

**A REVIEW OF RESEARCH INTO BUTTERFLIES
(LEPIDOPTERA: RHOPALOCERA) IN BLIDINJE NATURE
PARK (Bosnia and Herzegovina)**

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We present the first list of butterflies of Blidinje Nature Park, comprising 91 estimated species. The estimated number of species constitutes about 90% of the potential Rhopalocera fauna in this area.

Rhopalocera, Blidinje Nature Park, Bosnia and Herzegovina.

M. KUČINIĆ¹, S. STANIĆ², P. DURBEŠIĆ¹, I. MIHOČI³, N. LANDEKA⁴, A. DELIĆ⁵, Pregled istraživanja leptira (Lepidoptera: Rhopalocera) u Prirodnom parku Blidinje (Bosna i Hercegovina), ¹Zoologijski zavod, PMF Sveučilišta u Zagrebu, Rooseveltov trg 6, 10000 Zagreb, kucinic@zg.biol.pmf.hr, ²Pedagoški fakultet Sveučilišta u Mostaru, Matice hrvatske bb, 88000 Mostar, Bosna i Hercegovina, ³Zoološki odjel Hrvatskog prirodoslovnog muzeja, Demetrova 1, 10000 Zagreb, ⁴Zavod za javno zdravstvo, Istra, Nazorova 23, 52100 Pula, ⁵Učiteljska akademija Sveučilišta u Zagrebu, Savska cesta 77, 10000 Zagreb - Entomol. Croat. 2005, Vol. 9. Num. 1-2: 11-27

U radu je prikazana prva lista leptira Prirodnog parka Blidinje s 91 utvrđenom vrstom. Utvrđeni broj vrsta predstavlja oko 90 % potencijalne faune Rhopalocera na tom području.

Rhopalocera, Prirodni park Blidinje, Bosna i Hercegovina

Introduction

Research into the butterfly fauna of Bosnia and Herzegovina began at the end of the 19th century and has continued intermittently ever since. Working on a revision of Rebel's Register of Butterflies of Bosnia and Herzegovina of 1904 (Rebel, 1904), the only lepidopterologist currently at work in Bosnia and Herzegovina, Dr Suvad Lelo, in his comprehensive historical review distinguishes four periods in research into the fauna of butterflies in that country (Lelo, 2004).

Blidinje Nature Park is a very interesting mountain area that includes Mt. Čvrsnica and Mt. Vran and butterfly fauna has been investigated here ever since the 19th century (Sijarić, 1996). The first data about the butterfly fauna of Čvrsnica and Vran are presented in the work of Rebel mentioned above; this is the first and the last study of the Bosnia and Herzegovina Lepidoptera fauna shown in percentage terms (Lelo, 2004). The fauna of Čvrsnica and Vran as well as of Blidinje Nature Park is best presented in the works of Rizo Sijarić (1971, 1996) the most important researcher into Rhopalocera in Bosnia and Herzegovina in the second half of the 20th century. Sijarić (1971) wrote that for the area of Čvrsnica and Prenj there were some literature data concerning butterfly fauna published in the first period of the 20th century (Rebel, 1904; Schawerda, 1906-1922), where for the small area of Čvrsnica only 9 species of Rhopalocera were determined (Sijarić, 1971). The same author quotes 15 species of butterflies for Vran mentioned in Rebel's study of 1904 (Sijarić, 1996).

In this paper we give a review of previous researches and a list of the determined butterflies in the area of Blidinje Nature Park which is, first of all, based upon the researches of Rizo Sijarić for the area of Čvrsnica in the period from 1968 to 1970 (Sijarić, 1971) and Mt. Vran, which this author systematically researched from 1984 to 1986 (Sijarić, 1996) as part of the comprehensive scientific project "Flora and Fauna of Herzegovina Rocky Ground" (Sijarić, 1996). These results are complemented by data collected by students of the University of Mostar in field trips which took place partly in Blidinje Nature Park (June, 5th 2003) as well as by data collected in the Blidinje area in August 14th 2003 (obs. Mladen Kučinić, obs. Nediljko Landeka, obs. Antun Delić), July 22nd 2004, and July 23rd 2004 (obs. Nediljko Landeka) and June 25th 2005 (obs. Nediljko Landeka).

Material and methods

The highest percentage of the results shown refers to an analysis of literature data, especially of the work of Rizo Sijarić of 1971 and 1996. Only a small number of species was registered during three short stays in Blidinje Nature Park in 2003, 2004 and 2005. Students of the University of Mostar collected some species, while in the other field trips from 2003 to 2005, butterflies were observed and photographed, and only specimens from *Leptidea* genus were collected for the analysis of genital organs. The analysis of genitalia was done by standard method of cooking in KOH, cleaning of genital organs and observation in a Zeiss 2000 stereo magnifier. Analysis of morphological characteristics of genital organs and species determination were done according to Lorković (1993). Some butterflies were photographed with the Olympus C 5050 digital camera. Systematic survey and determination of detected species were given according to Lafranchis(20-04).

