

A Tale of Six Grayling

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Abstract: This article provides a comparison of the appearance of each Grayling subspecies against its formal definition and also, to a degree, against other subspecies. Findings are based on field observations over a three year period, as the author attempted to track down all of the subspecies and forms of the butterflies of the British Isles.

I have spent the last three years tracking down all of the subspecies and forms of the butterflies of the British Isles - those defined in Agassiz, Beavan and Heckford (2013), the most recent checklist of Lepidoptera. One species, in particular, has required me to travel further than any other - the Grayling (*Hipparchia semele*) - whose six subspecies are spread far and wide within the British Isles, with two subspecies found only in Scotland (ssp. *scota* and ssp. *atlantica*), two found only in Ireland (ssp. *clarensis* and ssp. *hibernica*), one found only on the Great Orme in north Wales (ssp. *thyone*) and the last (the nominate subspecies, ssp. *semele*) found throughout England and Wales.

The purpose of this article is, based on field observations, to provide a comparison of the appearance of each subspecies against their formal definition and also, to a degree, against each other.

Distribution and Sites Visited

The Grayling's distribution, shown in Figure 1, is taken from the [UK Butterflies](#) website and uses data provided by [Butterfly Conservation](#). The subspecific distributions in Figure 1 are taken from Riley (2007). Figure 2 provides a summary of the sites visited which are, in summary:

- Greenham Common in Berkshire for the nominate subspecies, ssp. *semele*.
- Great Ormes Head near Llandudno in North Wales for ssp. *thyone*.
- St. Abbs Head in Berwickshire in the Scottish Borders for ssp. *scota*.
- Ardnamurchan Point in Lochaber, Highland, Scotland for ssp. *atlantica*.
- Ballyteigue Burrow Nature Reserve in County Wexford, Ireland for ssp. *hibernica*.
- The Burren in County Clare, Ireland for ssp. *clarensis*.

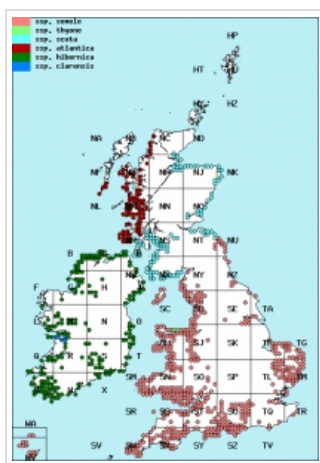


Figure 1 - Grayling Distribution by Subspecies

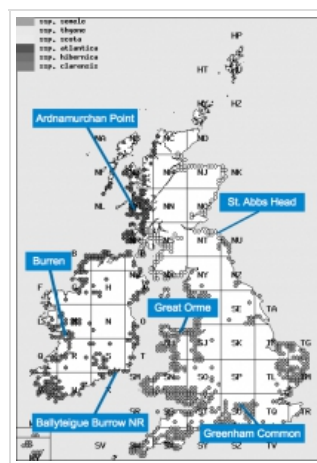


Figure 2 - Sites Visited

The Basis of Comparison

Anyone who has seen a Grayling will know that they are masters of disguise. Even on sites where the species occurs in large numbers, the butterflies are impossible to find unless they are disturbed, when they fly up only to land a few metres away and disappear once again. Fortunately, at all sites visited, the species was found in sufficiently large numbers for representative specimens to be photographed. However, it should be said that my observations, with respect to a given subspecies, are confined to a single site in most cases and there may be a degree of variance with other colonies that is not reflected in this article. In addition, my observations are with respect to adult butterflies in their natural state, meaning that any comparison is primarily made with regard to the underside, since the species always lands with its wings shut, only opening them when in flight and during courtship.

Despite these limiting factors, an attempt has been made, as far as is possible, to compare my own observations against the formal definition of each subspecies. These formal definitions focus on a number of features (listed below) and are clearly based on examining dead or netted specimens given the detailed comparison of upperside markings which are not normally visible in the wild. With the exception of upperside markings, all features are considered as each subspecies is discussed.

