The Skippers and Butterflies of the Greek part of the Rodópi massif (Lepidoptera: Hesperioidea & Papilionoidea)

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Abstract. The hitherto recorded species of Skippers and Butterflies from the Rodópi massif in N Greece are being listed and the zoogeographic importance of this area unique for Greece is being discussed.

Samenvatting. De dagvlinders van het Griekse deel van de Rodopen (Lepidoptera: Hesperioidea & Papilionoidea)
Alle soorten dagvlinders, tot nu toe bekend van het Rodopengebergte in Noord-Griekenland, worden opgesomd en het zoögeografische belang van dit gebied, uniek voor Griekenland, wordt besproken

Key words: Hesperioidea – Papilionoidea – Greece – Rhodopi – faunistics – distribution

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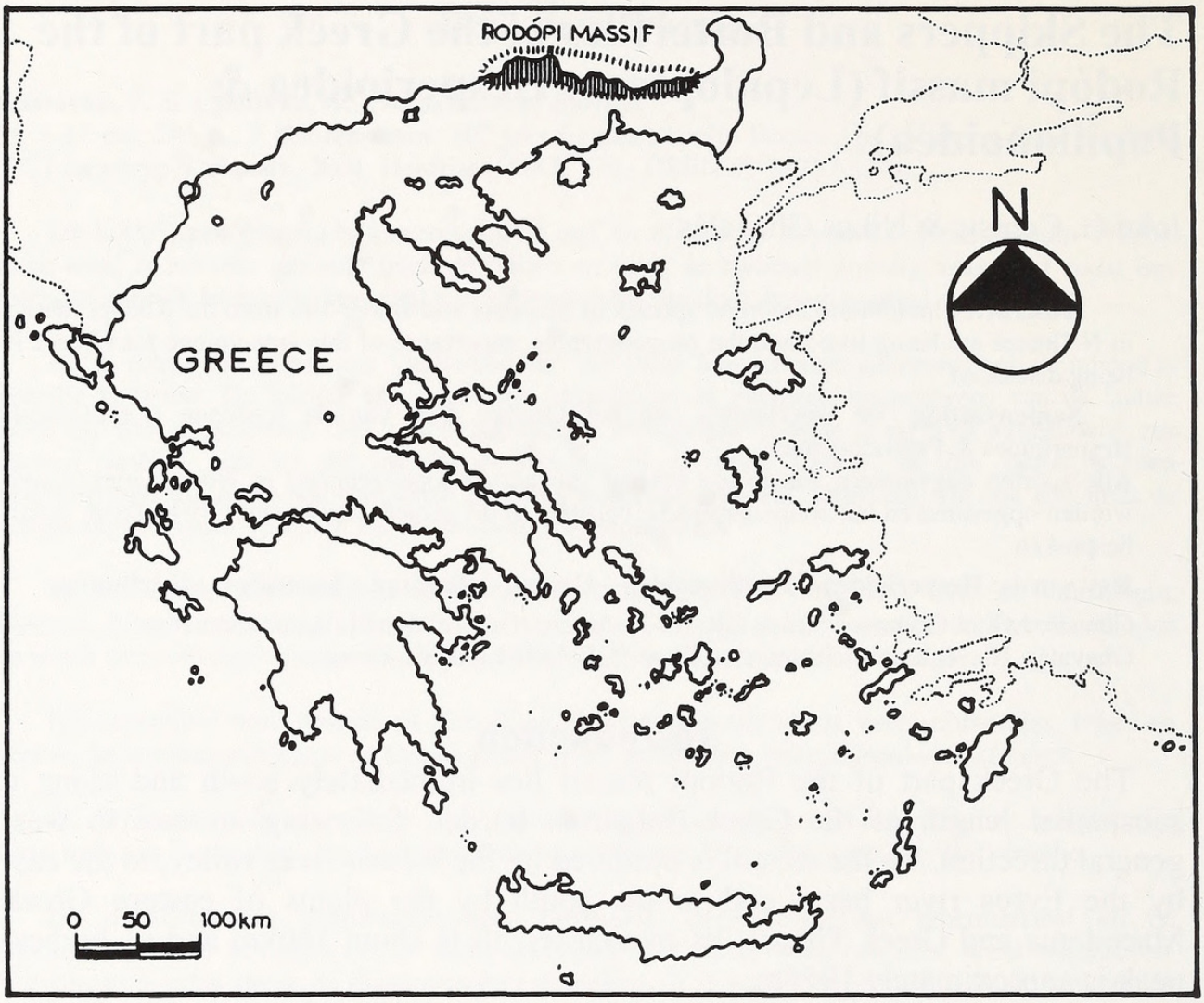
Introduction

The Greek part of the Rodópi massif lies immediately south and along a substantial length of the Greek-Bulgarian border, following an east to west general direction. To the west it is bordered by the Néstos river valley, to the east by the Évros river basin and to the south by the plains of eastern Greek Macedonia and Greek Thrace. Its overall length is about 160km and its highest peak is approximately 1950m.

This mountain system is a very ancient landmass, with little evidence of having ever been submerged and with the probability that it may have been further uplifted and folded during the Alpine upheaval of the Tertiary period. It is mainly composed of ancient igneous and metamorphic rock and also includes much crystalline limestone.

