



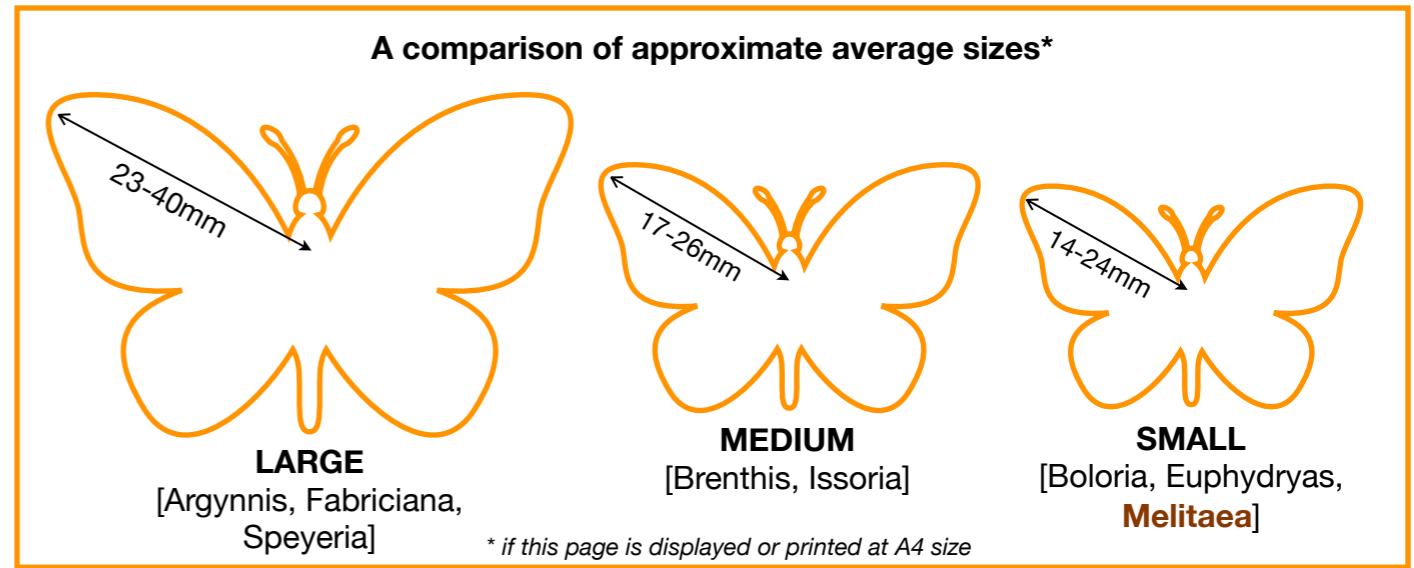
# Identification Guide: Small Fritillaries - Melitaea

## Distinguishing Melitaea by size

Identifying fritillaries\* in Europe is difficult due to there being over 40 superficially similar species. As a starting point they are usually roughly divided by size into: 'large' fritillaries [Argynnis, Fabriciana, Speyeria], 'medium-sized' fritillaries [Brenthis, Issoria], and 'small' fritillaries [Boloria, Euphydryas, Melitaea]. Three separate guides cover the Large/Medium-sized, Boloria and Euphydryas.

**Melitaea are noticeably smaller than Argynnis, Fabriciana and Speyeria (see diagram opposite) making confusion with these species very unlikely.** However, the medium sized species, which are intermediates, can be comparable in size to Melitaea with *Brenthis ino* and *Brenthis hecate* being most similar.

\* This is an arbitrary grouping, see note on page 7.



## Distinguishing Melitaea from Boloria, Brenthis, Issoria, and Euphydryas

### Boloria, Brenthis, Issoria



Most\* **Melitaea** males and females have uppersides resembling a grid or net-like pattern. This differentiates them from **Boloria, Brenthis and Issoria** which have an open pattern of marks and rounded spots.