- Size (wingspan).
- Flight period.
- General appearance (brightness, contrast).
- Upperside - ground colour.
- Upperside - marginal band.
- Upperside - pale markings.
- Upperside - androconial patch on male forewing.
- Underside - contrast.
- Underside - ground colour.
- Underside forewing - colour of pale areas.
- Underside forewing - spots.
- Underside hindwing - marbling.
- Underside hindwing - margins.
- Underside hindwing - white transverse band.

All of these features are variable within a given colony although I did notice one consistency: in all subspecies, the male seems to have a more prominent transverse white band on the underside of the hindwing than the female. This difference, clearly visible in the photos below, may prove to be a useful tool when attempting to distinguish sexes of the same subspecies in the field.

ssp. *semele* (Linnaeus, 1758)

The nominate subspecies, *Hipparchia semele* ssp. *semele*, is found primarily around the coasts of England, Wales, the Isle of Man and the Channel Islands, but is also found on inland heaths in the south of England, such as those of the New Forest. My study site was Greenham Common near Newbury in Berkshire, which is on my local patch. Here the butterflies are found over a wide area since the common is a patchwork of grassland, heathland and bare ground - ideal Grayling habitat.



Figure 3 - Greenham Common

Having studied the species at Greenham Common for over 10 years, and taken many photos, I can say that the colony found here exhibits a small amount of natural variation. I suspect this is true of all colonies and it should be said that this natural variation muddies, to a degree, any comparison of subspecies.

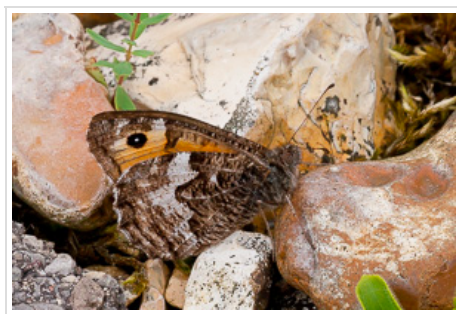


Figure 4 - Grayling ssp. *semele* male

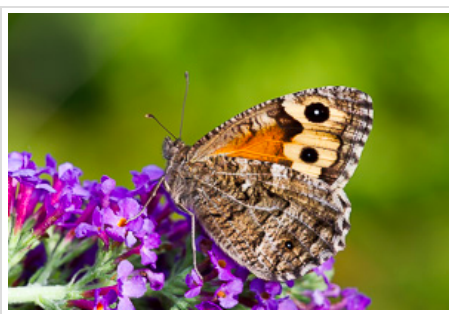


Figure 5 - Grayling ssp. *semele* female

ssp. *thyone* (Thompson, 1944)

Hipparchia semele ssp. *thyone* emerges several weeks earlier than any other subspecies, often at the beginning of June, and is only found

on the Great Ormes Head near Llandudno in North Wales. I found this delightful butterfly flying around the rocky outcrop that occurs at the top of the area known as *Happy Valley* on the eastern side of the Orme, alongside another specialty of this site: the Silver-studded Blue ssp. *caernensis*, which is characterised by the large amount of blue found in the female.



Figure 6 - Happy Valley, Great Orme

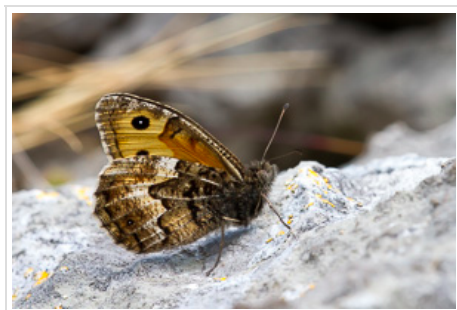


Figure 7 - Grayling ssp. *thyone* male



Figure 8 - Grayling ssp. *thyone* female

***Hipparchia semele* ssp. *thyone* (Thompson, 1944)**

♂. Strikingly smaller than any other British race of *semele*, those in my series of over 100 specimens, collected at random, averaging only 47.7 mm.

