

WBA HANDBOOKS 4

**BUTTERFLIES  
AND  
BURNETS  
OF THE ALPS**  
**and their larvae, pupae and cocoons**

PAOLO PAOLUCCI



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WBA HANDBOOKS 4 - Butterflies and Burnets of the Alps

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## FOREWORD

Of all the insects, butterflies are surely the most popular due to their wide range of colours, elegance and delicacy. They are not only a symbol of nature's beauty but also by their presence indicators of the health and integrity of environmental habitats.

Over the last thirty years scientists have alerted us to the fact that human activities are causing a dramatic decline in world biodiversity. Butterflies too are rapidly declining and more so than in other groups such as birds or amphibians. Therefore, butterflies can be useful in defining quality of natural environments as well as climate changes.

Lepidoptera have been considered for decades as early warning bioindicators of environmental health. In fact, they have high sensitivity to pollutants, wide distribution, limited mobility (for example the *Zygaenidae*) and short life-cycles sensible to environmental changes. Moreover, butterflies can be easily observed in most habitats, from highest peaks to the cultivated plains.

Lepidopterists say that recently the majority of European butterflies are decreasing in numbers, threatened by destruction of their habitats, landscape fragmentation and climate changes.

For these reasons, I think the publication of this book, dedicated to the butterflies and burnets moths of the Alps, is very timely. In these pages is a complete report on each of the 281 species considered, which includes: distribution, habitat, altitudinal range, altitudinal zonation, flight period, host plants, myrmecophily, similar species, fore-wing length, larvae, pupae, cocoons and IUCN's threatened status. The precision and exhaustivity of the data provided not only make this book an updated inventory of the butterflies of the alpine region, but also offer an important aid for conservation planning. Moreover, keys to the families and some genera, make this book an excellent guide for both beginners and more experienced naturalists. Another relevant use for this book is related to the identification of the butterfly species in biomonitoring programs and in the sustainable management of the Alpine Natura 2000 sites.

So, for all these reasons, I would like to thank Paolo Paolucci, the author of this remarkable work, for having chosen the World Biodiversity Association as editor of his book; I'm sure this volume will provide a window on the world of butterflies for researchers, the general public and in particular the younger generation, in the hands of whom rests the future of our planet.

*Gianfranco Caoduro*  
Chairman of the World Biodiversity Association

There is hardly any other group of insects that has captured so much attention as the butterflies and moths. And quite rightfully so! Their beauty, liveliness and variety makes them one of the most recognizable elements of nature. They are harbingers of spring and accompany us right through summer and into the late autumn days. They are enjoyed by casual observers as well as a growing number of butterfly lovers who dedicate their free time or even careers observing, photographing, researching, and documenting them in nature. These activities have now largely surpassed the formerly popular collecting, although scientifically managed collections are still indispensable when it comes to taxonomic studies.

In recent decades, butterflies and moths have been recognized as biodiversity indicators, meaning that their well-being indicates a stable healthy environment for majority of other terrestrial animals and plants. However, strong declines in distribution and abundance of butterflies have been recorded throughout Europe. The main reasons for the negative trend are habitat loss and fragmentation caused by increasing human interference. In butterflies and burnets in particular, abandonment of traditional farming is another increasingly important factor, as overgrown meadows gradually become unsuitable for many specialist grassland species.

Alps, the backbone of Europe, are the largest mountainous landscape in central Europe. Due to rugged terrain and high altitudes this region largely escaped the intensive farming and urbanization, therefore it represents one of the most important reservoirs of butterfly diversity on the Continent. Many of them are confined to the Alps, or are extremely rare elsewhere. They inhabit a wide variety of habitats from hot valleys influenced by the neighborhood of the Mediterranean to the tops of the highest peaks where rocks and ice dominate the landscape.

This great butterfly diversity is well captured in the illustrations of this guide and together with identification keys provide all essential information for identification of the species present in the Alps. Rough distribution maps and ecological parameters provide additional guidance which should motivate butterfly enthusiasts to visit this particularly rich region. Brunets are a logical and useful extension of this book, as they commonly fly together with butterflies and are easily approachable and recognizable. The guide should serve as motivation for enjoying nature and these fragile and rapidly vanishing creatures.

*Rudi Verovnik*  
Society for the Conservation and Study of Lepidoptera in Slovenia

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*I would like to dedicate this book to prof. Sergio Zangheri*

## INTRODUCTION

The Alps are the most important chain of mountains in Europe. They stretch from east to west for 1300 km and, according to the SOIUSA (International Unified Orographic Division of the Alpine System), they are included in 8 countries: Hungary (Stirian Pre-Alps, about 100 km<sup>2</sup> in the province of Sopron), Northern Slovenia, Austria, Southern Germany, Northern Italy, Switzerland, Liechtenstein and South-Eastern France. The highest peak is Mont Blanc at 4810 m, but there are many other peaks between 3800 and 4500 m. Three main groups are to be divided in geographical terms: Eastern Alps, stretching from their origin to Brenner Pass, Central Alps, from Brenner Pass to Col Ferret, Western Alps, from Col Ferret to Colle di Cadibona.

From the point of view of their fauna, the Alps represent a very important reservoir of biodiversity with a number of endemic species, among which there are at least 20 species of butterflies and a higher number of species that can only be found in these mountains and in few other mountain areas in Europe, together with boreo-alpine areas. They have a rather limited distribution, only on the Alps and to the most northern regions of Europe.

This guide illustrates the 254 species of Butterflies (Hesperioidea and Papilionoidea) and the 27 species of Burnets (*Zygaena*) - and several subspecies, forms and variety - that have so far been observed in the Alps - considered as a geographical identity; species from all altitudes have been taken into consideration, and not only the ones from the high mountains. To make this guide complete, 8 further species of butterflies and burnets from the margins of the Alpine range (Dinaric Alps, Provence, Côte d'Azur) have been taken into consideration. The burnets - a small family of day-flying Lepidoptera that are similar to other moths - have also been included in this guide, as they are commonly found in these areas. They are active during the day, easy to observe and they often share their habitat with many butterflies.

Every single species has been dedicated a file with concise information about their distribution, the altitudes they get to, their habitat, the host plants, their flight-period and other biological details. For most of the species this guide also presents a set of pictures of the larvae, the pupae and the cocoons, enriched by short captions on their distinctive characteristics. Many of the butterflies and

of the burnets of the Alps can be easily identified without being caught. However, for some species that are not easy to identify a closer observation is needed. Each file illustrates the characteristics needed to identify the species and lists any similar species; the distinguishing characteristics must, in any case, be considered together with other parameters, like habitat, altitude, the period of the year when the observation has taken place, and the distribution over territory. Each descriptive part starts with an introduction to the families and subfamilies, followed by specific key for each family

and for some genera that show various degrees of complexity (*Pyrgus*, *Colias*, *Lycaena*, *Argynnis*, *Brenthis*, *Boloria*, *Melitaea*, *Euphydryas*, *Coenonympha*, *Erebia* and *Zygaena*).

I have adopted the systemic order suggested in Fauna Europaea (2011) and by Swaay et al. (2010); some species of the genera *Pyrgus* (*malvoides* / *malvae*, *accretus* / *trebevicensis*), *Leptidea* (*sinapis* / *reali*), *Pontia* (*edusa* / *daplidice*) and *Hipparchia* (*hermione* / *h. ssp. genava*), which are difficult to distinguish one from the other, have been dealt with in the same file.

## HOW TO USE THIS GUIDE

### DISTRIBUTION

The distribution maps show all the administrative districts where the species has been observed even once in the last 30 years; a light blue colour means that a species was observed only in the past and that its current existence has not been confirmed yet; the question marks mean a possible or probable existence, but not verified yet.

### HABITAT

Many of the most common butterflies live in a variety of habitats. Others are only to be found in some habitats in particular, that are often not widespread; their distribution, therefore is quite restricted to limited areas. The various types of habitats have been summed up in six general categories, illustrated through six pictograms. The files feature a detailed description of the species, preceded by a short comment on its distribution and status. On the side of the symbol showing the habitat there is a note about whether the species prefers sunny, partly sunny or shady places.



sunny places

partly sunny places

shady places

### ALTITUDINAL ZONATION AND ALTITUDINAL RANGE

I have adopted the following altitudinal classification:

**Lowland:** it corresponds partly to the hilly plan and to the sub-mountainous horizon; it includes the valleys and the mountainsides as high as 600 m; it includes thermophilous deciduous woods as well as thermophilous scrubland (especially to be found on the southwestern borders of the Alps, along the coasts of the main lakes and on the sunniest sides of the southern Pre-Alps). The cultivat-

ed areas are quite widespread at this altitude.

**Mountain:** it corresponds to the border with thermophilous broadleaf woods and goes from 500 m to 1600 m in height. It includes oak woods, beech woods and warm pinewoods, including also some other conifers; the open areas are hay meadows, low mountain grasslands and dry grassland on the southern sides of the mountains.

**Sub-alpine:** it corresponds to the alpine horizon; it goes from 1500 to 2000 m altitude and it includes the area of the conifer woods as far as the timberline. The open habitats are mainly pastures and secondary prairies.

**Alpine:** from 2000 to 3000 m altitude, which correspond to primary grasslands, to scrub and to alpine heath and alpine tundra.

**Nival:** over 3000 m height; it is made of the upper ends of continuous grasslands, screes, morains and perennial glaciers.

### IUCN'S THREATENED STATUS IN EUROPE

According to the latest European Red List of Butterflies, the Alpine Butterflies are classified: **LEAST CONCERN (LC)** 218 species  
Lowest risk. Does not qualify for a more at risk category. Widespread and abundant taxa are included in this category.

**NEAR THREATENED (NT)** 26 species  
Species that are not considered Vulnerable at present, but are close to qualifying for or is likely to qualify for a threatened category in the near future.

**VULNERABLE (VU)** 9 species  
These species are considered to be facing a high risk of endangerment in the wild.

**ENDANGERED (EN)** 5 species  
These species are considered to be facing a very high risk of extinction in the wild.

**NOT EVALUATED (NE)** 3 species  
When it has not yet been evaluated against the IUCN criteria.

### FLIGHT PERIOD

The diagrams show the phenology of the species, highlighting the periods when eggs, larvae, pupae or adults can be observed. The number of generations per year is also shown:

Uni - one generation

Bi - two

Tri - three

Pol - more than three generations

### HOST PLANTS

All the alpine butterfly and burnet larvae are phytophagous; they can be divided in the following types, according to the number of species, genera or families of plants utilized by them:



Monophagous: feeding on plants belonging to one genus only



Oligophagous: feeding on various genera of plants belonging to the same family



Polyphagous: feeding on plants belonging to different families.

Some butterflies that are extensively widespread can be linked also to plants that are not present in the Alps; for this reason the list of the plants does not include all the possible host plants, but only the ones that are common in the Alps.

### MYRMECOPHILY

Some Lycaenidae have established a special form of symbiosis with ants: the larvae and the pupae of some of these butterflies are attended by worker ants, or even carried into the ant-nest and looked after until they become adult butterflies. This guide provides a list of host ant species that is not complete and that includes only the most known species. (Tolman & Lewington, 1997; Huemer, 2008).



### SIMILAR SPECIES

Most butterflies can be recognized easily; in any case, the files in this guide list the similar ones or the ones that can be easily mistaken for others in terms of external aspect or behaviour.



### FORE-WING LENGHT

The forewing length is a rather important character allowing the recognition of a species, and it can be easily measured even when the wings are closed.