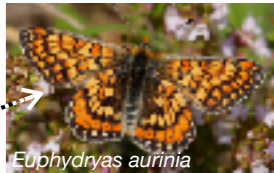
\*The three Melitaea species that might confuse are: *M. trivialis*, *M. aetherea*, *M. didyma*. A close comparison should identify.

### Melitaea Uppersides



### Euphydryas

Most\* **Melitaea** males and females tend to be dull and uniformly coloured whereas the uppersides of **Euphydryas** are usually brighter and multicoloured.



\*The Melitaea species that could confuse are: *M. ornata*, *M. phoebe*, *M. deione* [female], *M. parthenoides* [female]. A careful comparison should differentiate.

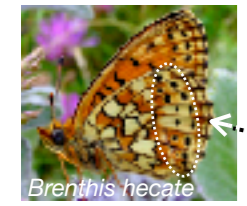
### Melitaea Undersides

**Melitaea** underside hind-wings usually look quite different when compared with **Boloria, Brenthis, Euphydryas and Issoria**. If in doubt, use the notes below to help distinguish.

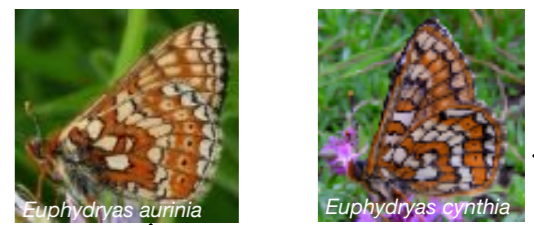


*Brenthis ino* and *daphne* hind-wings appear divided into two distinct colour zones. **No Melitaea has this feature**

*Brenthis hecate* might confuse but it has two parallel rows of dark marks [circled white] on the hind-wing. **These are not found on any Melitaea.**



Some Melitaea like *parthenoides* could appear similar to several Boloria. If the area circled white in these photographs is compared it will be seen that the **pattern of pale markings is quite different.**

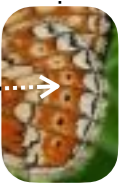


Euphydryas have at least one of the two features below. These features are not present on any **Melitaea** species:

**[i]** A row of black spots ringed pale yellow/white in an orange band on the hind-wing here.

Note: *Melitaea arduinna*, *cinxia* and *diamina* also have black spots in an orange coloured band but **not ringed** yellow/white.

**[ii]** A red/orange band [outlined by yellow dots] on the outer edge of the hind-wing here. If a similar band is present on a Melitaea species it is usually white or yellow.





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.

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 A**

**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

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

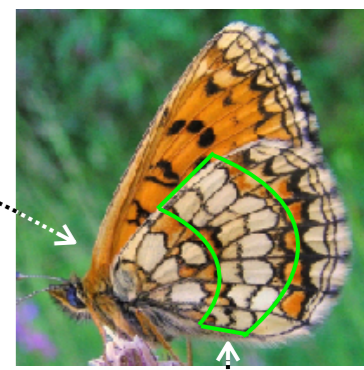
looks **fragmented and ill defined**

looks **tidy and well defined**

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

**Veins** are often **faintly marked**

**Veins** usually **clearly visible in black**



central band

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 5**

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 5

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



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

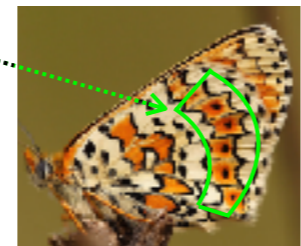
**Group A**

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

Is the band highlighted in green:

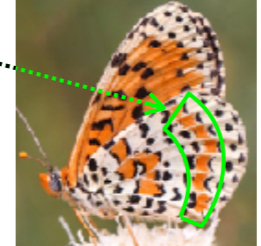
**Orange coloured with black spots** like this?

