European Butterflies Group

Identification Guide to the Fritillaries of Europe

Designed by Bill Raymond

With special thanks for information and photographs to Bernard Watts from www.butterflyeurope.co.uk

Also, thanks for photographs to: Matt Rowlings from eurobutterflies.com Roger Gibbons from butterfliesoffrance.com Vincent Baudraz from lepido.ch and David Moore.

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For more information on all aspects of European butterflies please go to european-butterflies.org.uk

The other free to download guides in this series are available at EBG Identification Guides

Introduction

In furtherance of its mandate to promote recording and conservation the European Butterfly Group has been producing a series of identification guides covering all the fritillaries in Europe. The aim was to create easy to understand, comprehensive photographic guides in a concise pdf format suitable for phone/tablet. These guides are now freely available [see title page]. They hopefully will be useful in a variety of ways in conservation work across Europe and should be of assistance to everyone involved, from the expert lepidopterist to the beginner.

To provide an accurate method of identification which is accessible to all the guide design is a compromise between a yes/no key and a descriptive list of species, using a process of comparison and elimination. Scientific terms are avoided whenever possible. When describing species features many books can give the impression that these are present on all individuals, which can be misleading. The guide content therefore concentrates on the characteristics that are diagnostic and limits the information on other features to what might be useful for identification.

This comprehensive guide incorporates the four separate fritillary guides already published:

- ☐ Large and Medium-sized [Argynnis, Brenthis, Fabriciana, Issoria, Speyeria]
- ☐ Small [Boloria]
- ☐ Small [Euphydryas]
- ☐ Small [Melitaea]

To begin the process of identifying your fritillary the guide starts with an explanation of how to determine to which of the above four groups your butterfly belongs. You are then linked to that section where you can hopefully continue through to identifying your exact species.

As the format of this guide allows it to be readily updated I would welcome any feedback or suggestions from users. Please feel free to contact me at billraymond@hotmail.co.uk

Bill Raymond

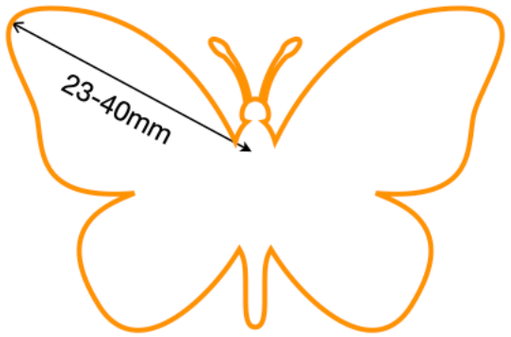
‘Fritillaries’ is an arbitrary English term which encompasses nearly fifty superficially similar looking European species from two different subfamilies: Heliconiinae and Nymphalinae. These in turn belong to eight genera [families] which are usually roughly divided by size into three groups: **large, medium and small** fritillaries as shown below. If you know which of these groups or family your butterfly belongs to then click on the links at the bottom of the page to go directly to that section of the guide. For identification by the underside use the diagram below to assess size then go to page IV. Otherwise start here:

1 What size is your butterfly?

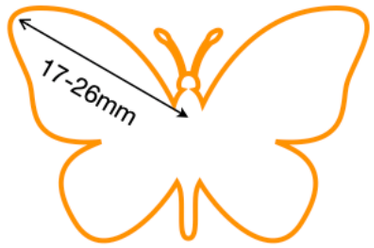
Try and estimate your butterfly’s size group using the comparison diagram below. Argynnis, Fabriciana and Speyeria species are **usually noticeably large**; on average they are similar in size to a Red Admiral. The medium sized Brenthis and Issoria are intermediates with *Brenthis daphne* sometimes as large as Argynnis, Fabriciana, Speyeria whilst *Brenthis ino* and *Brenthis hecate* are frequently similar in size to the ‘small’ fritillaries.

A comparison of approximate average sizes

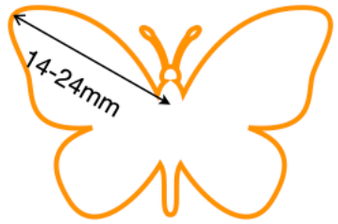
[If this page is displayed or printed at A4 size]



LARGE
[Argynnis, Fabriciana, Speyeria]



MEDIUM
[Brenthis, Issoria]



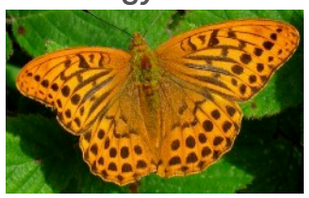
SMALL
[Boloria, Euphydryas, Melitaea]

2 What does the upperside look like?

Next, compare your butterfly’s upperside to the examples below. Taken with your size estimate use the notes below to see if you can establish your butterfly’s family group. If successful, click on the appropriate link below to take you direct to that section of the guide. If uncertain, go to the next page for more detailed guidance.

LARGE and MEDIUM

Argynnis



Fabriciana

Speyeria

The Large and Medium sized group of fritillaries all have an **open pattern of marks and rounded spots** which **readily differentiates** them from **most Euphydryas and Melitaea species**.

Boloria species, however, are similar. See notes opposite.

Brenthis

Issoria

The single species of **Issoria** is usually **easily distinguished** by its **bolder markings and distinctive wing shape.**

Large/Medium →

SMALL

Boloria species look like the Large/Medium group but are **usually noticeably smaller than all the ‘large’ fritillaries** making identification relatively easy.

Boloria

However, Boloria can be a similar size to the Brenthis species which may cause confusion. A convenient way to try and initially distinguish is to look for:

A prominent round black spot here. This is distinctive and found on the species of Boloria that are fairly widespread in Europe. **This spot is not present on all the ‘large’ and ‘medium-sized’ fritillaries**.

Boloria →

Euphydryas and **Melitaea** both have a **grid or net-like pattern** which is quite different from the Large/Medium group and Boloria.

Euphydryas

Melitaea

Euphydryas and Melitaea can normally be separated in the first instance by their overall colouration. **Euphydryas** are **mainly bright and multicoloured** whilst **most Melitaea** tend to be **duller and uniformly coloured.** See photos above.

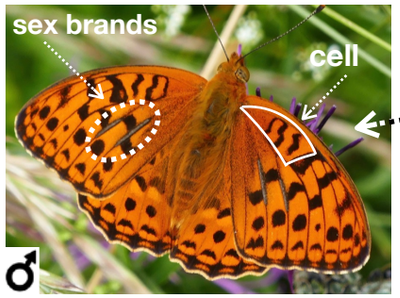
Euphydryas →

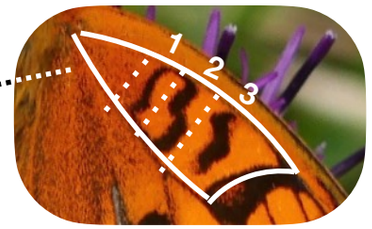
Melitaea →

3 Detailed comparison of upperside characteristics

Having estimated your butterfly's size on page II use the notes below to try and confirm your butterfly's group/family. Click on the link to go to that section.

LARGE and MEDIUM [Argynnis, Brenthis, Fabriciana, Issoria and Speyeria]





The Large and Medium fritillaries **can usually be distinguished** from the 'small' fritillaries by having **three narrow, wavy black markings wholly inside the area of the fore-wing known as 'the cell'**. This area is highlighted in white on the photographs left and right. Look carefully, as the sinuous markings frequently merge, sometimes resembling vague figures of eight. The 3 markings can vary considerably in size, thickness and shape.

Notes: [i] Sometimes the innermost marking [1 on photograph left] is very faint or invisible, especially on females.
[ii] Brenthis species can have a fourth small inner mark.

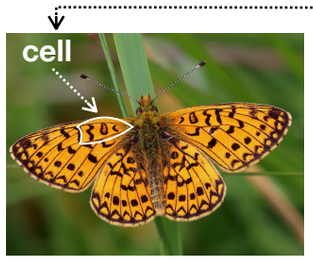
Females usually have bolder markings than males with no sex brands.

Males of some species have **conspicuous sex brands** running along the veins in the fore-wing area shown above. **This feature is not present on any 'small' fritillary**

Large/Medium →

SMALL [Boloria]

As highlighted on the previous page; Boloria uppersides are **easily distinguished from** the other 'small' fritillaries, Euphydryas and Melitaea. However, Boloria **could be confused with the medium sized Brenthis species**. Firstly, look for the **prominent round black spot*** illustrated on the previous page **which identifies the widespread Boloria.** If this spot is not visible* on your butterfly then use the comparison of 'cell' markings below to help identify:



Boloria

Markings **very variable. If present,** they are **usually noticeably different** to Brenthis being **either thicker, more incomplete** or **less sinuous.**

Black markings wholly inside area of fore-wing known as the 'cell'

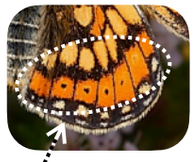
As described in detail above there are usually **three wavy black markings.** Compared to Boloria these are **reasonably consistent in appearance.**

Brenthis

Boloria →

** The black spot is **not** visible on most of the more localised Boloria species found in northern Europe or mountainous habitats in central Europe.*

SMALL [Euphydryas]



Some Euphydryas have a row of small black dots in a distinct orange band on the upperside hind-wing.
Most Melitaea do not have this feature, [see opposite for exceptions]

Confusion is possible between **Euphydryas and Melitaea.** Use these points to help differentiate:

As noted on the previous page, Euphydryas are usually bright and multicoloured whilst Melitaea tend to be dull and uniformly coloured.

Euphydryas →

SMALL [Melitaea]

Melitaea cinxia and *arduinna* have distinguishing black spots in an orange band on the hind-wing here. These might confuse with some Euphydryas [see opposite] but their less colourful uppersides should identify.