The coloration is more uniform than in typical *semele*, with the pale areas more ochreous. The forewing spots are smaller than in other races, with the lower of the two frequently absent, and totally obsolete specimens are not very rare. The underside has the coloration duller and less contrasting than in the type, with the white portions of the hindwings tinged with ochreous. The tendency to obsolescence is even more striking on the under surface than on the upperside.

♀. Similarly smaller than other races, those in my series averaging 51.1 mm. The comparatively unicolorous tendency is the same as in the ♂; but obsolescence is less marked, although the spots are smaller than in normal specimens. The underside presents peculiarities similar to ♂♂ of this race.

Habitat: Creuddyn Peninsula, Carnarvonshire.

Types: ♂, ♀, 2nd July 1941, in my collection.

E. semele ssp. *thyone* flies earlier than is usual with other races, being on the wing towards the third week in June, and disappearing by the end of July.

The formal definition given above suggests the following differences with the nominate subspecies and I have made my own observations against each of these.

1. Considerably smaller in size. I'm sure that the difference in size between this subspecies and any other is quite clear when looking at cabinet specimens side-by-side, but it is more difficult to ascertain in the field since a butterfly with a wingspan of between 47.7 mm and 51.1 mm (as the formal definition above suggests) still makes for a larger-than-average butterfly.
2. The underside has less contrast. My own observations, as Figures 7 and 8 show, is that this is not the case. If anything, ssp. *thyone* shows more contrast than the nominate subspecies, particularly in the male.
3. The pale areas of the underside are tinged with ochreous (pale brownish-yellow). Looking at Figure 7 as a representative photo, I do believe this to be the case; the white transverse band on the male underside, in particular, looks discoloured when compared with the nominate subspecies.
4. The forewing spots are smaller, with the lower spot occasionally absent. I have a few photos that show the spots on the underside, and I cannot see any marked difference with the nominate subspecies, as illustrated between Figure 4 and Figure 7.
5. It flies several weeks earlier. I visited the Great Orme on 25th June 2013 and saw over a dozen individuals in one small area, leading

me to believe that they had been on the wing for a few days. I subsequently reported the sightings to Butterfly Conservation and these were determined to be the earliest sightings that year (Butterfly Conservation, 2013), confirming the early emergence date.

ssp. *scota* (Verity, 1911)

Hipparchia semele ssp. *scota* is distributed around the coast of Scotland, with the exception of the western isles where ssp. *atlantica* is found. My two study sites were in Berwickshire in the Scottish Borders at St. Abbs Head and a site a few miles south, near Burnmouth. The best site for Grayling at St. Abbs seems to be at the western end of Mire Loch at Pettico Wick, above and below the road that snakes its way up to the lighthouse. At the site near Burnmouth the Grayling were frequently found nectaring on the red valerian that grows profusely on a south-facing slope. The butterfly appeared in good numbers at both sites and a good selection of photos was obtained.



Figure 9 - Loch Mire, St. Abbs Head

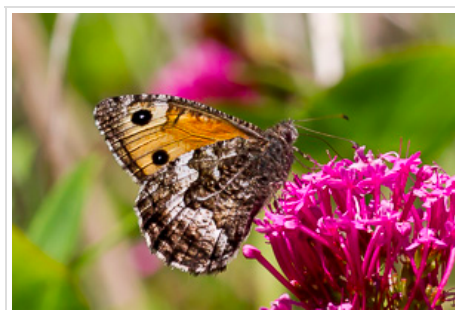


Figure 10 - Grayling ssp. *scota* male

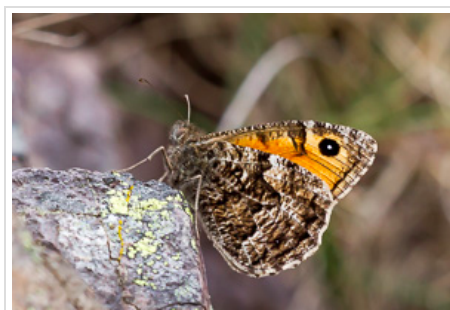


Figure 11 - Grayling ssp. *scota* female

Hipparchia semele ssp. *scota* (Verity, 1911)

Original (French)

Taille très réduite (envergure : 45-50 mill., au lieu de 48-60 mill.; dessins fauves plutôt étendus, mais très pâles, presque jaunes; revers des postérieures extrêmement obscurs et sans bande blanche transversale; la marbrure est d'un noir profond et extrêmement abondante, ce qui donne à l'aile un aspect complètement différent de celui du type.