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



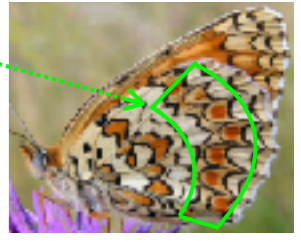
**Orange coloured with no black spots** like this?

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 4





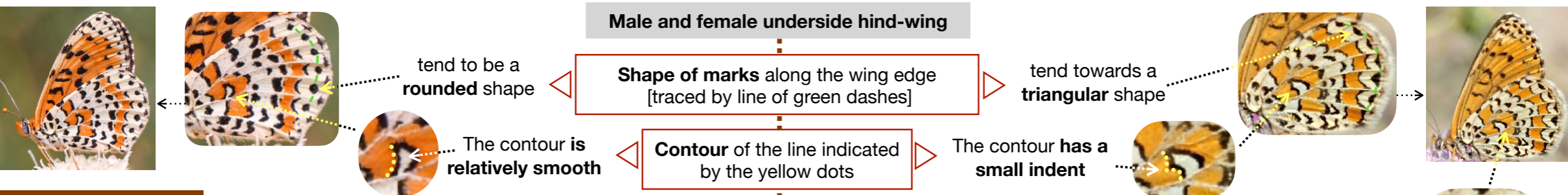
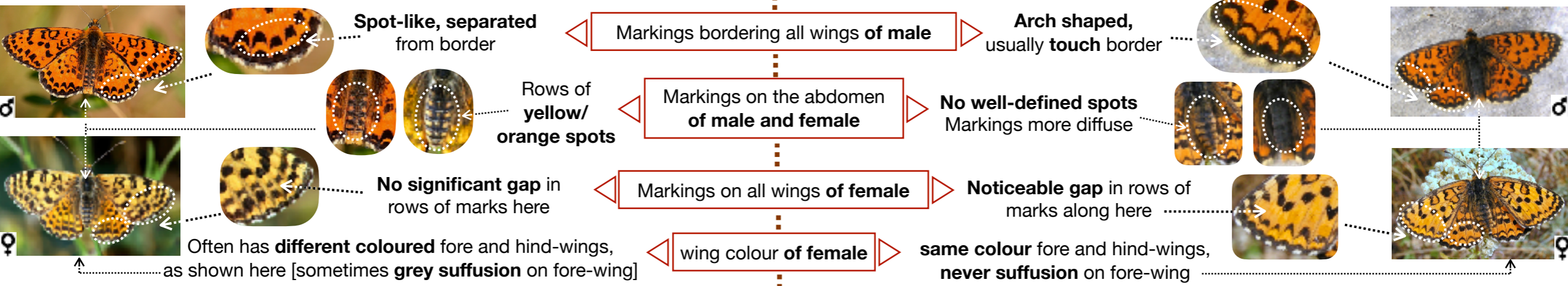
# 1. Spotted Fritillary [*Melitaea didyma*]

# 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 7]. 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 7]. The geographically separated subspecies *ignasiti* is found in Iberia.



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.



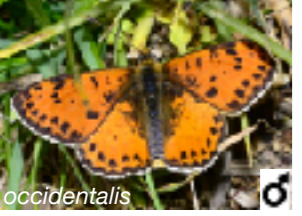
Male *meridionalis* is a fiery red/orange.

*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*.



## Form\* *occidentalis*

*Occidentalis* is found in warm, low altitude Mediterranean regions.



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.