The individual mountains of the western half of this mountain system rise wave upon wave to heavily forested, rounded summits, rarely exceeding 1500m in altitude. These are separated by equally heavily forested gorges and ravines, at the bottom of which flow a good number of streams and a few small rivers, many of these being tributaries to the Néstos river. The eastern half, though heavily forested in some areas, has a lot of open spaces, some of which, at low elevations, are agricultural.

The high precipitation, the overall relatively cool weather and the abundance of water from melting snows, all help to give these mountains a high humidity for much of the year. Locally and mostly at lower elevations, there are also areas of a more xeric nature.



Map: Situation of the Rodópi massif in Greece.

The forests of this massif are to a greater extent deciduous and to a lesser one coniferous, but in many instances they are a mixture of both. As a rule there is also a rich undergrowth of a multitude of low plant species, amongst which there are many grasses that persist throughout the warm period of the year.

The roads cutting through the Rodópi massif are few and, in general, unpaved and the whole area is almost devoid of human habitations. Lumbering is light and strictly controlled by the Ministry of Agriculture. The grazing areas are restricted in size and they too are likewise controlled by the same Ministry. A sizeable section of the western part of the massif, named Fraktó, is partially prohibited to visitors, while an area named Parthéno Dásos (=Virgin forest) is totally prohibited to visitors, a special permission, seldom given, being required from the Ministry of Agriculture in order for one to enter it. All these conditions constitute a positive situation for the present and future survival of this precious habitat and it is hoped that they will be made permanent.

Collecting history

The first data on the lepidoptera of this area were published in the 70's and early 80's by the English lepidopterist Dr. J. V. Dacie and his wife, together with their Greek friend and companion, Dr. P. Grammaticós and, on some occasions, together also with Dr. L. G. Higgins, his wife and the first of the present authors. Further data were published in the 80's by the Belgian lepidopterist D. van der Poorten. In the late 80's and in the 90's our knowledge of the lepidopterological fauna of the Rodópi massif was further enriched by the published records of the present authors, while in the 90's new and important faunistic additions were published by the Greek lepidopterist and agricultural scientist A. Koutroúbas. During this last-mentioned period, a number of unpublished records were also carried out and made available to us, by the Greek lepidopterists S. Ichtiároglou and A. Mastorákis. The total amount of data now available seemed to us definitive enough to justify the publication of the present paper.

Lepidopterological fauna

The lepidopterological fauna of these mountains is of particular importance, as it contains several central European elements that reach here their southernmost distribution limit, being found nowhere else in Greece. All this attests to the importance of preserving at all cost this habitat unique for Greece. Unfortunately, in the name of progress, a number of areas have already been irrevocably destroyed by the construction of dams, as part of a more general and ambitious program for the production of electricity through hydroelectric energy.

List of Skippers and Butterflies

The list of skippers and butterflies now being presented is derived mostly from personal collecting experiences, extending over a period of more than ten years. The recorded dates and altitudes that are being listed in no way represent flight periods and altitude ranges for the species of the Rodópi massif, but, instead, personal collecting data. Most taxa, unless otherwise stated, inhabit open spaces, such as prairies, fields, meadows, forest clearings and rides.

Hesperiidae

1. *Erynnis tages* (Linnaeus, 1758). Recorded as common in May, June, July and August at altitudes of 150–1600m.

2. *Carcharodus alceae* (Esper, [1780]). Recorded locally in rather small numbers in April, May, July and August at altitudes of 100–1500m.

3. *Carcharodus flocciferus* (Zeller, 1847). Recorded as rather scarce in June and July at altitudes of 1000–1600m. Identification confirmed by the genitalia. This species has also been recorded from Mt. Varnoús, as well as from Mt. Vóio, both in NW Greece, where, in both localities, it is syntopic and synchronous with *Carcharodus orientalis* Reverdin, 1913, a species so far never recorded from the Rodópi massif.

4. *Carcharodus lavatherae* (Esper, [1783]). Recorded in fair numbers in June and July at altitudes of 1000–1400m. During hot days often found congregating on mud-puddles. All recorded specimens, yellowish-brown on upperside, quite in contrast with populations from NW Greece that are greyish-brown instead.

5. *Pyrgus malvae* (Linnaeus, 1758). Recorded as fairly common in May, June and July at altitudes of 400–1600m. Identification confirmed by the genitalia.

6. *Pyrgus alveus* (Hübner, [1803]). Recorded in rather restricted numbers in June and July at altitudes of 600–1600m. All recorded specimens without light spots on hindwing upperside and devoid of any whitish suffusion on upper surfaces. Identification confirmed by the genitalia.

7. *Pyrgus armoricanus* (Oberthür, 1910). Recorded as fairly numerous in May, June, July and August at altitudes of 200–1600m. Identification confirmed by the genitalia, which appear to have the blunt apex of the cucullus (*persicus* (Reverdin, 1913)-type sensu de Jong 1972).

8. *Pyrgus cinarae* (Rambur, 1839). Only once recorded in early July at an altitude of about 600m. Identification confirmed by the genitalia.

9. *Pyrgus carthami* (Hübner, [1813]). Only once recorded in early July at the Rodópi foothills, ca. 600m. Identification confirmed by the genitalia. First record for Greece by van der Poorten (1981).