In the area of Mt. Čvrsnica, Sijarić (1971) mentioned several sites for the collecting of material at the end of the sixties: Batačke lazine-mountain ridge toward valley of Drežnica, apx. 1450 a. s. l.; Blidinje Lake-meadows by the lake, apx. 1350 a. s. l.; Donje Bare – hay meadows, southern slopes of Čvrsnica, apx. 1340 a. s. l.; Dvostruki kuk - one of the peaks of Čvrsnica, 1450 a. s. l.; Gornje Bare – hay meadows, southern slopes, apx. 1350 a. s. l.; Gašparevina – one of the peaks of Čvrsnica, apx. 1500 a. s. l.; Pločno – the highest peak of Čvrsnica 2228 a. s. l. and Vilinac – one of the peaks of Čvrsnica, 2116 a. s. l. Sijarić showed data about the site Diva Grabovica of the river valley which is the part of Blidinje Nature Park separately because this valley is not a component part of Čvrsnica (Sijarić, 1971). The same survey is given in table 1.

For the area of Mt. Vran Sijarić (1996) quotes the next sites where butterflies were collected: the north exposure at the altitude of 1400 a. s. l. (in the area of fir-beech forests, *Abieti-Fagetum* plant association), the north exposure, grassy karst sinkhole at the altitude of 1450-1500 a. s. l. (*Juniperetum* communities), stand of that mountain massif: Blidinje Lake – 1183 a. s. l., rocky grounds to the peak of Borova glava – apx. 1312 a. s. l., Risovac – Hrbine apx. 1220-1284 a. s. l., Kedžara apx. 1400 a. s. l.; the eastern sloping ground of Vran where the material was collected from 1420 to 2074 a. s. l. (in all plant communities). Regarding the area of Blidinje Lake which is in the south-western part of Dugo polje, the area between Čvrsnica and Vran mountains, the data that refer to its meadow areas

near Čvrsnica are associated with the area of Čvrsnica (Sijarić, 1971) while data from the other side of the area are presented in the results of Vran mountain (Sijarić 1996). Species were recorded and photographed and material was gathered in 2003, 2004 and 2005 at the site Masna Luka, near Lake Blidinje, in Vilinac and in Pločno.

For established species, the finding sites, dates of observations or collection and the source of the data are shown in the table 1. Most frequent are the works of Rizo Sijarić of 1971 and 1996. In the paper of 1971 Sijarić mentions data for 15 species from literature but without data about sites and dates, and we noted that those species were from that work (Sijarić, 1971).

Results and discussion

A systematic survey of butterflies registered in the area of Blidinje Nature Park to date is shown in table 1. Firstly, in the research of the late Dr Rizo Sijarić, an employee of Zemaljski Museum in Sarajevo, 91 species of butterflies (Tab. 1) were registered in the area of Blidinje Nature Park. The most numerous family, with 43 registered species, is the family Nymphalidae (Tab. 1). The registered number of species is the result of an insufficient index of researches of some areas as compared with some other well-researched areas for that segment of fauna in Bosnia and Herzegovina. In Bosnia and Herzegovina there are many, especially mountain areas, in which the fauna of Rhopalocera is well known and so very suitable for that type of comparison. According these data, which refer to areas of the mountains Prenj, Čvrsnica and Čabulja, where 117 species were determined (Sijarić, 1971), and according to data which refer to the best-researched mountain areas of Montenegro and Croatia, Mt. Durmitor and Mt. Velebit, where 130 (Durmitor) and 115 (Velebit) species have been determined (Sijarić et al., 1984; Kučinić et al., 1995) we can conclude that in the past researches in the area of Blidinje Nature Park about 90% of potential species have been registered. In other words, we can expect about ten unregistered species. First of all, this refers to the area of Čvrsnica where about 50 species of Rhopalocera was registered (Sijarić, 1971; Tab. 1) and new findings of some ten species can be expected. Some of the species will probably still be unregistered in the area of Blidinje Nature Park. For the area of the Park which includes Vran, it is less probable, because this area, owing to the researches of Dr Rizo Sijarić, is well researched. Sijarić concludes

that the 76 species registered in that mountain area probably compose about 90% of total number that comprises its fauna (Sijarić, 1996).

From recorded species in the area of Blidinje Nature Park, correction was made only for the species from the family Lycaenidae, *Albulina orbitulus* Prunn., which was noted by Sijarić as literature data only for Čvrstica (Sijarić, 1971). It is realistic to expect that this species is not a member of the fauna of Čvrstica or of Bosnia and Herzegovina. In a revised register of the Lepidoptera of Bosnia and Herzegovina, Lelo notices that *Albulina orbitulus* Prunn. is not present in Bosnia and Herzegovina and that it is truly the species *Agriades pyrenaicus* ssp. *dardanus* Frey. (Lelo, 2000). In his work from 1996 for the area of Vran, Sijarić noted this species too, and so obviously wrong literature data was corrected, not its determination, which was quoted in the work from 1971.

