus, 1758) mrtvački plašt
130. *Nymphalis polychloros* (Linnaeus, 1758) smeđonoga riđa
131. *Nymphalis xanthomelas* (Esper, 1781) žutonoga riđa
132. *Nymphalis vaualbum* (Denis & Schiffermüller, 1775) bijela riđa
133. *Euphydryas maturna* (Linnaeus, 1758) mala svibanjska riđa
134. *Euphydryas aurinia* (Rottemburg, 1775) močvarna riđa
135. *Melitaea cinxia* (Linnaeus, 1758) trpučeva riđa
136. *Melitaea phoebe* (Denis & Schiffermüller, 1775) zečinina riđa
137. *Melitaea trivia* (Denis & Schiffermüller, 1775) divizmina riđa
138. *Melitaea didyma* (Esper, 1778) crvena riđa
139. *Melitaea diamina* (Lang, 1789) mrka riđa
140. *Melitaea aurelia* Nickerl, 1850 zlaćana riđa
141. *Melitaea britomartis* Assmann, 1847 tamna riđa
142. *Melitaea athalia* (Rottemburg, 1775) obična riđa
143. *Limenitis populi* (Linnaeus, 1758) topolnjak
144. *Limenitis camilla* (Linnaeus, 1764) smeđi admiral
145. *Limenitis reducta* Staudinger, 1901 plavi admiral
146. *Neptis sappho* (Pallas, 1771) mala zebra
147. *Neptis rivularis* (Scopoli, 1763) velika zebra
148. *Charaxes jasius* (Linnaeus, 1767) vještica
149. *Apatura metis* Freyer, 1829 panonska preljevalica
150. *Apatura ilia* (Denis & Schiffermüller, 1775) mala preljevalica
151. *Apatura iris* (Linnaeus, 1758) velika preljevalica
152. *Kirinia roxelana* (Cramer, 1777) mediteranski okaš
153. *Pararge aegeria* (Linnaeus, 1758) lugar
154. *Lasiommata megera* (Linnaeus, 1767) mali pjegavac
155. *Lasiommata maera* (Linnaeus, 1758) veliki pjegavac
156. *Lasiommata petropolitana* (Fabricius, 1787) planinski pjegavac
157. *Lopinga achine* (Scopoli, 1763) šumski okaš

158. *Coenonympha oedippus* (Fabricius, 1787) močvarni okaš
159. *Coenonympha rhodopensis* Elwes, 1900 planinski okaš
160. *Coenonympha arcania* (Linnaeus, 1761) bjelokrili okaš
161. *Coenonympha glycerion* (Borkhausen, 1788) srebrenorubi okaš
162. *Coenonympha pamphilus (*Linnaeus, 1758) obični okaš
163. *Pyronia tithonus* (Linnaeus, 1767) obični vratar
164. *Pyronia cecilia* (Vallantin, 1894) južni vratar
165. *Aphantopus hyperantus* (Linnaeus, 1758) zlatni okaš
166. *Maniola jurtina* (Linnaeus, 1758) veliko volovsko oko
167. *Hyponephele lycaon* (Kühn, 1774) zagasito volovsko oko
168. *Hyponephele lupina* (Costa, 1836) orijentalno volovsko oko
169. *Proterebia afra* (Fabricius, 1787) svjetložili okaš
170. *Erebia ligea* (Linnaeus, 1758) bjelokrili planinski okaš
171. *Erebia euryale* (Esper, 1805) veliki planinski okaš
172. *Erebia epiphron* (Knoch, 1783) mali planinski okaš
173. *Erebia aethiops* (Esper, 1777) obični planinski okaš
174. *Erebia triaria* (de Prunner, 1798) trotočkasti planinski okaš
175. *Erebia medusa* (Denis & Schiffermüller, 1775) proljetni planinski okaš
176. *Erebia gorge* (Hübner, 1804) svileni planinski okaš
177. *Erebia ottomana* Herrich-Schäffer, 1847 balkanski planinski okaš
178. *Erebia pronoe* (Esper, 1780) vodeni planinski okaš
179. *Erebia stiria* (Godart, 1824) šašikin planinski okaš
180. *Erebia melas* (Herbst, 1796) crni planinski okaš
181. *Erebia oeme* (Hübner, 1804) svjetlooki planinski okaš
182. *Melanargia galathea* (Linnaeus, 1758) šahovnica
183. *Melanargia larissa* (Geyer, 1828) mediteranska šahovnica
184. *Satyrus ferula* (Fabricius, 1793) smeđooki okaš
185. *Minois dryas* (Scopoli, 1763) modrooki okaš
186. *Hipparchia fagi* (Scopoli, 1763) bukvin sivac
187. *Hipparchia syriaca* (Staudinger, 1871) istočni sivac
188. *Hipparchia senthes* (Fruhstorfer, 1908) južni sivac
189. *Hipparchia semele* (Linnaeus, 1758) obični sivac
190. *Hipparchia statilinus* (Hufnagel, 1766) ovsikov sivac
191. *Arethusana arethusa* (Denis & Schiffermüller, 1775) lažni sivac
192. *Brintesia circe* (Fabricius, 1775) bijeli šumski vratar
193. *Chazara briseis* (Linnaeus, 1764) pustinjak
194. *Pseudochazara anthelea* (Hübner, 1824) bjelokrili pustinjak
195. *Danaus chrysippus* (Linnaeus, 1758) mediteranski monarh