Melitaea phoebe and *ornata* may be confused with some of the Euphydryas as they [i] are generally more colourful and [ii] **sometimes** have a row of black spots on the hind-wing similar to *cinxia* [see below]. To help distinguish look at this mark On *phoebe/ornata* the difference in size between this mark and the adjacent marks on either side is usually much greater than in Euphydryas.

Melitaea aetherie, didyma, and *trivia* all have similar uppersides which may be mistaken for Boloria or Brenthis. *Didyma* is widespread and the most likely to be encountered.

A close comparison of the overall pattern of markings should readily identify.

Melitaea →

4 Underside hind-wing characteristics

Having estimated your butterfly's size on page II use the notes below to try and confirm your butterfly's group/family. Click on the link to go to that section.

LARGE [Argynnis, Fabriciana, Speyeria]

Argynnis, Fabriciana, and Speyeria are **readily distinguished from the 'small' and 'medium' fritillaries** by **[i]** their **larger size** and **[ii]** the **numerous bold silvery spots or silvery/yellowish stripes** on their distinctive underside hind-wings.


Argynnis paphia


Fabriciana adippe


Speyeria aglaja

MEDIUM [Brenthis, Issoria]

The three Brenthis species **can be distinguished from all the 'small' fritillaries** by **the three distinctive underside hind-wing features** highlighted below:


Brenthis daphne

[i] The hind-wing of *daphne* and *ino* appears divided into **two distinct colour zones.**


Brenthis ino


Brenthis hecate

[ii] *Hecate* has **two parallel rows of dark marks here** on the hind-wing.


Issoria lathonia

The single species of Issoria is **easily distinguished from all the 'small' fritillaries** by its **unmistakeable large bright mirror like siver spots.**

[iii] All three Brenthis species **have no significant silver or white spots** on the hind-wing

Large/Medium →

SMALL

Euphydryas

Euphydryas species have **at least one** of the **two diagnostic underside hind-wing** features illustrated below. These features will **distinguish Euphydryas from all Boloria and Melitaea**. Look for:


Euphydryas aurinia

[i] A single row of black spots ringed pale yellow/white within a distinct orange band on the hind-wing.

Confusion is possible with [a] Melitaea diamina which has similar spots but they are **not ringed** yellow/white, [b] Melitaea arduinna and cinxia* which also have spots but have a **wing pattern that is noticeably different**.*
** See photo below right under Melitaea.*


Euphydryas cynthia

[ii] A red/orange band [outlined by yellow dots in the photo left] **on the outer edge of the hind-wing.**

Boloria

Boloria and Melitaea can be distinguished from one another by the features described below:

Melitaea


Boloria aquilonaris


Boloria dia


Boloria euphrosyne


Boloria selene

If the **overall pattern** of the hind-wing looks like these two photographs then it is a Melitaea. This pattern is found on half the species of Melitaea and **easily differentiates** them from **all Boloria species.**


Melitaea cinxia


Melitaea phoebe

The remaining Melitaea species could however appear similar to several Boloria. To distinguish**, compare the area circled white** in the photos left and right. It will be seen that:

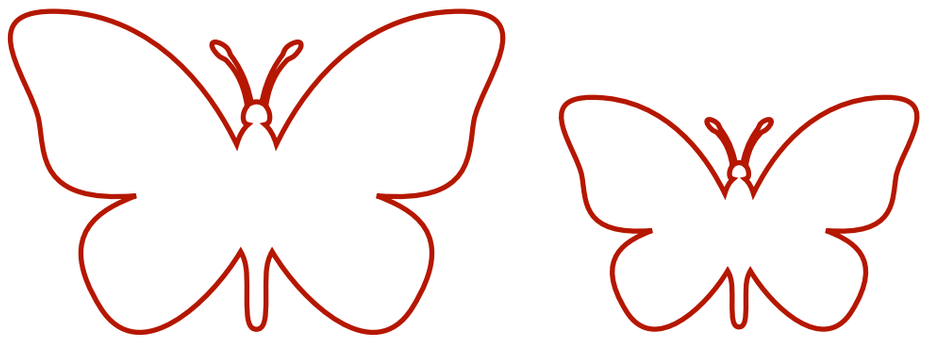
[i] the pattern of pale markings is quite different.

[ii] The widespread **Boloria euphrosyne and selene** have **a distinctive black spot** within the area circled white which is **not present on any Melitaea.**


Melitaea diamina

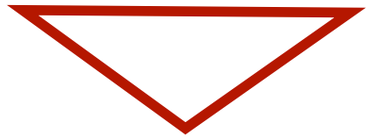

Melitaea parthenoides

Boloria → Euphydryas → Melitaea →



LARGE and MEDIUM
[Argynnis, Brenthis, Fabriciana, Issoria and Speyeria]

The uppersides of these species can be very similar and difficult to differentiate. It is best, therefore, to initially separate them by looking at the underside hind-wing which normally has the main diagnostic features.



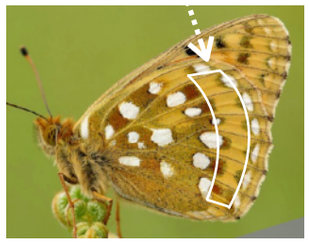
Does the underside hind-wing (virtually the same in both males and females) have:

Silvery or yellowish stripes like these?


If yes, compare 1, 2, 2a below

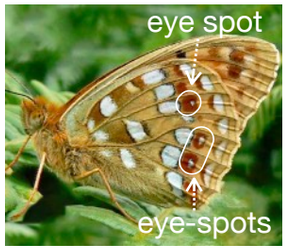
Large bold silvery spots like this:

with no eye-spots in this area?



If yes, go to 3 below

with white centred eye-spots in this area?

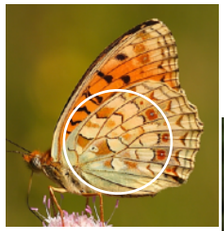


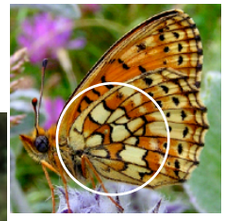
If yes, compare 4, 4a,5, 6 on next page

Small silvery spots or stripes like this?


If yes, compare 10 and 11 on page 3

Pale yellow spots or stripes like this ?



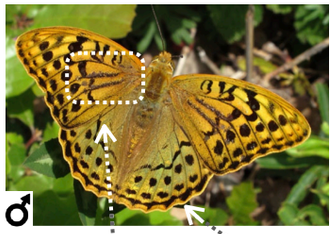


If yes, and size is:
LARGE - compare 4b, 5a on page 2
MEDIUM - compare 7, 8, 9 on page 3

1. Cardinal *[Argynnis pandora]*

LARGE

Size is good indicator, usually noticeably larger than all others in this guide



Two noticeable sex brands on male
Compare with 2

White tips on female antennae *Compare with 2*

Olive green colouring across hind-wings, often extensive
Compare with 2

Lower half of underside fore-wing is a distinct rose red/pink
Compare with 2

Pale stripes on underside hind-wing are usually narrow and well defined on females. Stripes are less prominent on males, sometimes almost invisible.

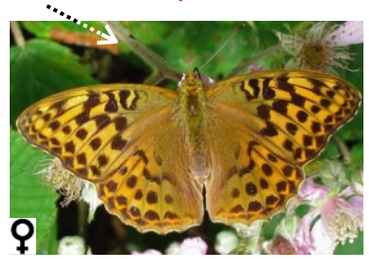
2. Silver-washed Fritillary *[Argynnis paphia]*

LARGE

Usually larger than all species in this group except 1

Four bold sex brands on male are distinctive
Compare with 1

Orange/brown tips on female antennae *Compare with 1*



MALE & FEMALE underside

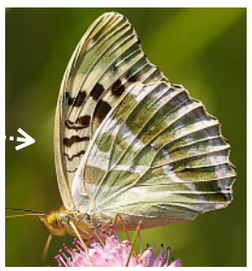
Lower half of fore-wing is orange-yellow
Compare with 1

Hind-wing stripes usually have a hazy ‘silver washed’ effect

Note: There is considerable variation in the underside colouring (see page 4). However, this violet tinge along the wing margin tends to be constant.

2a. form *valezina (occurs only in females)*

In this form, found across Europe, greyish green or greenish brown replaces the orange colouring on upper and undersides.



3. Dark Green Fritillary *[Speyeria aglaja]*

LARGE

Usually similar size to 4 and 5

Three faint sex brands on male
Compare with 2, 4 and 5

Female usually has a bluish sheen along top and bottom of forewing, and bright wing margins.
Compare 2, 4 and 5

Note: Both sexes can be darker. See page 4.

MALE & FEMALE underside

No eye-spots in this area is distinctive
Compare with 4, 5 and 6

4. High Brown Fritillary *[Fabriciana adippe]*

LARGE

Usually similar in size to 3 and 5

♂

2 thick sex brands

♀

Bright patches in dark border

All veins lined yellow to brown, very rarely black

usually bold and bright

5. Niobe Fritillary *[Fabriciana niobe]*

LARGE

Usually similar in size to 3 and 4

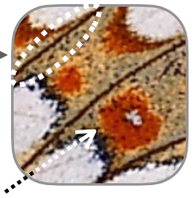
2 thin sex brands

♂

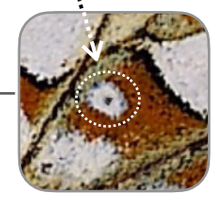
Darker wing border

♀

Note: Females can be darker, see page 4



All veins usually lined black



6. Queen of Spain Fritillary *[Issoria lathonia]*

MEDIUM

Usually noticeably smaller than 1, 2, 3, 4, 5 and 11

Both sexes usually recognisable by their distinctive shape with concave outer forewing margins and squarish shaped hind-wing
Compare 3, 4 and 5

Male has no sex brands

♂

The dark wing markings on both sexes have a rounded appearance, especially these markings, which are usually triangular on most fritillaries.