In the fauna of Blidinje Nature Park, a great number of very interesting species were registered, some of them from the genus *Maculinea*, as well as *Coenonympha gardetta* Prunn. (Sijarić, 1996), *Lasiommata petropolitana* Fab. and others. Apart from those about the species *C. gardetta* which in his research Sijarić points out as being particularly interesting, because it is one of the rarest species in the fauna of Bosnia and Herzegovina (Sijarić, 1971), especially interesting data are those about species from the genus *Maculinea*. Species from that genus are endangered in Europe and they are subjects of many studies and protection measures applied in most European countries. At the same time, all species of that genus are on the IUCN list of endangered species and in The Red Data Book of European Butterflies (van Swaay & Warren, 1999). The reason of their endangerment is the specific relation of myrmecophilia which they develop with ants from the *Myrmica* genus. The species *M. arion* L. Sijarić refers to as literature data (Sijarić, 1971) although we can expect it on the specific meadow biotopes in the area of Blidinje Nature Park. He registered the second species *M.alcon* D.& S. in the area of Vran (Sijarić, 1996). Sijarić's data about finding the species *M.alcon* D.& S. will have to be checked with additional field work, because it could be misidentified with *M. rebeli* Hir. These two species could be distinguished certainly only by findings of food plants (Tolman & Lewington, 1997). Sijarić's remark (1996) is not wrong if it could at all be the species *M. rebeli* Hir., because, according to new understanding, these two species are considered separate taxa (Lafranchis, 2004; Tolman & Lewington, 1997). As the species *M.alcon* D.& S. is found in hygrophile habitats in the area of Vran, it is more probable to expect

the species *M. rebeli* Hir. The finding of the species *Gentiana cruciata*, a food plant of *M. rebeli* Hir. in the area of Blidinje Lake (Masna Luka) during field work in 2003 additionally suggests that possibility. Otherwise, in Croatia *M. rebeli* Hir. is very frequent in the area of the Dinaric karst region, while the species *M. alcon* D.&S. is very seldom and it has been found only in one locality (Šašić, 2004). Its finding anywhere in the area of Blidinje Nature Park and widely in Bosnia and Herzegovina would be very important.

Research into butterflies in the area of Blidinje Nature Park, as well as providing information about fauna characteristics, which is very important for every protected area, should also be continued because this group of insects is very suitable as a monitoring object. There are certain reasons for this. Because of the period of the activities of butterflies, it is possible to observe and to recognise a great number of species in nature, which enables relatively easy observations of the changes in the composition of fauna, determined by different factors. Butterflies react very fast to all aspects of ecological change. These changes tend to be manifested, unfortunately, in the decreasing of abundance or complete disappearance of some species in specific areas. The observation and recording of the data of some specific fauna data enables the determination of the so-called degree zero of fauna and with longer monitoring in specific areas it enables the establishment of changes caused, most frequently by human actions, and to the cessation of some of human activities. This refers, first of all, to traditional ways of cattle-breeding and the mowing of meadows because in the lower area, particularly, butterflies become active through the involvement of human beings. The cessation of these activities leads to the natural processes in which meadows are overgrown, which contributes to their final and irretrievable disappearance. and as a rule of the disappearance of all that fauna that lives on them. It will be especially interesting to see over a longer period how, and if, the climate changes, for it will clearly have an influence on the composition and structure of the fauna of butterflies, especially the mountain species, which probably will be the most imperilled in these processes' effect.

Table 1. Systematic list of butterflies in the area of Blidinje Nature Park

family PAPILIONIDAE

subfamily Papilioninae

1. ***Papilio machaon* Linnaeus, 1758**

Čvrsnica Mountain: Diva Grabovica August 18th 1970 (Sijarić, 1971); Vran Mountain: Blidinje Lake September 17th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003

2. ***Iphiclides podalirius* (Linnaeus, 1758)**

Čvrsnica Mountain: Diva Grabovica June 3rd 1970; August 15th 1970 (Sijarić, 1971); Pločno July 22nd 2004

subfamily Parnassiinae

3. ***Parnassius apollo* (Linnaeus, 1758)**

ssp. *liburnicus* Rb. et Rg.

Čvrsnica Mountain: Batačke lazine August 13th 1970 (Sijarić, 1971) (Fig. 1)

4. ***Parnassius mnemosyne* (Linnaeus, 1758)**

Čvrsnica Mountain (Sijarić, 1971); Vran Mountain: marine alpine forest, altitude: 1650-1700 a. s. l. July 16th 1985 (Sijarić, 1996) (Fig. 2)

family PIERIDAE

subfamily Pierinae

5. ***Aporia crataegi* (Linnaeus, 1758)**

Čvrsnica Mountain: Diva Grabovica June 3rd 1970 (Sijarić, 1971); Vran Mountain: Risovac (Hrbine) July 2nd 1985, glades and edges of lower forests habitats July 30th and 31st 1984 (Sijarić, 1996)

6. ***Pieris brassicae* (Linnaeus, 1758)**

Čvrsnica Mountain: Diva Grabovica August 15th 1970 (Sijarić, 1971); Gašparevina September 30th 1969 (Sijarić, 1971); Vran Mountain: marine-fir forest, at 1400 a. s. l. (glades) July 1st 1985; July 15th 1985 (Sijarić, 1996)

7. ***Pieris mannii* Mayer, 1851**

Čvrsnica Mountain (Sijarić, 1971)

8. ***Pieris ergane* (Geyer, 1828)**

Diva Grabovica August 15th 1970, Čvrsnica Mountain (Sijarić, 1971); Vran Mountain: marine-fir forest (glade) July 31st 1984; September 15th 1986, Risovac (Hrbine) September 16th 1986, eastern slopes up to apx. 1700 a. s. l. September 2nd 1986 (Sijarić, 1996)