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REFERENCES

Als T. D, Vila R, Kandul N. P, Nash D. R, Yen S.-H, Hsu Y.-F, Mignault A. A, Boosma J. J. & N. E. Pierce, 2004: The evolution of alternative parasitic life histories in large blue butterflies. Nature **432**, 386–390.

Bereczki, J., K. Pecsenye, Peregovits, L. & Z. Varga, 2005: Pattern of genetic differentiation in the Maculinea alcon species group (Lepidoptera, Lycaenidae) in Central Europe. Journal of Zoological Systematics & Evolutionary Research **43**(2), 157–165.

Čelik, T., Zakšek, V., Vreš, B. & R. Verovnik, 2006: Distribution and habitat characteristics of *Proterebia afra* (Fabricius, 1787) (Lepidoptera, Satyrinae) in Croatia. 1st Slovenian Entomological Symposium. Book of Abstracts, p. 8–9.

Delić, A., 2010: Novi nalazi endemičnog leptira dalmatinskog okaša *Proterebia afra dalmata* (Godart, 1824) (Lepidoptera, Satyrinae) u Dalmaciji (Hrvatska). U: Matas M. & Faričić J. (ur.). Knjiga sažetaka sa znanstvenog skupa: Zagora između stočarsko-ratarske tradicije te procesa litoralizacije i globalizacije, Zadar – Dugopolje, 19–21. listopada 2010. Sveučilište u Zadru, Kulturni sabor Zagore – Split, Ogranak Matice Hrvatske Split. Pp 13.

Dinca, V., Lukhtanov, V. A., Talavera, G., & R. Vila, 2011: Unexpected layers of cryptic diversity in wood white Leptidea butterflies. Nature Communications, **2**, 324

Fric, Z., N. Wahlberg, Pech, P. & J. Zrzavý, 2007: Phylogeny and classification of the Phengaris Maculinea clade (Lepidoptera: Lycaenidae): total evidence and phylogenetic species concepts. Systematic Entomology **32**, 558–567

Jakšić, P., 1983: Bibliografija Rhopalocera (Lepidoptera) Jugoslavije sa katalogom vrsta, podvrsta i sinonima. Acta entomologica Jugoslavica **19** (suppl), 55–115.

Jakšić, P., 1988: Provisional distribution maps of the butterlies of Yugoslavia (Lepidoptera, Rhopalocera). Jugoslavensko entomološko društvo, Zagreb, pp 214

Koča, G., 1901: Prilog fauni leptira Hrvatske i Slavonije. Glasnik Hrvatskog naravoslovnog društva **13** (1–3), 1–67.

Koren, T., Burić, I., Štih, A., Zakšek, V. & R. Verovnik, 2010: New data about the distribution and altitudinal span of the Dalmatian Ringlet, *Proterebia afra dalmata* (Godart, [1824]) (Lepidoptera: Satyrinae) in Croatia. Acta entomologica Slovenica **18** (2), 143–150.

Koren, T., 2010: First finding of Ripart's Anomalous Blue *Polyommatus (Agrodiaetus) ripartii* (Freyer, 1830) (Lepidoptera, Lycaenidae) in Croatia. Nat. Croat. **19**(2), 463–467.

Koren, T. & D. Trkov, 2011: *Proterebia afra dalmata* (Godart, 1824) (Lepidoptera, Satyrinae) recorded for the first time in Bosnia and Herzegovina. Natura Sloveniae **13** (1), 57–58.

Kosmač, M. & R. Verovnik, 2009: First record of *Cacyreus marshalli* (Lycaenidae) from the Balkan Peninsula. Nota Lepidopterologica **32** (1), 81–82.

Kranjčev, R., 2009: Leptiri Hrvatske. Veda, Križevci, pp 255.

Kučinić, M., Tvrtković, N. & E., Kletečki, 1999: The False Ringlet (*Coenonympha oedippus* F.) is a member of the Croatia butterfly fauna after all. Natura Croatica **8** (4), 399–405.