♀

female usually has pale marks near tips of fore-wings

Female is greenish at the base of the wings

Note: There is considerable variation in the upperside colour and size of markings, see page 4.

MALE & FEMALE uppersides of these two species are very similar.

Males can usually be separated by the thickness of the two sex brands
Compare with 3

Females and males can sometimes be differentiated by the wing border

MALE & FEMALE underside hind-wings also similar. Differentiate by:

Vein colour

Eye-spots

A tiny pale spot here, containing a black dot

This black dot is a reliable indicator of *niobe*
N.B. The black dot is not always present

4a. form *chlorodippe*

Males and females of this form have the usual golden ground colour replaced by green.

Note: Chlorodippe is only found in Spain (except Pyrenees) and Portugal, where it replaces adippe.

Adippe underside is very variable with many intermediates between these two forms.

4b. form *cleodoxa*

Males and females of this form have the large silver spots replaced by a sandy yellow colour. Veins are still yellow to brown.
Compare with 5a opposite

Note: Cleodoxa is found throughout Europe but more common in the south.

5a. form *eris*

Males and females of this form have the large silver spots replaced by a pale buff colour.

Veins still predominantly black. May also have the black dot as in this photograph.
Compare with 4b opposite

Note: Eris is found throughout Europe. Races found in south eastern Europe are predominantly of this form.

MALE & FEMALE underside

The large bright mirror like silver spots on the hind-wing are easily seen and instantly identify this species
Compare 4 and 5

7. Marbled Fritillary *[Brenthis daphne]*

MEDIUM

Usually larger than 8 and 9

8. Lesser Marbled Fritillary *[Brenthis ino]*

MEDIUM

Usually smaller than 7 and similar to 9

MALE & FEMALE uppersides of these species are very similar with males having no sex brands. Differentiate by:

faintly brighter overall appearance

Daphne tends to look somewhat brighter than ***ino***

slightly duller overall appearance

little suffusion around body

Daphne females usually have less basal suffusion than ***ino***

extensive dark suffusion around body

Daphne is usually noticeably larger than ***ino***

Ino usually found in wet areas, unlike ***daphne***

MALE & FEMALE underside hind-wings also similar.

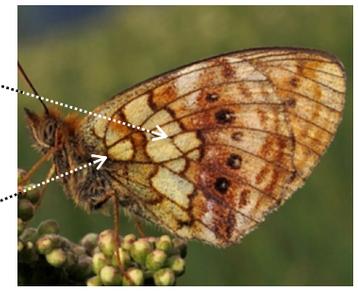
yellow and reddish brown

Inconspicuous, same colour as surrounding area

Differentiate by colour of these small areas of wing

entirely yellow

Prominent, paler than surrounding area



9. Twin-spot Fritillary *[Brenthis hecate]*

MEDIUM

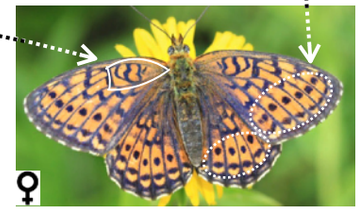
Usually smaller than 7 and similar to 8

Males have no sex brands

Two rows of <u>evenly sized</u> black spots parallel to wing edges are distinctive.
Compare with 7 and 8

Note: Frequently a fourth small mark in the 'cell'. See intro p. III

Females usually darker with bolder markings, sometimes with a bluish iridescence.



MALE & FEMALE underside

Two rows of <u>solid</u> dark marks parallel to outer edge of hind-wing are distinctive.
Compare with 7 and 8

Note: Yellowish markings variable. Sometimes much paler with hints of blue.

10. Corsican Fritillary *[Fabriciana elisa]*

LARGE

Smaller than 1 and 2, usually larger than 6

Identification is straightforward as this species is only found on Corsica and Sardinia. Only 1, 2 and 6 are also present on these islands.

Faint, incomplete dark markings on upperside of males and females looks noticeably different from 1, 2 and 6.

MALE & FEMALE underside

Small silvery spots and small eye-spots makes underside hind-wing quite different from 1, 2 and 6.

11. Pallas's Fritillary *[Argynnis laodice]*

LARGE

Smaller than 2, usually larger than 6

Two sex brands on male
Compare with 2

Only found locally in Eastern Europe (see page 4) where it frequently flies with 2.

Female has distinctive white triangular marks on fore-wings.
Compare with 2

MALE & FEMALE underside

Broken white stripe divides hind-wing into two noticeably different colour zones with no eye-spots.
Compare with 2, 7 and 8

To assist in identification, below are some examples of variations in colouring

Silver-washed Fritillary *[Argynnis paphia]*

Variation in the underside hind-wing colouring occurs mainly in the Mediterranean region with several forms proposed, including:

immaculata

Reduced pale stripes and a more golden suffusion. Found in Corsica and Sardinia.

anargyria

Virtually no pale stripes. Usually encountered in Spain and Italy.

Dark Green Fritillary *[Speyeria aglaja]*

In colder climes and at higher altitudes both sexes can be duller with darker markings and larger spots.

Niobe Fritillary *[Fabriciana niobe]*

Females sometimes much darker in eastern and south eastern Europe.

Queen of Spain Fritillary *[Issoria lathonia]*

These photographs of females illustrate the considerable variability in the upperside colour and markings of this species.

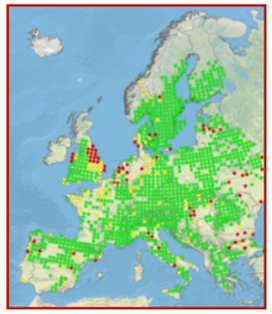
Distribution Maps

Up to 1950 — 1951 - 1980 — After 1980

Cardinal

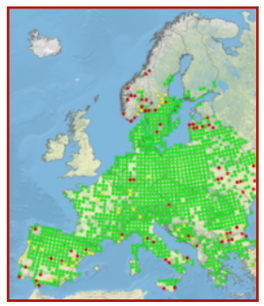
Silver-washed Fritillary

Dark Green Fritillary



High Brown Fritillary

Niobe Fritillary



Queen of Spain Fritillary

Marbled Fritillary

Lesser Marbled Fritillary

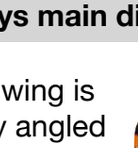
Twin-spot Fritillary

Corsican Fritillary

Pallas's Fritillary

SMALL
[Boloria]

To simplify the identification process the fifteen species of Boloria are divided into four groups: A B C D, according to their distribution, as shown below. Identification proceeds by looking at each group in turn until you find your butterfly.

	A	B	C	D
	1. Pearl-bordered 2. Small Pearl-bordered 3. Weaver's	4. Titania's 5. Cranberry 6. Bog	7. Mountain 8. Shepherd's 9. Thor's 10. Balkan	11. Freija's 12. Frigga's 13. Arctic 14. Polar 15. Dusky-winged
Distribution See maps on page 5	Reasonably common and widespread in Europe	Scattered colonies across Europe	Scattered colonies in European mountains	 Fennoscandia and Baltic States only
Altitude	Sea level to 1500-2200m	Sea level to 2000m	800-3000m	

Group A

First, check if your butterfly is in this group. If you can see prominent black spots here then it is either one of the three widespread species below or Titania's Fritillary on next page. Continue to Group B if you cannot identify your butterfly in this group.

1, 2, 3, and 4 are the only Boloria species on which these spots are usually clearly visible.

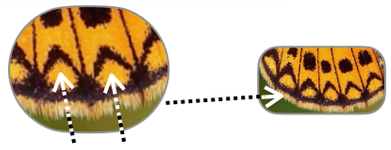
1. Pearl-bordered Fritillary *[Boloria euphrosyne]*

2. Small Pearl-bordered Fritillary *[Boloria selene]*

The MALE & FEMALE uppersides of both species have similar markings which are variable. Differentiate by:

Shape of these markings bordering all wings. Best seen on the hind-wings.

flat edges



inward pointing edges

Note: Some females can have paler coloured markings at the wing edges. Occasionally, almost white.

MALE & FEMALE underside hind-wing displays the main diagnostic features of these two species. Differentiate by:

Number of white marks in this area of wing

Two marks

Several marks

Colour of spots in curved row from **a** to **b**

Usually **reddish with <u>at least one spot</u> having a pale centre**

Usually **solid black**

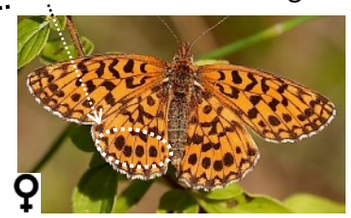
A white patch here distinguishes *selene* from *euphrosyne*.

Note: In northern areas both species have darker upperside markings and duller undersides.

3. Weaver's Fritillary *[Boloria dia]*

Male and female markings variable but usually darker than 1 and 2.

Upperside markings noticeably bold, especially bigger and rounder spots here on the hindwing.

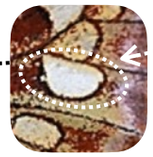


MALE & FEMALE underside hind-wing displays main diagnostic features

Apex of hind-wing is usually sharply angled Compare 1 and 2

This spot is pale centred Compare 1 and 2

Violet colouring in this area Compare 1, 2

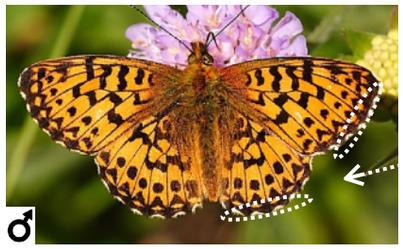


Shape of this white mark is distinctive and unique. Compare 1 and 2

Group B

This group includes the more local species found from sea level to c.1500-2000m. Use the references to compare your butterfly with Groups A and C, noting that [i] only Titania's Fritillary has the upperside black spots characteristic of all in Group A, [ii] all in Group C are only found above 800m. If you cannot identify your butterfly in groups A and B and it was found above 800m then continue to Group C. Otherwise, see introductory section for similar species or if your butterfly was found in Fennoscandia and Baltic States go to Group D.

