

A beginner's vegetative guide to orchids of the British Isles

by Mike Waller

Foreword and Acknowledgements

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Guide to UK orchid genera

Wild orchids have been my primary focus for 12 years. In 2004 I made my first orchid trip to Anglesey which cemented a passion for the group. I scoured the fens, heaths and sand dunes clutching a black and white copy of D.M. Turner Ettlenger's landmark *British and Irish Orchids*, continually agonising over which marsh orchid I was looking at. Since then, I have criss-crossed the country in search of all our native species, subspecies, variants and hybrids. Gradually I've developed a fascination with their pollination mechanisms, evolutionary strategies and highly specialised ecology. Unlike those before me, amateur naturalists have never had the use of online forums to share ideas. Social media has rapidly advanced our ability to exchange information and it was this aspect that allowed me to gain a broad overview of where people struggled with orchid identification. Typically discussions revolved around identification of difficult orchid species but especially individuals that were not yet in flower. Frequently I observed that above all else, people found the identification of orchids on vegetative features alone to be very difficult. This was compounded though working on the Orchid Observers citizen science project at the Natural History Museum. As part of the project, members of the natural history community were encouraged to upload their own images of 26 selected orchid species which were then repeatedly identified by their peers. Time and time again, contributors requested the production of a vegetative guide to compliment the flowering guide currently available. Then came the end of my time as a trainee on the Identification Trainers for the Future HLF project. The opportunity presented itself to develop this guide for my final project as a long-lasting contribution to the natural history community.



Throughout the conception and development of this guide, I have drawn on the advice, expertise and support of a whole range of people to whom I am hugely grateful. Firstly I would like to thank my project manager, Steph West, for her restless dedication in making this project a possibility and actually employing me in the first place! Further afield in the Natural History Museum (NHM); John Tweddle, Chris Raper and especially Fred Rumsey, Kath Castillo and Mark Spencer have provided endless guidance and help. Thank you also to the NHM design team for putting the entire thing together and making it look presentable! The vast majority of the photographs were kindly provided to me by many fantastic people from the natural history community. To these people I give my special thanks for lavishly enriching this guide: Brian Laney, David Steere, Mark Sewell, Roger Powley, Julia Chandler, Rich Mielcarek, Jean Claessens, Owen Leyshon, Brian Jones, Tad Lapper, Alan Smith, Linden Hawthorne, Gerry Trask, Loch Allen Basin (David & Francis Farrell), Mick Lacey and Elaine Hagget. Much of the historical information has been taken from Simon Harrap's *Orchids of Britain and Ireland*. Likewise, where I was unable to take my own morphological measurements, John Poland and Eric Clement's superb *The Vegetative Key to the British Flora* was utilised. To all these authors – thank you kindly for your excellent publications. A very special thanks to my good friend Sean Cole, AKA 'Mr Orchid', for his continual support and insight before and during this project. But finally, I need to thank my mother, Jenny Waller. She is the quiet driving force (quite literally) behind not just this guide but everything I have managed to achieve to date. Her relentless patience and support is difficult to describe in full and she has sacrificed so much of her time to further my interests and future that I will be eternally grateful. Thanks mom!



Background

Orchids represent one of the most diverse, beautiful and intricately evolved flowering plant groups on the planet with an estimated 25,000 species worldwide. The vast majority of these are epiphytes, growing on the limbs of tropical trees. However, some species are also terrestrial meaning they live their lives on the ground. All native orchids found in the British Isles are terrestrial.

What is an orchid?

Like any family, there are specific traits that identify orchids. Firstly, orchids are perennials meaning they flower each year usually at a specific time – in Britain this is always the spring and summer. They have fleshy roots or tubers similar to a bulb with unstalked and undivided leaves. A large number of our British species also form a leaf rosette which is a circular arrangement of leaves that lies close or flat to the ground. Some species, such as the Bee orchid (*Ophrys apifera*), grow new leaves during the autumn which sit above ground through the winter whereas others only appear above ground during the spring shortly before flowering such as the Small White orchid (*Pseudorchis albida*).

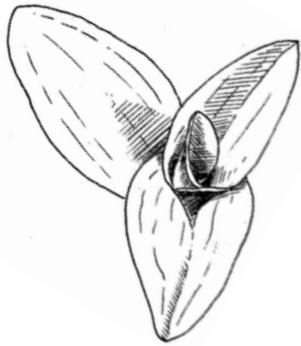
The flowers of an orchid are carried in a spike with each symmetrical flower consisting of three sepals and three petals. One petal is usually highly modified in form, size and colour and this is called the labellum or lip.

Orchids in the British Isles

Across our islands, we have recorded 56 species of orchid in a vast array of different habitats from mountain peat bogs to coppice woodland to industrial waste ground. This diversity is in part attributable to our wide latitudinal range meaning we host both Mediterranean and sub-arctic species. Most are usually highly specialised, requiring very specific conditions in fragile habitats. It is no surprise then that many of our species are also very rare and are specially protected by law. The switch from small scale farming to intensive agriculture and the felling of ancient woodlands over the last century have been major factors in overall population declines although over collection has caused the near extinction of some, particularly the stunning Lady's-slipper orchid (*Cypripedium calceolus*).

About this guide

This guide is designed to aid anyone in the process of identifying orchids when they are not in flower. When they are not flowering, orchids can be observed in a range of different states which are listed as follows:



Rosette – Most British orchids produce a rosette (only the genus *Epipactis* and *Cephalanthera* do not). See the 'What is an orchid' section for a definition of a rosette. Those of Mediterranean origin (i.e. species with their centre of distribution in the Mediterranean basin) produce a rosette after flowering which appears above ground during the autumn and 'over-winters'. The leaves may then begin to die-back and wither as the plant comes into flower. In the case of Autumn Lady's-tresses (*Spiranthes spiralis*), the leaves disappear entirely before flowering whereas with species such as the Frog orchid (*Dactylorhiza viridis*), they may only yellow slightly. Other species only form a rosette a couple of months before flowering in the spring time such as the Fragrant orchids (*Gymnadenia* sp.).



Non-flowering/'blind' – In some years an orchid may, for whatever reason, decide not to flower and instead rests as a rosette or short stem with several leaves – this latter state is common amongst the genus *Epipactis* and *Cephalanthera* where a significant proportion of a colony may be found in this condition.



Immature – Occasionally young seedlings can be found amongst a population of mature orchid plants. These are always much smaller with fewer, often narrower leaves. Accurate identification of such young plants on physical features alone can be difficult. One should (where possible) always examine mature plants in the immediate vicinity - the probability is that the nearest mature orchids could be of the same species



Preparing to flower/in bud – Orchids can be found in this state where they are very close to flowering but the buds have yet to open or the flowering spike hasn't yet fully extended. Helpful identification features such as the size, colour and shape of the buds, bracts and sheathing leaves can then be used in conjunction with leaf features and habitat to achieve an accurate identification.

Will it flower?

Judging whether an orchid will produce a flowering spike can be tricky. Orchids that will flower during the forth-coming season will typically have a small leaf or several small leaves unfurling from the centre of the rosette/top of the stem. These will continue to unfurl and extend until the flowering spike begins to ascend from this central point. Non-flowering plants however lack these small unfurling leaves and simply remain static with a reduced number of leaves. See below.

Due to variation in shape, size and colour even within the same species, relying on morphological features alone to make an accurate identification is risky and the observer should always take note of other features such as:

- **Habitat** – woodland, grassland, marsh etc.?
- **Distribution** – common across the British Isles or restricted?
- **Geology/soil type** – calcareous or acid soils?
- **Time of year** – early spring or late summer?

For example, Heath Spotted orchid (*Dactylorhiza maculata*) and Common Spotted orchid (*Dactylorhiza fuchsii*) are virtually identical in a vegetative state but often show preferences for different soil types and habitats.



A mature Bee orchid (*Ophrys apifera*) rosette in December with small leaves visible at the centre that will continue to unfurl until the flowering spike is produced.



A non-flowering Bee orchid plant with no small leaves unfurling at the centre of the rosette. This plant will remain in this condition throughout the flowering period (June - July).



Limitations

Extremely rare, extinct or highly restricted range	Impossible to confidently separate from related species on vegetative features alone	Do not produce leaves
Cypripedium calceolus	Epipactis dunensis	Neottia nidus-avis
Cephalanthera rubra	Epipactis leptochila	Epipogium aphyllum
Epipactis sancta	Epipactis phyllanthes	Corallorhiza trifida
Epipogium aphyllum	Dactylorhiza species (treated together)	
Spiranthes aestivalis		
Anacamptis laxiflora		
Neotinea maculata		
Orchis simia		
Orchis militaris		
Serapias parviflora		
Ophrys fuciflora		

Accuracy

Attempts have been made to be as accurate as possible in terms of specific identification features for each species though there may be 'hidden' features that I have failed to include. A guide of this type has not been produced before and ideally research on all species would be carried out for several years to assess variation and the strength of different diagnostic features.

I would welcome any suggestions and advice to 03wallerm@gmail.com

Identification pitfalls

There are a whole range of other plants found in orchid habitats that also produce rosettes which may be confused for orchids. It is important to bear this in mind when identifying a potential specimen. Rosettes of the Plantain (*Plantago*) genus, Centaurium genus and Lily family (*Liliaceae*) can bear a striking resemblance to orchid rosettes so being familiar with their appearance can save a lot of confusion.



An example of Common Century (*Centaurium erythraea*). Note that the leaves are paired alternately, sitting exactly opposite each other and the large white veins are prominent.



Two freshly emerged Bluebell (*Hyacinthoides non-scripta*) rosettes. At this stage, Bluebells can look extremely similar to orchid rosettes but the veins are very indistinct and the leaves themselves feel weak and floppy with a bright green colouring. Often, Bluebells will also appear in tight stands and tufts of many plants.



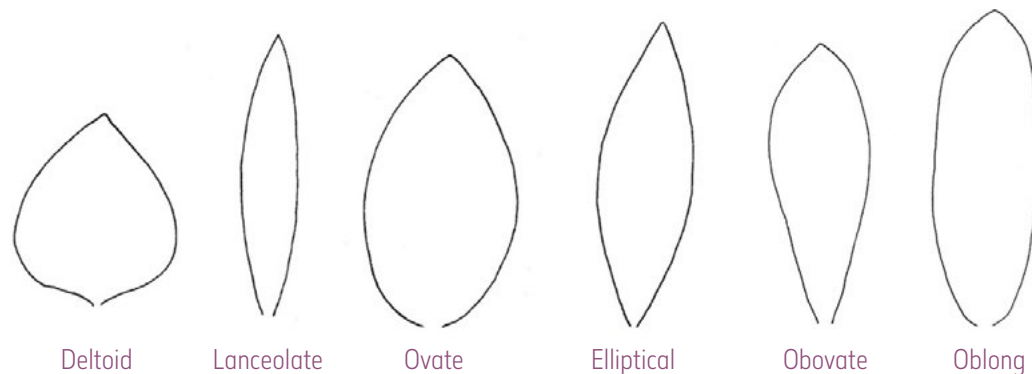
Newly emerged species of cultivated Tulips (*Tulipa*) can look very similar to young orchid leaves. However, these are often found in planted flower beds and are thick and rubbery.



Species of Plantain, in this case Hoary Plantain (*Plantago media*), are often found in grasslands alongside orchids. Note that the leaves are very thickly ribbed and covered in coarse white hairs.

Leaf shapes

Plant leaves come in vast array of different shapes all of which have been given specific names to describe them. British orchid leaves generally do not vary much between species and usually sit somewhere between lanceolate and ovate but it is worth referring to the shapes and their names (shown below) as they are used in the species text.



Note: Illustrations are NOT to scale. Please take special care to assess the size of the orchid rosette being identified and compare this to the measurements provided on each species page. There is often considerable variation in size between species.