Kučinić, M., Pelić, D., Vajdić, M. & B. Gjurašin, 2009: Interesting specimen of *Leptidea duponcheli* (Staudinger, 1871) in the Central Butterfly Collection of the Croatian Natural History Museum in Zagreb. Entomologia Croatica **13** (1), 95–100.

Langhoffer, A., 1919–1920: Gradja za hrvatsku zoologičku terminologiju. Nastavni vjesnik. **28** (5), 206–208.

Lelo, S., 2008: Dnevni leptiri Bosne i Hercegovine. Prirodno-matematički fakultet Univerziteta u Sarajevu, Sarajevo, pp 337.

Lorković, Z., 1989: Fauna Rhopalocera (S.L.) SR Hrvatske. Zbornik sažetaka referata »Entomofauna Hrvatske '89«, Hrvatsko entomološko društvo. Zagreb, pp. 5–7.

Lorković, Z., 2009: The Rhopalocera fauna of Croatia with special respect to the fauna of Plitvice Lakes. Entomologia Croatica **13** (1), 15–78.

Micevski, N. & B. Micevski 2004/05: Contribution to the knowledge of the fauna of butterflies of Cres (Republic of Croatia). Biologia Macedonica **57/58**, 99–105.

Mihoci, I. & M. Šašić, 2005: New findings of the butterfly Dalmatian Ringlet, *Proterebia afra dalmata* (Godart, [1824]) (Lepidoptera, Satyrinae) in Croatia. Nat. Croat. **14** (2), 121–129.

Mihoci, I., Tvrtković, N. & M. Šašić, 2005: Grecian Copper *Lycaena ottomanus* (Lefèbvre, 1830) (Lepidoptera, Lycaenidae) – a new species in the Croatian butterfly fauna. Nat. Croat. **14** (4), 255–262.

MIHOCI, I., VAJDIĆ, M. & M. ŠAŠIĆ, 2006: The status of the Damon Blue *Polyommatus (Agrodiaetus) damon* (Denis and Schiffermüller, 1775) (Papilionoidea: Lycaenidae, Polyommatini) in the Croatian butterfly fauna. Nat. Croat. **15** (1–2), 15–25.

MIHOCI, I. & M. ŠAŠIĆ, 2007: New distribution data on the endemic butterfly *Proterebia afra dalmata* (Godart, [1824]) (Nymphalidae, Satyrinae) in Croatia. Nat. Croat. **16** (3): 205–210.

MIHOCI, I., DELIĆ, A., GJURAŠIN, B., BUČAR, M. & M. KUČINIĆ, 2007a: First finding of the critically endangered butterfly *Maculinea alcon* (Denis & Schiffermüller, 1775) (Lepidoptera: Lycaenidae) in the Pannonian part of Croatia. Nat. Croat. **16** (1), 19–28.

MIHOCI, I., ŠAŠIĆ, M. & N. TVRTKOVIĆ, 2007b: New data on the distribution of the Croatian endemic butterfly *Erebia stirius kleki* Lorković, 1955 (Papilionoidea, Nymphalidae, Satyrinae). Nat. Croat. **16**(2), 139–146.

MIHOCI, I. & M. ŠAŠIĆ, 2009: Occurrence of the satyrine butterfly *Lasiommata petropolitana* (Fabricius, 1787) confirmed in Croatia. Nat. Croat. **18** (1), 175–180.

MIHOCI, I., HRŠAK, V., KUČINIĆ, M., MIČETIĆ STANKOVIĆ, V., DELIĆ, A. & N. TVRTKOVIĆ, 2011: Butterfly diversity and biogeography on the Croatian karst mountain Biokovo: Vertical distribution and preference for altitude and aspect?. European Journal of Entomology **108,** 623–633.

MLADINOV, L., 1967: Fauna leptira jadranskog otoka Unije. Biološki glasnik **20**, 151–164.

MLADINOV, L., 1973: Lepidoptera (Rhopalocera) zbirki Hrvatskog narodnog zoološkog muzeja u Zagrebu. Hrvatski narodni zoološki muzej u Zagrebu **7**, 56.

NICHOLL, M., 1899: Butterflies hunting in Dalmatia, Montenegro, Bosnia and Herzegovina. The Entomologist's Record and Journal of Variation, **11** (1), 1–8.

PERKOVIĆ, D., 2006: *Danaus chrysippus* (Linnaeus, 1758) (Lepidoptera, Nymphalidae, Danainae), a new species in the fauna of Croatia. Nat. Croat. **15** (1–2), 61–64.

REBEL, H., 1904: Studien über die Lepidopterenfauna der Balkanländer. II Teil Bosnien und Herzegovina. Annalen des k. k. Naturhistorischen Hofmuseum **19**, 97–377.