4. Titania's Fritillary *[Boloria titania]*

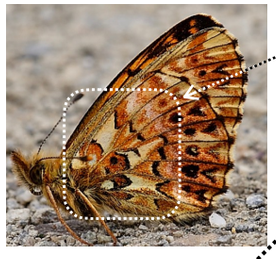


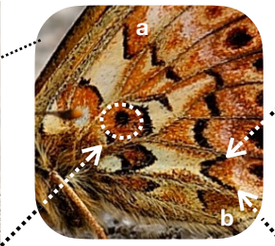
Upperside is similar to *dia* in Group A, but *titania* is usually larger.

Wing edges are normally darker than *dia*.

The prominent black spots here can sometimes be obscured.

MALE & FEMALE underside hind-wing displays main diagnostic features





This mark shaped like an elongated ✕ Compare with 3

This spot is black. Sometimes with a white outline. Compare with 3 and 5

Usually a conspicuous dark zig-zag line from **a** to **b** Compare with 3 and 5

Titania flies in Massif Central, south-western Central Alps, Baltic States.

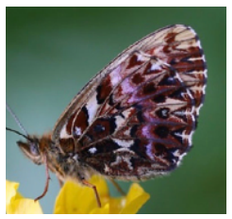
4a. subspecies *cypris*

Males and females of this subspecies usually have brighter uppersides with bolder markings than *titania*.

Distribution

Cypris flies in Central Alps and eastwards.

Underside is noticeably different. *Cypris* is duller with a tinge of violet, sometimes obscuring many of the pale markings.



5. Cranberry Fritillary *[Boloria aquilonaris]*

Similar to *napaea* and *pales* in Group C but unlikely to be confused as *aquilonaris* frequents bogs and wet heaths where its foodplant Cranberry *[Vaccinium oxycoccos]* grows, usually close to standing water. Such areas are rarely found in the high altitude habitat of *napaea* and *pales*.

No prominent black spot visible here on male or female. Compare 1, 2, 3 and 4

These marks, like opposing arrowheads, are usually bold and clear compared to 7, 8, 8a where they may appear less distinct. Frequently the arrowheads become linked by a dark line. Also compare 6.

MALE & FEMALE underside

Bold, clear dark marks on fore-wing Compare 7, 8 and 8a

A white centred spot here distinguishes from *euphrosyne* and *selene* in Group A, which have a black centred spot in this position.

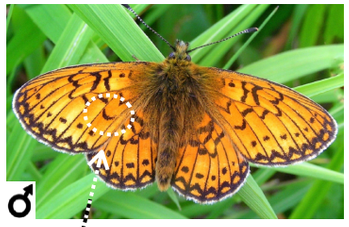
Compare with *selene* which has a row of solid black spots here.

Behaviour

Aquilonaris can usually be found roosting at night or in poor weather on the flowerheads of Marsh Cinquefoil *[Potentilla palustris]*

6. Bog Fritillary *[Boloria eunomia]*

Male upperside is usually brighter with more delicate markings than other Boloria. Female is duller with bolder, darker markings.



No prominent black spot here on male or female. Compare 1, 2, 3, 4

This mark pointing outwards is distinctive. Compare 5, 7, 8, 8a

MALE & FEMALE underside hind-wing is distinctive

Complete row of consistently coloured spots from **a** to **b** Compare 9

Unlike all other Boloria species the underside hind-wing has a complete row of spots with pale centres and dark outlines.

6a. subspecies *ossiana*

Flies in Fennoscandia, Baltic States, and northeastern Poland.

Ossiana is usually smaller with heavier upperside markings.

Majority of marks on underside hind-wing are white rather than pale yellow as in *eunomia* above.

Group C

This group includes more local species only found above 800m. A close comparison of the underside hind-wings will differentiate from Groups A and B. Also, note that none of this group have the upperside black spots seen on 1, 2, 3, and 4. Finally, if unable to identify your butterfly and it was found in Fennoscandia/Baltic States then go to Group D. Otherwise, return to introductory section for similar species.

7. Mountain Fritillary *[Boloria napaea]*

8. Shepherd's Fritillary *[Boloria pales]*

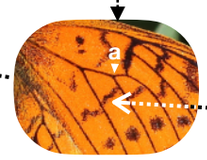
These two species often fly together in alpine grassland, usually above 1500m*, in geographically and genetically isolated groups which frequently display different characteristics. **They can be difficult to separate, often only identifiable by examining genitalia**** Although not always present, the points below should help in identification.

Distribution [See page 5 for maps]

Napaea and *pales* have a limited overlap in the Central Alps; both being found locally north of the Rhone Valley in Switzerland and in the Hohe Tauern in Austria. *Pales* is gradually replaced by subspecies *palustris* in most of the southern and western Central Alps, west of the Brenner Pass.

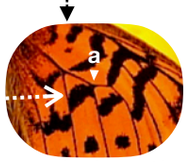
Upperside markings on male

usually **weak and linear**

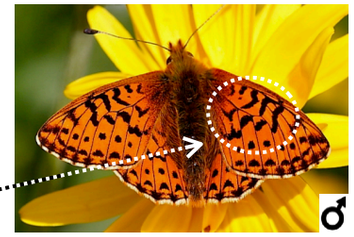


away from vein junction **a**

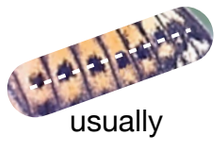
usually **bold and heavy**



close to vein junction **a**



Usual position of this mark on male and female



usually **roughly in line**

Alignment of this row of spots on male and female

sometimes **noticeably disjointed**

normally **a violet sheen**

Sheen on female

no suffusion or sheen

A dark suffusion with a greenish or violet sheen easily distinguishes from *pales* and *palustris* females.

8a. subspecies *palustris*

Main difference is male markings are not normally as heavy as *pales* and more similar to *napaea.*

MALE & FEMALE underside

Dull with **sandy red** giving **low contrast**

Hind-wing colouring

Pales and *palustris* **bright** with **dark red** giving **high contrast**

Napaea, pales and *palustris* usually have:

[i] a small white spot here — Compare 1 and 2

[ii] weak markings on fore-wing — Compare 5

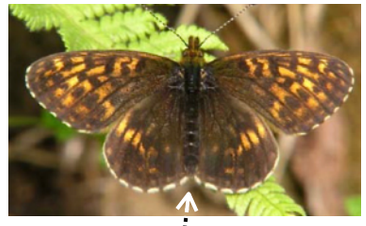
7a. subspecies *pyreneorientalis*

8b. subspecies *pyrenesmiscens*

There is a very limited overlap of subspecies *napaea pyreneorientalis* and *pales pyrenesmiscens* in the Eastern Pyrenees around Val d'Eyne. The differences are subtle. Look for the points above to differentiate.

* *Napaea* is found at sea level in Fennoscandia. ** See title page for link to other guides including genitalia.

9. Thor's Fritillary *[Boloria thore]*



Dark upperside very distinctive with large, heavy markings that tend to merge.

Male and female have similar upper and undersides. Female is larger than male.

Underside hind-wing has a distinctive band of dull yellow marks from **a** to **b**

9a. subspecies *borealis*

... Upperside is usually brighter, than *thore* with underside paler

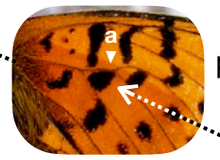
Borealis flies in western and northern Fennoscandia.

10. Balkan Fritillary *[Boloria graeca]*

Main distribution is in Balkan Mountains [see page 5]. However, *graeca* also flies with 7 and 8a in southwestern Central Alps.

Upperside markings normally bolder and heavier than 7 and 8a

Male and female have similarly marked upper and undersides.



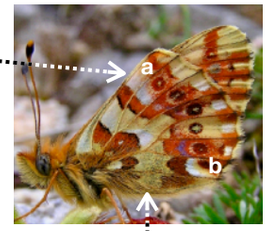
This mark is positioned well inward, often **beyond** vein junction **a**

Compare 7, 8a

All spots from **a** to **b** usually have some semblance of a pale centre.

Compare 7, 8a

A greenish underside hind-wing is typical of females.



Greenish marbling here is distinctive.

Compare 7, 8a

Group D

This group includes the five Boloria species which are ONLY FOUND in Fennoscandia and the Baltic States.

The other Boloria species which also fly in this area are:

☐ ***euphrosyne*** ☐ ***selene*** ☐ ***titania*** ☐ ***aquilonaris*** ☐ ***ossiana*** ☐ ***napaea*** ☐ ***borealis***

Most are easily distinguished from the five species below by a comparison of the underside hind-wings which are usually noticeably different.

The majority of species present in this part of Europe are usually found in sheltered woodland and bogs but *chariclea*, *polaris* and *improba* are restricted to bleak, open Arctic regions where they might be found flying with *napaea* and *freija*.

11. Freija's Fritillary *[Boloria freija]*

Male and female similarly marked

Jagged marks along wing edges Compare 12

Black zig-zag line here Compare 4

These markings resemble a leaping fish Compare 13, 14

12. Frigga's Fritillary *[Boloria frigga]*

Male and female similarly marked

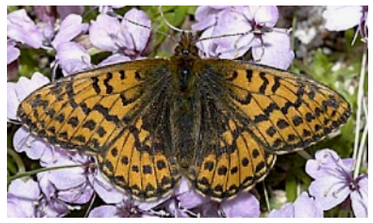
Smooth linear marks along wing edges. Compare 11

Underside hind-wing unlike any other species in Group D.