Cephalanthera (3 species – 2 species treated here) ‘Helleborines’

- Does not form a basal rosette – rises from the ground as spike with leaves along the stem as the plant matures
- Buds large (2cm long) white, creamy white or reddish-pink
- In and around woods



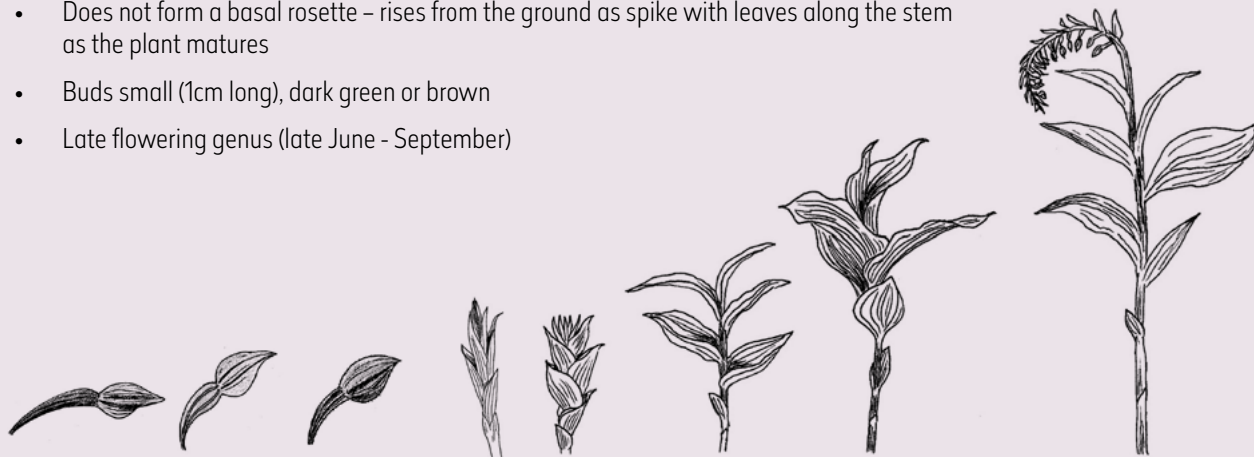
Neottia (3 species – 2 species treated here) ‘Twayblades’

- Two paired leaves either at ground level or one third of the way up the stem
- Weakly net-veined leaves



Epipactis (8 species – 5 species treated here) ‘Helleborines’

- Does not form a basal rosette – rises from the ground as spike with leaves along the stem as the plant matures
- Buds small (1cm long), dark green or brown
- Late flowering genus (late June - September)



Liparis (1 species)

- Two paired leaves always held erect from the ground
- Leaves folded inwards to create shallow trough
- Only found in South Wales dune slacks and East Anglian fens



Hammarbya (1 species)

- Leaves tiny (typically 1cm long)
- Leaves ovate in shape
- Only found in acid bogs



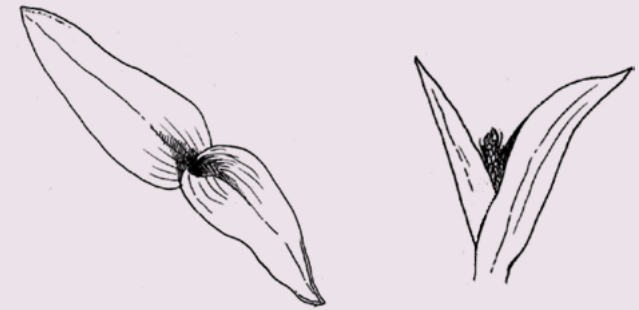
Goodyera (1 species) 'Lady's-tresses'

- Leaves with many pale net veins
- Often many rosettes clustered together
- Found in pine woods



Herminium (1 species)

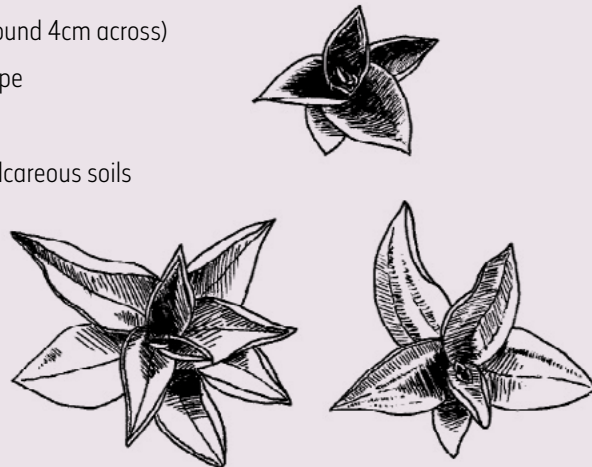
- Very small rosette with two opposite leaves, sometimes a 3rd leaf is present
- Leaves lanceolate in shape
- Always on very short turf on calcareous soils in southern England



Spiranthes (3 species – 2 treated here) 'Lady's-tresses'

Autumn Lady's-tresses

- Very small compact rosette (around 4cm across)
- Leaves ovate to elliptical in shape
- Rosette very flat to the ground
- Always on very short turf on calcareous soils
- Rosette forms in the autumn



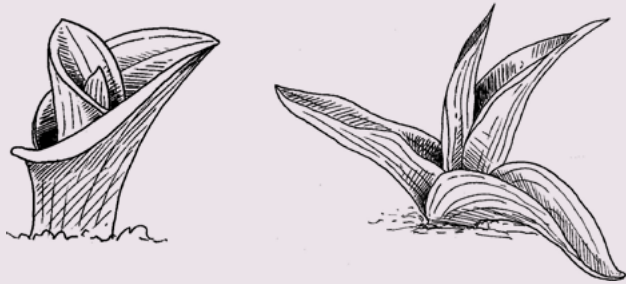
Irish Lady's-tresses

- Rosette of very long thin leaves
- Beside lochs and on boggy moorland in Ireland and western Scotland
- Leaves very erect
- Produces tiny overwintering shoot



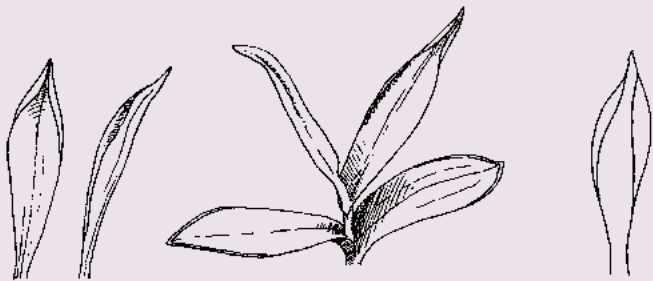
Orchis (5 species – 3 treated here) ‘Manikin orchids’

- Leaves shiny and lower leaves blunt-ended
- Majority of the leaves are at the base of the plant when close to flowering
- One species, *O. mascula*, usually has spotted leaves
- Flowering spike tightly sheathed by leaves when in bud



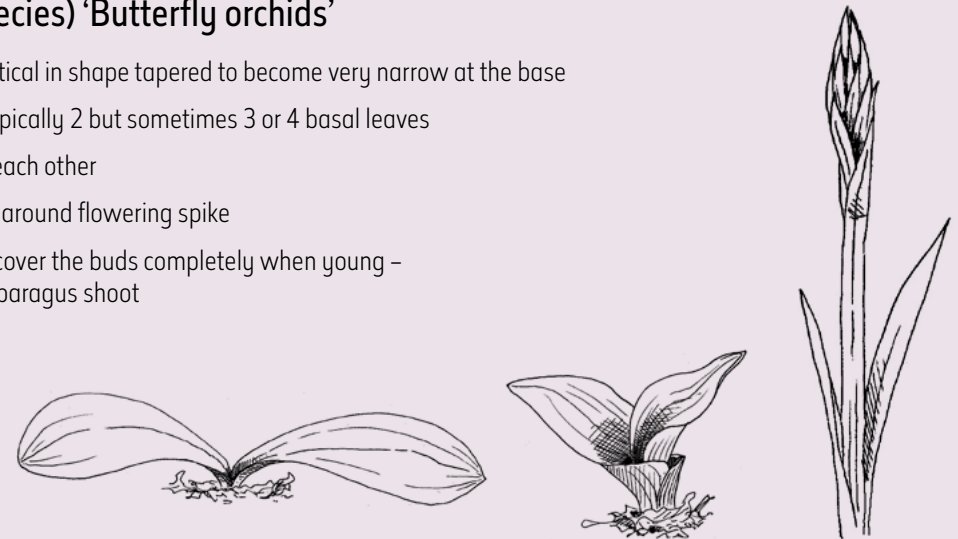
Pseudorchis (1 species)

- Basal leaves ovate, upper leaves lanceolate in shape and erect
- Tips of upper leaves keeled and appear ‘pinched’
- Only in the north and uplands



Platanthera (2 species) ‘Butterfly orchids’

- Leaves ovate or elliptical in shape tapered to become very narrow at the base
- Rosette formed of typically 2 but sometimes 3 or 4 basal leaves
- Leaves sit opposite each other
- No sheathing leaves around flowering spike
- Bracts are long and cover the buds completely when young – very similar to an asparagus shoot



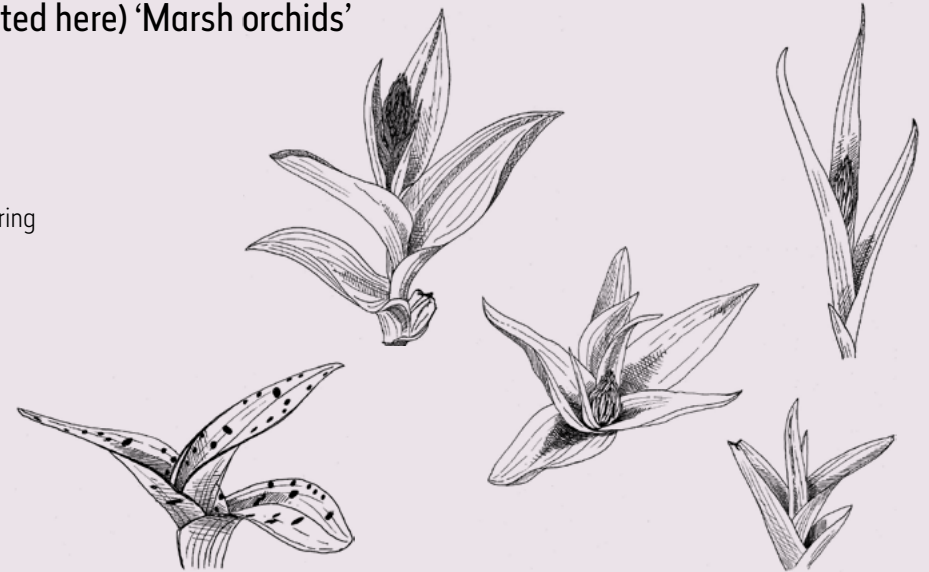
Gymnadenia (3 species) 'Fragrant orchids'

- Leaves long, thin and pointed
- Leaves folded inwards along their length
- Leaves held erect and arcing outwards as a rosette



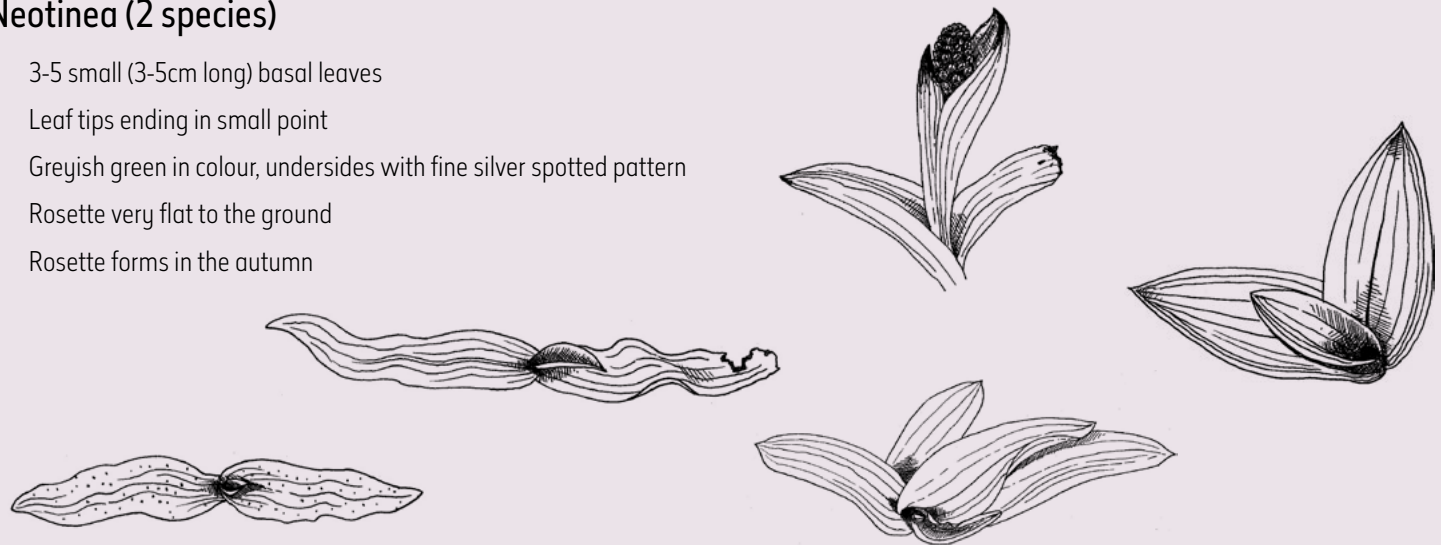
Dactylorhiza (8 species – 6 species treated here) 'Marsh orchids'