### SEXUAL DIMORPHISM

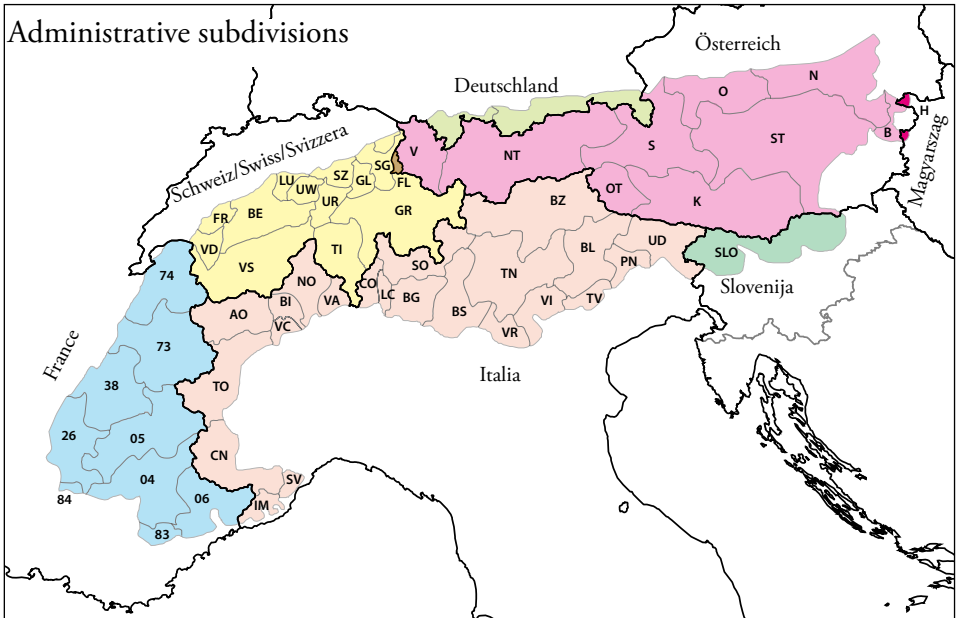
This symbol appears in species where males and females are similar.



### LARVAE, PUPAE AND COCOONS

The penultimate section of this guide is dedicated to the larvae, pupae and cocoons of 264 species. In most cases the larvae are illustrated both from the side and from above. The cocoons and pupae are illustrated only from the side.

## Administrative subdivisions

**Austria (Länder)**

B = Bunterland  
K = Kärnten  
N = Niederösterreich  
und Wien  
NT = Tirol  
O = Oberösterreich  
OT = Osttirol  
S = Salzburg  
ST = Steiermark  
V = Vorarlberg

**FL = Liechtenstein****France (Départements)**

04 = Alpes-de-Haute-Provence  
05 = Haute-Alpes  
06 = Alpes-Maritimes  
26 = Drôme  
38 = Isère  
73 = Savoie  
74 = Haute-Savoie  
83 = Var  
84 = Vaucluse

**Deutschland (District)**

OB = Oberbayern  
SW = Schwaben

**Italia (Province)**

AO = Aosta  
BL = Belluno  
BG = Bergamo  
BI = Biella  
BS = Brescia  
BZ = Bolzano  
CO = Como  
CN = Cuneo  
IM = Imperia  
LC = Lecco  
NO = Novara  
PN = Pordenone  
SO = Sondrio

**SV = Savona**

TN = Trento  
TO = Torino  
TV = Treviso  
UD = Udine  
VA = Varese  
VC = Vercelli  
VI = Vicenza  
VR = Verona

**SLO = Slovenia**

H = Hungary

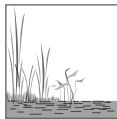
**Switzerland (Cantoni)**

BE = Berna  
FR = Friburg  
GL = Glarona  
GR = Grigioni  
LU = Lucerna  
SG = San Gallo  
SZ = Schwyz  
TI = Ticino  
UR = Uri  
UD = Unterwalden  
VD = Vaud  
VS = Vallesse

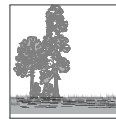
## Habitats types



Grassland habitats



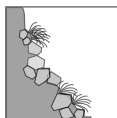
Wet habitats



Bog habitats



Scrubby habitats



Rocky habitats



Woodland habitats

HOW TO USE THIS GUIDE

Vernacular name: English; Italiano; Français; Deutsch; Slovensko

Lycaenidae

*Polyommatus icarus* (Rottemburg, 1775)

Common Blue; Icaro; l'Argus bleu; Hauhechel-Bläuling; Navadni modrin

1 ♂ violet-blue, ♀ brown (sometime with basal blue dusting) with orange submarginal spots and white fringes

2 Cell-spot

3 Black ocell 2-3-4 in line

Larval host plants

a wide range of Fabaceae

*Lasius* spp., *F. cinerea*, *Plagiolepis pygmaea*, *Myrmica sabuleti*, *M. lobicornis*

12-18 mm

*P. eros*, *P. bellargus*

Widespread and very common; it can be found on a wide range of open habitats, often in unimproved grassland, roadside verges, woodlands edges and clearings, scrubby grasslands, and all types of meadows.

LC

184

Altitudinal zonation

Altitudinal range

Broods

Phenology

FW length

Similar species

Myrmecophily (ant's species)

Sunny preference

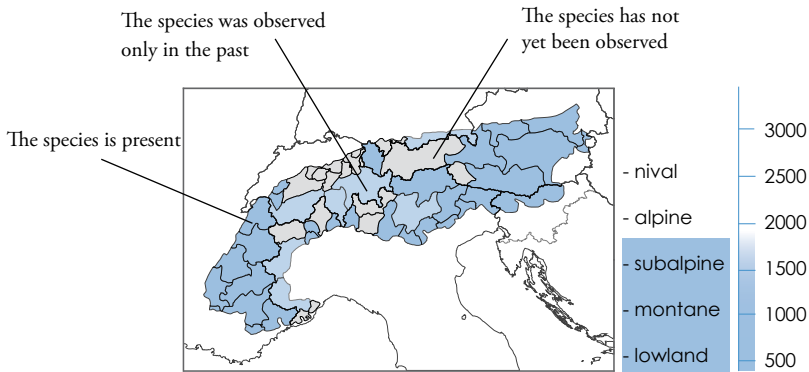
IUCN's threatened status in Europe

Distribution

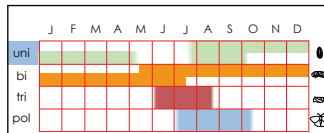
Diagnostic characters

All butterflies are drawn in life size

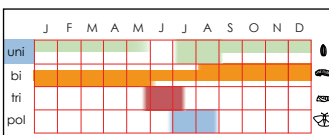
Example of the file



In some species larvae of second or third broods hibernate before pupating.



Other, hibernate as an ovum or first/second instar larvae.



*Erebia* species hibernate as an ovum or larvae; larval development occupies two seasonal cycles.

## Abbreviations

C	Central	S	South
CW	Centralwest	SC	Southcentral
E	East	SE	Southeast
f.	Form	SW	Southwestern
FW	Forewing	Sp	Wing Space
FWup	Forewing upperside	sp./sp.pl.	species (singular)/species (plural)
FWun	Forewing underside	ssp.	subspecies
HW	Hindwing	St	Streak
HWup	Hindwing upperside	Ups	Upperside (of both fore- and hindwing)
HWun	Hindwing underside	Uns	Underside (of both fore- and hindwing)
N	North	V	Wing Vein
NE	Northeast	W	West
NW	Northwestern	♂-♀	Male - Female

Three subfamilies: Pyrginae with a rather square shape; Heteropterinae with several large black bordered white spots; Hesperinae, with elongate fore-wings

- 1


Ups grey or brown with white postdiscal and discal spots

2
- Ups orange, brown or yellow without white discal spots


6
- 2

FWup with white postdiscal spots in Sp4 and Sp5 displaced outwards

Key for the Genus *Pyrgus*
- FWup with white postdiscal spots in a regular row far from the margin

3
- 

*Pyrgus*



*Spialia*

3

Ups with several marked white submarginal spots

4

-

Ups without marked white submarginal spots

5

4


HWun reddish with rugged white spots

*Spialia sertorius*


-

HWun yellowish with rounded white spots

*S. orbifer*



*S. sertorius*



*S. orbifer*

5


HW margin scalloped; Ups with grey or pale grey marks but no white marks

Genus *Carcharodus*


-

HW margin rounded; white marked on both FW and HW; HWup with a white cross-line; fringes chequered

*Muschampia proto*



*Carcharodus*



*M. proto*

6

Ups dark-brown with some apical white spots or several yellow marks

7

-

Ups orange or yellowish-brown, without clearly developed marks

9

20

- 7 Ups with large yellow spots; HWun grey-brown with large black-bordered yellowish spots  
*Carterocephalus palaemon*  
 - Ups without large yellowish spots; some small apical spots 8

- 8 Ups black-brown with small white or yellow apical spots; HWun grey-brown with large black-bordered white spots  
*Heteropterus morpheus*  
 - Ups brown or grey-brown with several submarginal small white spots on FW; Uns plain brown  
*Erynnis tages*

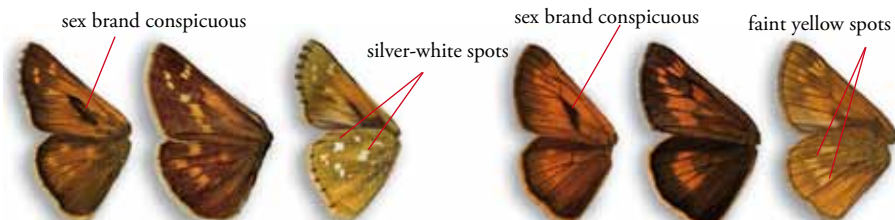
*C. palaemon**H. morpheus**E. tages*

- 9 Ups dark brown with pale postdiscal spots on FW; Uns plain grey-brown  
*Gegenes pumilo*  
 - Ups orange or orange-brown 10

*G. pumilo**Ochloides / Hesperia / Thymelicus*

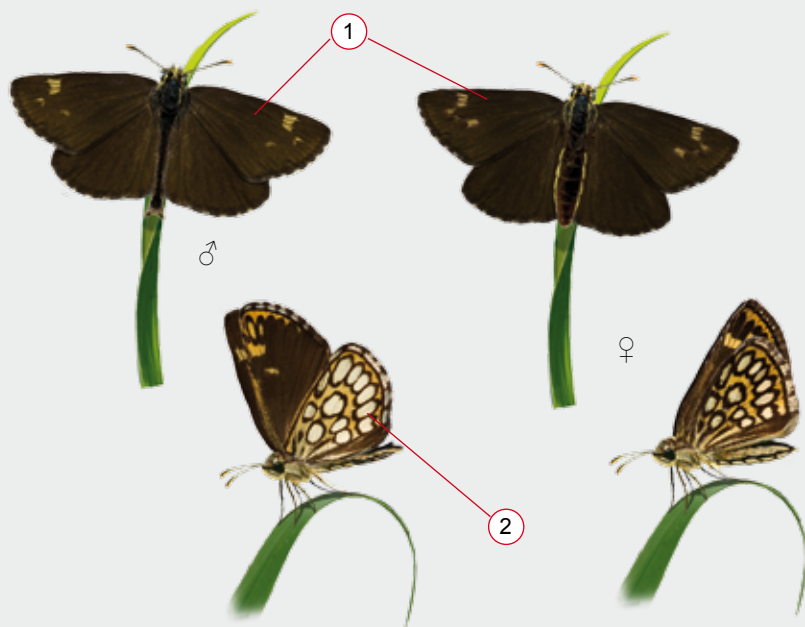
- 10 HWun greenish with several white or silver-white spots; male with a sex-brand conspicuous on FWup  
*Hesperia comma*  
 - HWun without white or silver-white spots 11

- 11 HWun greenish-orange with faint yellow spot  
*Ochloides sylvanus*  
 - HWun plain orange or brownish-orange, without yellow spots 12

*H. comma**O. sylvanus*

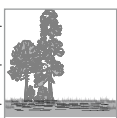
# *Heteropterus morpheus* (Pallas, 1771)

Large Chequered Skipper; Morfeo; le Miroir; Spiegelfleck Dickkopffalter;  
Pisani poplesovalček



1 Dark brown

2 Yellow with black-bordered white spots



Sporadic but sometimes locally common; form small well-defined colonies in peat bogs, along grassy woodland edges, tall herb fringes and grassy banks; it also occurs on dry scrublands.