Outer part of hind-wing is lilac coloured

13. Arctic Fritillary *[Boloria chariclea]*

Male and female similarly marked



Smaller markings reveal more ground colour. Compare 11, 12 and 14

Shape of this mark is distinctive. Compare 11 and 14

14. Polar Fritillary *[Boloria polaris]*

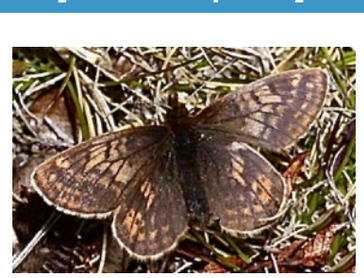
Male and female similarly marked

Smooth marks along wing edges. Compare 11

This mark is a bold ✕ shape Compare 11, 13

Two white spots in this area. Compare 11, 13

15. Dusky-winged Fritillary *[Boloria improba]*



Easily identified as both male and female have upper and undersides which are much duskier than all other Boloria species.

They are also noticeably smaller and only fly in Arctic Fennoscandia.

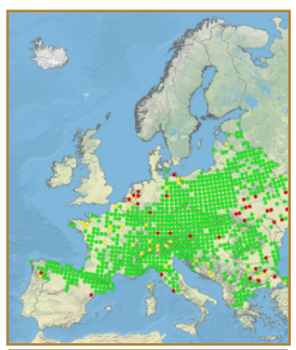
Distribution Maps

Up to 1950 | 1951 - 1980 | After 1980

Group A

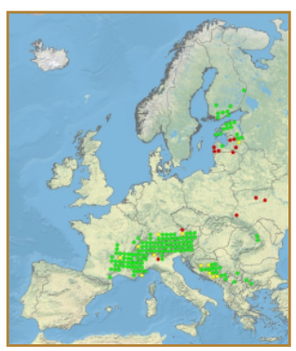
Pearl-bordered Fritillary

Small Pearl-bordered Fritillary

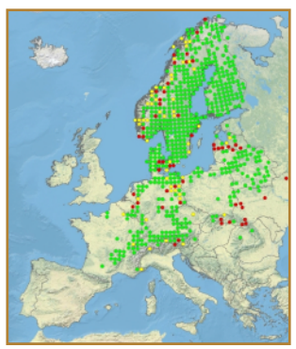


Weaver's Fritillary

Group B



Titania's Fritillary



Cranberry Fritillary

Bog Fritillary

Group C

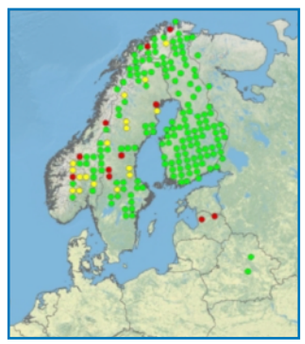
Mountain Fritillary

Shepherd's Fritillary

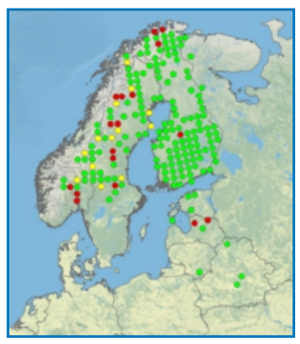
Thor's Fritillary

Balkan Fritillary

Group D



Freija's Fritillary

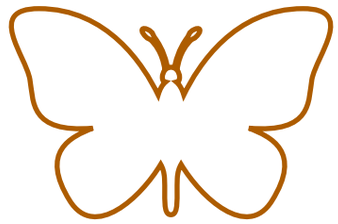


Frigga's Fritillary

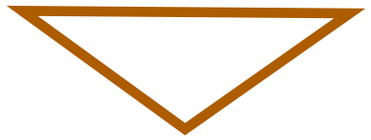
Arctic Fritillary

Polar Fritillary

Dusky-winged Fritillary



SMALL
[Euphydryas]



All six Euphydryas species are found in localised populations. However, as only the Marsh and Scarce Fritillary colonies are found across Europe [see distribution maps on page 3], it is best to begin the identification process by using the notes below to establish if your butterfly is one of these two species. If unsure, then follow the notes to the species with more restricted distributions on the next page.

1. Marsh Fritillary *[Euphydryas aurinia]*

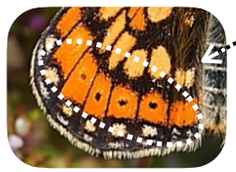
Despite its name the Marsh Fritillary is found from sea level to high altitudes in diverse habitats including moorland, meadows, grassland and woodland.

Male and female have similar upper and undersides. Female is usually larger than male.

MALE & FEMALE upperside

Tips of antennae on both sexes are orange brown.
Compare with 2 and 4

Hind-wing has a row of small black dots in this orange band.
Compare 2 and 4



Fore-wing usually has a row of pale yellow patches within the orange markings here.
Compare with 2, 4 and females of 5, 5a

MALE & FEMALE underside

This orange band on the hind-wing has a row of black spots ringed yellow.
Only other Euphydryas with this feature is *desfontainii* [see page 2]

Note: *Aurinia* does not fly in the Iberian peninsula where it is replaced by the subspecies beckeri [see below]

Variations

The upperside of *aurinia* shows considerable variation across its range. Also, like most Euphydryas species, there is a tendency to shed scales quickly with age, so losing their brightness. Examples are shown below.

Uniform orange colouring

Colour contrast can be more vivid in colder climes

Sandy colouring with reduced dark markings

Paler with colour contrast reduced

1a. subspecies *beckeri*

Like *aurinia,* males and females have similar upper and undersides with considerable variation in colour and markings.

Upperside usually visibly larger with stronger reddish markings than *aurinia.*

Beckeri has the same underside as *aurinia*

Beckeri is only found in the Iberian peninsula and very locally in southern France [Roussillon]. This distribution overlaps with the Spanish Fritillary *[E. desfontainii].* As *Beckeri* is similar to *desfontainii* they could be confused.
See 3 on next page for notes on differentiating.

1b. form *debilis/ glaciegenita*

Males and females have similar upper and undersides.

This montane form of *aurinia* is smaller and found above the tree line in the Central Alps and Pyrenees. Could be confused with *Melitaea asteria* but the black dots in orange band here identify *debilis/glaciegenita.*

Upperside shows greater contrast than *aurinia* with dark markings usually enlarged and paler red/yellow marks.
Compare with 4, 5 and 5a

Underside paler than *aurinia* with reduced black markings.
Compare with 4, 5 and 5a

2. Scarce Fritillary *[Euphydryas maturna]*

Maturna is a lowland species* with scattered colonies across western Europe except the Iberian peninsula. More widespread in eastern Europe.
This distribution means that the only other Euphydryas species it is likely to be found flying with is *aurinia.*
Maturna is easily distinguished from *aurinia* by the features highlighted below.

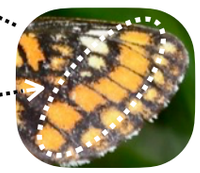
MALE & FEMALE upperside

Male and female similar but female usually larger with fewer white markings.

Hind-wing has no black dots in this orange band.
Compare with 1

Tips of antennae on both sexes are white.
Compare with 1

No pale yellow patches in this row of orange markings
Compare with 1



MALE & FEMALE underside hind-wing

This orange band on the hind-wing has no black spots.
Compare with 1

* Note: *Maturna* is similar to *Euphydryas intermedia* [page 2] which occurs above 1500 m. in the Central Alps. *Maturna* is invariably found below 1000 m. If needed, use location/altitude to identify

3. Spanish Fritillary *[Euphydryas desfontainii]*

Desfontainii is restricted to the Iberian peninsula and very locally in a small region of southern France [Roussillon]. See map on page 3.
The only other Euphydryas with a similar distribution is 1a *beckeri.*

Differentiating *desfontainii* and *beckeri* can sometimes be difficult as the males and females of both species have similar upper and undersides. Although not always present, the points below should aid identification:

MALE & FEMALE upperside

Desfontainii

usually **pale whitish**

Colour of markings at edge of fore-wing

Beckeri

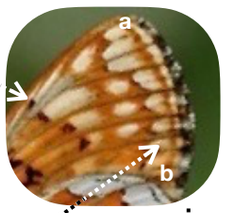
usually **reddish**

MALE & FEMALE underside

large and **bold**

This row of black marks on fore-wing

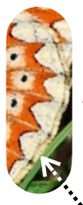
small and **faint**



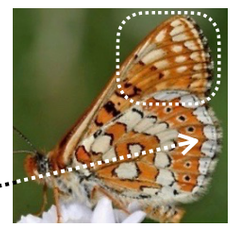
no stripe

Stripe near edge of fore-wing

orange stripe from **a** to **b**



Shape of pale markings at edge of hind-wing



triangular

rounded

4. Asian Fritillary *[Euphydryas intermedia]*

5. Cynthia's Fritillary *[Euphydryas cynthia]* : 5a. subspecies *alpicola*

Intermedia, cynthia and its subspecies *alpicola* are usually found above 1500 m. in the Central Alps where they could be seen flying in the same area. **The only other Euphydryas which might also be present is 1 *aurinia* and its form 1b *debilis/glaciegenita.*** The points below should help differentiate.

Note: Intermedia is absent from Cottian Alps and north of the Rhone Valley in Switzerland.

Tips of antennae on male and female are white
Compare 1 and 1b

Uppersides of sexes similar but female larger with virtually no white marks.