- Sheathing leaves form a tube around the stem
- Rosette not flat to the ground, partially erect
- Leaves roughly oppositely arranged
- Leaves spaced along the stem when close to flowering
- Usually on grasslands, especially wet areas
- Bracts are long and cover the buds completely when young – very similar to an asparagus shoot
- All species can have spotted leaves as do hybrids between them and other species in the genus



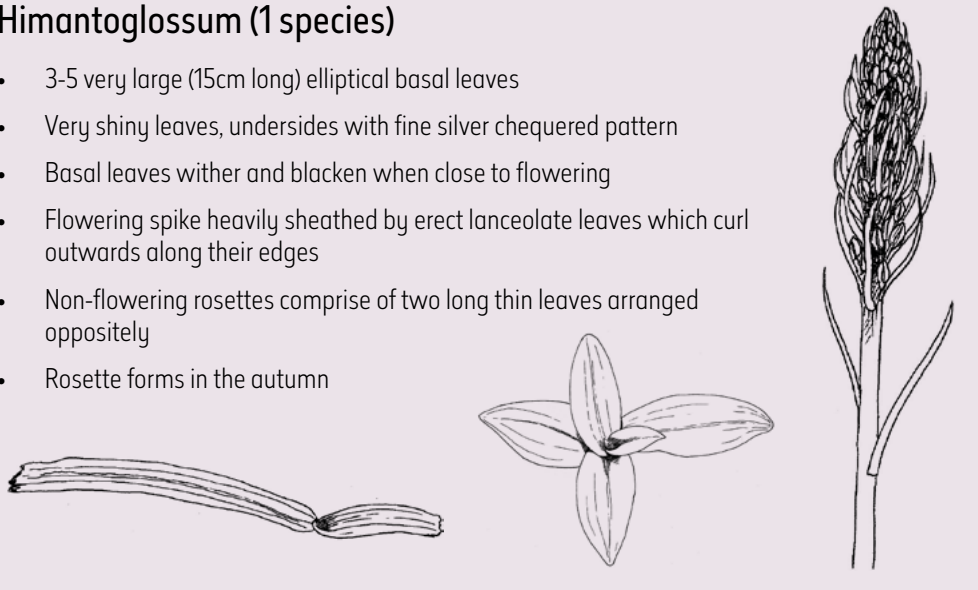
Neotinea (2 species)

- 3-5 small (3-5cm long) basal leaves
- Leaf tips ending in small point
- Greyish green in colour, undersides with fine silver spotted pattern
- Rosette very flat to the ground
- Rosette forms in the autumn



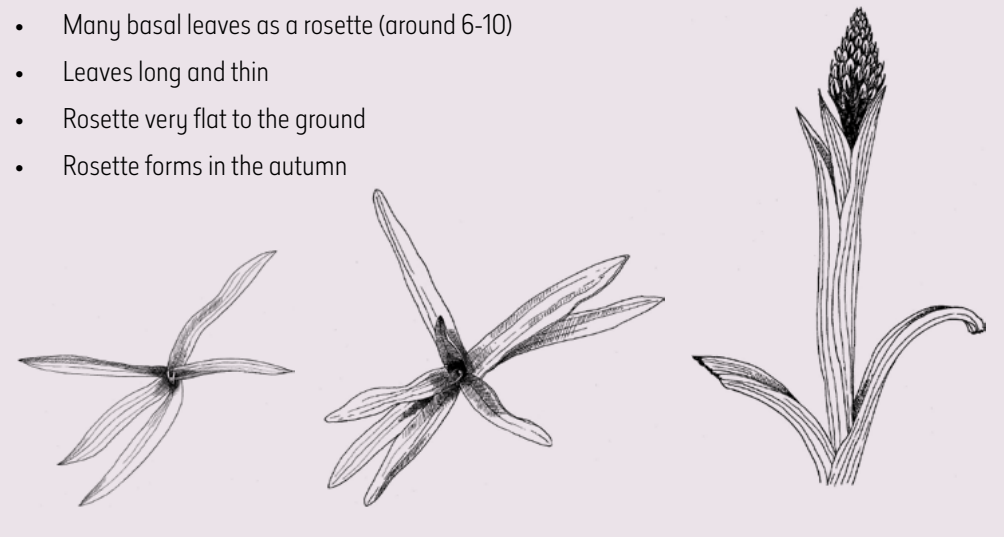
Himantoglossum (1 species)

- 3-5 very large (15cm long) elliptical basal leaves
- Very shiny leaves, undersides with fine silver chequered pattern
- Basal leaves wither and blacken when close to flowering
- Flowering spike heavily sheathed by erect lanceolate leaves which curl outwards along their edges
- Non-flowering rosettes comprise of two long thin leaves arranged oppositely
- Rosette forms in the autumn



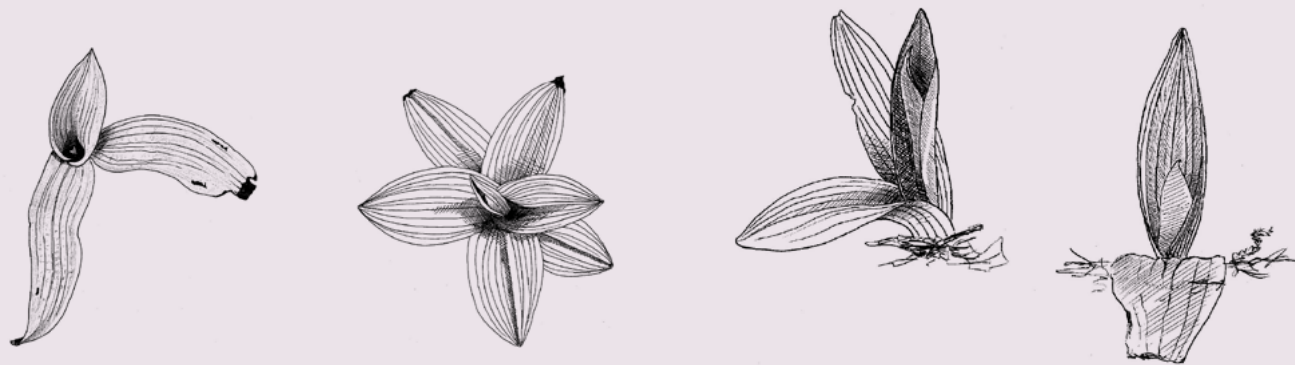
Anacamptis (3 species – 2 species treated here)

- Many basal leaves as a rosette (around 6-10)
- Leaves long and thin
- Rosette very flat to the ground
- Rosette forms in the autumn



Ophrys (4 species – 3 species treated here) 'Bee orchids'

- Leaves greyish green with 'frosty' silvery markings on the upper surface
- Rosette typically very flat to the ground, although in *O. insectifera* the centre-most leaf is held erect like a small pointed hood
- Rosette forms in the autumn



These are species that appear from the ground as a spike of tightly folded clasping leaves within which the fully-formed flowering spike is held. As the spike extends, the leaves unfurl along the length of the stem.

Epipactis

8 species of *Epipactis* can be found in Britain. However, confident identification of Narrow-lipped (*E. leptochila*), Dune (*E. dunensis*) and Green-flowered (*E. phyllanthes*) helleborines is often very difficult due to their similarity to the far commoner Broad-leaved helleborine (*E. helleborine*) in both appearance and habitat choice.

One species, the Lindisfarne helleborine (*E. sancta*), despite looking identical to Dune helleborine when not in flower, is endemic to Lindisfarne (Holy Island) in Northumberland so identification can be made purely based on its highly restricted range.

Key features

- Leaves often papery and rough to touch due to fine covering of hairs
- When in bud, the flowering spike is **always** held arched over to one side
- A late flowering genus (July-September) thus buds will only be visible from late June onwards
- Buds small, usually no more than 1cm long with long bracts



Development of *Epipactis* from first appearance above ground through to budding. Note the flowering spike is arched over to one side. Several species are depicted here to show variation.

Cephalanthera

3 species of *Cephalanthera* can be found in Britain. One species, the Red helleborine (*C. rubra*), is extremely rare and classed as Critically Endangered with only 3 sites left in southern England. However, the species was once far more widespread in the Cotswolds where one should always keep an eye out just in case.

Key features

- Leaves always ovate-lanceolate to lanceolate in shape
- All 3 species are tied to woodlands or at least partial shade at their edges
- Buds are large, often up to 2cm long – always creamy white (White helleborine - *C. damasonium* and Sword-leaved helleborine - *C. longifolia*) or rich purplish-pink (Red helleborine - *C. rubra*)
- Generally an early flowering genus with the two commonest species (*C. damasonium* and *C. longifolia*) appearing above ground in April and flowering in late May – mid June
- Flowering spike always held in an upright position



Development of *Cephalanthera* from first appearance above ground to budding. Note that even at the earliest appearance above ground, buds are often just visible between the clasping leaves. The flowering spike remains upright throughout. Two species are depicted here to show variation.



Bud size difference between *Cephalanthera* (top) and *Epipactis* (bottom).

Leaves

As the common name suggests, the leaves are long and narrow with strong longitudinal veins. As the plant matures, the leaves may fold in half along their length.

Length: 7-20cm

Width: 1-2.5cm

Shape: Lanceolate. They become narrower and more pointed further up the stem

Arrangement: Opposite or spirally up the length of the stem

Number: 6-20

Colour: Grass-green

Texture: Matt

Habitat

Essentially a woodland species but only thrives in glades and woodland edges where light levels are suitably high enough. In the south, the species is found on chalk and limestone soils in and around Beech woodlands but in the midlands, west and north of the British Isles it can be found on slightly more acidic soils under oak and hazel.

Range

Scattered across the length of the British Isles with strongholds in Hampshire and Argyll. In England there are small populations in the south, two in the midlands (Wyre Forest and Warwickshire) and two in the north (Cumbria). In Wales it is restricted to rocky oak woodlands in the north and west. In Scotland there are several colonies in the Atlantic hazel woodlands of the Inner Hebrides and the west coast with one or two colonies in the Highlands. In Ireland it is very local and scattered with a cluster of colonies in the west.

Sword-leaved Helleborine has been lost from 74% of its range in Britain and 77.5% in Ireland and is now classed as Nationally Scarce.

Images:

1. Non-flowering plant with clear veins along the leaves (MW)
2. A freshly emerged plant, appearing from the ground as a small spike (MW)
3. A large non-flowering plant with distinctive long thin leaves (MW)
4. The buds are visible some time before flowering (MW)
5. A plant in bud (MW)



Leaves

The edges are wavy ending in a point. As the plant gains height and extends, the leaves often become widely spaced along the stem. The undersides are strongly veined, particularly either side of the mid-rib.