## 2a. subspecies *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.



## Form *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.



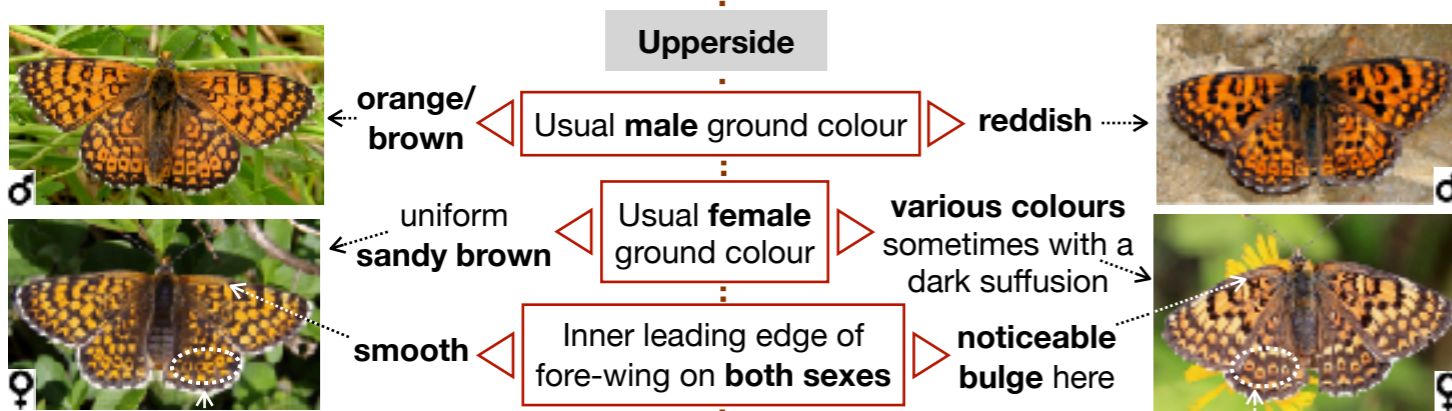
\*The photos of above forms illustrate 'average' specimens. 'Intermediate' forms occur everywhere.



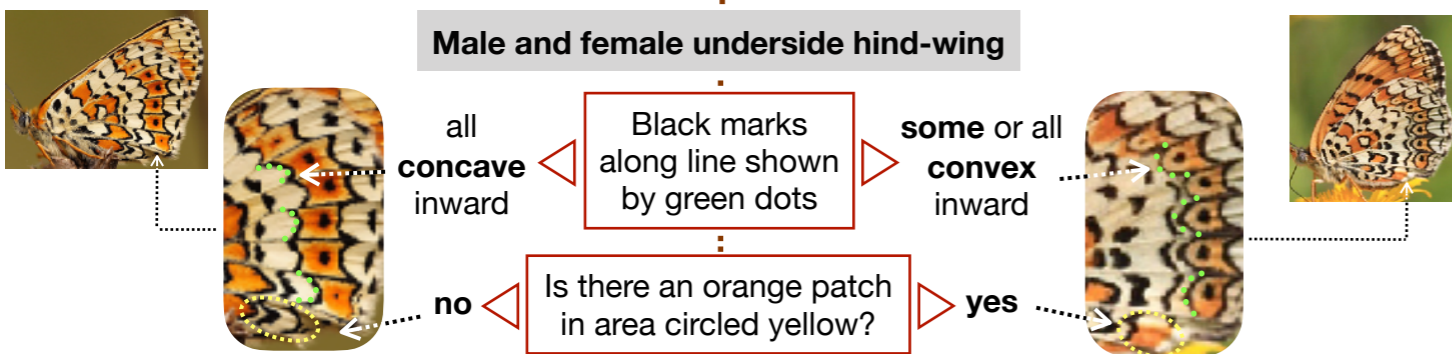
**3. Glanville Fritillary**  
[*Melitaea cinxia*]

**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 7]. *Cinxia* is widespread across Europe. The features below should help to distinguish.