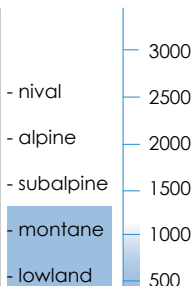
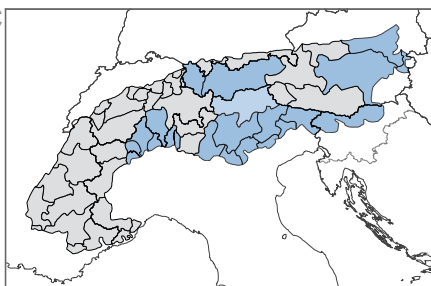


*Molinia coerulea*,  
*Brachipodium* spp., *Poa* spp.



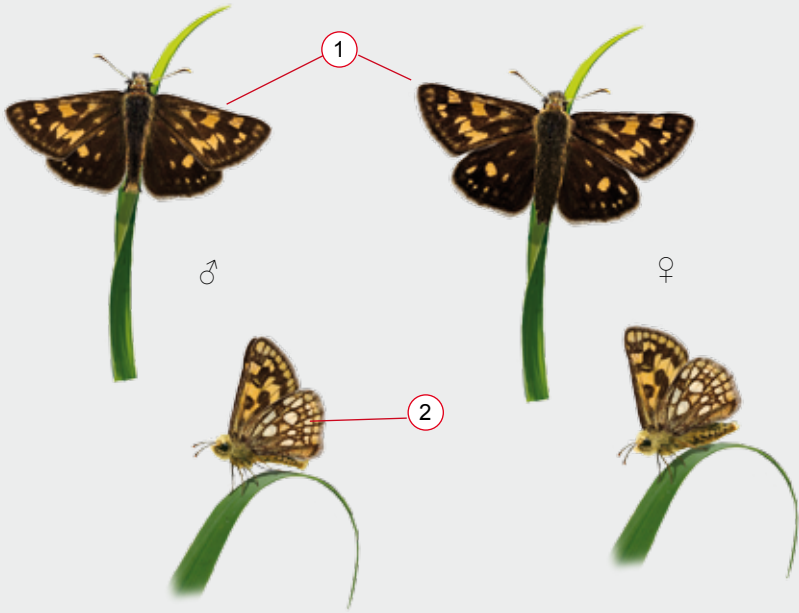
16-18 mm

LC



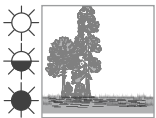
# *Carterocephalus palaemon* (Pallas, 1771)

Chequered Skipper; Palemone; l'Hespérie du brome, l'Échiquier;  
Gelbwüfeliger Dickkopffalter, Bunter Dickkopffalter; Lisasti obloglavček



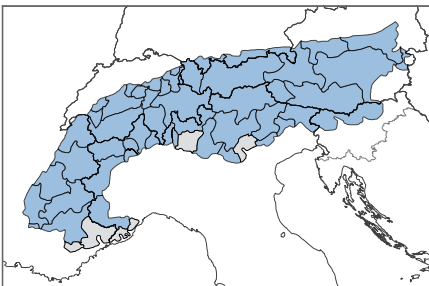
1 Dark brown with yellow markings

2 Yellowish brown with dark bordered yellow spots



Widespread but local and uncommon;  
frequents bogs woodlands, woodland clearings  
and tall herb fringes.

LC



- nival

- alpine

- subalpine

- montane

- lowland



*Molinia coerulea*, *Brachypodium sylvaticum*, *Dactylis glomerata*, *Calamagrostis epigejos*, *C. villosa*, *Phleum pratense*, *Poa trivialis*

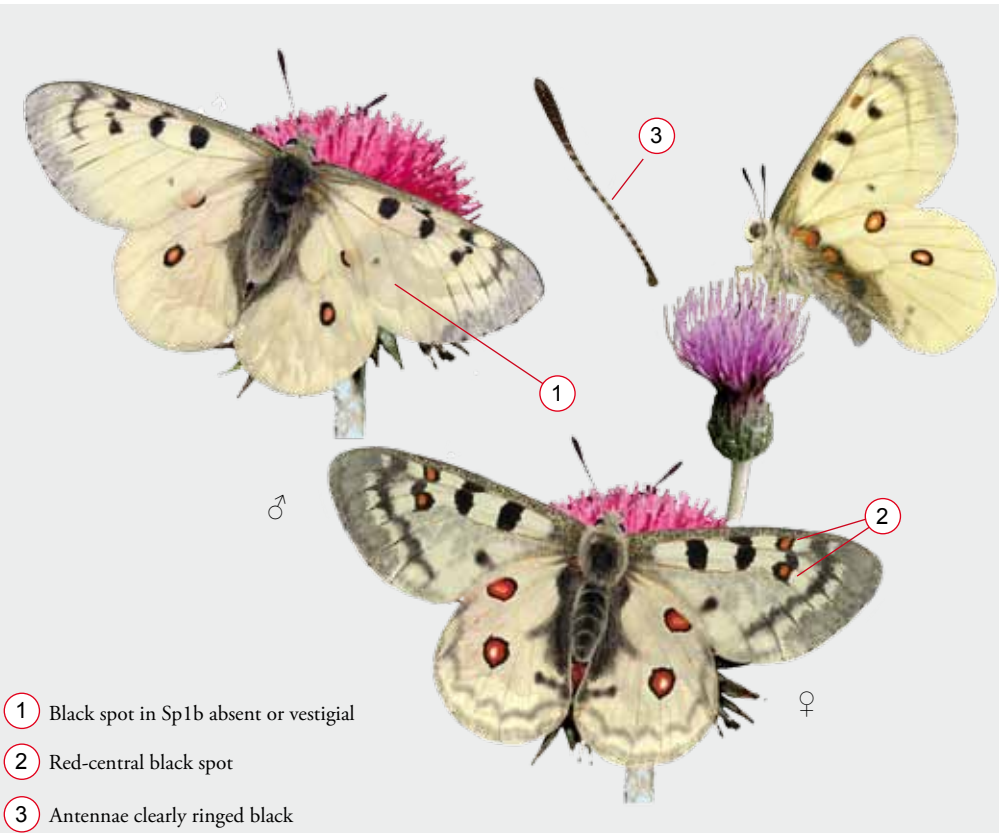


14-15 mm

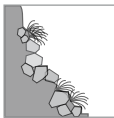
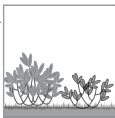


*Parnassius phoebus* (Fabricius, 1793)

Small Apollo; Febo; le Petit Apollon; Alpenapollo

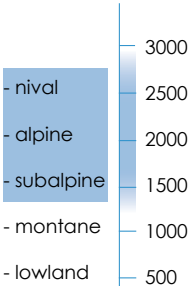
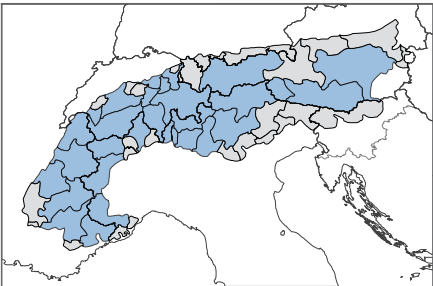


- 1 Black spot in Sp1b absent or vestigial
- 2 Red-central black spot
- 3 Antennae clearly ringed black



Alpine species, local but often common; it occurs on alpine meadows, often near small streams, alpine tundra, grassy slopes and cliffs.

NT



*Saxifraga aizodes*



30-35 mm

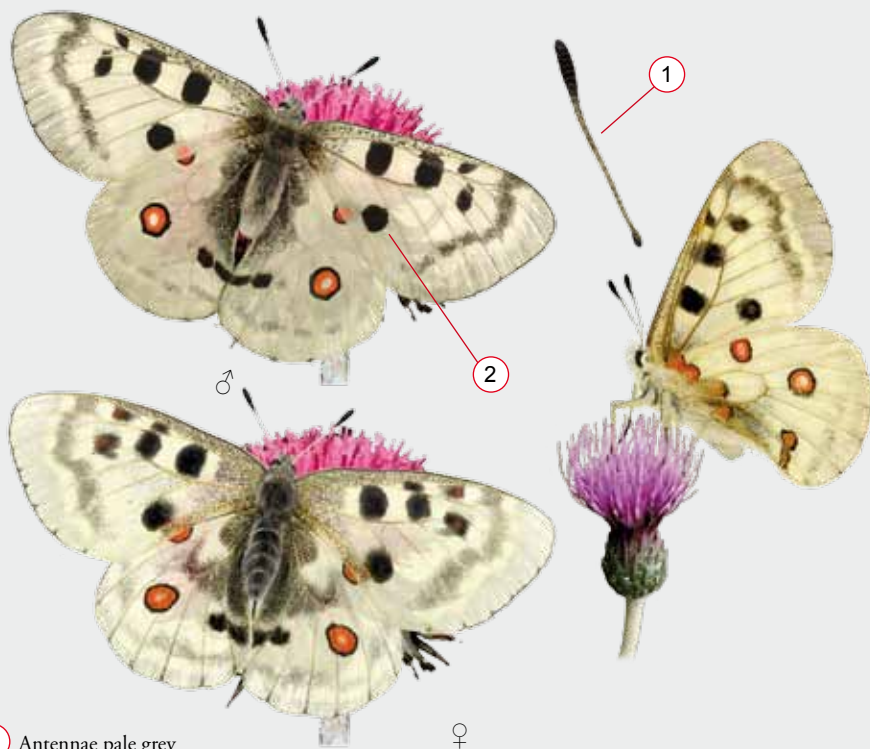


*P. apollo*



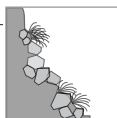
# *Parnassius apollo* (Linnaeus, 1758)

Apollo; Apollo; l'Apollon; Apollo; Rdeči apolon



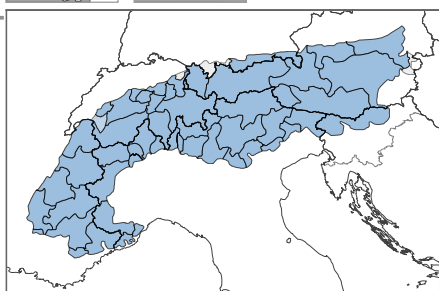
1 Antennae pale grey

2 Black spot in Sp1b



Widespread and locally common; the most favoured habitats are rocky slopes, grassy cliffs, steeply inclined grassy screes, grassy slopes and subalpine pastures.