Length: 4-12cm

Width: 2-5cm

Shape: Broadly lanceolate to ovate

Arrangement: Roughly opposite up the length of the stem grading into bracts

Number: 3-8

Colour: Dark bluish-green

Texture: Matt

Habitat

Found on chalk and limestone in southern Beech woodlands. Mostly in deep shade on bare woodland floors amongst leaf litter but can stray onto woodland edges, scrub and grassland.

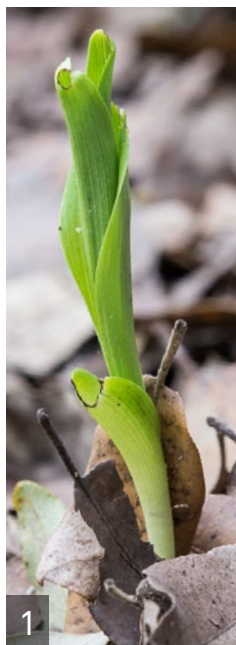
Range

Strictly southern in its distribution with strongholds in the Chiltern and Cotswold Hills and North and South Downs.

White Helleborine has been lost from 41.5% of its historical range.

Images

1. White Helleborine is most fond of Beech woodlands (RP)
2. Just beginning to unfurl (MS)
3. Like all *Cephalanthera* and *Epipactis*, White Helleborine appears from the ground as a spike (DS)
4. The leaves are typically well spaced and greyish green (JC)
5. The large white buds are just visible (MW)



Leaves

Tiny paired leaves that look very similar to young Bilberry plants when not flowering. The common name alludes to the number of leaves as 'tway-blade' means 'two-leaves' in old English. The specific name *cordata* similarly alludes to the shape of the leaves which are roughly cordate (but technically deltoid). Rarely, plants are found with a third leaf which is given the varietal name *trifoliata*. Unusually for British orchids, the leaves are weakly net-veined (reticulate).

Length: 1-3.5cm

Width: 1-3cm

Shape: Deltoid (roughly heart-shaped). The tip ends in a small hard projection called a mucro.

Arrangement: Opposite. If in bud/flowering, they are positioned one third of the way up the stem.

Number: 2

Colour: Dark to pale green

Texture: Shiny

Habitat

Most commonly found on wet moorlands growing on beds of Sphagnum moss underneath mature Heather and rushes. In Scotland, it also grows amongst mosses in mature Scots Pine, Alder, Willow and Birch woodlands.

Range

A distinctly northern boreal species that is commonest in Scotland, Northern England, North Wales and Northern Ireland. There are relict outlying populations in southern Ireland and on Exmoor (Somerset/Devon) in southern England.

Lesser Twayblade has been lost from 44.5% of its historical range in Britain and 50% in Ireland.

Image

1. The tiny paired leaves amongst the mosses are distinctive. Note they are deltoid in shape (MW)



Leaves

As with the previous closely related species, the common name is derived from the old English for 'two-leaves' and the specific name (*ovata*) refers to the leaf shape. Rarely plants are found with 3 leaves and this is given the variety name *trifoliata*. There are 3 to 5 strong veins running the length of the upper surface which translate as raised ridges on the lower surface.

Length: 5-20cm

Width: 5-15cm

Shape: Ovate to elliptical

Arrangement: Opposite. If in bud/flowering, they are positioned one third of the way up the stem.

Number: 2 (basal leaves). 1-3 tiny bract-like leaves clasp the stem between the basal leaves and the buds.

Colour: Dark green to pale lime green depending on habitat/light conditions.

Texture: Dull shiny

Habitat

Occupies a very diverse range of habitats including woodland, scrub, grassland, dunes, road verges, fens and hedgerows, primarily in the lowlands. Most commonly on calcareous soils but will tolerate mildly acidic soils too.

Range

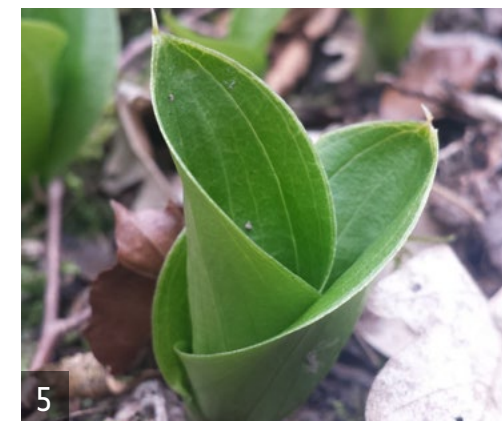
One of the commonest orchid species, found throughout the British Isles except for parts of coastal Ireland, the Scottish Highlands and the Shetlands.

Despite this, Common Twayblade has been lost from 30% of its historical range.

Images:

1. Common Twayblade can occur in dense colonies
2. The buds are green and tightly-packed with minute bracts
3. The flowering spike is always clearly visible due to the lack of sheathing leaves
4. Rarely plants are found with 3 leaves and are named var. *trifoliata*
5. A freshly unfurling plant in spring. Note the small projections on the tips of the leaves
6. The leaf veins are very distinct

All Michael Waller



Leaves

As with other members of the *Epipactis* genus, the leaves become narrower further up the stem eventually grading into bracts. They will also often fold in on themselves down the middle. Always exhibits 4 to 5 strong longitudinal veins which translate as ridges on the underside.

Length: 4-15cm

Width: 1.5-4cm

Shape: The lowest leaf is small and ovate, forming a cup-like sheath around the stem. The rest of the leaves above are roughly lanceolate to elliptical with the uppermost being acutely pointed.

Arrangement: Spirally, often held erect.

Number: 3-8 but usually 5 or 6

Colour: Grass-green. The bases of the lowest leaves may be washed purple.

Texture: Matt. Papery to touch

Habitat

A species of marshy areas with calcium-rich groundwater, especially dune slacks and fens. In duneland sites such as those on the Lancashire, Welsh and Northumberland coasts, it can occur in vast numbers of many thousands where it is squat in stature. More rarely found in seasonally flooded watery meadows and, in a few places, on open chalk downland (Kent, Wiltshire, Surrey and Bedfordshire).

Range

Widespread across England, Wales and Ireland but generally scarce with large swathes of countryside completely devoid of this species such as Mid-Wales, the Midlands, southern Ireland, Cumbria and Devon. It is very rare in Scotland with only a handful of sites on the west coast.

Marsh Helleborine has been lost from 60% of its historical range in Britain and 39% in Ireland.

Images:

1. A plant preparing to flower. Note the leaves are heavily veined with ridges on the undersides (JC)
2. This species often appears in large numbers. Note the classic *Epipactis* flower spike arching to one side (MW) Like all *Cephalanthera* and *Epipactis*, White Helleborine appears from the ground as a spike (DS)
3. The leaves are long, erect and fold along their length making them trough-shaped (RP)



Leaves

As is typical for this genus, the leaves become narrower further up the stem and fold inwards or at least the edges curve inwards to create a shallow trough. Always exhibits strong longitudinal veins.

Length: 3-10cm

Width: 1.5-5cm

Shape: The lowest leaf is usually ovate with the 2-4 leaves above elliptical in shape with very pointed tips. The uppermost leaves are typically very thin and lanceolate and may arc outwards from the stem. They are always longer than wide (not always the case with Broad-leaved Helleborine).

Arrangement: Roughly opposite, always held stiffly erect at around 30°

Number: 4-10, usually 6-8

Colour: Dark green with the undersides, tips, edges and bases variably washed purple. The stem is often wine-coloured to dark green.

Texture: Matt. Rough and papery to touch

Habitat

A limestone specialist and particularly pavements where it can typically be found protruding from cracks and fissures (grykes) in huge limestone blocks. It can also be found on grassland, scree slopes, cliff ledges, quarries and light woodlands that are underlain by limestone.

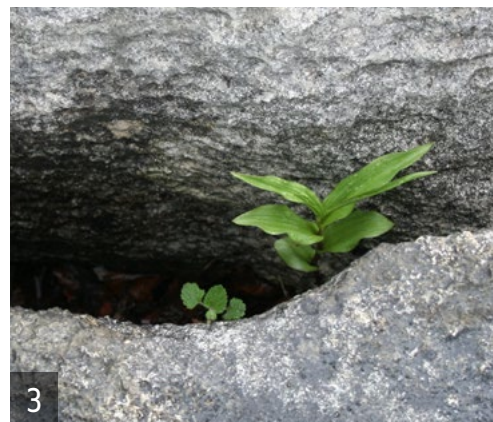
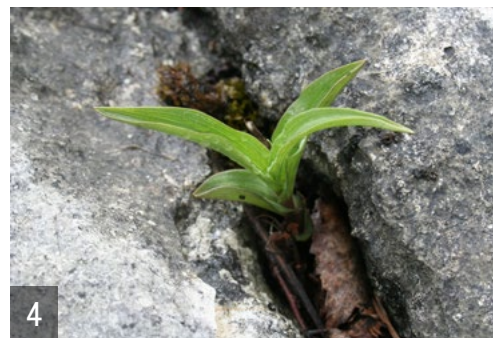
Range

Very scattered and classed as nationally scarce. In England there are colonies in the Peak District, the Yorkshire Dales, west Lancashire, southern Lake District, the Pennines and County Durham. In Wales it is only found in the north on and around the Great Orme. The strongholds in Scotland are the Isle of Skye and the north-west coast with outliers in the eastern Highlands. In Ireland it is confined to the Burren in County Clare and County Galway.

In Britain, Dark-red Helleborine has been lost from 30% of its historical range and 38% in Ireland.

Images:

1. (MW)
2. The leaves are held stiffly erect and pointed. The stem is often reddish (ML)
3. A tiny non-flowering plant. The leaves are always held oppositely (MW)
4. A tiny non-flowering plant
5. A plant in bud with purplish washed leaves (MW)
6. This species is only found in limestone areas often growing through cracks between limestone slabs (MW)



Leaves

Very variable depending on the stature of the plant which is in turn affected by environmental conditions such as habitat openness and shadiness. The leaves always exhibit obvious longitudinal veins.

Length: 3-20cm

Width: 2-10cm

Shape: Ovate to elliptical with the lowest leaves being the most rounded, becoming more pointed and lanceolate further up the stem as they grade into bracts. The lowest leaf is very small and rounded, sometimes creating a cowl-like sheath around the stem.

Arrangement: Spirally, often held erect and closer together on the stem in open environments but often very floppy and more spaced apart on the stem in darker places such as woodlands.

Number: 3-10

Colour: Usually dark to dull green but sometimes a fresher lime green

Texture: Matt. Slightly rough and always rather papery to touch

Habitat

Essentially a woodland species where the soil is calcareous but can also be found on grassland, dunes (South Wales and Ireland), railway embankments, roadsides, coniferous plantations, limestone pavements, quarries, spoil heaps and gardens (especially around Glasgow) where the soil pH is slightly acid. Within its typical woodland habitat, it is usually found in clearings and along rides but can thrive in deep shade most commonly under Beech but also secondary Birch, Willow and Alder woodlands too.

Range

By far the most commonly encountered *Epipactis helleborine* in the British Isles. Largely common throughout England and Wales but absent from much of East Anglia and the Southern Lowlands and north of Scotland. There are concentrations in Northern Ireland but it is very scattered in the Republic of Ireland.

In Britain, Broad-leaved Helleborine has been lost from 31% of its historical range and 33.5% in Ireland.

Images:

1. The broad wavy-edged leaves are distinctive (RP)
2. (MW)
3. Some plants can be much larger and more robust when in open habitats (MW)
4. Like all *Epipactis*, the flowering spike is typically curved over to one side when in bud (MW)
5. A view from above (MW)
6. The leaves are arranged along the stem and are not basal (MW)



Leaves

Fairly consistent in appearance with a similar arrangement to Broad-leaved Helleborine though when close to flowering, the leaves are often more widely spaced along the stem and are typically smaller, narrower and more pointed. Like all *Epipactis* species, strong longitudinal veins run the length of the leaves.

Length: 3-10cm

Width: 1-5cm

Shape: Ovate to lanceolate with very pointed tips. The lowest leaf is the smallest and cup-like with the largest leaves mid-way up the stem, progressively narrowing as they grade into bracts.

Arrangement: Spirally but sometimes opposite. Usually widely spaced up the stem when close to flowering.