9. ***Pieris rapae* (Linnaeus, 1758)**

Diva Grabovica June 3rd 1970; August 15th 1970, Čvrsnica Mountain: Blidinje Lake June 1st 1970, Gornje Bare August 16th 1969 (Sijarić, 1971); Vran Mountain: Blidinje Lake July 17th 1985, Modruša September 17th 1986, Podborje September 17th 1986,



Fig. 1 *Parnassius apollo* ssp. *liburnicus* Rb. et Rg. (Linnaeus, 1758) - apolon
(iz zbirke I. Mihoci)



Fig. 2 *Parnassius mnemosyne* (Linnaeus, 1758) - (iz zbirke I. Mihoci)

Hrbine September 16th 1986, Kedžara September 15th 1986, bright habitats in fir-marine and beech mountain zone July 31st 1984; July 1st 1985; August 26th 1985; September 15th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003

10. ***Pieris napi* (Linnaeus, 1758)**

Vran Mountain: apx. 1400 a. s. l. in the fir-beech forest (glade) July 30th 1984 (Sijarić, 1996)

11. ***Anthocharis cardamines* (Linnaeus, 1758)**

Vran Mountain: fir-beech forest apx. 1400 a. s. l. July 15th 1985; June 1984 to 1986 (Sijarić, 1996)

subfamily Coliadinae

12. ***Colias crocea* (Fourcroy, 1785)**

Čvrsnica Mountain: Pločno August 8th 1970, Viliac-Pločno September 1st 1970 (Sijarić, 1971); Vran Mountain: Blidinje Lake August 1st 1984; September 3rd 1986; September 17th 1986, Modruša September 3rd 1986; September 1st 1986; September 16th 1986, Kedžara September 15th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003

13. ***Colias alfacariensis* Ribbe, 1905**

Čvrsnica Mountain: Gornje Bare August 16th 1969 (Sijarić, 1971); Vran Mountain: Risovac July 2nd 1985, slopes of Borova glava above Blidinje Lake September 3rd 1986; September 17th 1986, Modruša September 17th 1986, Hrbine July 30th 1984; August 26th 1985; September 16th 1986, eastern slopes up to apx. 1700 a. s. l. August 12th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003

14. ***Gonepteryx rhamni* (Linnaeus, 1758)**

Vran Mountain: lower habitats, fir-beech forests July 16th 1984; July 30th 1984; July 1st 1986; July 28th 1986; August 11th 1986; September 13th 1986, Kedžara July 1st 1985 (Sijarić, 1996)

subfamily Dismorphiinae

15. ***Leptidea sinapis* (Linnaeus, 1758)**

Diva Grabovica June 3rd 1970 (Sijarić, 1971); Vran Mountain: Blidinje Lake August 13th 1986 in the area with *Juniperetum* and fir-beech communities July 16th 1984; July 30th 1984; July 1st 1985; July 15th 1985 (Sijarić, 1996); Blidinje Lake-Masna Luka June 5th 2003

family LYCAENIDAE

subfamily Theclinae

16. ***Neozephyrus quercus* (Linnaeus, 1758)**

Vran Mountain: eastern slopes of Vran Mountain July 16th 1985 (Sijarić, 1996)

17. ***Satyrium ilicis* (Esper, 1779)**

Čvrsnica Mountain: Batačke lazine August 13th 1970 (Sijarić, 1971)

18. ***Satyrium spini* (Denis & Schiffermüller, 1775)**

Čvrsnica Mountain: Batačke lazine August 13th 1970, Gornje Bare August 7th and

August 9th 1970 (Sijarić, 1971)

subfamily Lycaeninae

19. ***Lycaena phlaeas* (Linnaeus, 1761)**

Diva Grabovica August 15th 1970 (Sijarić, 1971); Vran Mountain: Blidinje Lake, Borova glava, Hrbine September 1st 1986, September 16th 1986 (Sijarić, 1996)

20. ***Lycaena candens* (Herrich-Schäffer, 1844)**

ssp. *leonhardi* Früh.

Vran Mountain: above beech forest on apx. 1700 a. s. l. August 12th 1986 (Sijarić, 1996)

subfamily Polyommatae

21. ***Lampides boeticus* (Linnaeus, 1767)**

Vran Mountain: Podborje September 17th 1986 (Sijarić, 1996)

22. ***Cupido minimus* (Fuesslin, 1775)**

Čvrstica Mountain: Gornje Bare August 7th 1970 (Sijarić, 1971); Vran Mountain: fir-beech, *Juniperetum* plant association, Kedžara July 16th 1984; July 30th 1984; July 15th 1985, Modruši September 17th 1986, eastern slopes up to 1700 a. s. l. August 12th 1986 (Sijarić, 1996)

23. ***Celastrina argiolus* (Linnaeus, 1758)**

Diva Grabovica June 3rd 1970 and August 15th 1970 (Sijarić, 1971)

24. ***Aricia agestis* (Denis & Schiffermüller, 1775)**

Diva Grabovica June 3rd 1970 (Sijarić, 1971)

25. ***Maculinea arion* (Linnaeus, 1758)**

Čvrstica (Sijarić, 1971)

26. ***Maculinea alcon* (Denis & Schiffermüller, 1775)**

Vran Mountain: Kedžara July 16th 1984 and July 30th 1984 (Sijarić, 1996)