NT



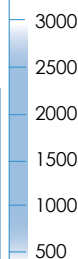
- nival

- alpine

- subalpine

- montane

- lowland



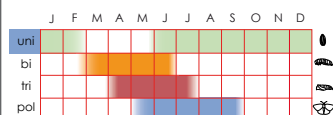
*Sedum album*



35-42 mm

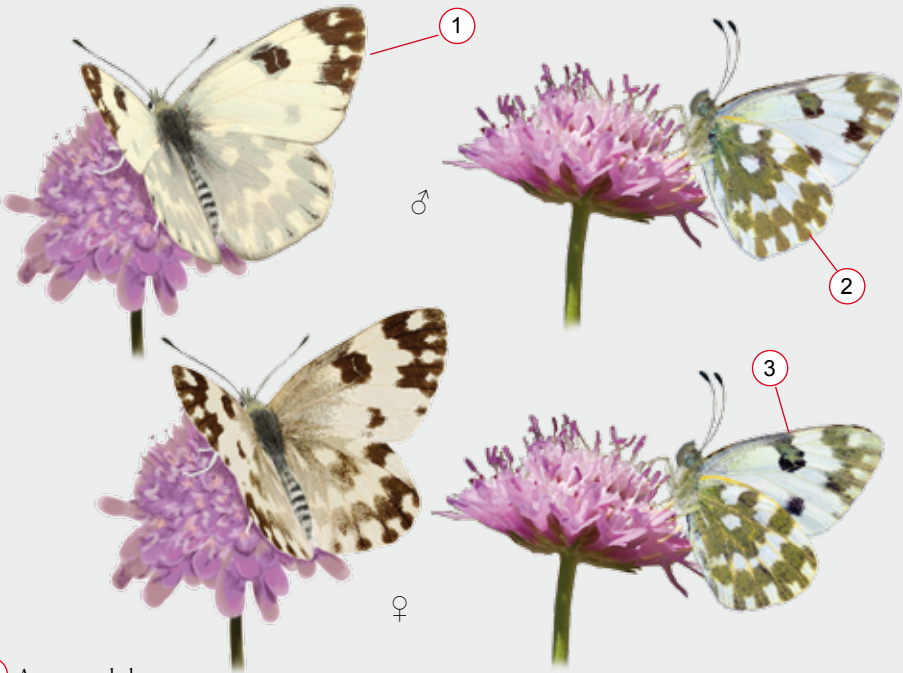


*P. phoebus*

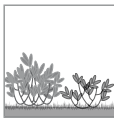
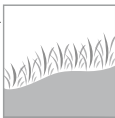


*Pontia edusa* (Fabricius, 1777) - *Pontia daplidice* (Linnaeus, 1758)

Eastern Bath White; Edusa; Östlicher Weißling; Katančev selec  
Bath White; Daplidice; la Marbré-de-vert; Resedafalter

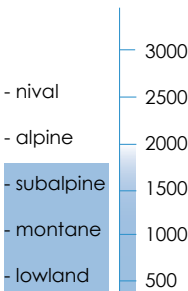
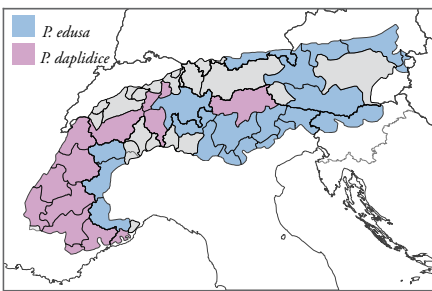


- 1 Apex rounded
- 2 Markings rounded
- 3 Discoidal spot not reaching costa



Both butterflies are usually common; occurs on dry grasslands, grassy slopes, steppes, cultivated areas and stony grasslands; migrants and vagrants.

LC



*Reseda* spp., *Alyssum* spp., *Sisymbrium* spp., *Sinapis* spp., *Thlaspi* spp.



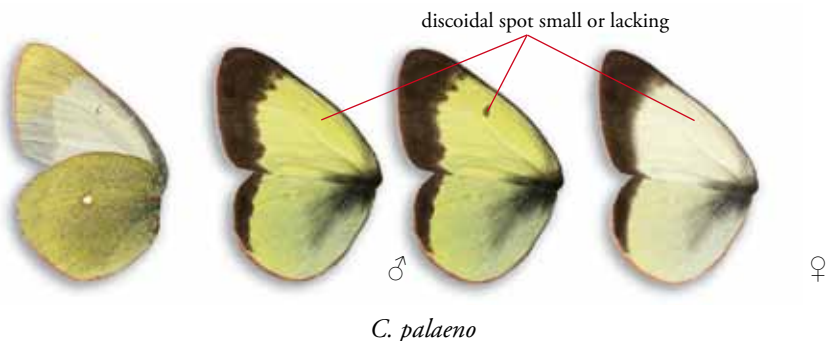
19-25 mm



*P. edusa* and *P. daplidice* are externally inseparable; identification based on the molecular analysis.



- 1 FW with discoidal spot always well developed 2  
 - FW lacking discoidal spot or discoidal spot small; Ups ground colour pale sulphur yellow (♂) to off-white (♀); black marginal borders solid black *C. palaeno*

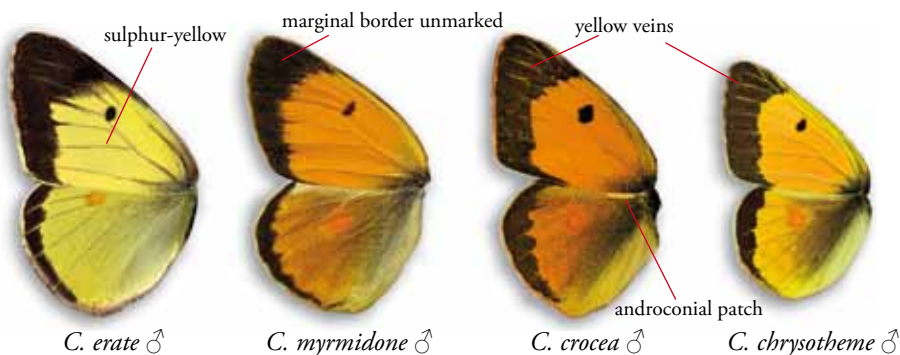


- 2 FW black marginal border without yellowish marking 3  
 - FW black marginal border with several yellowish marking 6

- 3 Ups and Uns ground colour sulphur-yellow *C. erate* ♂  
 - Ups ground colour orange yellow 4

- 4 Ups dark marginal borders crossed proximally by yellow veins 5  
 - Ups marginal borders without yellow veins *C. myrmidone* ♂

- 5 HWup with androconial patch *C. crocea* ♂  
 - HWup without androconial patch *C. chrysotheme* ♂



# *Hamearis lucina* (Linnaeus, 1758)

Duke of Burgundy Fritillary; Lucina; la Lucine; Schlüsselblumen-Würfelfalter; Rjavi šekavček



♂



♀



2



2

1 Silver-white spots

2 ♂ two pairs of legs; ♀ three pairs of legs



Widely distributed but uncommon; frequents woodland edges and clearings, shaded slopes, open hedgerows, sheltered areas with abundant primrose.

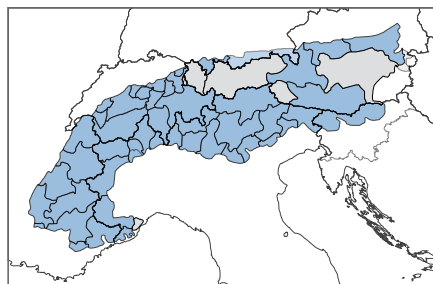


*Primula veris*, *P. elatior*,  
*P. vulgaris*



14-17 mm

LC



- nival  
- alpine  
- subalpine  
- montane  
- lowland

3000  
2500  
2000  
1500  
1000  
500



- 1 HWun with white spots; Ups brilliant copper-orange without black discoidal spots (♂)  
or orange-brown with several dark markings (♀) *L. virgaureae*
- HWun without white spots 2



- 2 HWun without submarginal black markings; HWup black-brown with a submarginal orange band; FWup copper-orange with several black spots and black marginal border wide *L. phlaeas*
- HWun with several black submarginal markings 3



- 3 Uns with orange band bordered internally by white edged black spots (submarginal lunules); ♂ with deep-violet sheen; ♀ with violet suffusion reduced or, more often, absent *L. helle*
- Uns without white submarginal lunules; Ups without deep-violet sheen 4

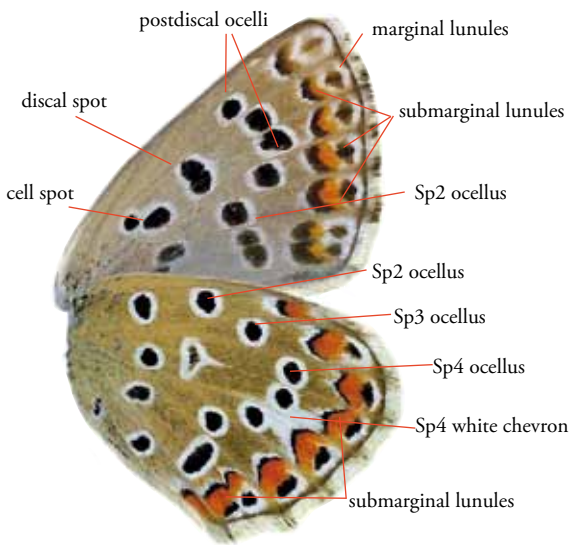


- 4 FWun black submarginal spots in a regular row (a) 5
- FWun black submarginal spot in Sp1 displaced basally (b) 7



Many species of Polyommatinae are known for the blue colour of upper side of the wings; in most cases the males are colourful, while the females are mostly brown or dark grey, sometimes with blue basal suffusion; there are some species in which both sexes have dark coloration. It is therefore considered useful to propose two distinct keys, based on the characters of upper- and underside of the wings: the number and arrangement of the ocelli, the presence of orange lunules and the ground colour are very important characters. Other important characters are the shape and length of the wings, the presence of tails on HW or its margin scalloped. As regards the size the maximum length of the FW is considered: large > 17 mm, medium 15-17 mm, small <15 mm.

The environmental conditions where the observation takes place, as the altitude and habitat, are also important data.



- Ups blue, sky-blue or grey-blue  
Key to the blue Polyommatinae

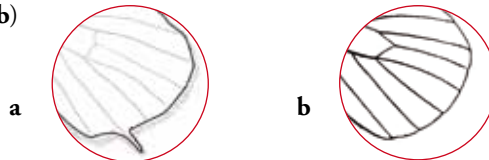
- Ups dark brown, light brown or grey-brown, often with orange sub-  
marginal spots  
Key to the brown Polyommatinae



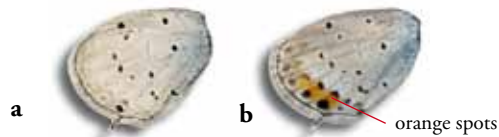
- 1 HW with outer margin slightly or deeply scalloped *Polyommatus (Meleageria) daphnis* 2  
 - HW different



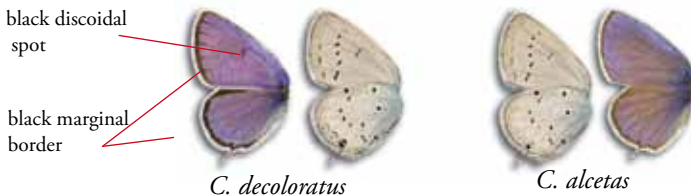
- 2 HW with fine tail (a) 3  
 - HW without tail (b) 7



- 3 HWun without orange spots (a) 4  
 - HWun with some orange spots (b) 5



- 4 FWup dusky-blue, with small black discoidal spot; black outer marginal borders narrow, indenting along veins *Cupido (Everes) decoloratus* ♂  
 - FWup violet-blue, without black discoidal spot; black outer marginal borders very narrow *Cupido (Everes) alcetas* ♂



- 5 Uns pale grey-blue; HWun with 2 orange lunules bordered by black spots *Cupido (Everes) argiades* ♂  
 - Uns pale brown with several white lines 6