Habitat. - Ecosse septentrionale. Types : coll. Vérité.

Translation

Size much reduced (wingspan: 45-50 mm, instead of 48-60 mm); fulvous markings rather extensive but very pale, almost yellow; underside of the hindwings extremely dark and lacking a white transverse band; the marbling is deep black and very copious, giving the wings a completely different look from that of the type.

Habitat - Northern Scotland. Types: Vérité collection.

The formal definition given above suggests the following differences with the nominate subspecies:

1. Slightly smaller size. As for ssp. *thyone*, I found it very difficult to compare the size of this subspecies with the nominate subspecies.
2. Upperside fulvous (reddish-yellow) markings extensive but very pale, almost yellow. As mentioned in the introduction, a comparison of the uppersides is not considered in this article.
3. Underside of the hindwings with extensive and very dark marbling. Dennis (1977) states that the white transverse band on the hindwing is not lacking, as its formal definition suggests, but is "variably expressed". In this regard, I have to agree; while the ground colour is undoubtedly much darker than the nominate subspecies, the white transverse band is most certainly visible, especially in the male.

ssp. *atlantica* (Harrison, 1946)

Hipparchia semele ssp. *atlantica* is found in the western isles of Scotland and the adjacent mainland, including the Outer Hebrides, South Eubides and the adjacent regions in Argyllshire, Mid Eubides, West Inverness-shire, North Eubides, West Ross and West Sutherland. My study site was Ardnamurchan Point in Lochaber, Highland which Riley (2007) confirms as a mainland site where the Grayling exhibits the characteristics of this subspecies. This was the most challenging of the subspecies for me to find, purely due to the effort required to get to the chosen site. A flight from Heathrow to Glasgow was then followed by 150 miles of driving, which included taking the Corran Ferry to cross over Loch Linnhe from Nether Lochaber to Ardgour, and 30 miles of driving on single-track road along the Ardnamurchan peninsula. A delay caused by a BT team laying down fibre optic cable meant that this drive took a little less than 5 hours - all to see a butterfly that flies in good numbers less than 2 miles from my house at Greenham Common! I hope the residents of the Ardnamurchan peninsula appreciate their new broadband connection.

My arrival at the site was greeted with intermittent sunshine which was trying its best to break through the ever-present haze. The rocky outcrop around the lighthouse at the end of the peninsula was an obvious location for the Grayling, but the first 5 minutes were rather worrying since I found no butterflies at all. I then managed to disturb what was clearly a Grayling, which landed a few metres in front of me. The relief at finding my quarry after such an effort was palpable and I spent a good 15 minutes photographing this one individual - a pristine male whose contrasting colours seemed to live up to the formal definition. I thought this might be the only specimen I would find in the haze and then, right on cue, the sun came out in all its glory and it would be no exaggeration to say that a dozen Grayling took to the air right there and then, demonstrating their characteristic V-shaped bobbing flight (when the adults float to the ground with their wings held at a fixed angle to the body). I spent the next few hours taking it all in and enjoying the experience - I must have seen well over 25 individual Graylings in total. A bonus was finding Meadow Brown ssp. *splendida* on the grassy slopes below the lighthouse - another of my targets for the trip.



Figure 12 - Ardnamurchan Point

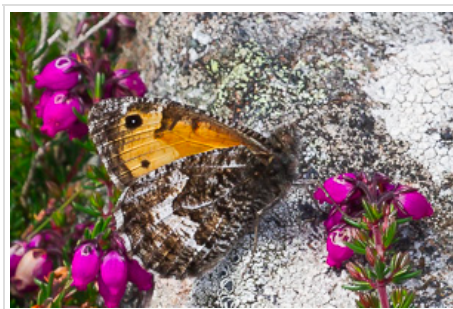


Figure 13 - Grayling ssp. *atlantica* male



Figure 14 - Grayling ssp. *atlantica* female

***Hipparchia semele* ssp. *atlantica* (Harrison, 1946)**

Well distributed on the sand dunes on Coll and Gunna. The form, which agrees racially with examples collected on Sandray, Pabbay, and Vatersay in the Outer Island and in Rhum and elsewhere in the Inner Hebrides, is separable from mainland examples by its brighter and more contrasty colouration. In particular, the under surface of the wings is blacker and the yellow portions more orange. This insect may be known as subsp. *atlantica*, the type, in my possession, originating in Vatersay.