10. *Pyrgus serratulae* (Rambur, [1839]). Recorded in fair numbers in June and July at altitudes of 800–1500m. Identification confirmed by the genitalia.

11. *Pyrgus sidae* (Esper, 1784). Recorded in fair numbers in June and July at altitudes of 400–1500m.

12. *Spialia orbifer* (Hübner, [1823]). Recorded locally in fair numbers in May, June, July and August at altitudes of 200–1500m.

13. *Carterocephalus palaemon* (Pallas, 1771). Recorded in fair numbers in June and July at altitudes of 1200–1600m. Often found in damp places, near streams and in forest clearings. First record for Greece by Coutsis, van der Poorten and Ghavalás (1989). **Within Greek territory confined to the Rodópi massif only**.

14. *Thymelicus acteon* (Rottemburg, 1775). Recorded in fair numbers in June and July at altitudes of 200–1000m.

15. *Thymelicus sylvestris* (Poda, 1761). Recorded as common in June and July at altitudes of 200–1500m.

16. *Thymelicus lineola* (Ochsenheimer, 1808). Recorded in good numbers in July at altitudes of 400–1600m. Not as common as *sylvestris*.

17. *Hesperia comma* (Linnaeus, 1758). Recorded sparsely in July and August at altitudes of 500–1600m.

18. *Ochlodes faunus* (Turati, 1905). Recorded as quite common in late June, July and August at altitudes of 100–1600m.

Papilionidae

19. *Zerynthia polyxena* ([Denis & Schiffermüller], 1775). Recorded locally and in small numbers at the Rodópi foothills in April and early May at altitudes of 100–250m.

20. *Zerynthia cerisy* (Godart, [1824]). Recorded in good numbers in late May, June and early July at altitudes of 100–500m.

21. *Archon apollinus* (Herbst, 1798). Recorded very locally in small numbers in the eastern Rodópi in April at about 200m altitude.

22. *Parnassius mnemosyne* (Linnaeus, 1758). Recorded as locally plentiful in late May, June and July at altitudes of 400–1800m. A single female, probably a stray, captured at 100m altitude.

23. *Parnassius apollo* (Linnaeus, 1758). Recorded in late June and July at altitudes of 1000–1500m. Locally abundant in places with rocky outcrops.

24. *Papilio machaon* Linnaeus, 1758. Recorded in small numbers in June, July and August at altitudes of 100–1300m.

25. *Iphiclides podalirius* (Linnaeus, 1758). Recorded in fair numbers in April, May, June, July and August at altitudes of 100–1300m.

Pieridae

26. *Leptidea sinapis* (Linnaeus, 1758). Recorded as quite abundant, especially near streams, in May, June, July and August at altitudes of 100–1200m.

27. *Leptidea duponcheli* (Staudinger, 1871). Recorded by Ichtiároglou (pers. com.) at the Rodópi foothills in June, below 500m, in rather dry situations, where it was found to be locally fairly abundant.

28. *Colias crocea* (Fourcroy, 1785). Recorded as quite common in April, May, June, July and August at altitudes of 100–1600m.

29. *Colias erate* (Esper, [1805]). Few specimens recorded in June and July at altitudes of 400–1400m. This species has an erratic appearance in N Greece, where most records have been carried out from late June till September and are probably attributable either to migration or to precarious and short-lived colonization. Hybridizes readily with *crocea*, producing an array of intermediate forms.

30. *Colias alfacariensis* Ribbe, 1905. Recorded in fair numbers in May, June, July and August at altitudes of 150–1500m.

31. *Gonepteryx cleopatra* (Linnaeus, 1767). Only once recorded from the Rodópi foothills, at an altitude of about 800m. As this butterfly is generally considered to be absent from NE Greece, it may very well be that the single recorded male was a straggler.

32. *Gonepteryx rhamni* (Linnaeus, 1758). Recorded in fair numbers in April, May, June and July at altitudes of 250–1500m.

33. *Anthocharis cardamines* (Linnaeus, 1758). Recorded in rather small numbers in April, May, June and July at altitudes of 200–1500m.

34. *Euchloe ausonia* (Hübner, [1804]). Recorded in April and June at altitudes of 100–400m. Found in relative abundance, mostly in fields and flowery meadows.

35. *Aporia crataegi* (Linnaeus, 1758). Recorded in May, June and July at altitudes of 400–1600m. Often very common.

36. *Pontia edusa* (Fabricius, 1777). Recorded in small numbers in April, May, June, July and August at altitudes of 100–1500m.

37. *Pontia chloridice* (Hübner, [1813]). Recorded as very local, but quite abundant where found, in the eastern part of the massif, at an altitude of just under 1000m. Observed flying over dry river and stream beds, strewn with boulders. First record for Greece by Dacie *et al.* (1979).

38. *Pieris brassicae* (Linnaeus, 1758). Recorded in abundance in May, June, July and August at altitudes of 100–1600m.

39. *Pieris rapae* (Linnaeus, 1758). Recorded in large numbers in April, May, June, July and August at altitudes of 100–1600m.

40. *Pieris mannii* (Mayer, 1851). Recorded locally and in fair numbers in June, July and August at altitudes of 300–1600m.

