

BLUEBELLS

I wonder if you've had time to look at our Facebook page? We have over 3,000 members who like to share their photographs of wild flowers and in many cases ask for the identification of a plant.

The posts we see tend to reflect the wild flower seasons, so in late summer we see quite a few requests for the identification of Himalayan Balsam *Impatiens glandulifera* with the inevitable discussion about its invasiveness. Earlier in summer Common Ragwort *Jacobaea vulgaris* comes into flower and this often produces lively debates between horse owners who hate it because it can poison cattle, pigs and horses and entomologists who point out that it is native and an essential plant for the lifecycle of many insects.

However, in Spring, around April and early May confusion reigns. This is Bluebell flowering time and we need to try our best to distinguish Spanish Bluebells *Hyacinthoides hispanica*, Hybrid Bluebells *H. x massartiana* and Britain's favourite flower, the Bluebell *H. non-scripta* but it isn't at all straightforward.

The purpose of this article is to point out the morphological differences between them and to try to dispel some myths about characteristics you can use for identification.

NATIVE BLUEBELLS



It is usually fairly easy to distinguish pure native bluebells from the non-native species or the hybrid using well known characteristics.

Shape, colour and structure of the inflorescence

The most obvious character, even from a distance, is that the flowers are narrow, dark blue and the peduncle (stalk bearing the flowers) bends over at the top, so the flowers point down. All the florets are on one side. This one-sided drooping, inflorescence character is a strong one for identification purposes.

Leaves

Leaves are all narrow, 0.4 cm to 1.5 cm wide with most around 0.5 cm. There isn't as much variation in leaf width as in the Spanish Bluebell, but some hybrid bluebells can have a quite similar range of leaf widths.

Pollen colour

White or cream and the fully dehisced (all pollen dispersed) anther and filament (stalk holding up the anther) is also white/cream. The florets all usually hang down but occasionally some point upwards which is convenient for the photographer.

Habitat

They are most famous for growing in the shade of bluebell woods and will tolerate and even thrive in deep shade. At the seaside it is not uncommon to see swathes of native bluebells in the open. Quite often they are flowering in the midst of Bracken patches the fronds of which have not appeared at Bluebell flowering time. By the time the Bluebell flower is withering and setting seed the plant is in the shade of the Bracken fronds.

SPANISH BLUEBELLS



The confusion over characteristics of Spanish Bluebells which might grow in Britain and Ireland is so common that it is best to use examples which grow in Spain. The photographs here were taken in Andalucía, Southern Spain in areas where no *Hyacinthoides non-scripta* or the hybrid *H. x massartiana* have been recorded in the wild.

Shape, colour and structure of the inflorescence

When mature and fully out in the hot Spanish spring sunshine, the floret opens flat, or nearly flat, often with reflexed tepal tips (the petals and sepals look the same so are often known as tepals). At first the flower is more campanulate (bell-shaped) and will point down and this can cause it to be confused with hybrids. The flowers typically flower at right angles or slightly upwards to the flower stem and are usually a uniform mid-blue colour with little or no stripe on the outer tepals. The florets themselves are quite sparsely distributed around the erect flower stem in contrast to the usually denser flowering in hybrids.

Leaves

Leaves are often broader than in our native Bluebell but there are narrow leaves as well, contrary to some guides.

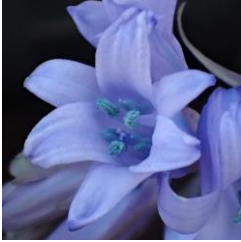
Pollen Colour

Pollen colour is uniformly dark blue but when an anther has lost all its pollen the empty sac is a whitish colour – again a source of confusion.

Habitat

Spanish Bluebells are found most frequently in open, often arid, sunny positions, in mountains, on rocks and cliff faces, typically in limestone country. Spanish Bluebells are not very common plants in southern Spain. You must hunt for them. There are no swathes of Spanish Bluebells similar to our native bluebell woods.

HYBRID BLUEBELLS



Shape, colour and structure of the inflorescence

The peduncle tends to be erect but can droop a little. Very occasionally a hybrid has so much native genetic material that it does nod like the native and is a much deeper blue. The majority of the flowers are mid-blue like the Spanish Bluebell but some have a stripe on the outside of the tepal which is usually absent in the true Spanish Bluebell. The inflorescence, even in those hybrids closest to the native, is rarely as one-sided as the true Bluebell but you must look carefully. The vast majority of the mid-blue hybrids flower in any direction around the erect stem and are clearly not one-sided like the native Bluebell.