27. ***Plebejus argus* (Linnaeus, 1758)**

Diva Grabovica June 3rd 1970; August 15th 1970, Čvrstica Mountain: Batačke lazine August 13th 1970, Gornje Bare August 7th-9th 1970 (Sijarić, 1971); Vran Mountain: Blidinje Lake August 1st 1984, September 3rd 1986, Kedžara July 16th 1984, July 8th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003

28. ***Plebejus idas* (Linnaeus, 1761)**

ssp. *croatica* Grund

Vran Mountain: between Risovac and Kedžara July 30th 1984, eastern slopes on apx. 1600 a. s. l. July 16th 1985 (Sijarić, 1996)

29. ***Aricia artaxerxes* (Fabricius, 1793)**

Čvrstica Mountain: Gornje Bare July 7th 1970 (Sijarić, 1971); Vran Mountain: fir-beech forest July 30th 1984, Modruša September 17th 1986, Kedžara August 26th 1985, August 11th 1986, September 15th 1986, eastern slopes at 1600-1700 a. s. l. August 12th 1986, the peak of the Vran Mountain July 31st 1984 (Sijarić, 1996)

30. ***Agriades pyrenaicus* (Boisduval, 1840)**
ssp. *dardanus* Freyer
Čvrstica Mountain (Sijarić, 1971); Vran Mountain: eastern slopes apx. 1450 a. s. l. (Sijarić, 1996). In the paper from 1971 Sijarić cited literature data and quoted species *Albulina orbitulus* Prunn. instead of this endemic subspecies from Bosnia and Herzegovina
31. ***Cyaniris semiargus* (Rottemburg, 1775)**
Vran Mountain: bright habitats in forests community July 16th 1984, July 30th 1984, July 28th 1986, Risovac, Hrbine July 2nd 1985, Kedžara July 28th ?, eastern slopes up to 1700 a. s. l. July 16th 1985, August 12th 1986 (Sijarić, 1996)
32. ***Polyommatus icarus* (Rottemburg, 1775)**
Diva Grabovica June, 3rd 1970, August 18th 1970 (Sijarić, 1971); Vran Mountain: habitats in forests community July 16th 1984, August 26th 1985, Hrbine July 2nd 1985, August 16th 1986, Podborje September 17th 1986, Blidinje Lake September 3rd 1986, September 17th 1986, Modruša September 3rd 1986, September 17th 1986, Kedžara September 15th 1986, eastern slopes July 16th 1985, August 12th 1986 (Sijarić, 1996)
33. ***Polyommatus eros* (Ochsenheimer, 1808)**
Vran Mountain: the peak of the Vran Mountain July 31st 1984, August 12th 1986 (Sijarić, 1996)
34. ***Polyommatus dorylas* (Denis & Schiffermüller, 1775)**
Čvrstica Mountain: Gornje Bare August 7th-9th 1970 (Sijarić, 1971); Vran Mountain: the area of fir-beech forests July 16th 1984, July 30th and 31st 1984, Kedžara July 30th 1984, August 26th 1985, July 28th 1986, Modruša September 3rd 1986, September 17th 1986, Blidinje Lake July 17th 1985, September 18th 1986 (Sijarić, 1996)
35. ***Meleageria daphnis* (Denis & Schiffermüller, 1775)**
This species was noticed by Sijarić only like literature data at the eastern slopes of Vran Mountain (Sijarić, 1996)
36. ***Lysandra coridon* (Poda, 1761)**
Frequent species in the area of Čvrstica Mountain (Sijarić, 1971); Vran Mountain: glades in forests community August 26th 1985, August 11th 1986, Kedžara July 30th 1984, August 11th 1986, September 1st 1986, September 15th 1986, Hrbine at Risovac September 16th 1986, Podborje September 17th 1986, Modruša September 3rd 1986, September 17th 1986, Blidinje Lake August 13th 1986, Borova glava July 30th 1986, September 3rd 1986, eastern slopes July 29th 1986, August 12th 1986, September 2nd 1986 (Sijarić, 1996); Blidinje-Masna Luka August 14th 2003
37. ***Lysandra bellargus* (Rottemburg, 1775)**
Diva Grabovica June 3rd 1970, Čvrstica Mountain: Gornje Bare August 9th 1970 (Sijarić, 1971); Vran Mountain: Blidinje Lake September 17th 1996 (Sijarić, 1996), Blidinje Lake-Masna Luka August 14th 2003