No black dots in this orange band

Compare 1, 1b and 5, 5a

MALE & FEMALE underside hind-wing

No spots in this orange band distinguishes from 1 and 1b
Note: Faint pale spots sometimes present

This line [shown by yellow dots] is usually weak with a roughly parallel thin line [shown by blue dots] alongside.
Compare 5 and 5a

Note: *Intermedia* is similar to the lowland species *maturna*. See page 1.

Note: The uncertain transitional boundary of distribution between cynthia and alpicola is roughly the eastern border of Switzerland. Cynthia is found eastwards including the Pirin and Rila mountains of Bulgaria whilst alpicola is found to the west.

Cynthia : ***Alpicola***

MALE uppersides are distinctive with **vivid white markings** which readily distinguishes from 1, 1b and 4

Alpicola is duller than *cynthia* with reduced red markings and more extensive black suffusion on the fore-wing.

FEMALE uppersides: *cynthia brighter than alpicola*

No pale yellow patches within these orange markings on fore-wing here
Compare 1 and 1b

The presence of black dots in this orange band **always distinguishes from 4**. These dots are frequently absent from *alpicola* males and females [as in photo above].

MALE & FEMALE underside: *cynthia and alpicola* similar*

This line [shown by yellow dots] is usually a single bold line [as shown]. Compare 4
Note: The bold line can be more fragmented on males making this feature less distinct.

The presence of black spots in this orange band [as shown] **always distinguishes from 4**. This can also differentiate from 1 and 1b which have spots with yellow rings.

** Female alpicola can have finer dark marks.*

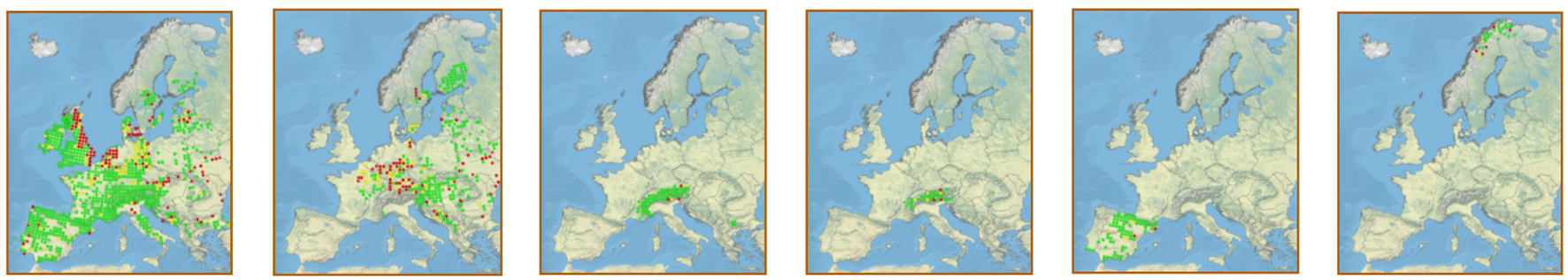
6. Lapland Fritillary *[Euphydryas iduna]*

Identification is straightforward as the distinctive colouring of *iduna* is quite unlike any other butterfly found within its restricted range [see page 3]

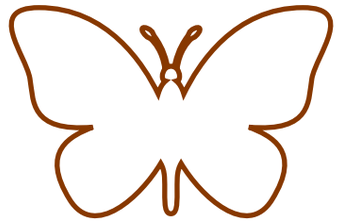
Male and female upper and undersides are similar, displaying bright red/orange, white and black markings. However, *iduna* can appear grey coloured on the wing, whilst the bright appearance diminishes rapidly with age as wing scales are lost.

Distribution Maps

Up to 1950 1951 - 1980 After 1980



Marsh Fritillary	Scarce Fritillary	Cynthia's Fritillary	Asian Fritillary	Spanish Fritillary	Lapland Fritillary



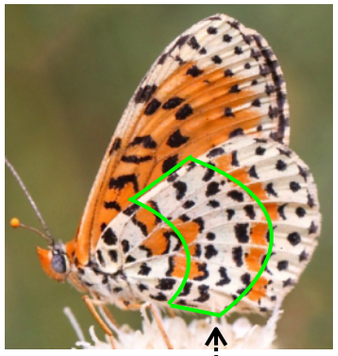
SMALL
[Melitaea]

To begin identification it is best to divide the sixteen species of Melitaea into two groups, A and B, using the definitive features found on the underside hind-wing. The upperside can be used but due to the enormous variability of the Melitaea this is less reliable.

Group A

Firstly, look for these distinctive features on the underside hind-wing (virtually the same in both males and females) and determine to which group your butterfly belongs.

Group B

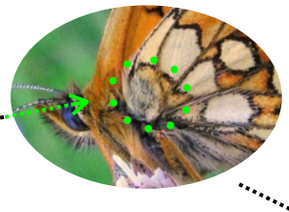


central band

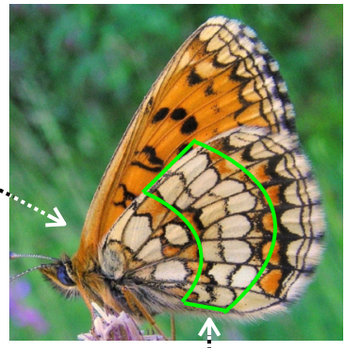
Are there **any orange marks** in the **basal region?**

Usually **NO orange marks** within area circled green

Normally **SOME orange marks** within area circled green



Look carefully as sometimes the orange marks can be very pale or obscured

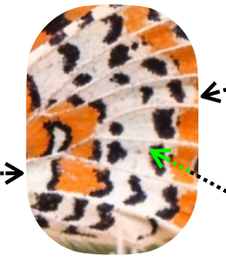


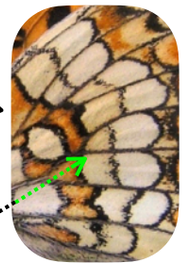
central band

What is the **overall appearance** of the **central band?**

looks **fragmented** and **ill defined**

looks **tidy** and **well defined**





Are the **veins** crossing the central band **visible?**

Veins are often **faintly marked**

Veins usually **clearly visible in black**

If your butterfly matches the above features then **go to Group A below**

If your butterfly matches the above features then **go to Group B on page 4**

Alternatively, look at these features on the upperside.

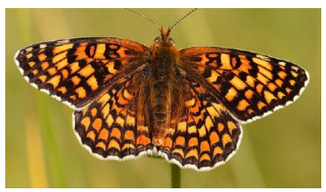
Is the overall pattern **open and spotted** like this?

If **yes**, compare 1, 2 and 7 in Group A

Is the fore-wing **a different colour** from the hind-wing like this?

If **yes**, compare females of 1 and 7a in Group A

Are there **bands of different colours** like this?



If **yes**, compare 5/6 in Group A and females of 11, 12 in group B

Is the overall pattern **grid or net-like** and uniformly coloured like this with:

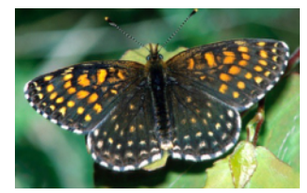
a row of black spots in this orange band?

If **yes**, compare 3 and 4 in Group A

no black spots in this orange band?

If **yes**, go to Group B on page 4

Are there **heavy dark markings** like this?



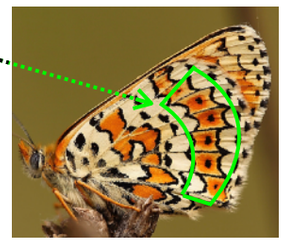
If **yes**, compare 10 in Group B

Group A

Look again at the underside hind-wing of your butterfly and compare it with the three photographs opposite.

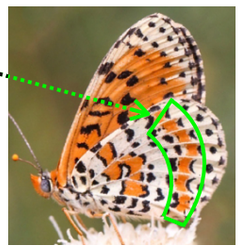
Is the band highlighted in green:

Orange coloured **with black spots** like this?



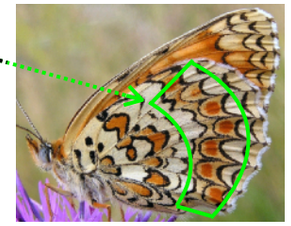
If **yes**, compare 3 and 4 on page 3

Orange coloured **with no black spots** like this?



If **yes**, compare 1 and 2 on next page

Yellowish with orange/red spots like this?



If **yes**, compare 5, 6 and 7 on page 3

1. Spotted Fritillary *[Melitaea didyma]*

2. Lesser Spotted Fritillary *[Melitaea trivia]*

These two species are difficult to separate due to **the great variation** in the upperside markings and ground colour of both sexes across their ranges [see maps on page 6]. Males vary from bright red/orange to golden yellow. Females are paler and can be any shade of yellow, orange, red or brown. The points below should help to differentiate.

Didyma is found north of the Central Alps and Balkan Mountains. The other main geographic forms* *meridionalis* and *occidentalis* are described below.

Trivia flies mainly in eastern and southeastern Europe [see page 6]. The geographically separated subspecies *ignasiti* is found in Iberia.

Upperside

Markings bordering all wings **of male**


♂

Spot-like, separated from border

Arch shaped, usually **touch** border


♂

Markings on the abdomen **of male and female**

Rows of **yellow/ orange spots**

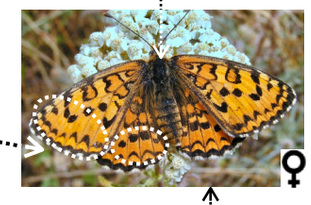
No well-defined spots Markings more diffuse

Markings on all wings **of female**


♀

No significant gap between rows of marks here

Noticeable gap between rows of marks here


♀

wing colour **of female**

Often has **different coloured** fore and hind-wings, as shown here [sometimes **grey suffusion** on fore-wing]

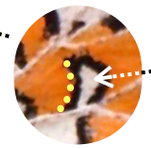
same colour fore and hind-wings, **never suffusion** on fore-wing

Male and female underside hind-wing

Shape of marks along the wing edge [traced by line of green dashes]

tend to be a **rounded** shape

tend towards a **triangular** shape



The contour **is relatively smooth**

Contour of the line indicated by the yellow dots

The contour **has a small indent**

Sometimes a small vein is just visible on *trivia* in the area circled in green [as shown here]. If present, this vein reliably distinguishes *trivia* from *didyma*.