Leaves

The leaf width is very variable because hybrids are formed at the native and the Spanish end of the hybrid spectrum. The widest leaves are found in hybrids, contrary to descriptions in some guides. In some garden hybrids these can be more than 4 cm wide which is four times wider than the typical width of a native Bluebell.

Pollen Colour

Very variable, contrary to some guides. The colours range from white, greyish, dull yellow, to blue and so is a fairly useless characteristic for distinguishing Hybrids from pure Spanish Bluebells. When the pollen sac (anther) is empty it is whitish. At a distance this can look as though the flower has white pollen when none is actually present.

Habitat

Hybrid Bluebells tolerate shady habitats but are very often found in the open on grass verges. This may be a character inherited from the true Spanish Bluebell, which is usually found in open, often arid, sunny positions. Most often found near or not far from human habitation but since hybrids have characteristics of both parents it can probably thrive in a variety of habitats. I have never seen hybrids in deep shade though.

Summary

1 Native Bluebells (*Hyacinthoides non-scripta*):

Despite the worry that our world-famous bluebell woods may be invaded and taken over by Spanish or Hybrid Bluebells, there isn't too much clear research evidence that this is happening in a big way although some places known to have once supported native Bluebells are now dominated by Hybrids. The British Isles and Ireland are still home to between 40% and 60% of the world population of this plant.

The drooping, one-side peduncle with dark blue, downward pointing flowers and narrow leaves is distinct enough to be able to identify this plant and distinguish it from other non-native bluebells.

2 Spanish Bluebells (*Hyacinthoides hispanica*): Contrary to what is indicated in many guides, it is likely that there are very few, pure Spanish Bluebells growing in the wild in Britain. The confusion probably originates from horticultural sources where Hybrid Bluebells bred for colour, size and vigour, are sold as Spanish Bluebells.

In hot sunshine Spanish Bluebell florets will open nearly flat, something only occasionally seen in hybrids. However, some plants showing this character have been photographed in Britain (see opposite).

3 Hybrid Bluebells (*Hyacinthoides x massartiana*):

These are hybrids between our common Bluebell and Spanish Bluebell. This simple hybrid has been further cultivated by the horticultural industry to produce pure pink varieties such as 'Queen of the Pinks', pure white ones such as 'White City' and blue ones such as 'Excelsior'. They tend to be erect, bigger and more floriferous than the F1 hybrid. These are often referred to as Garden Hybrids.

Hybrid Bluebells are usually fertile. This means they can reproduce amongst themselves or with any other nearby suitable bluebell species. Reproducing among themselves or backcrossing produces a new hybrid generation, the majority of which are like the hybrid parents. However, a few are more like the original pure Spanish Bluebell or the native Bluebell and this is where the identification confusion arises. Further back-crosses can result in hybrids which do look almost like one of the parents, but close examination tends to show characters which are not typical of either parent but not always.

Hybrid Bluebells tend to be found in their greatest numbers near human habitation. They will flourish in some shade but very rarely in deep shade and are perfectly at home in the open sunshine.

4 Triploid Bluebells

The existence of these has been postulated in the past but more recently they have been positively identified in published bluebell population studies. As yet we don't know enough about the characteristics of these to be able to describe their special features. If they are in the wild in reasonable numbers that will only serve to confuse our identification attempts further but it adds an interesting new chapter to ongoing studies of bluebell species in Britain and Ireland.

5 Separating Hybrid from other Bluebells

In most cases the erect, campanulate hybrid flowers look different enough from the true Spanish Bluebell to be able to distinguish them but when the second or third generation hybrids are close to the Spanish parent it becomes very tricky to be sure which is which. Researchers into bluebells tend to classify our British and Irish Bluebell populations as **native** and all the rest **non-native**, which includes Spanish Bluebell, Hybrid or Garden Bluebell and any other escaped and naturalised garden species such as Italian Bluebell (*H. italica*).

As field botanists we love to find characters in plants which are reproducible and quite distinct from others in the genus but sometimes, as in this case of bluebell hybrids versus Spanish bluebells, there are not always such clear clues to help identification. In difficult cases like this, a combination of features may lead you to a fairly certain, but never 100%, identification.

An example of evidence could be flowering time if, near you, you have observed that hybrids generally flower earlier than natives. In my part of the world in West Cheshire, hybrids are often in flower two or three weeks before native Bluebells. This could be used to help separate hybrids with many native genes from pure natives but it isn't foolproof.

Another example could be clues from the bluebells flowering nearby. A Spanish looking bluebell flowering in amongst a swarm of normal hybrids at the same flowering time as hybrids is likely to be hybrid even if it has a strong Spanish accent. But again, this is indicative but not definitive for identification.

Separating hybrids from the rest will always be a problem with fertile bluebells but with careful observation it can be done in most cases.

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