41. *Pieris napi* (Linnaeus, 1758). The name *napi* is used here collectively to include also the taxon *balcana* Lorkovic, 1970, as we have found it impossible to tell the two apart on superficial grounds, since the external characters given for their separation do not seem to work in a good number of cases. Recorded in April, May, June, July and August at altitudes of 100–1600m. In fair abundance mostly in damp areas.

42. *Pieris ergane* (Geyer, [1828]). Recorded in rather small numbers in July at altitudes of 400–1600m. Encountered primarily in the drier parts of the massif.

Lycaenidae

43. *Hamearis lucina* (Linnaeus, 1758). Recorded locally and in small numbers, mostly in humid situations, in April, May, June and August at altitudes of 200–1500m.

44. *Lycaena phlaeas* (Linnaeus, 1761). Recorded commonly in April, May, June, July and August at altitudes of 100–1600m.

45. *Lycaena dispar* ([Haworth], 1802). Recorded locally, in a few colonies that are being encountered at the base of the massif along the Néstos river, in June and August at an altitude of about 400m. One of the sites, in the vicinity of Potamí, has been irrevocably destroyed by the construction of a dam.

46. *Lycaena virgaureae* (Linnaeus, 1758). Recorded as common in June and July at altitudes of 550–1600m. Found primarily in flowery places and often in dampish clearings.

47. *Lycaena ottomana* (Lefebvre, [1830]). Recorded in small numbers in the drier parts of the eastern half of the massif, in April and May at altitudes of 200–300m.

48. *Lycaena alciphron* (Rottemburg, 1775). Recorded in fair numbers in June and July at altitudes of 400–1600m. As a rule encountered in flowery places.

49. *Lycaena tityrus* (Poda, 1761). Recorded in fair numbers in May, June, July and August at altitudes of 100–1600m. Inhabits diverse habitats, such as flowery meadows, damp clearings and dry scrubland.

50. *Lycaena thersamon* (Esper, [1784]). Recorded in small numbers in July at altitudes of 400–500m. Usually found in relatively xeric situations.

51. *Lycaena candens* (Herrich-Schäffer, 1844). Recorded in June and July at altitudes of 1200–1600m. Found predominantly in humid situations where it may be quite numerous. Identification established on the basis of the genitalia.

52. *Thecla betulae* (Linnaeus, 1758). Recorded in small numbers (due to its cryptic habits) in July and August at altitudes of 150–200m. During very hot days found resting on low vegetation, under the dense canopy of tall deciduous trees.

53. *Favonius quercus* (Linnaeus, 1758). Recorded as common in the vicinity of *Quercus* trees in July and August at altitudes of 600–1200m.

54. *Callophrys rubi* Linnaeus, 1758). Recorded in fair numbers in April, May, June and July at altitudes of 200–1500m.

55. *Satyrium pruni* (Linnaeus, 1758). Recorded in late May, June and July at altitudes of 400–1400m. Abundant on certain mature *Prunus* bushes, which it seldom leaves, thus being easily overlooked. First record for Greece by Dacie *et al.* (1972), between Flórina and Édessa, in NW Greece.

56. *Satyrium w-album* (Knoch, 1782). Recorded in small numbers in June and July at altitudes of 400–500m. Often seen nectaring on bramble blossoms.

57. *Satyrium spini* (Fabricius, 1787). Recorded in fair numbers in June and July at altitudes of 400–1400m.

58. *Satyrium acaciae* (Fabricius, 1787). Recorded in fair numbers in June and July at altitudes of 400–1500m.

59. *Satyrium ilicis* (Esper, [1779]). Recorded in large numbers in June and July at altitudes of 400–800m. Always found in association with *Quercus* bushes.

60. *Lampides boeticus* (Linnaeus, 1767). Recorded singly in August at altitudes of 400–500m.

61. *Leptotes pirithous* (Linnaeus, 1767). Recorded in small numbers in July and August at altitudes of 100–1600m.

62. *Cupido decoloratus* (Staudinger, 1886). Recorded in fair numbers in May and July at altitudes 400–1300m.

63. *Cupido alcetas* (Hoffmansegg, 1804). Recorded in fair numbers in May, June, July and August at altitudes of 300–1000m.

64. *Cupido osiris* (Meigen, [1829]). Recorded in small numbers in May at altitudes of 500–600m.

65. *Cupido minimus* (Fuessly, 1775). Recorded in fair numbers in July and August at altitudes of 400–1500m.

66. *Celastrina argiolus* (Linnaeus, 1758). Recorded in fair numbers in June, July and August at altitudes of 300–1600m.

67. *Pseudophilotes vicrama* (Moore, 1865). Recorded locally in fair numbers in May, June, July and August at altitudes of 100–1600m. It is predominantly met with in xeric situations.

68. *Scolitantides orion* (Pallas, 1771). Recorded locally, nearly always in the vicinity of *Sedum*, in May, June, July and August at altitudes of 150–1200m.

69. *Glaucopsyche alexis* (Poda, 1761). Recorded in fair numbers in May and July at altitudes of 250–600m.

70. *Iolana iolas* (Ochsenheimer, 1816). Recorded locally and in fair numbers, at the foothills of eastern Rodópi in May and June at an altitude of about 100m.

71. *Maculinea rebeli* Hirschke, 1904. Recorded locally in small numbers in rather wet situations in June and July at altitudes of 400–1500m.

72. *Maculinea arion* (Linnaeus, 1758). Recorded in fair numbers in June and July at altitudes of 600–1600m.