subfamily Riodininae

38. ***Hamearis lucina* (Linnaeus, 1758)**
Čvrsnica Mountain (Sijarić, 1971)
family NYMPHALIDAE
subfamily Libytheinae
39. ***Libythea celtis* (Laicharting, 1782)**
Vran Mountain: fir-beech forests July 1st 1985, July 15th 1985, August 11th 1986, Kedžara September 15th 1986, eastern slopes August 12th 1986 (Sijarić, 1996), Blidinje Lake-Masna Luka June 5th 2003
subfamily Limenitinae
40. ***Neptis rivularis* (Scopoli, 1763)**
Čvrsnica (Sijarić, 1971); Vran Mountain: eastern slopes (beech forest) apx. 1500 a. s. l. July 31st 1984 (Sijarić, 1996)
subfamily Nymphalinae
41. ***Nymphalis antiopa* (Linnaeus, 1758)**
Čvrsnica (Sijarić, 1971); Vran Mountain: glades in the zone of fir-beech forest July 30th 1984, July 1st 1985, July 15th 1985, July 28th 1986, Hrbine, Kedžara, Risovac, Modruša (Sijarić, 1996)
42. ***Nymphalis polychloros* (Linnaeus, 1758)**
Vran Mountain: habitat in fir-beech forest July 1st 1985 (Sijarić, 1996)
43. ***Inachis io* (Linnaeus, 1758)**
Čvrsnica Mountain: Gornje Bare August 9th 1970 (Sijarić, 1971); Vran Mountain: in forests community July 30th 1984, July 15th 1985, in the karst field July 7th 1986 (Sijarić, 1996); Blidinje Lake–Masna Luka August 14th 2004, Vilinac July 23rd 2005
44. ***Vanessa atalanta* (Linnaeus, 1758)**
Vran Mountain: up to 1700 a. s. l., forests habitats July 1st 1985, September 15th 1986, Kedžara August 26th 1985, September 15th 1986, Hrbine September 16th 1986, eastern slopes July 31st 1984, August 12th 1986 (Sijarić, 1996)
45. ***Vanessa cardui* (Linnaeus, 1758)**
Frequent species in the area of Čvrsnica Mountain (Sijarić, 1971); Vran Mountain: July 1st 1985 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003
46. ***Polygonia c-album* (Linnaeus, 1758)**
Vran Mountain: habitats near fir-beech forest July 1st 1985, July 28th 1986, Kedžara August 11th 1986, eastern slopes up to 1700 a. s. l. August 12th 1986 (Sijarić, 1996); Čvrsnica: Vilinac August 14th 2003
47. ***Aglais urticae* (Linnaeus, 1758)**
Diva Grabovica August 15th 1970, Čvrsnica Mountain: Gornje Bare August 7th 1970, Pločno August 8th 1970 (Sijarić, 1971); Vran Mountain: frequent species on all type of habitats, Kedžara July 7th 1986, August 11th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 13th 2003

48. ***Melitaea phoebe* (Denis & Schiffermüller, 1775)**
Čvrsnica Mountain (Sijarić, 1971)
49. ***Meliccta athalia* (Rottemburg, 1775)**
Vran Mountain: a meadow near fir-beech forest August 11th 1986 (Sijarić, 1996)
subfamily Heliconiinae
50. ***Argynnis aglaja* (Linnaeus, 1758)**
Čvrsnica Mountain: Batačke lazine August 13th 1970, Gornje Bare August 7th 1970 (Sijarić, 1971); Vran Mountain: habitats near fir-beech forest July 30th 1984, Borova glava August 12th 1986, eastern slopes at 1600-1700 a. s. l. August 12th 1986 (Sijarić, 1996)
51. ***Argynnis paphia* (Linnaeus, 1758)**
Diva Grabovica August 15th 1970 (Sijarić, 1971); Vran Mountain: habitats near fir-beech forest on apx. 1400 a. s. l. of an altitude July 30th 1984, July 28th 1986 (Sijarić, 1996)
52. ***Argynnis adippe* (Denis & Schiffermüller, 1775)**
Vran Mountain: glades in fir-beech forests July 15th 1985, August 11th 1986 (Sijarić, 1996)
53. ***Argynnis niobe* (Linnaeus, 1758)**
Čvrsnica Mountain: Batačke lazine August 13th 1970, Gornje Bare August 9th 1970 (Sijarić, 1971)
54. ***Issoria lathonia* (Linnaeus, 1758)**
Čvrsnica Mountain: Pločno August 8th 1970 (Sijarić, 1971); Vran Mountain: Blidinje Lake September 3rd 1986, Borova glava September 3rd 1986, Modruša September 3rd 1986, September 17th 1986, fir-beech forest July 30th 1984, July 15th 1985, Kedžara July 28th 1986, August 11th 1986, September 15th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003
55. ***Brenthis daphne* (Denis & Schiffermüller, 1775)**
Vran Mountain: a meadow near fir-beech forest July 30th 1984 (Sijarić, 1996)
56. ***Boloria graeca* (Staudinger, 1870)**
Vran Mountain: a meadow near fir-beech forest July 1st 1985 (Sijarić, 1996)
57. ***Boloria euphrosyne* (Linnaeus, 1758)**
Čvrsnica Mountain (Sijarić, 1971); Vran Mountain: a meadow near fir-beech forest July 16th 1984, July 15th 1985 (Sijarić, 1996)
subfamily Satyrinae
58. ***Melanargia galathea* (Linnaeus, 1758)**
Čvrsnica Mountain: Gornje Bare August 16th 1969, August 7th-9th 1970 (Sijarić, 1971); Vran Mountain: Kedžara, Blidinje Lake August 1st 1984 (Sijarić, 1996); Blidinje Lake August 14th 2003
59. ***Hipparchia fagi* (Scopoli, 1763)**
Diva Grabovica August 5th 1970, Čvrsnica Mountain: Batačke lazine August 13th 1970