# GROUND COLOURS TABLE

blue violet



*G. alexis* ♂



♂



♀

*G. melanops*



*C. argiolus* ♂



*C. argiades* ♂



*P. icarus* ♂



*P. thersites* ♂



*C. decoloratus* ♂



*C. alcetas* ♂



*L. pirithous* ♂



*P. alcon* f. *rebeli* ♂



*L. boeticus* ♂



♂

*G. iolas*



♀



*P. nausithous* ♂



*C. semiargus* ♂



*P. trappi* ♂



*P. argyrognomon* ♂



*P. argus* ♂



*P. idas* ♂



*P. optilete* ♂



*C. osiris* ♂

ultramarine blue

*P. coridon* ♂*P. hispanus* ♂*P. damon* ♂*P. eros* ♂*A. nicias* ♂

shin greenish blue



♂

*P. daphnis*

♀

*P. amandus* ♂*C. argiolus* ♀*P. dolus* ♂

turquoise

*P. bellargus* ♂*P. escheri* ♂*P. dorylas* ♂*P. orbitulus* ♂

french grey

*P. baton / vicrama* ♂*P. glandon* ♂*P. arion* ♂*P. teleius* ♂*P. alcon* ♂

dark blue



♂

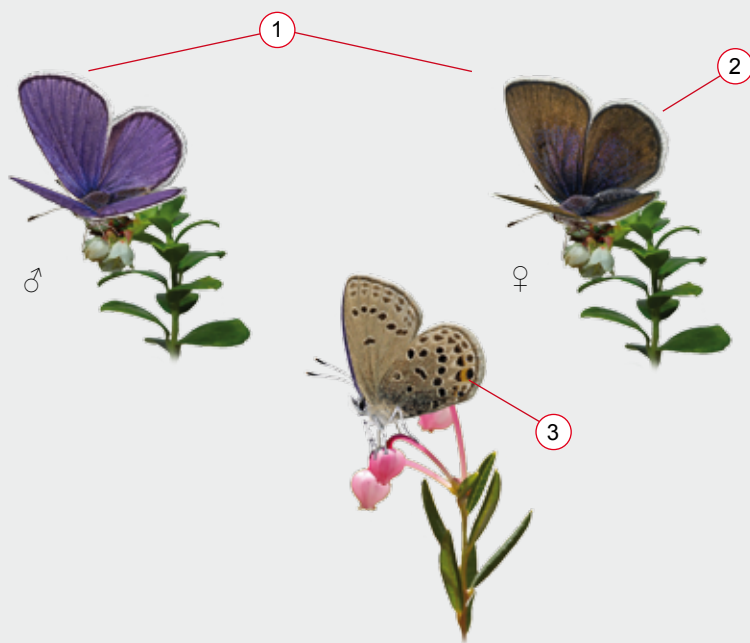


♀

*S. orion**C. minimus* ♂

# *Plebeius (Vacciniina) optilete* (Knoch, 1781)

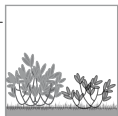
Cranberry Blue; Albulina del mirtillo; l'Azuré de la canneberge; Hochmoor-Bläuling; Borovničeva mnogook



1 ♂ violet-blue; ♀ brown, with basal violet flush

2 Fringes pure white

3 Orange-red spot



Local and generally uncommon; the most favoured habitats are peat bogs, wet heaths and alpine tundra, on acid soil.

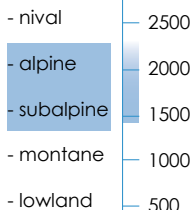
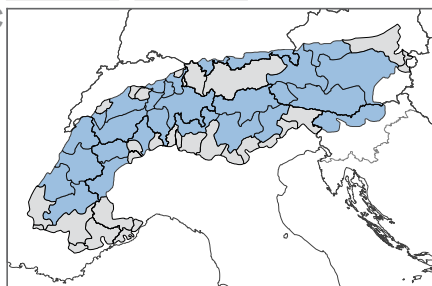


*Vaccinium myrtillus*, *V. oxycoccus*,  
*V. uliginosus*, *V. vitis idaea*



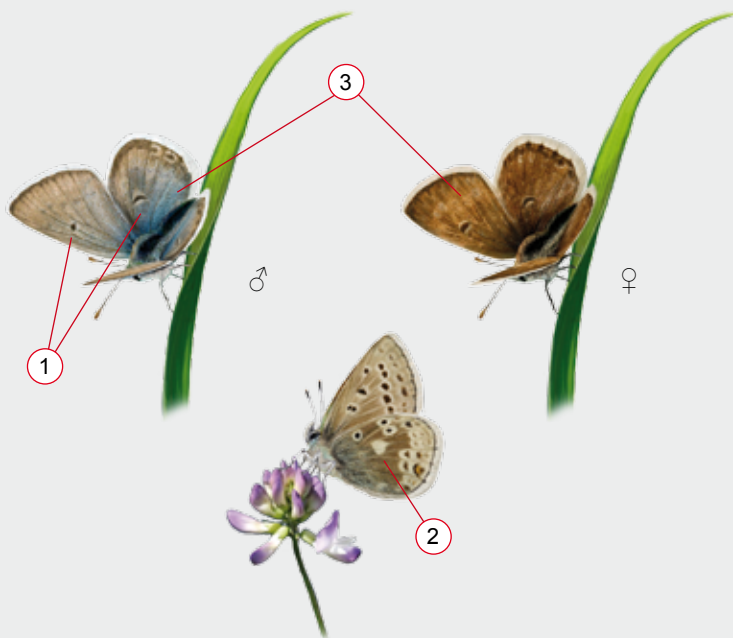
13-15 mm

LC

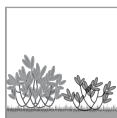


# *Plebeius (Agriades) glandon* (de Prunner, 1798)

Glandon Blue; Agriade del delfinato; l'Azuré des soldanelles; Dunkler Alpen-Bläuling

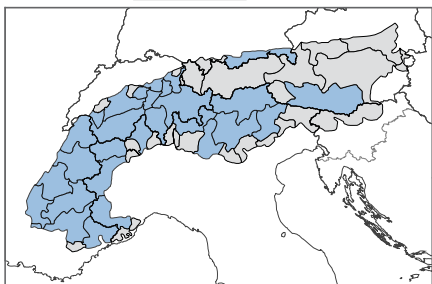


- 1 Dark cell spot, usually white - ringed
- 2 White central spot
- 3 ♂ grey-blue; ♀ grey-brown



Very local and uncommon; restricted to the alpine pastures and alpine meadows with stony outcrop, often beside streams.

LC



- nival  
- alpine  
- subalpine  
- montane  
- lowland

3000  
2500  
2000  
1500  
1000  
500



*Androsace chamaejasme*, *A. obtusifolia*, *A. vitaliana*

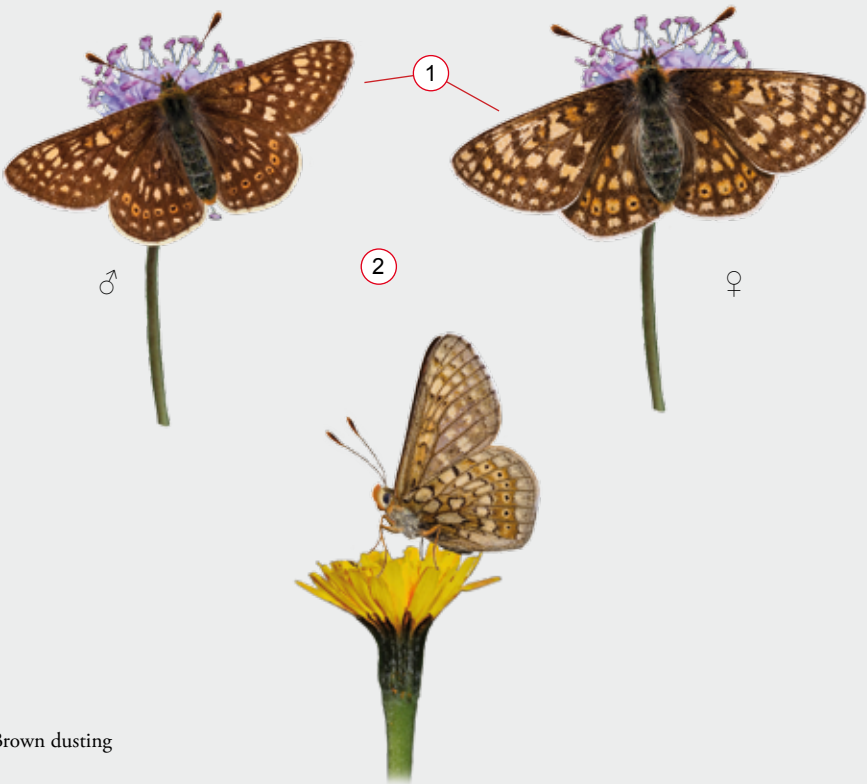


13-15 mm

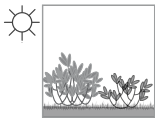


*Euphydryas aurinia glaciegenita* (Verity, 1928)

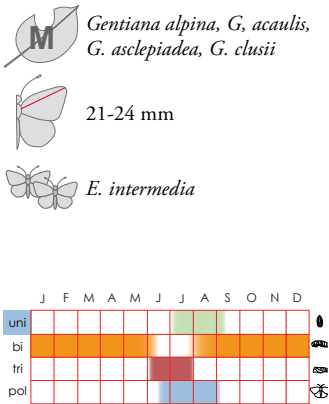
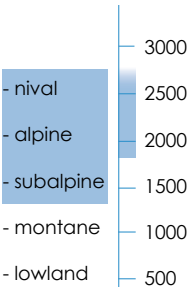
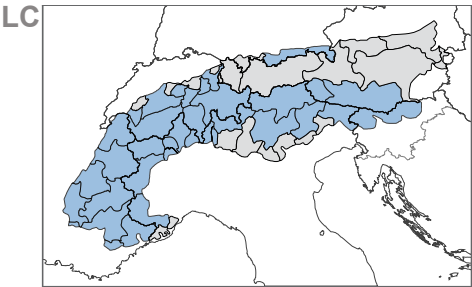
Eufidriade dei ghiacciai; Goldener Scheckenfalter (Gebirgsform); Travníški postavnež



- 1 Brown dusting
- 2 Smaller than *E. aurinia*

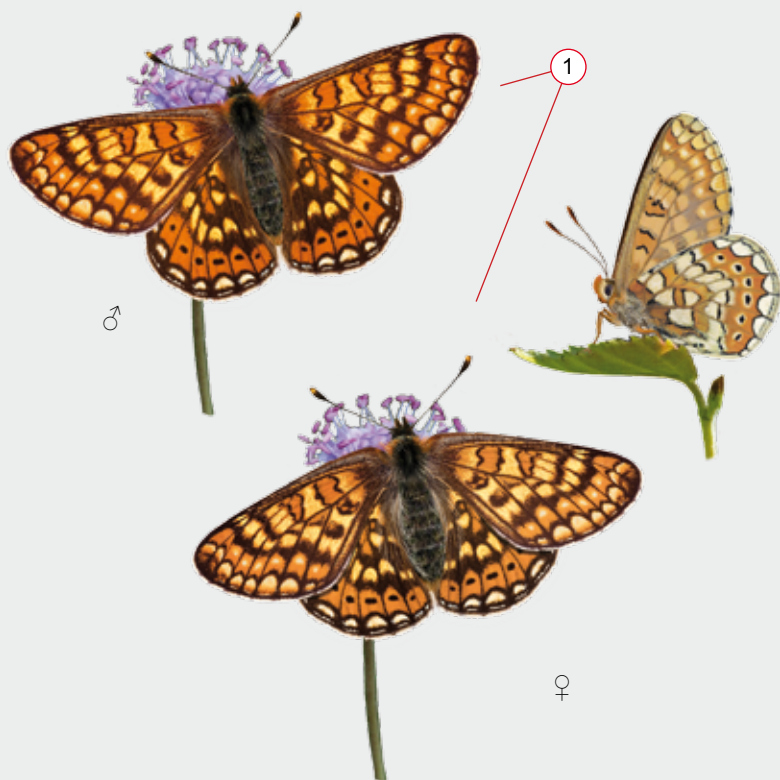


Local and uncommon; it is restricted to subalpine and alpine pastures associated with low growing-scrubs, e.g., juniper shrubs.



# *Euphydryas aurinia provincialis* Boisduval, 1828

Eufidriade provinciale

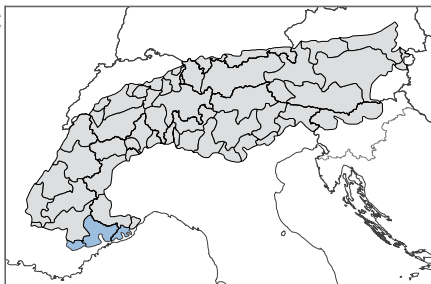


1 Pale orange ground colour



Very local in SW Alps; it occurs on damp and wet meadows, wet grassy slopes and woodland clearings.