The formal definition given above suggests the following differences with the nominate subspecies. Dennis (1977) says "It is certain that subspecies *atlantica* ... is simply an extension of the general description of subspecies *scota*".

1. In general it has a brighter appearance with more contrasting colours. I personally find this distinction subtle, but is presumably the result of the underside markings being darker than the nominate subspecies, giving a greater contrast.
2. The underside is blacker. The darkest areas on the underside do, indeed, appear to be made up of black scales, rather than the browns found in the nominate subspecies, especially in the female.
3. The yellow areas on the underside of the forewings are more orange. This appears to hold true. The orange areas are certainly more extensive than the nominate subspecies and of a more uniform orange colour which contributes to looking more orange overall.

ssp. *hibernica* (Howarth, 1971)

Hipparchia semele ssp. *hibernica* is found throughout Ireland, primarily in coastal areas, with the exception of the Burren in Clare and South-east Galway, where the ssp. *clarensis* is found. My study site was on the south coast at [Ballyteigue Burrow Nature Reserve](#) in County Wexford. The site itself is huge - a 5 mile long shingle spit running north-west from Kilmore Quay. I had learnt that the best location for Grayling was at least 3 miles from the nearest parking, so was prepared for a long walk. After a mile I came across some lush grass that had been fenced off, that was host to two Irish specialties - Meadow Brown ssp. *iernes* and Small Copper ssp. *hibernica*. However, I was here for the Grayling and a little further on came across a sheltered and rocky hollow where a very large butterfly flew right past me and landed on the ground - my first Grayling ssp. *hibernica*. This was a very large female and is the one shown in Figure 17. A few more Grayling were found in the same area and I spent 30 minutes here before moving on to the recommended area. On arriving, I was astounded by the number of Grayling - I must have counted well over 50 in just one area. It was fascinating watching the males guard their territories, flying up to intercept passing insects before returning to the same favoured spot. I was also lucky enough to find several mating pairs and managed to witness the characteristic courtship ritual several times.



Figure 15 - Ballyteigue Burrow Nature Reserve



Figure 16 - Grayling ssp. *hibernica* male

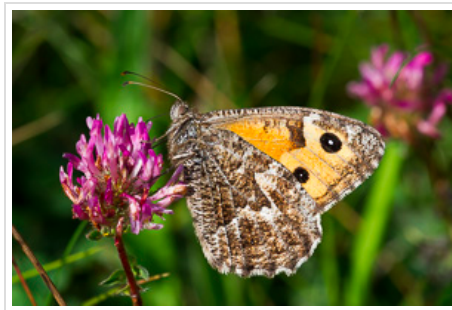


Figure 17 - Grayling ssp. *hibernica* female

Hipparchia semele ssp. *hibernica* (Howarth, 1971)

The males have the upperside ground colour a warm brown with the paler markings more rufous in tint compared with English examples (ssp. *anglorum* Verity [Verity (1924)]). On the underside the dark markings are more chocolate-brown and the bases of the hindwings are darker.

The females differ in the same manner as the males and on the upperside of the forewing often possess the reddish suffusion in spaces 2 and 3 which sometimes extends into the discoidal cell.

In several respects this newly described subspecies is rather similar to ssp. *scota* Verity, as one would expect, but it is generally a warmer brown and has the margins of the hindwings a deep unicolorous brown compared with the more variegated margins of *scota*, which have a sharply defined black inner edge.

Holotype ♂: Kerry, Killarney, P. Bouchard 64.69 (pl. 1 fig. 5).