Form* *meridionalis*

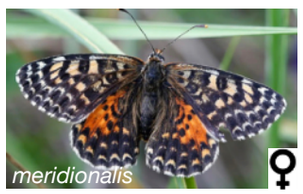
Meridionalis flies in the mountains of central, south and southeastern Europe. Underside similar to *didyma* but uppersides noticeably different.


meridionalis ♂

Male *meridionalis* is a fiery red/orange.

Meridionalis females have paler colouring which is usually obscured by a heavy grey suffusion on the fore-wing and sometimes on the hind-wing. The different colouration of fore and hind-wing is normally more striking than *didyma.*


meridionalis ♀


meridionalis ♀

Form* *occidentalis*

Occidentalis is found in warm, low altitude Mediterranean regions.


occidentalis ♂

The underside of *occidentalis* is similar to *didyma* but uppersides are quite different with both sexes being noticeably paler than *didyma* and *meridionalis.* Females have no dark suffusion and there is very little colour contrast between the fore and hind-wing.


occidentalis ♀

**The photos of above forms illustrate 'average' specimens. 'Intermediate' forms occur everywhere.*

2a. subspecies *ignasiti*


ignasiti ♂

Subspecies *ignasiti* replaces *trivia* in southwestern Europe where it is found in the northern half of Iberia from the north of Portugal to Catalonia and very locally in southern Spain.

Male and female *ignasiti* are similar to *trivia* and display the same high level of variation in colour and markings. *Ignasiti* can be distinguished from *didyma* by using the comparison of features listed above.


ignasiti ♀

Form *fascelis*


fascelis ♂

Significantly larger specimens of *trivia* are not uncommon, especially in northern Greece and the southern Balkans.

Such larger individuals are known as form *fascelis.* These photographs of *fascelis* highlight the wide variation of colour and markings found in *trivia* across its range.


fascelis ♀

3. Glanville Fritillary *[Melitaea cinxia]*

4. Freyer's Fritillary *[Melitaea arduinna]*

These species can be difficult to separate. Fortunately **their ranges only overlap in southeastern Europe** between southern Romania and northwestern Greece where *arduinna* is found locally [see maps, page 6]. *Cinxia* is widespread across Europe. The features below should help to distinguish.

Upperside

orange/ brown ← Usual **male** ground colour → **reddish**

uniform **sandy brown** ← Usual **female** ground colour → **various colours** sometimes with a dark suffusion

smooth ← Inner leading edge of fore-wing on **both sexes** → **noticeable bulge** here

Both sexes of these species have **distinguishing black spots** on hind-wing. Compare 5/6 which occasionally have some spots.

Male and female underside hind-wing

all **concave** inward ← Black marks along line shown by green dots → **some** or all **convex** inward

Is there an orange patch in area circled yellow?

no ← → **yes**

Prolonged emergence but peak usually May to early June ← **Flight period** → Peak emergence usually from middle to late June

7. Aetherie Fritillary *[Melitaea aetherie]*

7a. subspecies *perlinii*

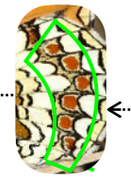
Upperside

Aetherie flies in southern Spain and Portugal, also locally in far south of Italy [map, page 6]. Subspecies *perlinii* occurs in Sicily.

The uppersides of male and female *aetherie* and *perlinii* might be confused with *didyma**. Differentiate by the absence of the distinctive yellow/orange spots found on the abdomen of *didyma* [see page 2]

Perlinii males and females have darker upperside markings than *aetherie*. This gives *perlinii* females a vivid colour contrast between fore and hind-wing.

Male and female underside



Aetherie and *perlinii* have basically the same underside as *phoebe* and *ornata*. **They can all be distinguished from the other species in Group A** by this yellowish band containing orange/red spots on the hind-wing. See 5/6 underside notes about possible confusion with Group B species.

**Also similar to trivia but location should identify as distribution most unlikely to overlap.*

5. Knapweed Fritillary *[Melitaea phoebe]*

6. Eastern Knapweed Fritillary *[Melitaea ornata]*

These very variable species have indistinguishable uppersides. **They are distinct species because their larvae differ.** *Phoebe* is widespread whilst *ornata's* exact distribution is uncertain. Currently, *ornata* is known locally from Italy, Sicily, southwestern Ukraine, the Carpathian Basin, the Balkans and Greece **where it can overlap** with *phoebe* [see maps, page 6]

Male and female upperside

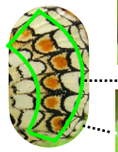
This large arrow shaped mark is a feature of several Melitaea. On *phoebe/ornata* the difference in size between this mark and the adjacent marks on either side is usually noticeably greater than in other Melitaea. Also, it visibly disrupts the continuity of the row of spots above.

No black spots in this orange band on the hind-wing usually distinguishes *phoebe/ornata* from *cinxia* and *arduinna*. However, sometimes black spots can occur. When present, the spots are usually fewer in number and less distinct but can be similar. If in doubt, *phoebe/ornata* generally have more colourful uppersides than *cinxia* and *arduinna* and feature the large mark noted above.

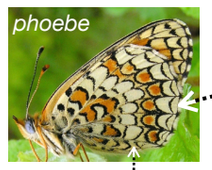
Note: Confusion is possible with female *deione* and *parthenoides.* See 11,12.

Male and female underside

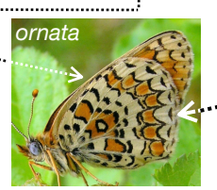
Although the markings are variable, both *phoebe* and *ornata* have essentially the same underside as *aetherie* and *perlinii.* They all have this yellowish band containing a row of orange/ red spots and are **the only Group A species with this feature**. Compare 7, 7a.



To help separate *phoebe* and *ornata* look at the border of the underside hind-wing:



Phoebe usually has thin marks which touch the veins and appear joined in a zig-zag line.



Ornata usually has flattened triangular marks which are not connected and do not touch the veins.

Note: *Phoebe, ornata, aetherie and perlinii* undersides might be confused with some Group B species. Check distinguishing features of Group A v B [page 1].

5a. subspecies *occitanica*

Phoebe is very variable across Europe but in the Iberian peninsula most individuals have a generally more vivid colourful appearance, especially in the first brood. This is recognised as subspecies *occitanica.* The characteristic large mark described above is usually bright yellow and very noticeable.

Forms *alternans* and *pauper*

Specimens similar to *occitanica* can occur outside the Iberian peninsula. They are known as form *alternans*. Form *pauper* is the name given to smaller late brood specimens with reduced dark markings.

Group B

The extensive variability of this group prevents the determination of constant characteristics. This guidance cannot, therefore, be viewed as definitive. In some instances a positive identification requires examination of the male genitalia [see note on page 6]

The four species below are relatively widespread across Europe and the most likely to be encountered. Use the descriptions below to try and establish if your butterfly is one of these species. If unsure, then compare with the more local species on the next page.

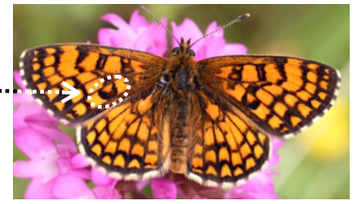
8. Heath Fritillary *[Melitaea athalia]*

9. Southern Heath Fritillary *[Melitaea celadussa]*

Males and females of both these species all look very similar and **can only be separated with certainty by comparing the genitalia** [see page 6]. Thankfully, distinguishing from one another is simplified by their **distribution only overlapping in a suggested transition zone around 100Km wide** [see map on page 6]. Both species are extremely variable and difficult to differentiate from most other Group B species. This is best done **by comparison/elimination** starting with the general observations below.

Male and female upperside

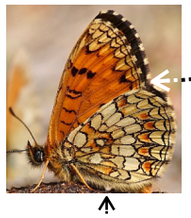
Darker forms with heavier markings are common. More frequent on *athalia* than *celadussa.*

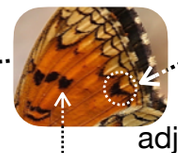


The marks here often merge to form a flattened **U** shape. This feature is more likely to be found on *athalia/celadussa* than other Group B species.

Male and female underside

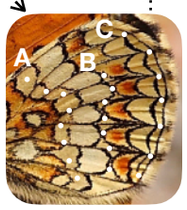
Underside **easily distinguished from *diamina*** but **almost identical to *parthenoides***. See 10 and 11. To help differentiate from the local species on next page look carefully at these bands of markings:





Does this mark appear bold relative to the adjacent marks [as shown here]? This bold mark is more common on *athalia/celadussa* than others in Group B.

Note: Count veins from this spot to ensure correct mark is located.



- **A** Light shade of brown Compare 12
- **B** Light brown and very narrow Compare 13/14
- **C** Similar in colour to adjacent marks Compare 13/14

Behaviour	Frequently gathers in large numbers on damp bare ground in hot weather.
Habitat	Generally associated with woodland or bushy places. Compare 11, 13/14

8. forms *boris* and *satyra*

Usually found in the Balkans, form *boris* has very dark wing borders with reduced orange markings.

On the extreme form *satyra* the hind-wing basal area of males is also completely dark.