LC



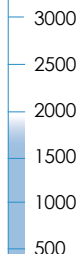
- nival

- alpine

- subalpine

- montane

- lowland



*Cephalaria leucantha*, *Centranthus angustifolius*, *C. ruber*, *Lonicera etrusca*, *Knautia arvensis*



15-25 mm

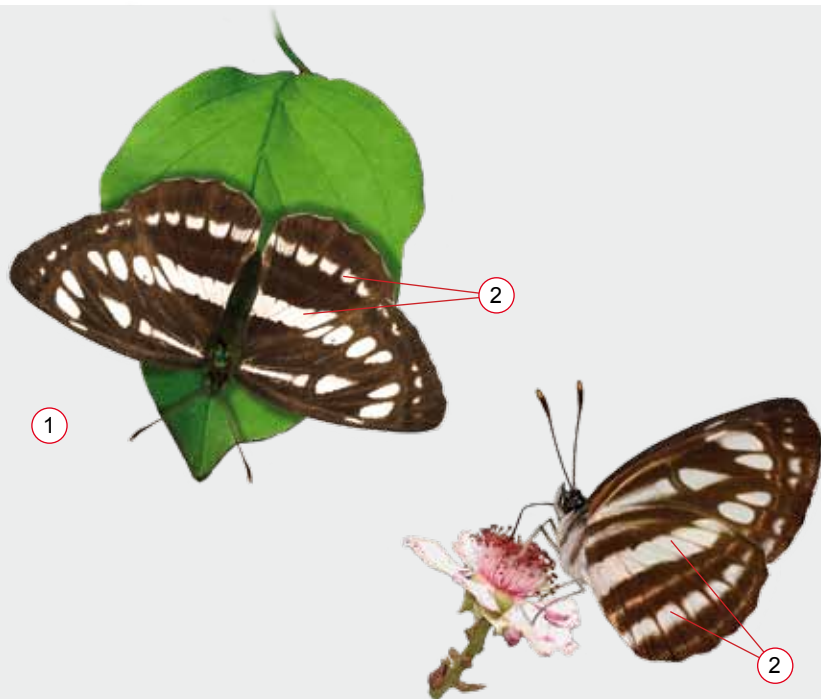


*E. intermedia*



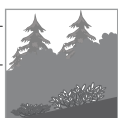
# *Neptis sappho* (Pallas, 1771)

Common Glider; Saffo; Schwarzbrauner Trauerfalter; Mali kresničar



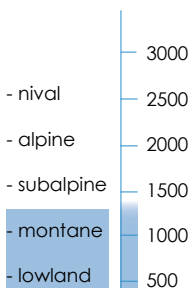
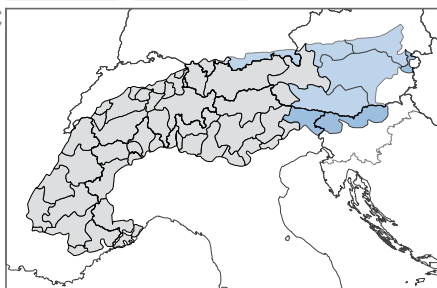
1 Black-brown and white pattern distinctive

2 Two white bands



Rather widespread in E Alps but sporadic and uncommon; occurs in mixed deciduous woodlands, riparian woodlands and grassy river banks.

LC



*Lathyrus vernus*, *L. niger*



21-30 mm ♂♀

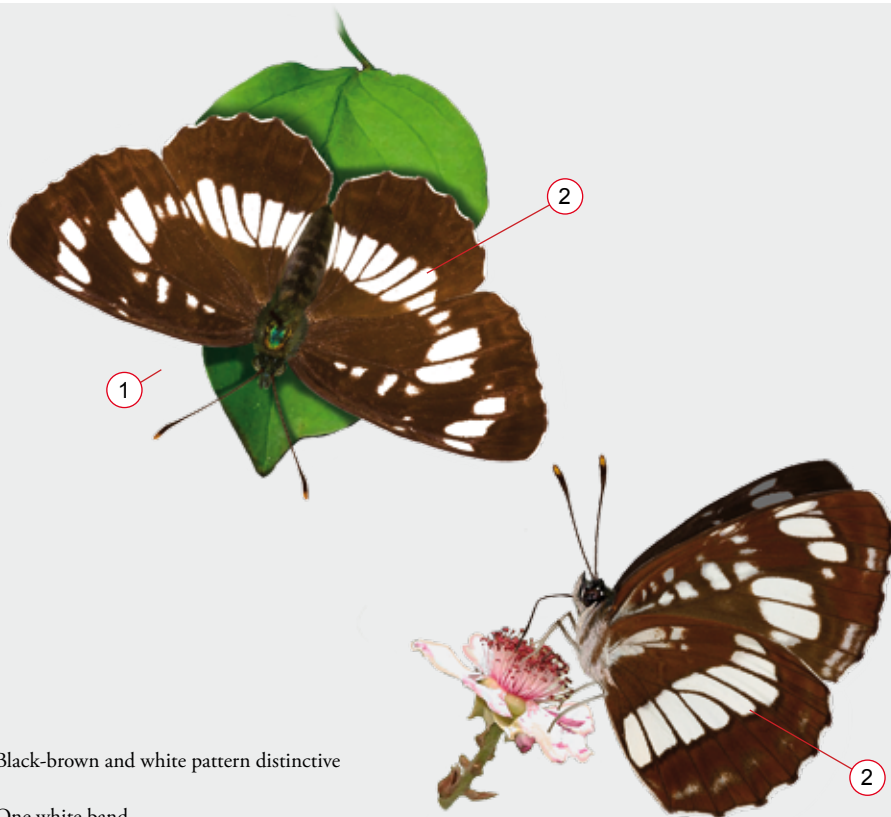


*N. rivularis*



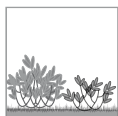
*Neptis rivularis* (Scopoli, 1763)

Hungarian Glider; Silvano dei ruscelli; Schwarzer Trauerfalter; Veliki kresničar



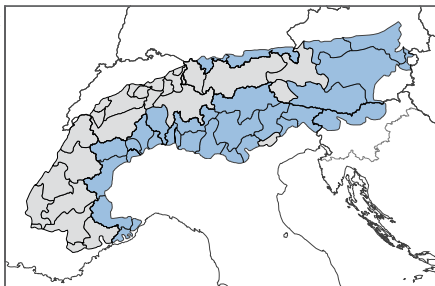
1 Black-brown and white pattern distinctive

2 One white band



Sporadic and uncommon; occurs in mixed deciduous woodlands, sheltered damp woodland clearings and tall herb fringes.

LC



- nival

- alpine

- subalpine

- montane

- lowland

3000  
2500  
2000  
1500  
1000  
500



*Spiraea chamaedryfolia*, *S. salicifolia*, *Aruncus dioicus*, *Filipendula ulmaria*



22-33 mm

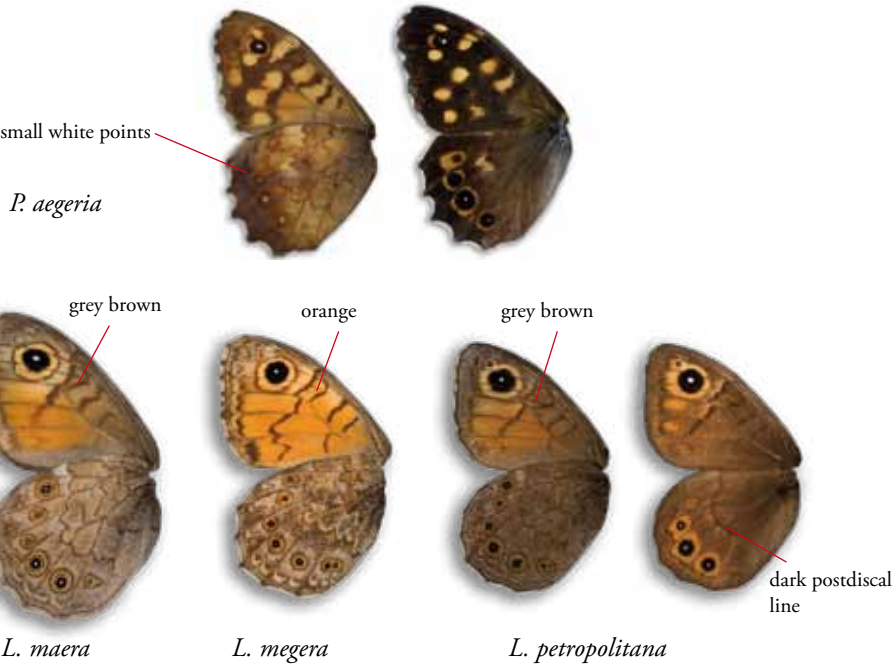
*L. camilla*, *N. sappho*

- 6

Ups ground colour dark brown with pale yellow spots, larger on ♀ than on ♂; HWun pale brown with several small white postdiscal points;  
- HWun grey or brown-grey with a series of postdiscal yellow ringed black ocelli

*Pararge aegeria*

genus *Lasiommata*

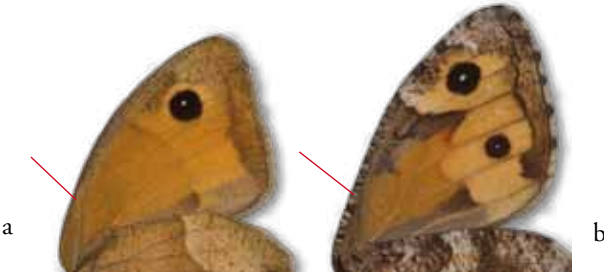


- 7

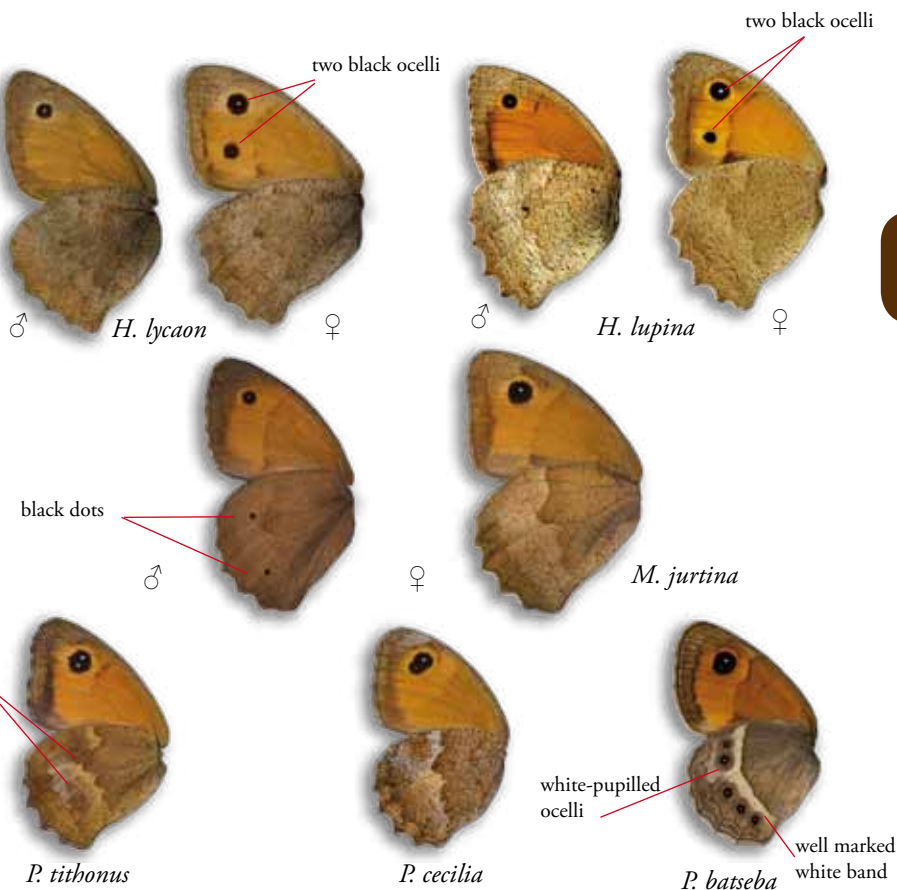
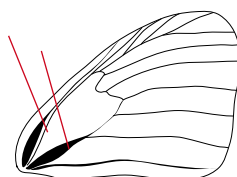
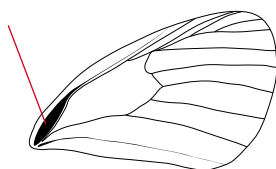
Costa uniformly coloured on FWun (a)