Number: 4-15

Colour: Muddy greyish-green to violet-green – consistently darker than Broad-leaved Helleborine. In freshly emerged plants, the leaves may be entirely bright lilac, gradually greening as the plant matures. The stem (if visible) is a dark greyish-green to dull purple.

Texture: Matt. Rough to touch.

Habitat

A strictly woodland species that can tolerate extremely dark conditions where little else can grow but can also be found at woodland edges. Usually found under Beech, Oak, Hornbeam and Hazel coppice on calcareous soils.

Range

Very much a species of southern England with strongholds in Kent, the Chiltern Hills, Worcestershire and Surrey, reaching no further north than a line between the Wash and Anglesey.

Violet Helleborine has been lost from 38.5% of its historical range.

Images:

1. A very freshly emerged plant in June. It is easy to see how this species gained its common name (MW)
2. This species prefers dark woodland conditions (DS)
3. The leaves are typically small, narrow and dull purplish green in colour (MW)



Leaves

Distinctive and difficult to confuse with the other two-leaved species; the twayblades. Despite being very rare, there are many places that historically held this species and so it is always worth looking for in suitable habitat. Subtle differences in leaf shape exist between the duneland and fen populations. The centre of the leaves have a prominent midrib along their length and never fully flatten out so that they are folded in a shallow trough.

Length: 2-8cm

Width: 1.5-5cm

Shape: Ovate to elliptical and keeled. Plants found in dunes tend to have shorter rounder leaves (broadly elliptical) with blunt tips whereas those found in fens have narrower leaves (ovate-lanceolate) with more pointed tips.

Arrangement: Opposite. Rising stiffly from the base of the stem where one or two clasping sheathing leaves keep the base of the two main leaves tightly folded together and thus erect.

Number: 2 (3-4 if the basal sheathing leaves are included)

Colour: Pale yellowish-green

Texture: Shiny, greasy looking

Habitat

Two very distinct habitats – early successional wet dune slacks and peaty fens. Both habitats, however, offer a similar combination of bare wet earth and low competition.

Range

Very rare and now restricted to Kenfig Dunes NNR in South Wales and a handful of fens in Norfolk. Historically, populations were present at several nearby dune systems in South Wales and one at Branton Burrows in North Devon. Similarly, the species was much more widespread in East Anglia with several sites in Cambridgeshire and Suffolk and much older records from Huntingdonshire (1849), Kent (1802) and Lincolnshire (1884).

The Fen orchid has been lost from 63% of its historical range and is classed as Endangered.

Image

1. The two leaves are always held erect and trough-shaped with a waxy appearance (JC)



Leaves

The smallest leaves of any British orchid species which rest precariously on bare peat and carpets of Sphagnum mosses as a miniscule rosette. Because of their size, non-flowering plants are virtually impossible to spot on their own and are usually observed after close inspection of the immediate area surrounding a flowering plant. Impossible to confuse with other orchid species but could be confused for other bog plant species.

Length: 0.5-1.5cm

Width: 0.2-1cm

Shape: Ovate with inwardly curving edges (forming a shallow bowl or trough shape) and rounded tips. The edges and tips of the leaves are often lined with tiny bulbils which give them a serrated appearance.

Arrangement: Opposite. All leaves sheath the ball-shaped 'pseudobulb' which sits just above the soil surface.

Number: 2-5

Colour: Grass-green to yellowish-green

Texture: Dull shiny

Habitat

A species of acid peat bogs where it grows on bare peat and Sphagnum moss 'carpets'. It requires spots where there is some water movement through the peat so is often found along the edges of runnels and streams in bogs.

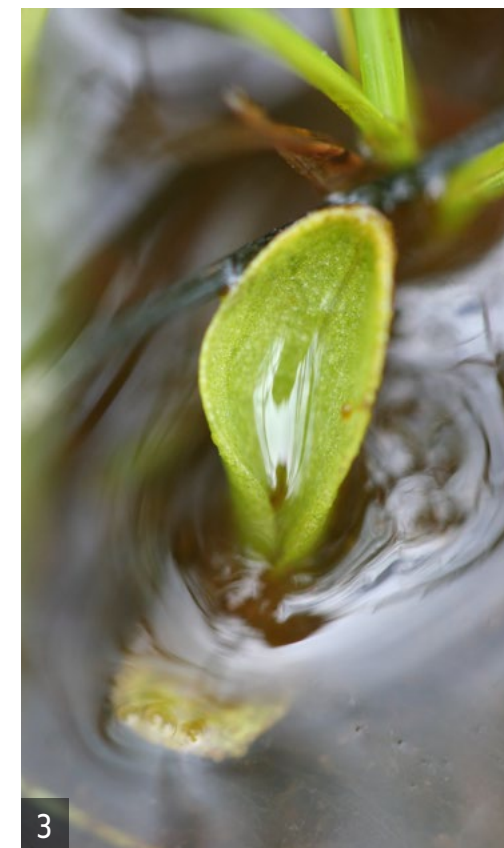
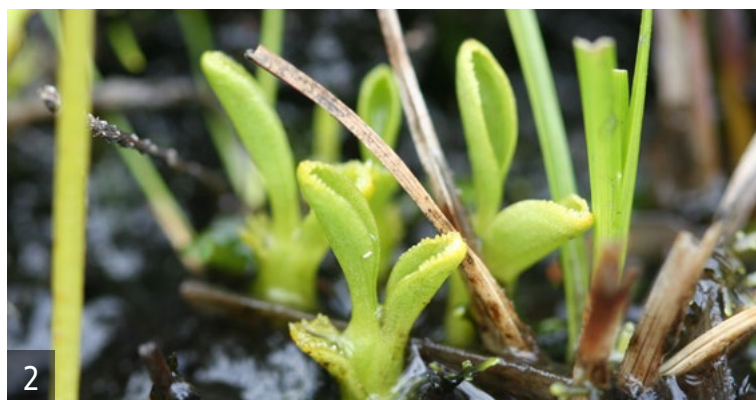
Range

The stronghold for the Bog orchid is in Western Scotland including many of the Inner and Outer Hebrides. In Northern England most sites are in the Lake District and in southern England the stronghold is in the New Forest and Purbeck in Dorset with outliers in Devon and Cornwall. In Wales there are scattered sites throughout the Cambrians and Snowdonia. In Northern Ireland there are only a handful of sites and it is very scattered around the coasts of the north, west and east coasts of the Republic of Ireland.

Bog orchid has been lost from 61% of its historical range in Britain and 66% in Ireland and is now classed as Nationally Scarce.

Images:

1. The leaves are tiny and often hidden amongst bog mosses (JC)
2. The leaves are erect and trough or bowl-shaped (MW)
3. The species grows in very wet places (MW)



Leaves

The clustered groups of rosettes with net-veined 'reticulate' leaves on a pine forest floor make this species virtually unmistakable. Members of the Wintergreen genera (*Pyrola* and *Orthilia*) can initially look very similar in size, arrangement and colour but the leaves clearly have stalks on closer inspection.

Length: 2-5cm

Width: 1-4cm

Shape: Ovate with pointed tips (basal leaves). The base is narrow and long giving the leaves a stalked appearance.

Arrangement: In a neat rosette that is held flat to the ground. One or two leaves are positioned about one quarter of the way up the stem of a flowering spike.

Number: 3-10

Colour: Dark bluish-green

Texture: Glossy

Habitat

Mature pine woods that are shaded enough to keep the ground damp. Often amongst Heather, Bilberry and Bracken with a good layer of moss.

Range

Primarily northern and eastern Scotland. There are also small populations in Cumbria, Northumberland, County Durham, and remarkably, north Norfolk.

Creeping Lady's-tresses has been lost from 44% of its historical range and is classed as Nationally Scarce.

Images from left to right, top to bottom

1. (BL)
2. Rounded leaves with whitish 'net veins' make this species distinctive (BL)
3. The species is typically found in dense clusters in mature pine forest (BL)
4. The leaves taper at their bases making them appear stalked (MW)



Leaves

An extremely difficult species to spot when not in flower on account of the grass-like leaves which blend into the tall marshland vegetation. A rare species but included here because many new sites have been discovered in the last couple of decades (especially in western Scotland) so familiarity with the species could yield new populations. A tiny (2cm tall) shoot-like rosette overwinters.

Length: 5-15cm

Width: 0.4-1cm

Shape: Very thin and strap shaped with pointed and hooded tips which can blacken when close to flowering. The leaves often fold in along their length making them appear even narrower. The leaves that sheath the flowering spike are shorter and more pointed.

Arrangement: Held stiffly erect at all stages of development and very similar in appearance to grass species when the rosette is fully expanded (May-June).

Number: 2-3 (overwintering rosette). 3-8 (fully expanded rosette). 2 or 3 leaves sheath the flowering spike

Colour: Yellowish green

Texture: Glossy

Habitat

Typically found on wet grassland and rough sedge pastures on low nutrient soil and usually on lake shores and river sides. The species seem to prefer areas that are well grazed with the associated disturbance of large hoofed animals apparently stimulating dormant plants. Less frequently, it can be found on moorland and bogs.

Range

Very much a western species with strongholds around Loch Neagh in Northern Ireland and Lochs Corrib, Mask and Conn in western Ireland and a few colonies in southern Ireland. There are also sizeable populations on the Hebrides in Scotland, especially Colonsay, Coll, Barra, South Uist and Tiree. Several colonies exist on the mainland too including one or two newly discovered sites in Dumfries and Galloway. In England, there is a single site on the edge of Dartmoor in Dorset but it has not been seen there for about 25 years.

Irish Lady's-tresses has been lost from 19% of its historical range in Britain and 61% in Ireland and is classed as Nationally Scarce.

Images

1. An advanced rosette with less erect leaves (LAB)
2. A tiny over-wintering shoot (LAB)
3. A close up of the flowering spike. Note the large triangular bracts and sheathing leaf (EH)
4. An over-wintering shoot submerged beneath flood water (LAB)
5. An advanced rosette of extremely thin, erect leaves (LAB)
6. A small rosette early in the growing season (LAB)



Leaves

The small neat rosettes are held so flat to the ground they are able to survive and flourish on lawns and even old grass tennis courts because the leaves can escape the mower blades.

The rosette over-winters but withers away entirely before the flowering spike appears – an adaptation to avoiding the hot dry conditions of a Mediterranean summer. However, next year's rosette can often be found beginning to appear next to a flowering spike.

Length: 1.5-3cm

Width: 0.5-2cm

Shape: Ovate to elliptical with pointed tips. The edges of the leaves can partially fold inwards to make the leaves look almost deltoid (triangular) in shape.

Arrangement: Held in a compact spiral star-shaped rosette that is very flat to the ground. Several bract-like leaves clasp the stem.

Number: 3-10 (rosette). The flowering spike has 3-7 very thin bract-like leaves.

Colour: Dark green

Texture: Glossy

Habitat

Very short turf on undisturbed calcareous soils (typically chalk and limestone). It can therefore be found on cliff-tops, lawns, dunes, embankments, limestone pavement and heavily grazed pastures.

Range

A southern species that is most common on the south coast of England, coastal north and south Wales and parts of western and southern Ireland. It occurs as far north as the Morecambe Bay area of Cumbria and is thus absent from Scotland.

Autumn Lady's-tresses has been lost from 55% of its historical range in Britain and 71% in Ireland.

Images

1. (MW)
2. Multiple rosettes can often be found clustered together (MW)
3. The rosette can be tiny (MW) An over-wintering shoot submerged beneath flood water (LAB)
4. Notice the star-like shape of the rosette with rolled edges and pointed tips (MW)



Leaves

Very small and few in number making them hard to spot in the grass. They are only very lightly veined.

Length: 2-5cm

Width: 0.5-2cm

Shape: Lanceolate with pointed tips.

Arrangement: The paired leaves that make up the rosette are held oppositely, roughly flat to the ground. Several bract-like leaves clasp the stem.

Number: 2, rarely 3 or 4 (rosette). The flowering spike has 1-3 very thin bract-like leaves.