9a. subspecies *nevadensis*

Nevadensis is found only in southern Spain in the Sierra Nevada region, separated from the main distribution of *celadussa.*

Nevadensis upperside typically appears more yellowish than *celadussa* with some reduction in the dark markings. The undersides are similar.

10. False Heath Fritillary *[Melitaea diamina]*

Male and female upperside

Usually readily distinguished from all others in Group B by these features:

Orange markings at the edge of the fore-wing small or obscured.

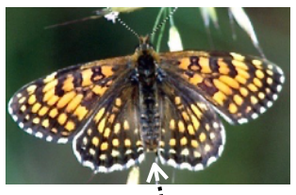
Heavy dark markings on hind-wings.

Male and female underside hind-wing

This band usually darker coloured than adjacent marks. Compare 8/9 and 11

This row of black spots [traced in yellow from a to b] with pale patches alongside, distinguishes *diamina* from all other Group B species.

10a. subspecies *vernetensis*



Vernetensis flies in eastern Pyrenees and also locally farther south in Spain including the Cantabrians.

Brighter hind-wings compared to *diamina* is usually a feature of *vernetensis* but it is variable. Underside is similar to *diamina*.

Note: Possible to confuse upperside of [i] *diamina* with forms *boris/satyra of 8* and [ii] *vernetensis* with 9.

11. Meadow Fritillary *[Melitaea parthenoides]*

Typical *parthenoides* usually has the upperside features below. These help distinguish from other Group B species. *Note: These features are not diagnostic*

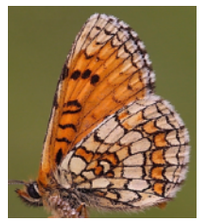
Upperside

This mark is normally at a noticeable angle to the adjacent wing edge. Compare 8/9

Markings in areas circled white are usually faint or absent on male, and sometimes female. Compare 8/9

Females tend to have heavier marks than males which produces some colour contrast. This could confuse with other Melitaea females. Compare 5/6 and 12

Male and female underside



There are **no consistent features** which reliably separate the underside of *parthenoides* from *athalia* and *celadussa.* To help distinguish *parthenoides* from the local species on the next page use the *athalia/celadussa* underside notes on bands A, B and C. See 8/9.

Habitat	Mostly found in open flowery grassland meadows. Compare with 8/9

Form *nevadensis*

This noticeably smaller form with more yellowish female uppersides is found in Spain's Sierra Nevada at 1500-2200m.

12. Provençal Fritillary *[Melitaea deione]*

Deione is found locally in southern France, parts of the Central Alps and most of Iberia [see map on page 6] . The Group B species with which its **distribution overlaps are 8/9, 10 and 11.** The points below should help to distinguish.

Upperside

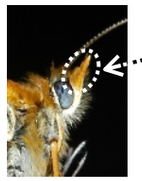
Male is uniform in colour whilst females display varying degrees of colour contrast. On **both sexes** look for these features:

The ground colour in the basal area [circled white] usually remains relatively unobscured whereas *athalia* and *celadussa* commonly have darker forms with heavy scaling. Compare 8/9

This mark shaped ⋈ is <u>distinctive but variable</u>. The projections at either end usually point at one another but the joining line is sometimes faint [see male photo], or absent. Compare 8/9, and 11

Note: Female might be confused with *phoebe* or *parthenoides.* Compare 5 and 11

Male and female underside



These hairs are mainly **bright orange** on *deione* which usually distinguishes from the mostly darker hairs found on *athalia/celadussa*. Compare 8/9

This row of markings [traced with yellow dots] is usually very pale white [as shown here]. Compare 8/9 and 11 where it is usually a light shade of brown.

Subspecies *rosinae* and *berisalli*

Rosinae flies in southern Portugal whilst *berisalli* is found in southern Switzerland. Compared with *deione* the uppersides of the males of both subspecies have a darker ground colour with bolder markings and female *rosinae* has more vividly contrasting colours. Both undersides are similar to *deione.*

13. Assmann's Fritillary *[Melitaea britomartis]*

14. Nickerl's Fritillary *[Melitaea aurelia]*

Males and females of both these species are very similar in appearance to one another and to *athalia/celadussa. **Britomartis*** and ***aurelia*** can **only be reliably separated by examining the genitalia** [see page 6] Separation is further complicated by the great variation in each species and **their distributions overlapping to a considerable extent**. Identification is best attempted **by comparison/elimination** using the general observations below.

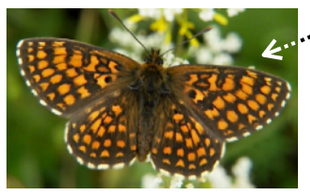
Distribution See page 6 for maps

These two species overlap in Central Europe. *Britomartis* is mainly found eastwards from southwestern Germany. *Aurelia* flies farther west and south. Both species **overlap with 8, 10, and 11**. *Aurelia* **also overlaps with 9**.

Male and female upperside

Britomartis/aurelia is usually smaller than *athalia/celadussa.*

Some authorities suggest that the rows of markings circled white, especially on hind-wing, appear even and regular when compared with the variably sized marks on *athalia/celadussa.*

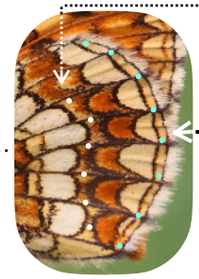


Britomartis frequently has heavier markings than *aurelia.*

Behaviour — Typically fluttering with rapid wing-beats, low amongst flowers.

Habitat — Generally associated with open, flowery grassland. Compare 8/9

Male and female underside hind-wing



This band of markings [traced with white dots] is **normally wider and darker brown** compared to 8/9 and 11*.

The colour of this band [traced with blue dots] is **slightly darker than the adjacent markings**. Compare with 8/9 and 11* where this band is usually similar in colour to the adjacent marks.

** See description of underside bands for 8/9,11 on page 4*

15. Grisons Fritillary *[Melitaea varia]*

These alpine species have restricted distributions **which overlap** [see maps, p.6]. They fly at high altitudes above the tree line <u>where other Group B species are usually not present.</u>

16. Little Fritillary *[Melitaea asteria]*

In a limited area of the western Central Alps *varia* could be confused with *parthenoides*.

Compare this mark with 11. It will usually look quite different from the oblique mark on *parthenoides*.

Females are more boldly marked than males and may have dark suffusion and/or colour contrast.

Varia is noticeably small and variable but the **distinctive features of *asteria*** [see opposite] make it **easy to differentiate** the two species.

This central band of markings is a distinct bright white.

Asteria is **very small**, looking more like a fly buzzing across the alpine turf. Both sexes **readily separated from *varia*** and other species by these features:

<u>Single</u> black line along border of underside hind-wing distinguishes from all other Group B species.

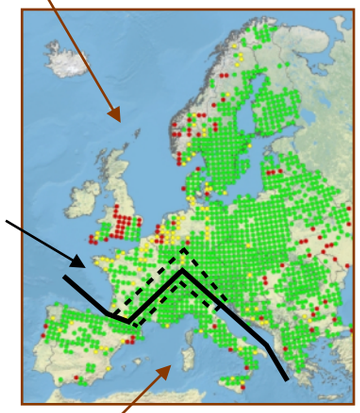
Dark basal region with **three noticeable bands of alternating colour** on outer half of both wings.

Both species fly with the similar looking *glaciegenita* form of *Euphydryas aurinia.* Careful comparison will separate.

Distribution Maps

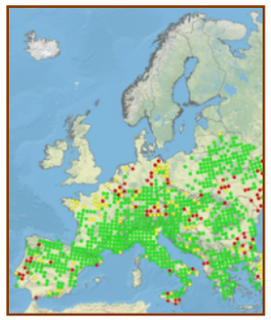
Up to 1950 **1951 - 1980** **After 1980**

Heath Fritillary
North and east of black line



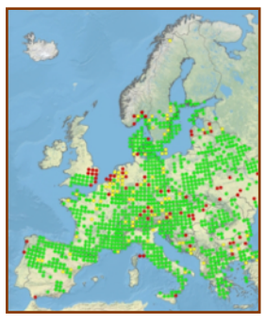
Transition Zone
Between dotted lines [see p.5]

Southern Heath Fritillary
South and west of black line



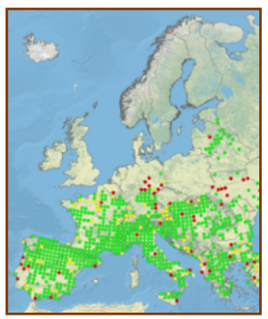
Spotted Fritillary

Lesser Spotted Fritillary



Glanville Fritillary

Freyer's Fritillary

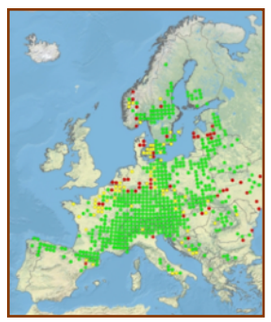


Knapweed Fritillary

Exact distribution uncertain
See page 4 for known locations

Eastern Knapweed Fritillary

Aetherie Fritillary

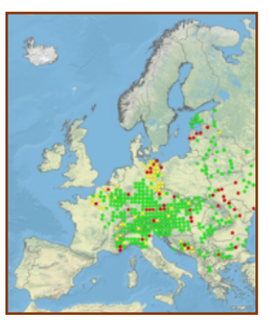


False Heath Fritillary

Meadow Fritillary

Provençal Fritillary

Assmann's Fritillary



Nickerl's Fritillary

Grisons Fritillary

Little Fritillary

Melitaea Genitalia

A Guide to identifying Melitaea by genitalia will be be available in due course on the EBG website.
An article on the subject is currently available in an EBG Newsletter. See page 11 of **EBG Newsletter No 7**

European Butterflies Group