8
- Costa distinctly mottled with black and grey on FWun; medium-size or large-size butterflies (b)

9



- 8 FWup dark brown, with only one vein (subcostal) dilate basally and with several black subapical and postdiscal ocelli or black spots in Sp5 and Sp4, or with reddish postdiscal band genus *Erebia*
- FWun brown or orange grey bordered, with two veins (subcostal and cubital) dilate basally; one or two subapical black ocelli in Sp5 and Sp3 but not in Sp4, often white pupilled genera *Hyponephele*, *Maniola* and *Pyronia*



# *Erebia pluto* (de Prunner, 1798)

Sooty Ringlet; Plutone; le Moiré velouté, le Moiré des glaciers; Eis-Mohrenfalter; Triglavski rjavček



1

♂ *f. pluto*  
France and NW Italy



2

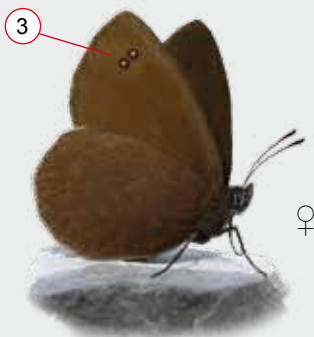
♀ *f. berninae*  
Ortler Alps



1

♂

*f. alecto=dolomitana*  
Austria and NE Italy



♀

3



1

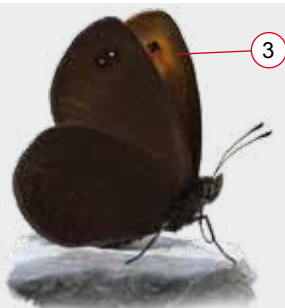
♂

*f. oreas*  
France, Switzerland  
and N Italy

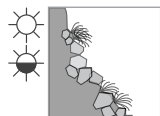


2

♀

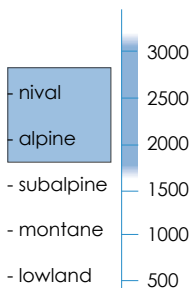
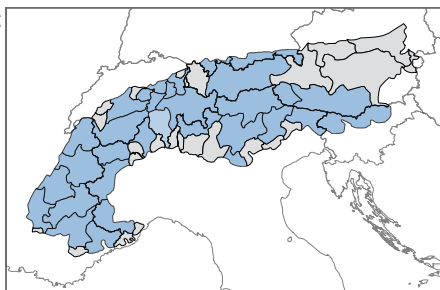
*Erebia pluto* (de Prunner, 1798)♂ *f. burmanni*  
Monte Baldo♂ *f. velocissima*  
Ortler Alps♂ *f. nicholli*

- 1 Very dark and without markings Brenta Alps
- 2 Golden shadow and/or reddish band
- 3 Black spots white pupilled



Widespread with a large number of geographical forms; it is typical of alpine and nival screes, moraines and rocky slopes with a sparse covering of short turf.

LC



*Festuca alpina*, *F. halleri*, *F. quadriflora*, *Poa minor*

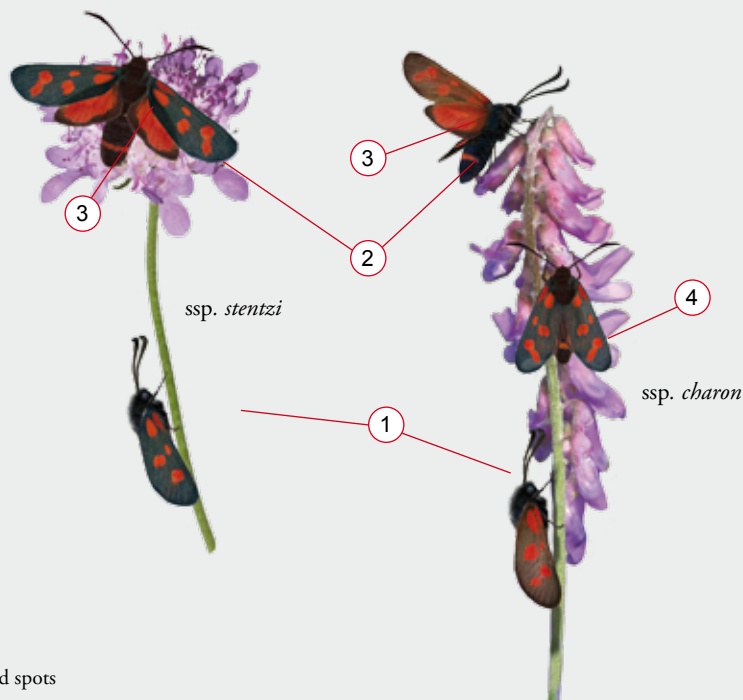


20-25 mm

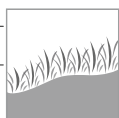


# *Zygaena viciae* Denis & Schiffermüller, 1775

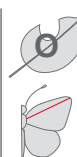
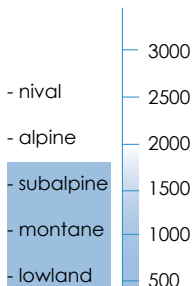
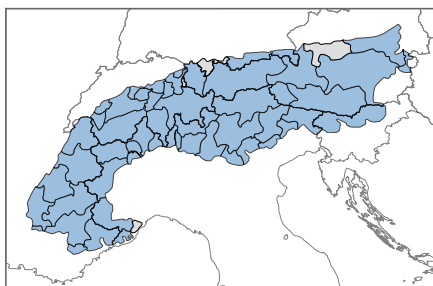
New Forest Burnet; la Zygène des Thérésiens; Kleines Fünffleck-Widderchen



- 1 5-6 red spots
- 2 Red cingulum
- 3 Black inner margin of HW
- 4 Sp5-6 confluent



Rather widespread but locally; it occurs in small colonies in dry meadows, woodland clearings, grassy slopes, woodland rides, scrubby grasslands and unimproved grassland with scattered shrubs.



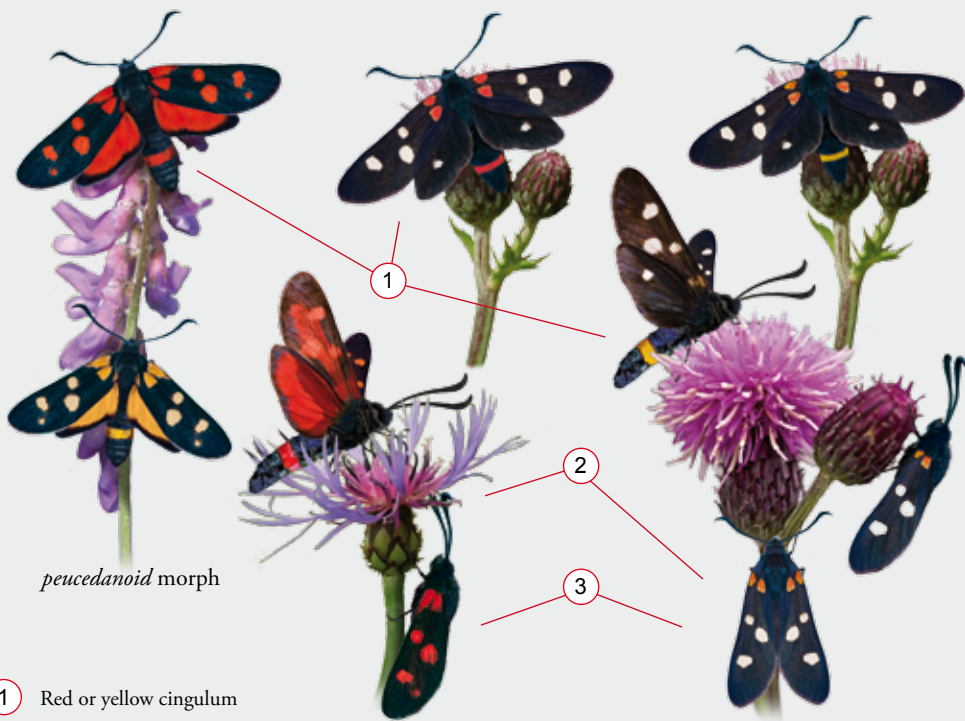
*Lotus corniculatus*, *Lathyrus pratensis*, *Onobrychis viciifolia*, *Trifolium* spp., *Vicia cracca*

13 - 16 mm



# *Zygaena ephialtes* (Linnaeus, 1767)

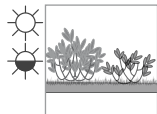
Variable Burnet; la Zygène de la coronille; Veraenderliches Widderchen;  
Spreminljavi ovnič



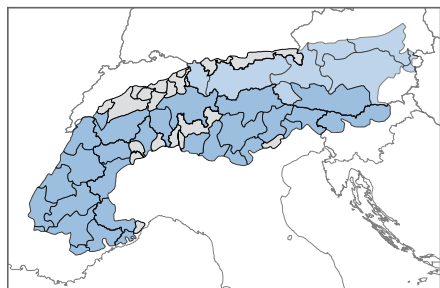
*peucedanoid* morph

*ephialtoid* morph

- ① Red or yellow cingulum
- ② White or reddish-yellow spots
- ③ 5 or 6 spots and black-bluish ground colour



Widespread but generally local and uncommon; inhabits woodland edges and clearings, scrubby grasslands, open hedgerows and dry grasslands.



- nival 3000  
- alpine 2500  
- subalpine 2000  
- montane 1500  
- lowland 1000  
500



*Securigera varia*, *Coronilla* spp.,  
*Hippocrepis comosa*, *Lotus* spp.,  
*Medicago* spp., *Peucedanum*  
spp., *Trifolium* spp., *Vicia* spp.



17,5 mm



	J	F	M	A	M	J	J	A	S	O	N	D	
uni													
bi													
tri													
pol													

*Polyommatus (Meleageria) daphnis*

Green or, less often, brown ground colour with dorsal stripe darker green edged with yellowish



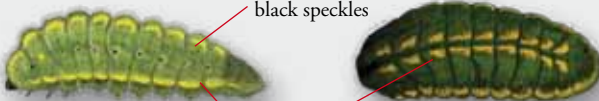
Pupa brown-greenish



*Polyommatus (Meleageria) bellargus*

Dull green with thin black speckles

Yellow ridges on the back and on the sides

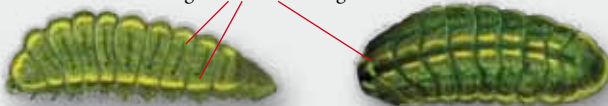


Pupa green with whitish wings



*Polyommatus (Lysandra) coridon*

Resembles *P. bellargus* but the ground colour is lighter



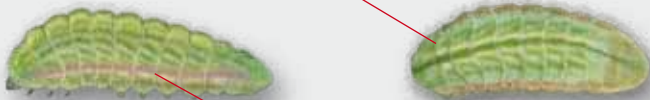
green and whitish



*Polyommatus (Agrodiaetus) riparti*

Pale green with darker line on the back

Lateral stripes pale yellow with reddish edge



*Polyommatus (Agrodiaetus) dolus*

Lateral stripes yellow and orange

Yellow-greenish with dorsal darker line



*Polyommatus (Agrodiaetus) damon*

Lateral stripes pinkish or light red

Yellow-greenish with dorsal dark green line



Pupa olive-green and brown



*Nymphalidae*

Larvae are medium sized, 20-30 mm; cylindrical, resembles Pieridae, with abundance of relatively short secondary setae. Pupae suspended head downwards by the cremaster hooks and fixed to a leaf.