SALA, G. & M. BOLLINO, 1994: *Allancastria cerisyi* GODART, 1822 in the Balkans: New subspecies and critical notes on the existing populations. Atalanta, **25** (1–2), 151–160

SIJARIĆ, R., 1989: Taksonomska istraživanja i nove podvrste roda *Zerynthia* (Lepidoptera, Rhopalocera) na nekim područjima Jugoslavije. Glasnik zemaljskog muzeja u Bosni i Hercegovini (PN) NS, **28**, 177–208.

SIJARIĆ, R., 1991: Katalog naučne zbirke Lepidoptera (Insecta) donatora Bore Mihljevića iz Sarajeva. Glasnik Zemaljskog muzeja Bosne i Hercegovine, PN, NS, **30**, 169–360.

STAUDER, H., 1922: Die Schmetterlingsfauna der illyro-adriatischen Festland- und Inselzone (Faunula Illyrico Adriatica). Ztschr. wiss. Insektenbiologie **17** (7–8), 141.

ŠAŠIĆ KLJAJO, M., 2004: Inventarizacija vrsta roda Maculinea i prijedlozi za zaštitu njihovih staništa na području Nacionalnog parka Plitvička jezera. Plitvički bilten **6**, 71–82

ŠAŠIĆ, M. & KUČINIĆ, M., 2004: The Red Data List of Croatian Butterflies. In Marković, D. (ed.). State Institute for Nature Protection.

TVRTKOVIĆ, N., MIHOCI, I. & M. ŠAŠIĆ, 2011: *Colias caucasica balcanica* Rebel, 1901 (Pieridae) in Croatia – the most western distribution point in Europe. Nat. Croat. **20**(2), 375–385.

VAN SWAAY, C. A. M. & M. S. WARREN, 1999: Red Data book of European butterflies (Rhopalocera). Nature and Environment, No. **99**, Council of Europe Publishing, Strasbourg, pp 260.

VAN SWAAY, C., D. MAES, COLLINS, S., MUNGUIRA, ML., ŠAŠIĆ, M, SETTELE, J., VEROVNIK, R., WARREN, M., WIEMERS, M., WYNHOFF, I. & CUTTELOD, A., 2010: Applying IUCN criteria to invertebrates: How red is the Red List of European butterflies? Biological Conservation **144** (1), 470–478.

VAN SWAAY, C., NOWICKI, P., SETTELE, J. & A. VAN STRIEN, 2008: Butterfly monitoring in Europe: methods, applications and perspectives. Biodiversity and Conservation **17**(14), 3455–3469.

VUKOTINOVIĆ, L., 1879: Fauna leptirah u okolišu Zagrebačkom. Rad JAZU **48**, 1–129.

WAKEHAM-DAWSON, A., JAKŠIĆ, P., HOLLOWAY, J. D. & R. L. H. DENNIS, 2004: Multivariate analysis of male genital structures in the *Hipparchia semele-muelleri-delattini* complex (Nymphalidae, Satyrinae) from the Balkans: how many taxa? Nota lepidopterologica **27** (2/3), 103–124.

WITHRINGTON, D. & R. VEROVNIK, 2008: Butterflies (Rhopalocera) of the Croatian islands. Entomologist's Gazette **59**, 3–25.

ZAKŠEK, V., 2005: On the presence of *Proterebia afra* (Lepidoptera: Nymphalidae, Satyrinae) on the island of Pag, Croatia. Phegea **33** (3), 118–120.

SAŽETAK

Popis vrsta danjih leptira Hrvatske s hrvatskim imenima i napomenama

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Cilj ovog rada bio je objaviti cjeloviti popis vrsta danjih leptira u fauni Hrvatske s hrvatskim imenima za svaku vrstu. Analizom publiciranih radova, muzejskih zbirki, nepubliciranih podataka te rezultata recentnih terenskih istraživanja nastoji se dokumentirati fauna danjih leptira te stvoriti nacionalna baza distribucijskih podataka za svaku vrstu, te je tako napravljen popis od 195 vrsta danjih leptira u Hrvatskoj. Tijekom posljednjih desetak godina objavljeno je više novih nalaza vrsta u Hrvatskoj: *Coenonympha oedippus*, *Lycaena ottomana*, *Polyommatus damon*, *Hipparchia senthes*, *Danaus chrysippus*, *Lasiommata petropolitana*, *Cacyreus marshalli* i *Polyommatus ripartii*. Ukupan broj vrsta trenutno predstavlja 40% vrsta europske faune i ne očekujemo veće promjene tog broja. Nakon objave popisa ugroženih vrsta i buduće Crvene knjige danjih leptira, s obzirom na stalne promjene u prirodi koje se događaju pod utjecajem čovjeka, cilj nam je ne samo potvrditi neke starije literaturne nalaze vrsta, nego i potaknuti volontere da uz našu pomoć, uspostavom transekata, pokrenemo sustavno praćenje stanja populacija danjih leptira Hrvatske.