Allotype ♀: Same data as holotype (pl. 1 fig. 6).

[Paratypes listed].

The formal definition given above suggests the following differences with the nominate subspecies. Dennis (1977) says "This subspecies is clearly similar to the Scottish race [ssp. *scota*], and only differs in its warmer brown tone and the unicoloured rather than variegated brown of the hindwing margins".

1. The upperside is a warmer brown, with pale markings that are reddish brown in tint and that of the female often has some reddish suffusion. As mentioned in the introduction, an analysis of the upperside is not considered in this article.
2. The underside has dark markings that are more chocolate-brown, with a darker basal area. This may be true (and is very subtle) in the male, but this characteristic does not seem to hold true in the female.
3. The underside of the hindwings has deep uniform brown margins. This characteristic definitely holds true, with the margins showing less variance in colour than the nominate subspecies.

ssp. clarensis (de Lattin, 1952)

Hipparchia semele ssp. *clarensis* is found in Ireland on the limestone pavements of the Burren in Clare and South-east Galway. My study site was near the small village of Boston in County Clare. The Burren is one of the strangest habitats I've ever visited. In places, limestone slabs extending to the horizon, giving the impression of a lunar landscape, rather than a habitat rich in endemic lifeforms. Surprisingly, for a region that faces the north Atlantic, the spaces between the slabs are rich in flora and it is this combination, bare rock intermingled with larval foodplants and nectar sources, that makes it ideal for Grayling. On previous visits I had successfully tracked down Dingy Skipper ssp. *baynesi* and Brimstone ssp. *gravesi* at the same site.

The Graylings here were too numerous to count but must have been present in their thousands - a butterfly would take to the air every few yards and this went on wherever I set foot. One characteristic is notable - even in flight, the adult butterfly is very pale in comparison with the other subspecies. All specimens had a "washed-out" look to look to them, even those that were newly emerged and whose wing fringes (one of the first features to succumb to old age) were completely intact. Of all of the subspecies I came into contact with, I would have to say that this is the one that consistently exhibited the most difference from the nominate subspecies, and other subspecies in general.



Figure 18 - The Burren



Figure 19 - Grayling ssp. clarensis male



Figure 20 - Grayling ssp. clarensis female

***Hipparchia semele* ssp. *clarensis* (de Lattin, 1952)**

A series of Irish specimens from Co. Clare is different at the first glance from all the other races of this species by reason of its very divergent males. Irish males and females on the whole are richer and redder brown on the upperside, and on the underside have the black lines deeper black, and look richer in general, than English ones. But in ssp. *clarensis* the ground colour of the upper side is relatively light with a quite apparent incline to grey, contrary to insects from England and Germany which show a ground colour of a more pronounced brown; the very pallid marginal band is so much dusted with dark scaling that it is very ill defined from the dark proximal part of the wing. The hindwings are in general altered in a similar way, only the marginal band is more distinctly defined and shows the brick-red triangular spots on its distal part strikingly small and pale. But the most apparent characteristic of this subspecies is the great reduction of the androconial spot on the forewings of the male, this spot being relatively large in the typical form, extending from the analis to the end of the cell as an oblique band. In the Irish specimens from Co. Clare this band is confined to a few remains in the region of the lower cell border, so that at first sight one gains the impression that the androconial spot is entirely lacking. The under side has also a paler ground colour and therefore appears very light, this impression being enhanced by the broad milky white distal edging of the postmedian line, which is only relatively little dusted with dark scales. The female is differentiated more or less the same as the male, yet the difference is not so sharp because the androconial difference is lacking; from its neighbouring English and Continental populations it can be best distinguished by its strikingly greyish ground

colour.

Holotype: 1 ♂, Co. Clare, 18.7.1926. L. A. E. Sabine coll.

Allotype: 1 ♀, Co. Clare, 19.7.1926. L. A. E. Sabine coll.

Paratypes: 1 ♂ 3 ♀♀, Co. Clare, 18/19.7.1926. L. A. E. Sabine coll.

All these specimens are contained in the collection Pfeiffer, München.