73. *Plebeius argus* (Linnaeus, 1758). Recorded, often in large numbers, in May, June, July and August at altitudes of 200–1500m.

74. *Plebeius pylaon* (Fischer von Waldheim, 1832). Recorded in small numbers only once by a stream at the Rodópi foothills in June at an altitude of about 600m.

75. *Plebeius idas* (Linnaeus, 1761). Recorded in fair numbers in June and July at altitudes of 400–1600m. Identification confirmed by the genitalia.

76. *Plebeius argyrognomon* (Bergsträsser, 1779). Recorded locally in small numbers in June and August at altitudes of 400–800m. Identification confirmed by the genitalia.

77. *Eumedonia eumedon* (Esper, [1780]). Recorded locally in small numbers, over rich patches of *Geranium*, in June at altitudes of 1000–1500m.

78. *Aricia agestis* ([Denis & Schiffermüller], 1775). Recorded commonly in May, June, July and August at altitudes of 100–1600m.

79. *Aricia artaxerxes* (Fabricius, 1793). Recorded in fair numbers in June and July at altitudes of 600–1600m.

80. *Ultraaricia anteros* (Freyer, [1838]). Recorded in small numbers, in the vicinity of *Geranium*, in May, June and July at altitudes of 500–1500m.

81. *Cyaniris semiargus* (Rottemburg, 1775). Recorded in fair numbers in May, June and July at altitudes of 400–1600m. A relatively large form (as is the case with other populations from northern Greece), and very rarely having traces of orange-brown lunules on underside of hindwing.

82. *Polyommatus escheri* (Hübner, 1823). Recorded in small numbers in June and July at altitudes of 600–1000m. Colour of males on upperside silvery-blue, placing it in ssp. *dalmaticus* (Speyer, 1882).

83. *Polyommatus dorylas* ([Denis & Schiffermüller], 1775). Recorded in small numbers in July and August at altitudes of 400–1000m.

84. *Polyommatus thersites* (Cantener, [1835]). Recorded in fair numbers in May, June, July and August at altitudes of 300–1200m.

85. *Polyommatus amandus* (Schneider, 1792). Recorded in fair numbers, especially in the vicinity of *Vicia* bushes, in May, June and July at altitudes of 600–1500m.

86. *Polyommatus eroides* (Frivaldszky, 1835). Recorded in fair numbers in late June and July at altitudes of 1000–1600m.

87. *Polyommatus icarus* (Rottemburg, 1775). Recorded in large numbers in May, June, July and August at altitudes of 100–1600m.

88. *Polyommatus daphnis* ([Denis & Schiffermüller], 1775). Recorded in fair numbers in June, July and August at altitudes of 400–1300m. Females on upperside always with blue suffusion.

Plate 1

Figs. 1–4 : 1.– General view of the deciduous forest, 2.– An opening within the coniferous forest, composed mainly of *Picea abies*, 3.– A meadow edged by a mixture of *Picea abies* and *Abies alba*, 4.– *Erebia aethiops* (Esper, [1777]) together with a single male *Plebeius argus* (Linnaeus, 1758) sipping moisture.

89. *Polyommatus bellargus* (Rottemburg, 1775). Recorded in fair numbers in May, June, July and August at altitudes of 400–1200m.

90. *Polyommatus coridon* (Poda, 1761). Recorded in fair numbers, but often locally common, in July and August at altitudes of 300–1150m. The haploid chromosome number for NE Greek populations of this species was found to be *n*=90 (Coutsis, De Prins & De Prins 2001).

91. *Polyommatus ripartii* (Freyer, 1830). Recorded locally in small numbers in late June and July at altitudes of 800-1200m. The haploid chromosome number for this species in Greece was found to be *n*=90 (Coutsis, Puplesiene & De Prins, 1999).

92. *Polyommatus aroaniensis* (Brown, 1976). Recorded only once by Ghavalás and Ichtiároglou at the foothills of the massif, in the vicinity of Potamí, near Néstos river, at about 500m, in July.

93. *Polyommatus admetus* (Esper, [1783]). Recorded only once by Ghavalás and Ichtiároglou at the foothills of the massif, in the vicinity of Potamí, near Néstos river, at about 500m, in July.

Nymphalidae

94. *Libythea celtis* (Laicharting,1782). Recorded in April, May, June and July at altitudes of 100–1600m. Can be very numerous right after emergence, becoming scarcer later, probably as a result of aestivation.

95. *Pararge aegeria* (Linnaeus, 1758). Recorded in May, June, July and August at altitudes of 100–1300m. Found locally in fair numbers in wet and dense situations. In Rodópi ssp. *tircis* (Butler, 1867) is encountered, with yellow or creamy-white spots on all wings upperside, instead of the orange-buff ones of the nominate ssp.

96. *Lasiommata megera* (Linnaeus, 1767). Recorded in fair numbers in April, May, July and August at altitudes of 150–1200m. It is met with, as a rule, in relatively xeric conditions.

97. *Lasiommata maera* (Linnaeus, 1758). Recorded in rather small numbers in May, June and July at altitudes of 150–1300m.

98. *Lasiommata petropolitana* (Fabricius, 1787). Recorded locally in large numbers in May and June at altitudes of 1200–1600m.