- (Sijarić, 1971); Vran Mountain: fir-beech forest July 30th 1984, an alpine beech at apx. 1600 a. s. l. August 12th 1986 (Sijarić, 1996)
60. ***Hipparchia semele* (Linnaeus, 1758)**
Čvrstica Mountain (Sijarić, 1971); Vran Mountain: fir-beech forest (arid glades) July 16th 1984, July 16th 1984, July 30th and 31st 1984, July 1st 1985, beech forest July 31st 1984, Blidinje Lake September 17th 1986 (Sijarić, 1996)
61. ***Chazara briseis* (Linnaeus, 1764)**
Vran Mountain: Hrbine September 16th 1986, Modruša September 17th 1986, Blidinje Lake - Borova glava August 1st 1984, August 13th 1986, September 3rd 1986, September 17th 1986 (Sijarić, 1996)
62. ***Satyrus ferula* (Fabricius, 1793)**
Čvrstica Mountain: Batačke lazine August 13th 1970, Gornje Bare August 16th 1969, August 9th 1970 (Sijarić, 1971); Vran Mountain: Blidinje lake August 1st 1984, between Risovac and Kedžara July 30th 1986 (Sijarić, 1996)
63. ***Erebia ligea* (Linnaeus, 1758)**
ssp. *herculeana* Warren
Vran Mountain: glades in the area of fir-beech forest July 15th 1985 (Sijarić, 1996)
64. ***Erebia euryale* (Esper, 1805)**
ssp. *symria* Früh.
Vran Mountain: meadows in the area of forests communities up to apx. 1700 a. s. l. July 16th 1984, July 30th and 31st 1984, July 28th 1986, August 11th 1986, slopes at 1600-1700 a. s. l. of an altitude July 29th 1986, August 12th 1986 (Sijarić, 1996)
65. ***Erebia aethiops* (Esper, 1777)**
Čvrstica Mountain (Sijarić, 1971)
66. ***Erebia medusa* (Denis & Schiffermüller, 1775)**
Čvrstica Mountain (Sijarić, 1971); Vran Mountain: for this area species was noticed by Sijarić only like literature data from Rebel (1904) (Sijarić, 1996). For the area of Bosnia and Herzegovina Lelo quoted subspecies ***euphrasiae* Früh.** (Lelo, 2000).
67. ***Erebia gorge* (Hübner, 1804)**
ssp. *hercegovinensis* Rebel
Čvrstica Mountain: Pločno August 8th 1970 (Sijarić, 1971)
68. ***Erebia ottomana* (Herrich-Schäffer, 1851)**
ssp. *balcanica* Rebel
Čvrstica Mountain (Sijarić, 1971); Vran mountain: up to 1700 a. s. l. Kedžara July 16th 1984, July 30th and 31st 1984, July 15th 1985, August 26th 1985, July 28th 1986, August 11th 1986, slopes July 29th 1986, August 12th 1986 (Sijarić, 1996)
69. ***Erebia melas* (Herbst, 1796)**
ssp. *schawerdae* Früh.
Čvrstica Mountain: species which is frequent on the rocky biotopes on higher altitudes (Sijarić, 1971); Vran Mountain, Blidinje Lake-Borova glava August 13th 1986,

September 3rd 1986, Modruša September 3rd 1986, Hrbine September 16th 1986, Kedžara August 26th 1985, September 1st 1986, September 15th 1986, eastern slopes up to 1600-1700 a. s. l. August 12th ?, September 2nd 1986 (Sijarić, 1996); Vilinac August 14th 2003

70. ***Erebia oeme* (Hübner, 1804)**

ssp. *vetulonia* Fruhst.

Vran Mountain: fir-beech and an alpine beech forests July 16th 1984, July 30th and 31st 1984, July 15th and 16th 1985, July 28th 1986 (Sijarić, 1996)

71. ***Maniola jurtina* (Linnaeus, 1758)**

Diva Grabovica August 15th 1970, Čvrstica Mountain (Sijarić, 1971); Vran Mountain: glades in fir-beech forests, Risovac July 30th 1984 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003

72. ***Hyponephele lycaon* (Kühn, 1774)**

Čvrstica Mountain: Donje Bare August 17th 1969, Gornje Bare August 7th-9th 1970 (Sijarić, 1971); Vran Mountain: Kedžara August 26th 1985, August 11th 1986, eastern slopes on 1600 a. s. l. August 12th 1986 (Sijarić, 1996)

73. ***Coenonympha tullia* (Müller, 1764)**

ssp. *occupata* Rebel

Čvrstica Mountain: Pločno August 8th 1970 (Sijarić, 1971)

74. ***Coenonympha rhodopensis* Elwes, 1900**

ssp. *occupata* Rebel

Vran Mountain: the area of forests communities July 16th 1984, July 30th 1984, July 15th 1985, Kedžara July 30th 1984, July 1st 1985, July 15th 1985, July 7th 1986, July 28th 1986, August 11th 1986, Blidinje Lake July 30th 1986, eastern slopes July 29th 1986, August 12th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003

75. ***Coenonympha pamphilus* (Linnaeus, 1758)**

Čvrstica Mountain: Batačke lazine August 13th 1970 (Sijarić, 1971); Kedžara July 16th 1984, Risovac July 2nd 1985, Blidinje Lake September 3rd 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003, July 22nd 2004, July 23rd 2004