Colour: Yellowish green

Texture: Matt

Habitat

Undisturbed calcareous grassland (typically chalk and limestone) where the turf is very short. Typically found on downland, ancient earthworks, chalk and lime pits and in quarries.

Range

Entirely restricted to southern England with strongholds in Hampshire, Wiltshire, Buckinghamshire, Cotswolds and North and South Downs. It formerly occurred at one or two sites in south Wales but has not been seen for decades.

Musk orchid has been lost from 69% of its historical range and is classed as Nationally Scarce.

Images

1. Typically the leaves are paired but rarely there are 3 or 4 (MW)
2. The leaves are tiny and lanceolate in shape (JC)



Leaves

A fairly distinctive rosette of 4 or 5 quite long bright green leaves that tend to be widest near the middle. A useful feature is that the leaves may show a wrinkling on their upper surface. The rosette sometimes appears in November and thus overwinters but in other areas it appears above ground a couple of months later.

Length: 4-12cm

Width: 1.5-3cm

Shape: Elliptical to obovate with tips that are typically blunt with a small apiculus (rosette). Narrower leaves sheath the flowering spike.

Arrangement: The paired leaves that make up the rosette are held oppositely, roughly flat to the ground. Several bract-like leaves clasp the stem.

Number: 2, rarely 3 or 4 (rosette). The flowering spike has 1-3 very thin bract-like leaves.

Colour: Bright apple green becoming a paler yellowish green when close to flowering.

Texture: Glossy, sometimes with distinctive wrinkling on the upper surface.

Habitat

Undisturbed calcareous grassland. Typically found on downland amongst longer grass and scrub but also occurs on roadside verges, chalk and lime pits and in quarries. In Norfolk it can be found on stabilised dunes.

Range

A speciality of southern England with strongholds on the North Downs in Kent and Surrey with outlying populations in several counties as far north as Lincolnshire.

Man orchid has been lost from 56% of its historical range and is classed as Nationally Scarce.

Images

1. A mature rosette in mid-winter (MW)
2. A freshly emerged rosette in early winter (DS)
3. The leaves are obovate in shape and often a bright apple green (MW)
4. The leaves of Man orchid often show crinkle or boil-like markings on the upper surface (MW)
5. Several advanced rosettes clustered together (DS)
6. Two plants in bud. The buds are always densely packed and heavily sheathed by leaves as in all *Orchis* (MS)



Leaves

A big rosette of broad blunt-ended fresh-looking leaves that sit erect at around 45° before sprawling out as the leaves unfurl and extend. The upper leaf surface has many fine pale veins. The rosette appears in January or February.

Length: 10-20cm

Width: 3-10cm

Shape: The lowest leaves are ovate and blunt-ended becoming progressively narrower, more pointed and erect.

Arrangement: Spirally in a closely folded rosette with raised leaves that is often triangular in shape. As the plant gets closer to flowering, the lowest leaves may flop and lie flat to the ground, especially in shaded woodland settings.

Number: 4-6 (rosette). The flowering spike has 1 or 2 narrower leaves which sheath the stem and the emerging buds.

Colour: Dull greyish green with paler silvery sheen below

Texture: Very glossy

Habitat

A woodland species that prefers well lit glades and rides on thin chalky soils but can tolerate some shade. It is capable of growing in more open conditions on the edge of downland but usually not far from trees or scrub.

Range

A speciality of Kent where there are around 100 sites. Elsewhere it is very rare with two sites in Oxfordshire and one in West Sussex.

Lady orchid has been lost from 57% of its historical range and is classed as Nationally Scarce.

Images

1. A rosette beginning to unfurl (BJ)
2. Two rosettes freshly emerging (DS)
3. A typical triangular-shaped rosette in January (DS)
4. The leaves are always very clean-cut and a dull greyish green (BJ)
5. The buds are very distinctive. Note the spike is heavily sheathed by leaves as in all Orchis (MW)



Leaves

A distinctive and common rosette of woodlands that begins to appear in January. The leaves are usually spotted or blotched but can be unspotted.

Length: 5-20cm

Width: 2-4cm

Shape: Ovate when the rosette first emerges becoming progressively oblong-lanceolate as the rosette matures and the leaves extend. The lowest leaves are always blunt-ended.

Arrangement: Spirally in a neat star-shaped rosette. The lowest leaves tend to stay flat to the ground with the upper leaves slightly erect.

Number: 4-8 (rosette). The flowering spike has 1 or 2 narrower leaves which sheath the stem and the emerging buds.

Colour: Dark green to pale lime green, usually with dark spots or blotches over the upper surface

Texture: Glossy

Habitat

Primarily a woodland species where the soil is calcareous but can be found in a vast array of other habitats such as dunes, roadside verges, hay meadows, mountain pastures, cliff-tops, limestone pavement, quarries, railway embankments and especially coppiced and ancient woodlands.

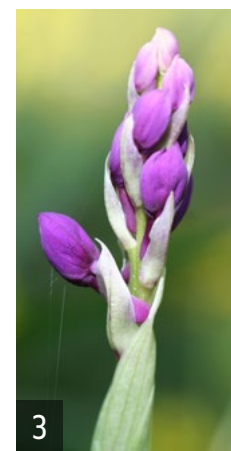
Range

Relatively common across the entire British Isles and only absent from areas of extensive arable farmland and acid soils such as the Cambridgeshire Fens, Mid Wales, eastern Scotland and eastern Ireland.

Early Purple orchid has been lost from 28% of its historical range in Britain and 21% in Ireland.

Images

1. A pair of non-flowering plants (MW)
2. (MW)
3. Like all Orchis, the flowering spike is wrapped up in sheathing leaves until shortly before flowering (MW)
4. A typical rosette with spotted leaves (DS)
5. Some plants may have blotches as oppose to spots on the leaves (DS)
6. The rosette is star-shaped with long blunt-ended leaves (DS)
7. Some plants have unspotted leaves (LH)



A small pale green rosette comprising of thin erect upper leaves and broader basal leaves that are not obviously veined. The rosette appears in spring.

Leaves

Length: 3-8cm

Width: 1-3cm

Shape: The lowest leaves are obovate to oblong with those above becoming thinner and more pointed and folded along their length. When close to flowering, a distinctive feature is that the ends of uppermost leaves are typically rolled inwards at the edges giving a 'pinched' appearance with the whole leaf tip bent backwards away from the stem.

Arrangement: Roughly opposite as a rosette with the uppermost leaves standing very erect.

Number: 4-6. The flowering spike has 1 or 2 narrower leaves which sheath the stem and the emerging buds.

Colour: Pale green with a silvery sheen on the undersides

Texture: Slightly shiny

Habitat

A species of the uplands where it can be found in mountain hay meadows, heathland and grazed pastures on both calcareous and acid soils.

Range

Primarily found in the north of the British Isles with strongholds in central, western and northern Scotland. It is still fairly well distributed in northern England and Northern Ireland but it has recently collapsed in Wales with only one reliable site left and is extinct in southern England. It is very patchily scattered across Ireland with most sites in the north and west.

Small White orchid has been lost from 65.5% of its historical range in Britain and 70% in Ireland.

Images

1. The lowest leaves are obovate with the upper leaves narrower. Note the 'pinched' tips of the upper leaves (RM)





Note: these two species are treated together because without seeing the flowers, it is impossible to confidently separate the species on vegetative features alone. On average, Lesser Butterfly orchid has smaller leaves and both have slightly different habitat preferences but there is significant overlap in their ranges. The genus is, however, very distinctive in the field.

A characteristic rosette of two large oppositely-paired leaves typically arcing gracefully outwards and almost flat to the ground.

Leaves

Length: 5-20cm

Width: 2-8cm

Shape: Ovate to elliptical with blunt or pointed ends. The base of the leaves taper to become very narrow where they meet the ground.

Arrangement: Opposite. The leaves are erect in the young rosette, often arcing out and flopping to the ground in shady woods as the plant matures. In more open conditions the leaves often remain partially erect.

Number: Typically 2 main large leaves but sometimes a 3rd or 4th smaller leaf. The flowering spike has several small bract-like leaves along the stem.

Colour: Yellowish green to dark green

Texture: Matt to dull shiny

Habitat

Greater Butterfly orchid favours calcareous soils in ancient and coppiced woods, rough downland, hay meadows and old grazed pastures.

Lesser Butterfly orchid can be found in all of these habitats too but is more tolerant of acid soils and so is commonly found on moorland and heathland and especially on tussocks in peat bogs in the west and north of Britain.

Range

Greater Butterfly orchid is found across the British Isles with strongholds in southern England. Absent from much of eastern and southern Scotland and southern Ireland. Greater Butterfly orchid has been lost from 46% of its historical range in Britain and 53.5% in Ireland.

Lesser Butterfly orchid is distributed across the British Isles with strongholds in the west and north (especially Wales and western Scotland). It is largely absent from eastern England and southern Ireland. Lesser Butterfly orchid has been lost from 64% of its historical range in Britain and 48.5% in Ireland.

Images

1. The leaves are large and broad. Usually 2 but sometimes 3 or 4 (MW)
2. A plant close to flowering (DS)
3. A rosette unfurling very early in the year (RP)
4. A flower spike close to flowering. Note the large creamy-white buds (MW)
5. A rosette with the flowering spike ascending. Note the long bracts that cover the buds entirely (RP)



Note: Despite quite different habitat preferences, these two species are virtually impossible to separate on vegetative features alone and so are treated here together.

A small neat rosette of thin arcing leaves that look as if they have been piled on top of each other.

Leaves

Length: 4-15cm

Width: 0.5-2cm

Shape: Lanceolate or strap-shaped and strongly folded along their length with pointed tips. The leaves become gradually narrower further up the stem.

Arrangement: Opposite. The leaves are held loosely erect and arc gracefully outwards, grading into bract-like leaves on the stem.

Number: 4-10. The flowering spike has several small bract-like leaves along the stem.

Colour: Grass green

Texture: Matt

Habitat

Chalk Fragrant orchid is species of chalk and limestone grassland, particularly downland, old quarries, grazed pastures and lime/chalk pits.

Heath Fragrant orchid favours different habitats and is tolerant of quite acid soils although it can sometimes be found on more calcareous soils. It is especially fond of heathy pastures, unimproved hill pastures, mountain hay meadows and tussocks sitting above areas flushed with ground water.

Range

Due to confusion in identification, the ranges of both species are poorly known.

So far, we know that **Chalk Fragrant orchid** is most common in southern England with strongholds in the Chilterns, Cotswolds, North and South Downs, Hampshire and Wiltshire. There are scattered sites into northern England and possibly as far as northern Scotland. It also appears to be scattered across Ireland and Wales.

Heath Fragrant orchid is most common in the north and west of Britain with scattered colonies in southern England (especially the New Forest and Ashdown Forest).

There is no reliable population trend data on either species due to past identification confusion.

Images

1. An advanced rosette shortly before flowering (JC)
2. A rosette in early spring with leaves arranged oppositely (AS)
3. A plant in bud with a few long thin leaves (MW)
4. (MW)
5. A close up of the buds which are small and deep pink (MW)



Very similar to the other Fragrant orchids but generally larger.

Leaves

Length: 5-20cm

Width: 0.5-2cm

Shape: Lanceolate or strap-shaped and folded along their length with pointed tips. The leaves become gradually narrower further up the stem.

Arrangement: Opposite. The leaves are held loosely erect and arc gracefully outwards, grading into bract-like leaves on the stem.

Number: 4-10. The flowering spike has several small bract-like leaves along the stem.

Colour: Grass green

Texture: Matt

Habitat

Typically found in fens and marshy calcareous meadows flushed with base-rich water amongst rushes and long grasses. Very rarely found on slumped clay cliffs and chalk grassland.

Range

Due to confusion in identification with the other Fragrant orchids, it's range is poorly known. Scattered across the British Isles with strongholds where there is concentrations of suitable habitat such as the Norfolk Broads but is uncommon everywhere. There is no data on the species' population trend.