99. *Kirinia roxelana* (Cramer, [1777]). Recorded in June, July and August at altitudes of 300–1200m. This is a cryptic butterfly, seldom seen in large numbers.

100. *Coenonympha arcania* (Linnaeus, 1761). Recorded commonly in June and July at altitudes of 400–1600m.

101. *Coenonympha glycerion* (Borkhausen, 1788). Recorded in July at altitudes of 1200–1600m. At higher elevations it can be locally quite numerous. First record for Greece by van der Poorten (1984). **In Greece restricted to the Rodópi massif only**.

102. *Coenonympha leander* (Esper, [1784]). Recorded in fair numbers in May and June at the Rodópi foothills, near Néstos river, at about 600m. This population belongs to the nominate form, having no white band on hindwing

underside, although very rarely vestiges of such a band are slightly apparent in some individuals.

103. *Coenonympha pamphilus* (Linnaeus, 1758). Recorded commonly in May, June, July and August at altitudes of 100–1500m.

104. *Coenonympha rhodopensis* Elwes, 1900. Recorded in fair numbers in June and July at altitudes of 1400–1600m. Primarily found in subalpine meadows.

105. *Pyronia tithonus* (Linnaeus, 1767). Recorded locally in fair numbers in July and August at altitudes of 150–1300m. Encountered primarily in wet situations.

106. *Maniola jurtina* (Linnaeus, 1758). Recorded in large numbers in May, June, July and August at altitudes of 100–1600m.

107. *Hyponephele lycaon* (Rottemburg, 1775). Recorded in rather small numbers in July and August at altitudes of 400–1300m. Prefers xeric situations.

108. *Hyponephele lupina* (Costa, [1836]). Recorded singly in July at altitudes of 400–500m in xeric situations.

109. *Aphantopus hyperantus* (Linnaeus, 1758). Recorded in June, July and August at altitudes of 100–1500m. Found locally in wet situations in fairly large numbers. One year found in astronomical numbers inside a *Betula* forest.

110. *Erebia aethiops* (Esper, [1777]). Recorded in large numbers in July and early August at altitudes of 600–1600m. First record for Greece by Dacie *et al.* (1982). **In Greece restricted to the Rodópi massif only**.

111. *Erebia ligea* (Linnaeus, 1758). Recorded in fair numbers in June and July at altitudes of 600–1600m. In Greece this species is to be met with only on the Rodópi massif, and on Mt. Varnoús and Mt. Vítsi, the latter two localities being situated in NW Greece in the vicinity of the town of Flórina.

112. *Erebia euryale* (Esper, [1805]). Recorded in fair numbers in July at altitudes of 600–1600m. In Greece this species flies on a number of mountains, all situated along, or near the country's northern borders, its southern distribution limit being Mt. Falakró, just N of the town of Dráma. The Rodópi population is represented by a relatively large form, individuals of which are often as large as *ligea*.

113. *Erebia medusa* ([Denis & Schiffermüller], 1775). Recorded in fairly large numbers in May, June and July at altitudes of 400–1600m. In Greece this species has a range extending southwards all the way to the southern Píndos mountains.

114. *Erebia oeme* (Hübner, 1804). Recorded in fair numbers in July at altitudes of 1400–1600m, most often in damp meadows. Identification confirmed by the genitalia. First record for Greece by Dacie *et al.* (1979). **In Greece restricted to the Rodópi massif only**.

115. *Erebia ottomana* Herrich-Schäffer, 1847. Recorded in fair numbers in July at altitudes of 1400–1600m. The Rodópi population is represented by a relatively small form, with dark grey hindwing underside. In Greece this insect has a range extending all the way south to Mt. Timfristós and Mt. Íti, both situated in central Greece. Identification confirmed by the genitalia.

116. *Melanargia galathea* (Linnaeus, 1758). Recorded commonly in June, July and August at altitudes of 100–1600m. As is the case with other areas in Greece, the Rodópi population is likewise represented by dark specimens.

117. *Melanargia larissa* (Geyer, [1828]). Recorded, as locally numerous in relatively xeric situations, in July at altitudes of 150–600m.

118. *Satyrus ferula* (Fabricius, 1793). Recorded in fair numbers in June and July at altitudes of 100–1400m.

119. *Minois dryas* (Scopoli, 1763). Recorded in July at altitudes of 600–1200m. It is found, as a rule, in relatively damp places, where it may be locally numerous. First record for Greece by van der Poorten (1984). This taxon is restricted in Greece to areas close to its northern borders, being also found in the vicinity of lake Doiráni, as well as in Livaderó, a few km N of Dráma.

120. *Hipparchia fagi* (Scopoli, 1763). Recorded in fair numbers in June, July and August at altitudes of 300–1500m. Identification based on the genitalia.

121. *Hipparchia syriaca* (Staudinger, 1871). Recorded in small numbers in July and August at altitudes of 200–800m, as a rule within the *Quercus* zone. Identification based on the genitalia.

122. *Hipparchia senthes* (Fruhstorfer, 1908). Recorded in fair numbers in June and July at altitudes of 400–1400m. Identification based on the genitalia. The Rodópi population, as well as those from adjacent localities, consists of a relatively small and drab-coloured form, quite in contrast to those from central and southern Greece, as well as to those from the Aegean islands, which are relatively large and brightly coloured.