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



Prolonged emergence but peak usually May to early June (left) vs Peak emergence usually from middle to late June (right)

**Flight period**

**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 7]. Subspecies *perlinii* occurs in Sicily.



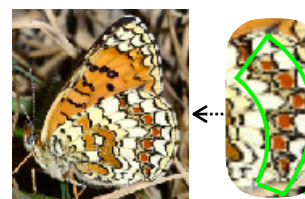
The uppersides of male and female *aetherie* and *perlinii* might be confused with *didyma*\*. Differentiate by the absence of the distinctive yellow/orange spots found on the abdomen of *didyma* [see page 3]



*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 7]

**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.

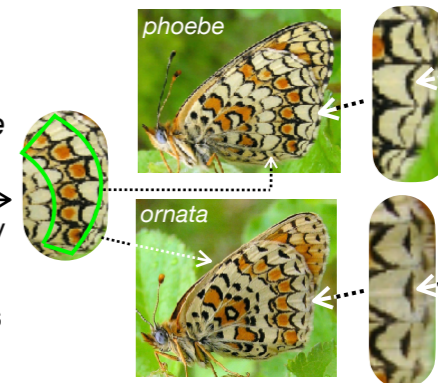
**No black spots** in this orange band on the hind-wing usually distinguishes *phoebe/ornata* from *cinxia* and *arduinna*. However, sometimes black spots can occur. When present, the spots are usually fewer in number and less distinct but can be similar. If in doubt, *phoebe/ornata* generally have more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

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

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.

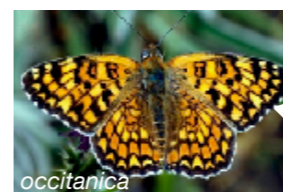


**Phoebe** usually has thin marks which touch the veins and appear joined in a zig-zag line.

**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 2].

**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.



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 7]

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*]**

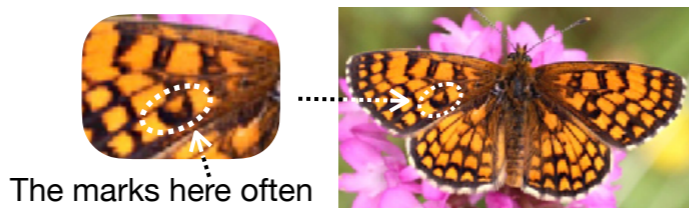
**9. Southern Heath Fritillary [*Melitaea celadussa*]**

Males and females of both these species all look very similar and **can only be separated with certainty by comparing the genitalia** [see page 7]. Thankfully, distinguishing from one another is simplified by their **distribution only overlapping in a suggested transition zone around 100Km wide** [see map on page 7]. 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*.

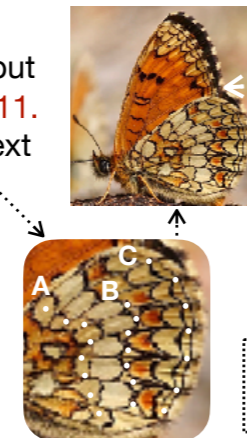


The marks here often merge to form a flattened **U** shape. This feature is more likely to be found on *athalia/celadussa* than other Group B species.

**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:

- 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**



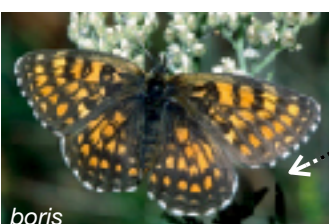
Does this mark appear bold relative to the adjacent marks [as shown here]? This bold mark is more common on *athalia/celadussa* than others in Group B.

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

**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**

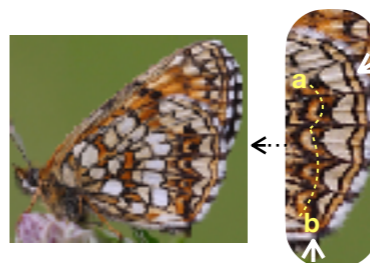
Usually readily distinguished from all others in Group B by these features:



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

Heavy dark markings on hind-wings.