[In the Zoological Museum at Tring we have 2 ♂♂ and 2 ♀♀ from Co. Clare. The androconial streak, which Dr. de Lattin stresses, varies a good deal in size in both English and Irish males from other counties, but on the average it appears to be about the same in both. In the 2 Clare ♂♂ at Tring it is greyer and less conspicuous, but not actually smaller. These two ♂♂ are certainly greyer on the upper side than any others from the British Isles, and the under side is pale. The ♀♀ can be matched by aberrant examples from other places, but if all Clare examples are alike they cannot be matched by a series from elsewhere. I think Dr. de Lattin is dealing with a local race peculiar to the limestone Burren and associated with the pale ground there, which may be considered a subspecies. - E.A.C.]

The formal definition given above (which concludes with a comparative analysis against the collection at Tring by E.A.Cockayne) suggests the following differences with the nominate subspecies.

1. The upperside is relatively light, inclining to grey rather than brown, with ill-defined marginal bands. As mentioned previously, the upperside is not considered in this article.
2. The male upperside has a greatly reduced androconial spot on the forewings. Again, the upperside is not considered in this article.
3. The underside is paler, appearing very light with a greyish ground colour. This characteristic definitely holds true and is the most noticeable difference between any of the subspecies and the nominate subspecies.

In Conclusion

I have spoken with many individuals about my travels and observations and there is universal agreement that the differences between Grayling subspecies can be subtle at best. My conclusion is that, with a few notable exceptions as described above, the clear-cut separation of features implied in the formal descriptions does not easily translate to field observations. Aside from the natural variation that one would expect within a subspecies, it is also difficult to test many of the distinguishing features in a species that spends most of its time with its wings closed.

Despite this underwhelming conclusion, the journey that seeing all six species has taken me on, visiting some of the most spectacular regions of the British Isles, has more than compensated for the conclusions formed at the destination.

Subspecies Summary

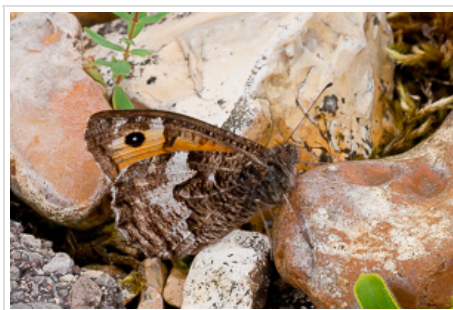


Figure 21 - Grayling ssp. *semele* male

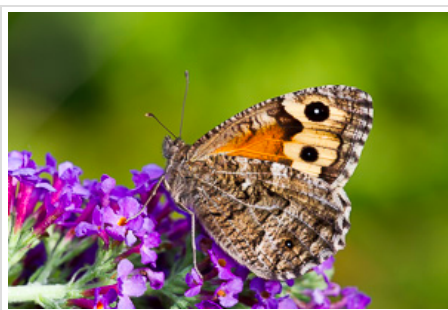


Figure 22 - Grayling ssp. *semele* female

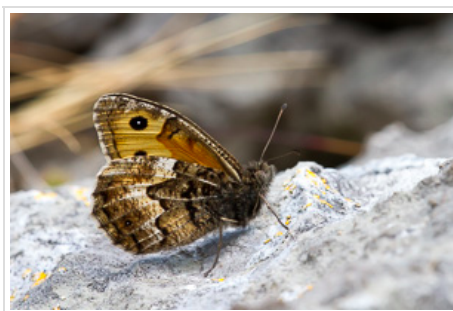


Figure 23 - Grayling ssp. *thyone* male



Figure 24 - Grayling ssp. *thyone* female



Figure 25 - Grayling ssp. *scota* male



Figure 26 - Grayling ssp. *scota* female



Figure 27 - Grayling ssp. *atlantica* male



Figure 28 - Grayling ssp. *atlantica* female



Figure 29 - Grayling ssp. *hibernica* male



Figure 30 - Grayling ssp. *hibernica* female



Figure 31 - Grayling ssp. *clarensis* male



Figure 32 - Grayling ssp. *clarensis* female

Acknowledgements

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