Images

1. The long thin leaves arranged oppositely in a marsh habitat make this rosette distinctive (RP)



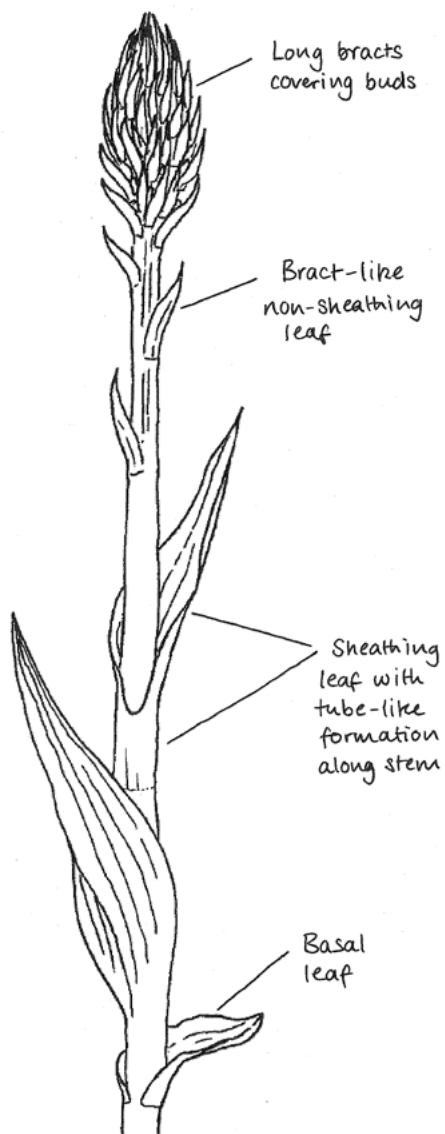
This genus is, without doubt, the most difficult orchid group to try and accurately identify in the British Isles which is exacerbated by their rampant hybridisation. These hybrids are often fertile meaning they are able to hybridise between themselves and their original parents (back-crossing) resulting in a ‘swarm’ of plants with all manner of different characteristics. The most common hybrids are those between Northern Marsh or Southern Marsh orchids and Common Spotted or Heath Spotted orchids – these tend to be large (a feature of hybrids called ‘hybrid vigour’) with spotted leaves and are intermediate between both parents.

However, to add to the confusion, there are a whole range of named subspecies and variants of ‘pure’ species which can look very similar to such hybrids. It is therefore very important to remember that there is only so far one can go with trying to identify this genus to species level. Usually some prior knowledge of habitat and location can help. Typically however, you can spot ‘pure’ and hybrid individuals once you become familiar with the wider population of a specific area but this requires some experience.

Despite these problems, recognising a member of this genus in the field is fairly straightforward.



A typical example of a hybrid *Dactylorhiza*, in this case the very common hybrid between Southern Marsh and Common Spotted orchids which is called *D. x grandis*. The plant is intermediate between both parents (broad leaves of Southern Marsh with leaf spotting from Common Spotted) which are present nearby. This plant shows the usual ‘hybrid vigour’ being large and lush.



8 species of *Dactylorhiza* can be found in the British Isles but ongoing genetic studies are shedding new light on the taxonomic status of many species and some, such as the Hebridean Marsh orchid (*D. eбудensis*), have recently been shown to simply be a local variant of a more widely distributed species. This is also the case of the Narrow-leaved Marsh orchid (*D. traunsteinerioides* subsp. *francis-drucei*) which has now been shown to be a northern and western species with all populations in the south of England actually belonging to Southern Marsh orchid (*D. praetermissa*). Because of this ongoing research and resulting confusion as to what constitutes Narrow-leaved Marsh orchid, this species is omitted from the guide.

Similarly, Northern Marsh (*D. purpurella*), Southern Marsh (*D. praetermissa*) and Irish Marsh orchids (*D. occidentalis*) are essentially identical so are treated together despite being roughly geographically separated. This is also the case for the Common Spotted (*D. fuchsii*) and Heath Spotted orchids (*D. maculata*) which differ in their habitat preferences but are otherwise identical when not in flower.

One species, the Frog orchid (*D. viridis*), is however quite different to the rest and has only recently been included in the genus. Identifying this species is fairly straightforward, especially when in bud.

Identifying *Dactylorhiza*

The leaves of *Dactylorhiza* are classed in 3 types:

- Basal leaf – the lower-most leaf at the base of the stem. Usually small and blunt-ended.
- Sheathing leaves – higher up the stem, usually 2-4, completely encircle the stem to form a short tube which fits around the stem like a sock.
- Non-sheathing leaves – between the sheathing leaves and the flowering head (inflorescence). Always long, narrow and pointed like bracts.

When counting the number of leaves, it is important to note that the basal leaf is not included.

The 'Marsh orchids': Early Marsh orchid - *Dactylorhiza incarnata*, Northern Marsh orchid - *D. purpurella*, Southern Marsh orchid - *D. praetermissa*, Narrow-leaved Marsh orchid - *D. traunsteinerioides* subsp. *francis-drucei* & Irish Marsh orchid - *D. occidentalis*

Note: Due to the wide overlap in measurements of these species in a vegetative state and the similarly wide overlap in ranges, these species are treated here together. Some would argue that it is possible to separate these species with vegetative characteristics alone but experience suggests that this is near to impossible. One must instead rely on habitat and location to make a 'most likely' decision when observing a plant.

Typically found in damp environments and often in large numbers (particularly dune slacks). The rosettes appear in spring (March/April).

Leaves

Length: 4-20cm

Width: 1-10cm

Shape: Ovate to elliptical to lanceolate with the basal leaf being the broadest and those above becoming progressively narrower and more pointed. Leaves are usually folded along their length with those along the stem (the 'sheathing' leaves) forming a tube around the stem.

Arrangement: Roughly opposite as a rosette and when close to flowering. All leaves above the basal leaf are typically erect and are spaced along the stem.

Number: 2-8. The flowering spike may have 1 or 2 bract-like leaves along the stem (between the sheathing leaves and the buds).

Colour: Greyish green, grass green or yellowish green. All species may show some level of marking on the leaves from fine spots to thick blotches and even ring marks.

Texture: Matt

Habitat

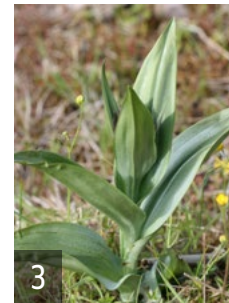
Can be encountered in all manner of habitats but usually places that are damp or marshy. Common habitats are damp meadows, hay meadows, unimproved pastures, roadside verges, landscaped spoil heaps, old industrial sites, base-rich fens (especially Narrow-leaved Marsh orchid), dune slacks, flushes, slumped cliffs, flood plains meadows, lakesides and acid bogs.

Range

Early Marsh orchid is the most widely distributed marsh orchid, scattered across the British Isles. **Northern Marsh orchid**, as the name suggests, is only found above a line from the Bristol Channel to the Humber becoming very common in northern England and Scotland. Also common in Northern Ireland. **Southern Marsh orchid** only occurs in England and Wales below a line between Morecambe Bay and the Humber. Generally common. **Narrow-leaved Marsh orchid** is by far the rarest of the group and only occurs in scattered colonies in North Wales, Yorkshire, western Scotland and very sparsely across Ireland. **Irish Marsh orchid** only occurs in Ireland (Northern and the Rep.) where it is most common on the western and northern coasts with a cluster in the central and south-east areas.

Images

1. (RM)
2. Note the long bracts that entirely cover the buds as in all *Dactylorhiza* at this stage of development (RM)
3. A large leafy Southern Marsh orchid close to flowering (MW)
4. Some plants may have thin erect leaves (MW)
5. An Early Marsh orchid (MW)
6. A typical Marsh orchid rosette (RM)
7. A short stubby Early Marsh orchid in bud (MW)
8. The leaves usually sit oppositely in Marsh orchids (RM)



A small plant and very unlike other species in the genus. The leaves are rather indistinct, few in number and can vary widely in shape and size. The rosette overwinters.

Leaves

Length: 2-12cm

Width: 1-4cm

Shape: Ovate to elliptical and even lanceolate in very small plants with the basal leaf being the broadest and those above becoming progressively narrower and more pointed.

Arrangement: Roughly opposite.

Number: 3-6. The flowering spike has 1 or 2 non-sheathing leaves.

Colour: Dull bluish green to yellowish green

Texture: Matt

Habitat

Found in a vast array of different habitats. In the south of Britain, its favourite habitat is chalk downland and limestone grassland and can thus be encountered in quarries and lime/chalk pits too. In the north and west it can be found in a wider array of habitats such as hay meadows, damp pastures, rocky ledges, road verges, railway embankments, stabilised dunes and machair.

Range

Scattered across the British Isles but not really common anywhere. Strongholds are the downlands of Hampshire and Wiltshire, the limestone areas of northern England, central, western and northern Scotland and central Ireland and Northern Ireland. Elsewhere the species is rare.

Frog orchid has been lost from 60.5% of its range in Britain and 53.5% in Ireland.

Images

1. An especially large clump with multiple developing flowering spikes. Note the pale veins (MW)
2. The leaves are blunt, broad and short. Note the long bracts that cover the buds (MW)
3. Three Frog orchids growing with a Common Spotted orchid (MW)



Note: Despite usually quite different habitat preferences, these two species are virtually impossible to separate on vegetative features alone and so are treated here together.

Leaves

Length: 6-15cm

Width: 0.5-3cm

Shape: The basal leaf is ovate and blunt tipped. The sheathing leaves above are lanceolate and very pointed which creates a distinctive rosette. When close to flowering, there are several very thin bract-like leaves above the sheathing leaves along the stem.

Arrangement: Roughly opposite and held erect at around 45°

Number: 3-7 (basal + sheathing leaves). 2-6 (non-sheathing leaves).

Colour: Dull bluish green to grass green typically with blotches, spots or bars over the upper surface. Rarely the leaves are unmarked.

Texture: Matt

Habitat

Common Spotted orchid favours calcareous or neutral soils in a very wide selection of habitats. The most common habitats are downland, damp meadows, marshes, fens, dune slacks, industrial waste ground, road side verges, parks, woodland edges, hay meadows and railway embankments.

Heath Spotted orchid, on the other hand, prefers acid soils and is very common on moorland, heathland, acid grassland and mountain pastures but can sometimes be found in fens and marshes. Because of its fondness for moorland, it is often found at high elevations in upland regions.

Range

Common Spotted orchid is very common across the British Isles and is only absent from parts of eastern and northern Scotland and much of Cornwall.

Heath Spotted orchid is not quite as common as Common Spotted orchid but has much stronger western and northern bias being ubiquitous in much of Wales, south west England, northern England, the entirety of Scotland and much of Ireland.

Images

1. A freshly emerged rosette unfurling very erect with distinctive spots (RM)
2. The leaves are often folded along their length and curve outwards (RM)
3. (RM)
4. The tips of the upper leaves are very pointed (RP)
5. Leaves sit on top of each other roughly oppositely arranged (MW)
6. A typical cluster of plants in bud (MW)

7. This species is always found on acidic soils (RM)
8. Like the Common Spotted orchid, the leaves are spotted, pointed and are arranged opposite each other (RM)



A plant that not many people are likely to find due to its restricted range but worth including because it has turned up in new locations in recent years. The rosette overwinters.

Leaves

Length: 3-7cm

Width: 1-2.5cm

Shape: Elliptical to lanceolate with wavy edges. The leaves may fold inwards along their length or remain flat.

Arrangement: Opposite. The rosette may sit perfectly flat to the ground or partially erect with the leaves arcing outwards – very similar to the Fragrant orchid species. There are several very erect leaves which sheath the flowering spike.

Number: 3-6

Colour: Bluish green to pale yellowish green sometimes with very fine dark spots.

Texture: Matt

Habitat

Typically found on calcareous short-turf grassland, especially on limestone pavement. Rarely recorded from ash and hazel woodlands and stabilised dunes.

Range

An Irish speciality with the vast majority of known sites being on The Burren in western Ireland. There are other scattered sites further north and one in the south.

Dense-flowered orchid has been lost from 46% of its historical range.

Images

1. Non-flowering plants can look very similar to the Fragrant orchids (MW)
2. The long greyish leaves are held oppositely and have wavy edges (MW)



A small and hard-to-spot rosette that looks very similar to a small Bee orchid in colour, shape and leaf number. The rosette also overwinters like the Bee orchid.