123. *Hipparchia fatua* Freyer, 1843. So far recorded only in xeric habitats at the foothills of the eastern part of the Rodópi massif, where it is locally quite numerous in August at altitudes of 150–300m.

124. *Chazara briseis* (Linnaeus, 1764). Recorded in July in the eastern part of the Rodópi massif at altitudes of 600–1000m.

125. *Arethusana arethusa* ([Denis & Schiffermüller], 1775). Recorded in fair numbers in July and August at altitudes of 300–1000m.

126. *Brintesia circe* (Fabricius, 1775). Recorded in fair numbers in June, July and August at altitudes of 300–1500m.

127. *Apatura iris* (Linnaeus, 1758). Recorded commonly in June and July inside the deciduous, or mixed deciduous/coniferous forest, especially near streams lined with *Salix*, at altitudes of 600–1400m. A single recorded male was found lacking the white markings on upperside («form *iole*»). This taxon has been found in Greece as far south as the southern part of the Píndos Mts.

128. *Apatura metis* Freyer, 1829. Recorded in June, July and August at altitudes of 100-500m, being common on *Salix* at the foothills of the massif, near, or by the Néstos river. In N Greece this taxon extends along most river systems eastwards all the way to Évros river and westwards all the way to Doiráni lake, where, in the latter mentioned locality, it has been found to be syntopic and synchronous with the closely related *A. ilia* ([Denis & Schiffermüller], 1775). Isolated populations of it have also been recorded in the

vicinity of Kónitsa, in NW Greece. First published record for Greece by Coutsis & Ghavalás (1991).

129. *Limenitis camilla* (Linnaeus, 1764). Recorded in fair numbers in late June and July at altitudes of 1000–1500m. This butterfly is cryptic in its habits and may be easily overlooked, but at noon and in the early afternoon, during the hottest part of the day, it may be observed flying low, in and out of the dense cover of trees, in search of wet spots and mud puddles. White bands on upperside narrower than in central and northern European individuals. First record for Greece by Koutroubas (1992). **In Greece restricted to the Rodópi massif only**.

130. *Limenitis reducta* Staudinger, 1901. Recorded in fair numbers in May, July and August at altitudes of 200–1300m.

131. *Limenitis populi* (Linnaeus, 1758). Recorded in good numbers in June and July at altitudes of 600–1200m and is usually observed either feeding on excrement, or mud-puddling. First record for Greece by Van der Poorten (1984). Males upperside melanic, with practically no trace whatsoever of white bands («form *tremulae*»). In Greece also found on Mt. Varnoús, near Flórina.

132. *Neptis sappho* (Pallas, 1771). Recorded in fair numbers in May, July and August at altitudes of 150–1200m. Many colonies found at the Rodópi foothills, by the Néstos river, where some of the butterfly's better-known habitats have now been destroyed by the construction of a dam. First record for Greece by Dacie *et al.* (1977). In Greece this taxon is restricted to the Rodópi massif as well as to certain areas close to the foothills of Mt. Falakró, N of Dráma.

133. *Neptis rivularis* (Scopoli, 1763). Recorded in June and July at altitudes of 600-1500m, almost exclusively inside the deciduous forest. First record for Greece by Coutsis & Ghavalás (1988). **In Greece restricted to the Rodópi massif only**.

134. *Araschnia levana* (Linnaeus, 1758). Recorded locally in fair numbers in April, May, June, July and August at altitudes of 100–500m. First record for Greece by Koutroubas (1991). In Greece this taxon is presently only known from the Rodópi area, as well as from near lake Doiráni. One of its better known localities, near Potamí, by the Néstos river, is now completely destroyed by the construction of a dam. In Greece, this butterfly has been recorded in all its known seasonal forms.

135. *Vanessa atalanta* (Linnaeus, 1758). Recorded commonly in April, May, June, July and August at altitudes of 100–1600m.

136. *Vanessa cardui* (Linnaeus, 1758). Recorded, often in large numbers, in April, May, June, July and August at altitudes of 100–1600m.

137. *Inachis io* (Linnaeus, 1758). Recorded in fair numbers in May, June, July and August at altitudes of 400–1500m.

138. *Aglais urticae* (Linnaeus, 1758). Recorded in fair numbers in May, June, July and August at altitudes of 400–1600m.

139. *Polygonia c-album* (Linnaeus, 1758). Recorded in fair numbers in May, June, July and August at altitudes of 100–1500m, as a rule in forested areas.

140. *Polygonia egea* (Cramer, [1775]). Recorded only once at the foothills of eastern Rodópi in August at an altitude of 200m. This species favours xeric situations.

141. *Nymphalis polychloros* (Linnaeus, 1758). Recorded in rather small numbers in April, May, June and July at altitudes of 100–1600m.

142. *Nymphalis xanthomelas* (Esper, [1781]). Two specimens recorded by Ichtiároglou and Mastorákis in late June at Vathírema, at an altitude of about 1000m.

143. *Nymphalis antiopa* (Linnaeus, 1758). Recorded, often in fair numbers, in April, May, June and July at altitudes of 100–1600m.

144. *Euphydryas aurinia* (Rottemburg, 1775). A single colony of this taxon has so far been recorded from the eastern part of the Rodópi massif at an altitude of about 300m. The butterfly is on the wing from May till mid-July. First records for Greece by Koutsaftikis (1973) and Dacie *et al.* (1977). The butterfly is also found on Mt. Vítsi and Mt, Varnoús, both situated in the Flórina area.