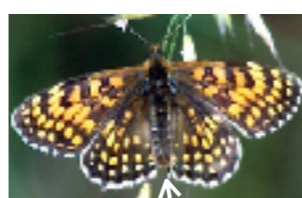
**Male and female underside hind-wing**



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**



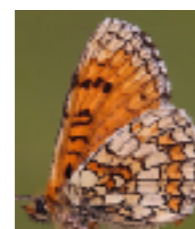
This mark is normally at a noticeable angle to the adjacent wing edge. **Compare 8/9**

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*]**

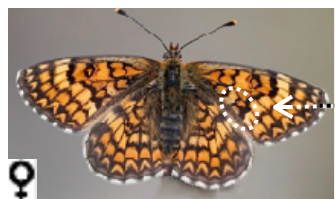
*Deione* is found locally in southern France, parts of the Central Alps and most of Iberia [see map on page 7]. The Group B species with which its **distribution overlaps are 8/9, 10 and 11**. The points below should help to distinguish.


**Upperside**

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



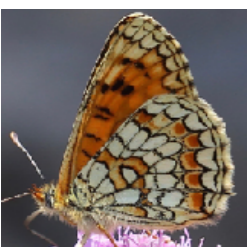
The ground colour in the basal area [circled white] usually remains relatively unobscured whereas *athalia* and *celadussa* commonly have darker forms with heavy scaling. **Compare 8/9**



This mark shaped  is **distinctive but variable**. 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 7]. 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 7 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*.

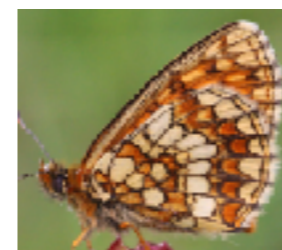
**Behaviour**

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 5

**15. Grisons Fritillary [*Melitaea varia*]**

These alpine species have restricted distributions **which overlap** [see maps, p.7]. They fly at high altitudes above the tree line where other Group B species are usually not present.

**16. Little Fritillary [*Melitaea asteria*]**

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

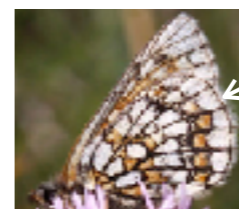


*Varia* is noticeably small and variable but the **distinctive features of asteria** [see opposite] make it **easy to differentiate** the two species.



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:



**Single 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.

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

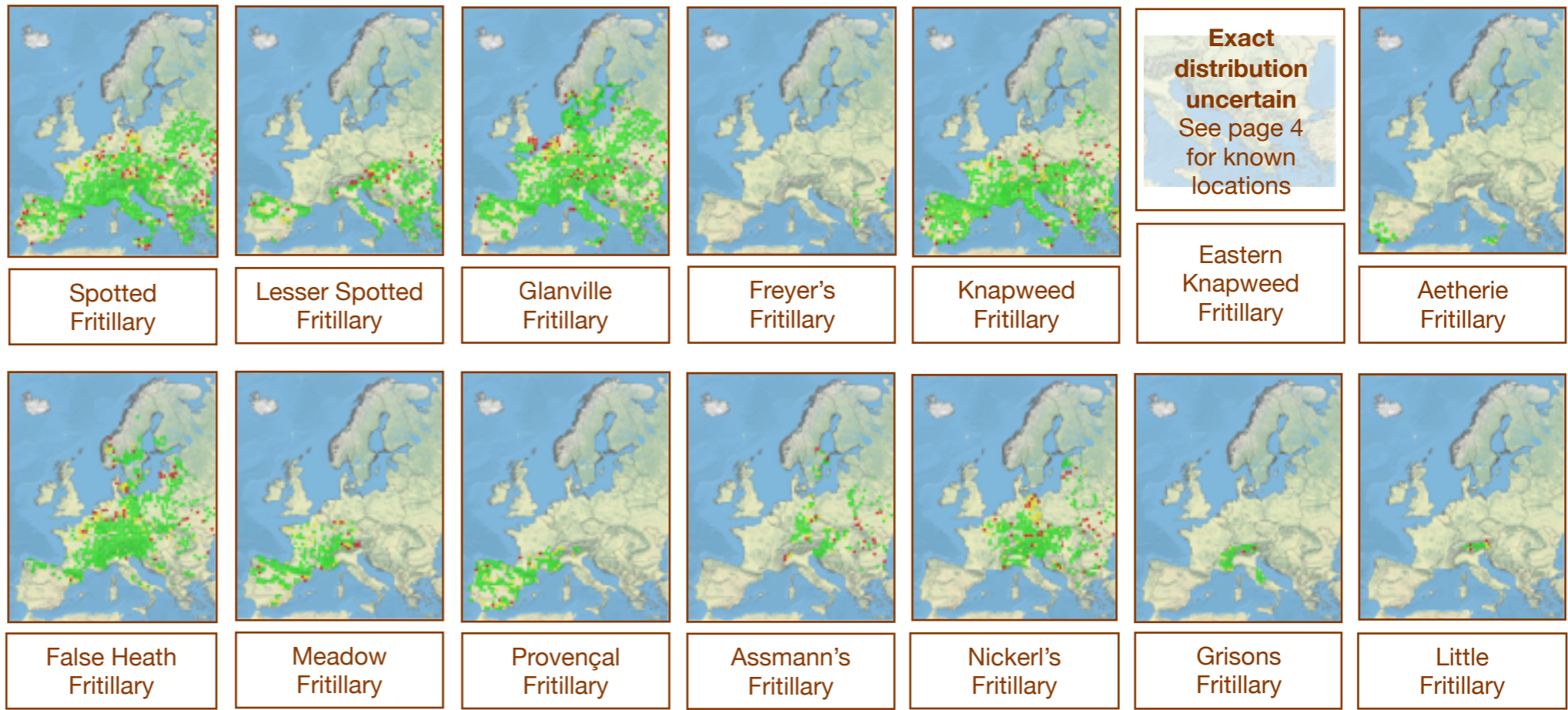
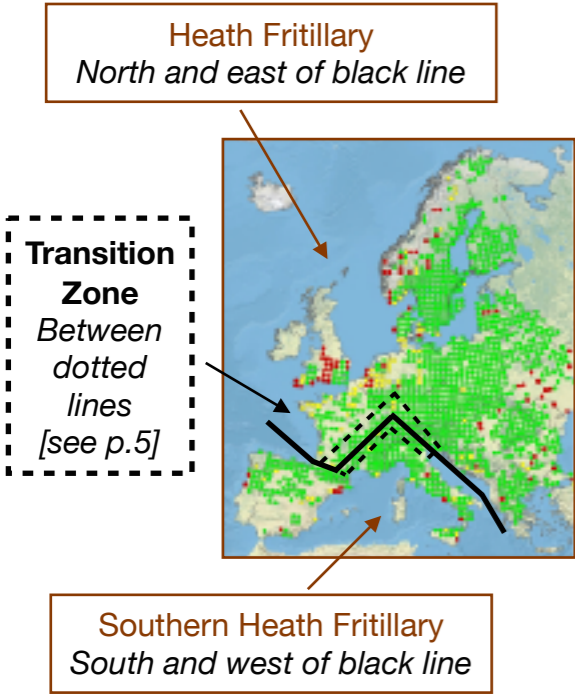


Both species fly with the similar looking *glaciegenita* form of *Euphydryas aurinia*. Careful comparison will separate.



# Distribution Maps

● Up to 1950    ● 1951 - 1980    ● After 1980



Exact distribution uncertain See page 4 for known locations

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**Fritillaries**  
'Fritillaries' is an arbitrary English term which encompasses over forty similar looking species from two different subfamilies: Heliconiinae and Nymphalinae.

- For more information on all aspects of European butterflies please go to the EBG website at [european-butterflies.org.uk](http://european-butterflies.org.uk)
- The other Identification Guides in this series are free to download at [EBG Identification Guides](http://EBG Identification Guides). A Guide to Melitaea Genitalia will also be available in due course. ■ For guidance notes on genitalia identification see page 11 of [EBG Newsletter No 7](http://EBG Newsletter No 7)

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