76. ***Coenonympha gardetta* (Prunner, 1798)**

Vran Mountain: Kedžara July 16th 1984, July 30th 1984, July 15th 1985, July 28th 1986 (Sijarić, 1996)

77. ***Coenonympha glycerion* (Borkhausen, 1788)**

Vran Mountain: the zone of fir-beech forest July 15th 1985, July 28th 1986, Kedžara July 16th 1984, July 30th 1984, July 15th 1985, July 28th 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka June 25th 2005

78. ***Pararge aegeria* (Linnaeus, 1758)**

Diva Grabovica July 3rd 1970, August 15th 1970 (Sijarić, 1971); Vran Mountain: the zone of fir-beech forest July 30th 1984 (Sijarić, 1996)

79. ***Lasiommata megera* (Linnaeus, 1758)**

ssp. *lyssa* Bois.

Čvrstica Mountain: Batačke lazine August 13th 1970 Gornje Bare August 16th 1969 (Sijarić, 1971); Vran Mountain: Kedžara July 16th 1984, September 15th 1986, Hrbine September 16th 1986, Podborje September 17th 1986, Modruša September 3rd 1986, September 17th 1986 (Sijarić, 1996)

80. ***Lasiommata maera* (Linnaeus, 1758)**

Diva Grabovica June 3rd 1970, August 15th 1970, Čvrstica Mountain: Gornje Bare August 16th 1969, August 9th 1970 (Sijarić, 1971); glades in forests communities up to apx. 1700 a. s. l. July 16th 1984, July 30th 1984, July 1st 1985, Kedžara July 16th 1984, July 30th 1984, July 15th 1985, eastern slopes July 16th 1985, July 29th 1986 (Sijarić, 1996)

81. ***Lasiommata petropolitana* (Fabricius, 1787)**

Vran Mountain: habitats in forests communities July 1st 1985, July 15th 1985, August 11th 1986, Kedžara July 7th 1986, July 28th 1986, eastern slopes July 29th 1986 (Sijarić, 1996)

family H E S P E R I I D A E

subfamily Pyrginae

82. ***Pyrgus alveus* (Hübner, 1803)**

Vran Mountain: Kedžara July 16th 1984, July 30th and 31st 1984, eastern slopes up to apx. 1700 a. s. l. July 28th 1986, August 2nd 1986 (Sijarić, 1996)

83. ***Pyrgus serratulae* (Rambur, 1839)**

Vran Mountain: eastern glade above 1600 a. s. l. July 28th 1986 (Sijarić, 1996)

84. ***Pyrgus malvae* (Linnaeus, 1758)**

Diva Grabovica, June 3rd 1970 (Sijarić, 1971)

85. ***Carcharodus lavatherae* (Esper, 1783)**

Mt. Čvrstica (Sijarić, 1971); for Mt. Vran this species was noticed by Sijarić (1996) only as literature data from Rebel (1904)

86. ***Carcharodus flocciferus* (Zeller, 1847)**

Vran Mountain: Kedžara July 16th 1984, eastern slopes up to apx. 1700 a. s. l. August 12th 1986 (Sijarić, 1996)

87. ***Erynnis tages* (Linnaeus, 1758)**

Čvrstica Mountain (Sijarić, 1971); Vran Mountain: Kedžara July 16th 1984, eastern slopes at apx. 1420 a. s. l. of an altitude (Sijarić, 1996)

subfamily Hesperinae

88. ***Thymelicus acteon* (Rottemburg, 1775)**

Čvrstica Mountain: Gornje Bare August 7th 1970 (Sijarić, 1971); Vran Mountain: Kedžara July 28th 1986, August 11th 1986, eastern slopes at 1600-1700 a. s. l. July 29th ?, August 12th ? (Sijarić, 1996)

89. ***Thymelicus lineola* (Ochsenheimer, 1808)**

Vran Mountain: Kedžara August 26th 1985 (Sijarić, 1996)

90. ***Hesperia comma* (Linnaeus, 1758)**
Vran Mountain: Blidinje Lake - Modruša September 3rd 1986, Podborje September 17th 1986, Kedžara August 26th 1985, August 11th 1986, September 1st 1986, eastern slopes up to apx. 1700 a. s. l. August 12th 1986, September 2nd 1986 (Sijarić, 1996); Blidinje Lake-Masna Luka August 14th 2003
91. ***Ochlodes sylvanus* (Esper, 1777)**
Vran Mountain: Kedžara and glades of the northern exposure in fir-beech forest July 16th 1984, July 15th 1985, July 28th 1986 (Sijarić, 1996)

Conclusion

With systematic, multiannual work, first of all the work of Dr Rizo Sijarić, the fauna of Rhopalocera of Blidinje Nature Park is well known and it has been about 90% researched. The systematic research into the butterflies in the area of Blidinje Nature Park should be continued for the purpose of detecting the precise spreading and specific ecological characteristics of some especially endangered species and for the establishment of a management plan, which is necessary for the adequate and purposeful management of this exceptionally valuable and important mountain area of Bosnia and Herzegovina. In fauna terms, much more effort will have to be put into research into moths (Heterocera). There are ten times more Heterocera than Rhopalocera in the area of Blidinje Nature Park, but the fauna is still not as well known.

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