145. *Melitaea cinxia* (Linnaeus, 1758). Recorded in May, June and July, flying in fluctuating numbers from year-to-year, but often quite common, at altitudes of 150–1600m.

146. *Melitaea phoebe* ([Denis & Schiffermüller], 1775). Recorded in fair numbers in May, June, July and August at altitudes of 100–1600m.

147. *Melitaea trivia* ([Denis & Schiffermüller], 1775). Recorded in fair numbers in April, May, June, July and August at altitudes of 100–1300m.

148. *Melitaea didyma* (Esper, [1778]). Recorded in fair numbers in May, July and August at altitudes of 100–1300m.

149. *Melitaea athalia* (Rottemburg, 1775). Recorded, often in large numbers, in June and July at altitudes of 400–1500m. This species is found predominantly in the forest.

150. *Melitaea aurelia* Nickerl, 1850. This taxon has been reported from the Rodópi area by Tolman & Lewington (1997) and has also been recorded during the same year by van der Poorten & Cuvelier (1997) from the foothills of Mt. Varnoús, in the vicinity of Flórina; the latter authors based their identification on the genitalia, which constitute the only reliable means of telling this taxon apart from the often very similar *athalia*.

151. *Argynnis paphia* (Linnaeus, 1758). Recorded in numbers in June, July and August at altitudes of 100–1500m.

152. *Argynnis pandora* ([Denis & Schiffermüller], 1775). Recorded in fair numbers in June, July and August at altitudes of 100–1300m.

153. *Argynnis aglaja* (Linnaeus, 1758). Recorded in fair numbers in June, July and August at altitudes of 400–1500m.

154. *Argynnis adippe* ([Denis & Schiffermüller], 1775). Recorded in fair numbers in June and July at altitudes of 500–1500m. The predominant form in this area is *cleodoxa*, but the typical form has also often been taken in the vicinity of Mikroklisoúra, at the Rodópi foothills.

155. *Argynnis niobe* (Linnaeus, 1758). Recorded in rather small numbers in June and July at altitudes of 400–1500m. The form flying in Greece is *eris*.

156. *Issoria lathonia* (Linnaeus, 1758). Recorded in numbers in April, May, June, July and August at altitudes of 100–1600m .

157. *Brenthis daphne* (Bergsträsser, 1780). Recorded in numbers in June and July at altitudes of 400–1500m.

158. *Brenthis hecate* ([Denis & Schiffermüller], 1775). Recorded in rather restricted numbers in July at altitudes of 600–1300m. This butterfly favours more xeric situations than does *daphne*.

159. *Boloria euphrosyne* (Linnaeus, 1758). Recorded in fair numbers in May, June and July at altitudes of 400–1500m.

160. *Boloria dia* (Linnaeus, 1767). Recorded in small numbers in May, June, July and August at altitudes of 400–1000m.

Discussion

The 160 so far recorded skippers and butterflies from the Rodópi massif represent about 70% of the total number of species from all of Greece (presently recognized as amounting to 228), thus attesting to the lepidopterological richness and importance of this area. Out of these 160 species, six are restricted within Greece to the Rodópi massif only (*C. palaemon*, *C. glycerion*, *E. oeme*, *E. aethiops*, *L. camilla* and *N. rivularis*), while four are shared only by Mt. Varnoús/ Mt. Vítsi, a mountain complex situated near Flórina, in NW Greece, that supports an extensive deciduous forest analogous to that of Rodópi (*E. ligea*, *L. populi*, *E. aurinia* and *M. aurelia*). The number of taxa that have been recorded from Rodópi, but not from Varnoús/Vítsi, amount to 27 (*P. carthami*, *C. palaemon*, *A. apollinus*, *P. apollo*, *G. cleopatra*, *C. erate*, *P. chloridice*, *L. ottomana, S. pruni*, *L. boeticus*, *C. decoloratus*, *S. orion*, *I. iolas*, *M. rebeli*, *P. pylaon*, *C. glycerion*, *E. aethiops*, *E. oeme*, *M. dryas*, *H. syriaca*, *H. fatua*, *A. metis*, *L. camilla*, *N. sappho*, *N. rivularis*, *A. levana* and *P. egea*), while the number of taxa that have been recorded from Varnoús/Vítsi, but not from Rodópi, amount to 14 (*C. orientalis*, *Spialia phlomidis* (Herrich-Schäffer, [1845]), *Muschampia tessellum* (Hübner, [1803]), *Colias caucasica* Staudinger, 1871, *Gonepteryx farinosa* (Zeller, 1847), *Erebia epiphron* (Knoch, 1783), *Melanargia russiae* (Esper, [1783]), *Hipparchia volgensis* (Mazochin-Porshnjakov, 1952), *Hipparchia statilinus* (Hufnagel, 1766), *Pseudochazara anthelea* (Hübner, [1824]), *A. ilia*, *Melitaea arduinna* (Esper, [1783]) and *Boloria graeca* (Staudinger, 1870).

These data reveal the lepidopterological richness of the Rodópi area as well as its uniqueness for Greece, clearly suggesting that this area deserves protection and preservation at all cost.

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