*Libythea celtis*

green with pale yellow line on the sides



sometimes grey-brown with light grey line and dark brown subspiracular area



green with yellow stripe, resemble leaf

*Nymphalidae*

Larvae are medium sized to large, 20 to 40 mm; body and head with numerous protuberances (scoli, filaments, verrucae). Pupae always suspended head downwards by the cremaster hooks.

*Heliconinae**Argynnis paphia*

One prominent pair of scoli on the dorsum of the mesothorax



Dark-brown with lateral grey stripes



Scoli orange

Two yellow dorsal lines

Ochreous, mottled with brownish, with several dorsal horns

*Argynnis (Pandoriana) pandora*

Dark brown with several dorsal orange-red patch



Grey scoli and light brown subspiracular area



Brown with small horns



*Zygaena oxytropis*

Velvet-black with yellow spots conspicuous



Cocoon ovoid;  
concealed on the ground

*Zygaena rhadamanthus*

Whitish or white tinged with pink



Black spots conspicuous,  
connected to form a broad band



Cocoon ovoid, porcelain-  
like sheen; near the ground

*Zygaena nevadensis*

White with large triangular black spots



Cocoon fusiform;  
attached to the plants

*Zygaena romeo*

Greyish with large black spots, coalescing  
to form a zig zag line



Yellow spots present but inconspicuous

*Zygaena osterodensis*

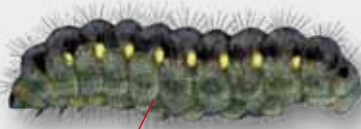
Yellow grey; black anterior spots large,  
black posterior spots small



Cocoon fusiform;  
concealed amongst vegetation

*Zygaena exulans*

Velvety grey-black



Greenish laterally



Yellow spots conspicuous

Cocoon fusiform; spun on stones or concealed amongst vegetation



*Zygaena loti*

Green-grey; black anterior and posterior spots rounded, small



Yellow spots conspicuous



Cocoon ovoid; concealed amongst vegetation or under stones

*Zygaena lavandulae*

Yellow spots conspicuous



Prolegs reddish

Whitish-grey with grey verrucae; black spots forming a broad band

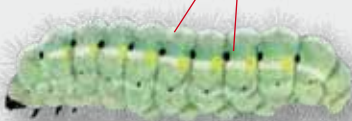


Cocoon fusiform, ribbed; concealed amongst vegetation



*Zygaena viciae*

Emerald-green with white dorsal and lateral lines



Black anterior spots rounded



Cocoon fusiform, ribbed; concealed amongst vegetation

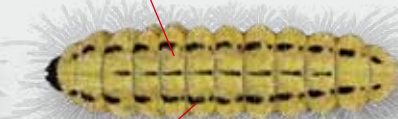


*Zygaena ephialtes*

Yellow-green with a narrow, broken black dorsal line



Black lateral spots forming a fragmented band



Black spots conspicuous and yellow spots absent

Cocoon fusiform, ribbed; spun on grasses



- 18 Sp2a presente *erythrus*
- Sp2a assente *purpuralis / minos*
- 19 St 2 a bordo dritto *punctum*
- St 2 a bordo concavo 20
- 20 Ali anteriori strette e allungate; bordo nero regolare (>2 mm) sull'ala posteriore *osterodensis*
- Ali anteriori arrotondate; bordo nero con un piccolo dente alla nervatura cubitale 2 sull'ala posteriore *romeo*
- 21 Macchie rosse dell'ala anteriore bordate di nero; solo sulle Alpi occidentali italiane *oxytropis*
- Macchie rosse senza bordo nero 22
- 22 Ali posteriori con il bordo scuro largo all'apice, in seguito più sottile e terminante al *tornus*; Sp3 relativamente grande e confluyente con Sp4; solo in Francia e Svizzera *trifolii*
- Non come sopra 23
- 23 Sp3 e Sp4 non perpendicolari alla costa; pagina inferiore dell'ala anteriore con una ampia area rossa; solamente sulle Alpi Bavaresi e in Slovenia *angelicae*
- Sp3 e Sp4 perpendicolari alla costa 24
- 24 Zigena piccola (Aa 14-15 mm); bordo nero dell'ala posteriore largo, esteso dall'apice sino al *tornus*; ali anteriori con 5 o 6 macchie rosse; Sp4 grande, subquadrato, Sp3 piccolo *viciae* ssp. *stetzi* (5 macchie)
- v. ssp charon* (6 macchie)
- Bordo nero dell'ala posteriore sottile oppure con una evidente intaccatura alla V2 25
- 25 Sp3 e Sp4 della stessa grandezza e ben separati tra loro 26
- Sp4 più grande di Sp3 27
- 26 Alpi occidentali; Sp5 e Sp6 confluenti; bordo nero dell'ala posteriore sottile; pagina inferiore dell'ala anteriore con una evidente e larga area rossa *hippocrepidis*
- Sp5 e Sp6 ben separati tra loro e della stessa grandezza; bordo nero dell'ala posteriore con una evidente intaccatura alla V2; pagina inferiore dell'ala anteriore con una piccola area rossa *transalpina*
- 27 Ala anteriore con 6 macchie ma con Sp6 spesso ridotto; pagina inferiore dell'ala anteriore con una evidente area rossa *filipendula*
- Ala anteriore con 5 macchie e priva dell'area rossa sulla pagina inferiore *lonicerae*

## GLOSSARY

**Abdominal cingulum:** of the Burnets, red or yellow ring of abdomen, sometime only on dorsal surface.

**Aestivation:** a state of torpor in summer.

**Anal angle:** apical area enclosed by inner and outer margins of the wings.

**Apex:** the upper point of the wings.

**Basal:** of the wing base.

**Bivoltine:** having two annual broods.

**Cell:** area defined by subcostal, discoidal and cubital veins in the wings; the cell of HW is often open due to absence of one or more element.

**Chevron:** wedge-shaped spot.

**Club:** the terminal part of the antenna.

**Colony:** small locally isolated population.

**Costa:** the front edge of wings.

**Costal fold:** a fold in the forewing, near the costal margin, forming a slit-like pocket containing silky down, which functions as a scent-organ.

**Cremaster:** hooks by means of which the pupa is secured.

**Dentate:** toothed.

**Discal:** the central part of the wing.

**Discocellular:** veins associated with the cell.

**Discoidal:** area associated with the cell.

**Falcate:** hook-shaped.

**Frons:** forehead.

**Hibernation:** a state of torpor in winter.

**Hyaline:** transparent.

**Instar:** any inter-moult stage of a larva.

**Irrorate:** covered with minute spots or scales.

**Keel:** an elevate ridge.

**Lunule:** crescent-shaped marks.

**Ocellus** (pl. **Ocelli**): an eye-like spot on the wing.

**Onisciform:** shaped like a woodlouse.

**Palp** (pl. **Palpi**): sensory organs located on the front of the head.

**Patagium** (pl. **Patagia**): the lobe-like structures which cover the base of the forewing.

**Polyvoltine:** having four or more annual broods.

**Postdiscal:** area between the discal and submarginal areas.

**Scolus** (pl. **Scoli**): a tubercle in the form of a spinose projection of the body wall of the larvae of Nymphalidae.

**Seta** (pl. **Setae**): hair.

**Sex brand:** cluster of scent-producing scales on the forewing of a male butterfly.

**Space:** area between veins on the wings.

**Spine:** modified hair.

**Subapex:** area inside the apex.

**Submarginal:** of the wing, area between outer margin and postdiscal area.

**Tegula** (pl. **Tegulae**): a small scale-like sclerite carried at the extreme base of the costa of the forewing.

**Trivoltine:** having three annual broods.

**Tubercle:** a body structure forming a small seta-bearing pimple in caterpillar.

**Undulate:** wavy.

**Univoltine:** having only one annual brood.

**Vein:** chitinous tubes supporting the wing.

Modri kratkorepec	154	Razkošni bisernik	199	Temni cekinček	108
Modri kupido	152	Rdeči apolon	61	Temni mravljiščar	165
Modri marogarček	150	Rdeči pisanček	241	Temni pisanček	248
Modri trepetlikar	253	Rdečkasti venčar	32	Temni rjavček	329
Munčev okarček	276	Realov frfotavček	69	Temni tratar	215
Navadna rjavka	176	Rebelov mravljiščar	167	Travnar	350
Navadni frfotavček	69	Repati lesketavček	148	Travniški lisar	339
Navadni lešnikar	292	Repičin belin	83	Travniški postavnež	235, 236
Navadni modrin	184	Repin belin	81	Trentarski rjavček	332
Navadni pisanček	250	Rjasti gozdnik	346	Triglavski rjavček	318
Navadni senožetnik	93	Rjasti vihravček	54	Trnov repkar	124
Navadni slezovček	43	Rjavi šekavček	100	Turkizni modrin	181
Nazobčani argus	186	Robidov livadar	208	Veliki frfotavček	71
Nokotin sivček	26	Rumeni senožetnik	97	Veliki gozdnik	344
Okati rjavček	335	Rumenolisi rjavček	305	Veliki kresničar	255
Okati rjavec	289	Rumenooki kratkorepec	153	Veliki lepoteč	228
Okrasti košeničar	349	Ruševni postavnež	233	Veliki mehurkar	62
Okrasti skalnik	269	Scopolijev zlatook	272	Veliki mravljiščar	163
Osatnik	221	Šetrajev sleparček	158	Veliki pisanček	239
Osladov ovnič	379	Širokorobi mnogook	169	Veliki skalnik	271
Ozkorobi mnogook	170	Skalni okar	341	Veliki slezovček	34
Pelargonijev bakerenček	149	Skalni puščavar	351	Veliki spreminjavček	258
Petelinček	57	Skalni rjavček	317	Veliki trepetlikar	251
Pikasti pisanček	240	Škrlatni cekinček	112	Vijolični tratar	212
Pisana lesketavka	203	Slezenovčev kosmičar	27	Vzhodni senožetnik	92
Pisani bisernik	201	Slivov repkar	123	Warrenov slezovček	45
Pisani poplesovalček	48	Spreminjavi cekinček	110	Zahodni slezovček	43
Planinski belin	84	Spreminljavi ovnič	375	Žametni modrook	343
Planinski rjavček	310	Srebrni mnogook	171	Zeleni robidar	120
Planinski skalnik	270	Srebrni tratar	213	Zelenosivi slezovček	46
Planinski slezovček	36	Štajerski rjavček	331	Zlati cekinček	107
Pogrebec	227	Štrašničin mravljiščar	164	Zorica	72
Pomladni rjavček	315	Svetli krhlikar	156		
Pomladni tratar	211	Svetlolisi rjavček	303		
Primorski belin	80	Sviščev mravljiščar	166		
Primorski gozdnik	347	Temna ognjenka	286		
Primorski modrin	180	Temni bisernik	202		

## The Author



**Paolo Paolucci** was born in Padua in 1956. After graduating in Arts, he attended courses of Forest Science at Faculty of Agriculture. Since 1989 he is Assistant Technician in the group of Entomology, Department of Agriculture, Animals, Food, Natural Resources and Environment (DAFNAE), University of Padova, dealing with scientific illustrations and taking care of the zoological collections of the Department.

He studied small mammals for over 20 years and has developed a rich collection of forest small mammals presently housed in the same Department. Since 2005 he deals with ecology and fauna of Lepidoptera Rhopaloceri. He has published several books and scientific papers, including monographs on wild Orchids and the guide “Le farfalle dell’Italia nordorientale”; recently he wrote some chapters on Rodents of the book “Fauna d’Italia.”