Leaves

Length: 2-5cm

Width: 1-2.5cm

Shape: Elliptical to oblong with delicate pointed tips. The bract-like leaves that sheath the stem are lanceolate and very pointed.

Arrangement: Spirally. The rosette is held very flat to the ground with the bract-like sheathing leaves held very erect.

Number: 2-5 (rosette).

Colour: Bluish green with a silvery sheen to the upper surface and tiny silvery dots on the undersides. The tips of the sheathing leaves often look like they've been dipped in crimson paint.

Texture: Matt to slightly shiny

Habitat

Ancient chalk and limestone grassland is the most common habitat, especially old earthworks. At one site in Lincolnshire it thrives in a water meadow where chalky silt is regularly deposited by the nearby river and at one site in Wiltshire it can be found in hay meadows on neutral soil.

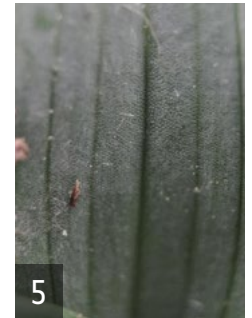
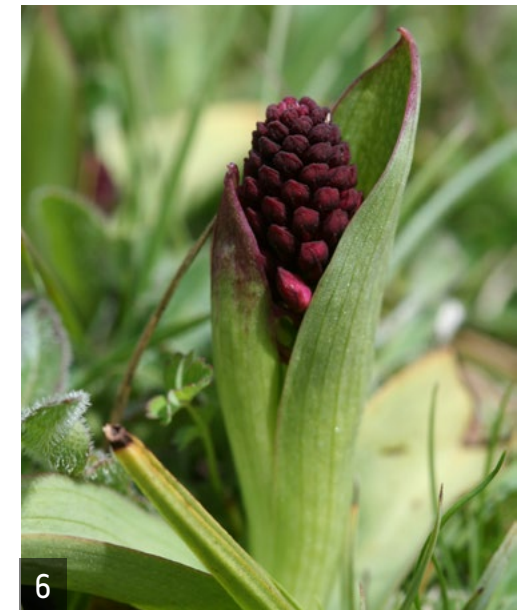
Range

Now far more restricted than it used to be but is still occurs in Wiltshire (British stronghold), Hampshire, East Sussex, Derbyshire, Lincolnshire, Yorkshire and County Durham.

Burnt orchid has been lost from 79% of its historical range and is classed as Nationally Scarce.

Images

1. The rosette is small with 3-5 leaves held very flat (BL)
2. The underside of a leaf showing the small silvery spot markings (BL)
3. The veins are clear and distinctive (JC)
4. The small neat leaves end in a fine point (BL)
5. The upper surface of the leaves have fine silvery markings (BL)
6. The species is unmistakable in bud with tightly-packed dark crimson buds (MW)



Often produces a very large rosette (only matched in size by large Lady orchids) comprising of very glossy leaves that are reminiscent of laurel in colour, shape and glossiness. The rosette forms in autumn and over-winters. The basal leaves entirely blacken and wither shortly before and during flowering. The non-flowering rosette is very different to the mature rosette, comprising of 2 very long thin leaves.

Leaves

Length: 8-22cm

Width: 5-10cm

Shape: Elliptical to lanceolate (rosette). The leaves that sheath the flowering spike are narrower, often folding outwards along their edges to give a rather distinctive appearance.

Arrangement: Spirally but rather untidy, roughly flat to the ground or slightly erect (rosette). The sheathing leaves are held very erect at around 45° looking similar to a big *Dactylorhiza*.

Number: 3-6 (rosette). Several more leaves sheath the flowering spike.

Colour: Greyish green and sometimes blotched purple with a fine silver chequered pattern on the undersides

Texture: Very glossy

Habitat

Usually on calcareous soils amongst quite tall grasses, particularly stabilised sand dunes and the edges of golf courses. It can appear in other habitats such as roadside verges, downland, field margins, railway embankments and (very recently) amenity grassland by a bus stop in central London!

Range

Primarily a southern species and only recorded in England. Strongholds are in Kent (especially around Sandwich) and Cambridgeshire with scattered intermittent colonies in many southern counties with one outlying colony near Doncaster in Yorkshire. The species has a habit of spontaneously appearing in unexpected places.

Lizard orchid has been lost from 82.5% of its historical range as is classed as Vulnerable.

Images

1. A mature rosette (BL)
2. A mature rosette with large glossy leaves (BL)
3. A non-flowering rosette (MW)
4. An immature plant with very long narrow leaves (BL)
5. The underside of the leaves shows a silvery pattern (BL)
6. A single leaf. Note the pale central line and elliptical shape (BL)
7. Lizard is a rare species and sometimes get individual protection! (MW)



A distinctive rosette of very thin leaves held flat to the ground that overwinters. Often, several rosettes may be clustered together to create a mass of tufted leaves.

Leaves

Length: 7-15cm

Width: 0.8-2cm

Shape: Very long and strap-shaped tapering to a fine point.

Arrangement: Spirally in a messy star-shape that is roughly flat to the ground with the central leaves partially erect (rosette). Several leaves closely sheath the flowering spike with several small bract-like leaves along the stem.

Number: 5-10 (rosette). Up to 3 leaves sheath the flowering spike with several bract-like leaves on the stem.

Colour: Greyish green as a rosette in winter becoming pale yellowish green when close to flowering. The sheathing leaves have prominent dark green veins.

Texture: Glossy

Habitat

Any habitat with dry calcareous soils and little competition. The species is particularly fond of sand dunes (amongst the Marram grass), downland, roadside verges, meadows, industrial waste ground, spoil heaps, quarries and railway embankments where it often grows amongst quite long vegetation.

Range

Mostly a southern species with a coastal bias but usually very common. Strongholds are the limestone and chalk districts of southern England and all major dune systems as far north as the Hebrides with one outlying population on the northern tip of Scotland. Also common in central and coastal Ireland. The species is however absent from much of mainland Scotland, inland northern and south west England and inland Wales.

Pyramidal orchid has been lost from 20% of its historical range in Britain and 31% in Ireland.

Images

1. Several rosettes can be found clustered together. Note the leaves often curly (MW)
2. The leaves are long, greyish green and very pointed (RM)
3. The flowering spike is sheathed by heavily veined leaves (MW)
4. Plants on dry short turf may be small (DS)
5. A close-up of the buds (MW)



The rosette is similar to Pyramidal orchid being rather flat with many long leaves but they are a darker green, typically more blunt-ended and often have clear veins along their length giving them a corrugated appearance. The rosette also overwinters. Often, several rosettes may be clustered together to create a mass of tufted leaves.

Leaves

Length: 5-12cm

Width: 1-2cm

Shape: Oblong to lanceolate and often blunt-ended. The leaves that sheath the flowering spike are narrower and more pointed.

Arrangement: Spirally in a messy star-shape that is roughly flat to the ground with the central leaves partially erect (rosette). Several leaves closely sheath the flowering spike with several small bract-like leaves along the stem.

Number: 4-10 (rosette). Up to 3 leaves sheath the flowering spike with several bract-like leaves on the stem.

Colour: Dark green

Texture: Dull glossy

Habitat

The preferred habitat of the species is damp unimproved pastures or hay meadows on calcareous or neutral soils (especially clay) where it often occurs en masse. It can also be found (always in smaller numbers) on limestone or chalk grassland, particularly downland, cliff-tops, stabilised dunes, village greens, roadside verges, churchyards and golf courses.

Range

Mostly a species of southern Britain, ranging as far north as southern Scotland. It is most common in southern England but is largely absent from the south west. In Wales it remains primarily coastal and is missing from much of central and northern England. In Ireland it scattered across the central limestone areas.

Green-winged orchid has been lost from 49% of its historical range in Britain and 60% in Ireland.

Images

1. The rosette has many long dark green to pale green leaves (MW)
2. The leaves often have many longitudinal furrows giving a corrugated appearance (MW)
3. (MW)
4. Long thin leaves (MW)
5. Multiple plants together can create a tufted appearance (MW)
6. Rosettes can be partially hidden under mosses and other vegetation (MW)



Very small as an overwintering rosette with a distinctive erect central leaf that is hood shaped. As the rosette matures and gets closer to flowering, more leaves are produced and extend outwards. As is typical of *Ophrys*, the tips of the leaves often blacken and break off before flowering.

Leaves

Length: 2-3cm (overwintering rosette). 4-8cm when close to flowering.

Width: 0.5-2cm

Shape: Strap-shaped to lanceolate with pointed tips. The leaves that sheath the flowering spike are narrower.

Arrangement: The rosette initially appears as one or two tiny erect leaves. As the rosette matures in early spring, more leaves are produced. In dark woodland habitats, the rosette leaves extend and often flop down to the ground from a more erect position.

Number: 2-5. There are 1 or 2 leaves which sheath the flowering spike.

Colour: Greyish green, sometimes with a silvery 'frosting' to the upper surface.

Texture: Matt to dull glossy

Habitat

Always found on calcareous soils in several

very different habitats. In southern England, the species is a specialist of Beech woods on chalk, especially the edges of rides and glades. It can also be seen on open downland or amongst scrub in quarries, lime pits and on roadside banks. In western and northern Britain, it can be found more frequently on open limestone hillsides and limestone pavements. Uniquely, it also occurs in fens amongst rush tussocks in Anglesey and Ireland.

Range

Scattered and scarce in Britain. The strongholds are in southern England along the North and South Downs, Chilterns, Cotswolds and chalk districts of Hampshire and Wiltshire. Further north there are concentrations in the Derbyshire Peak District, Anglesey, Morecambe Bay area and east Yorkshire as far north as County Durham. In Ireland it is confined to the central and western limestone areas, especially the Burren.

Fly orchid has been lost from 58% of its historical range in Britain and 48.5% in Ireland.

Images

1. Fly orchids spend most of the winter as a tiny erect hooded leaf (MW)
2. The central hooded leaf is still visible but the plant has also produced two basal leaves (DS)
3. (DS)
4. A double-spiked plant preparing to flower. Note the blackened leaf tips typical of this genus (MW)
5. Like all *Ophrys*, the upper surface of the leaves show a silvery 'frosting' (DS)



Probably the most frequently encountered overwintering rosette of any orchid species in the UK. The curled greyish (almost silvery) green leaves are very distinctive and sometimes obvious.

Leaves

Length: 3-10cm

Width: 0.5-3cm

Shape: Elliptical to lanceolate. The leaves often curl sideways or tuck underneath themselves at the tips. Narrower leaves sheath the flowering spike.

Arrangement: An untidy rosette with no real consistency in shape. It is however very flat to the ground with only the central leaf held erect.

Number: 2-5 (rosette). 2 or 3 extra leaves sheath the flowering spike.

Colour: Greyish green with distinctive silver frosting on the upper surface. The midrib (central line along the leaf) is pale and the entire leaf surface has prominent dark green veins.

Texture: Dull glossy. The silvery markings can make the leaves appear to shimmer.

Habitat

Extremely varied but generally occurs on calcareous grasslands. Unlike many other species of UK orchid, the Bee orchid will freely colonise areas of disturbed ground on industrial sites or beside newly dumped roadside workings. However, the most common habitats are limestone and chalk grassland, roadside verges, meadows, planted flower beds, spoil heaps, quarries, gravel pits, sand dunes, limestone pavement, lawns and, in Ireland, fens.

Range

Essentially a southern species and commonest in southern England, especially the chalk and limestone districts. In Wales it is mostly restricted to the north and south coasts and it becomes rare in far northern England and is almost entirely absent from Scotland (there is currently one site). It is patchily scattered across the entirety of Ireland (both Northern and the Republic).

Bee orchid has been lost from 16.5% of its historical range in Britain and 49% in Ireland.

Images

1. A cluster of mature and immature plants (MW)
2. A tiny immature plant with only one leaf (MW)
3. A non-flowering plant (MW)
4. A typical rosette of 3-4 greyish green leaves (MW)
5. By spring, the tips of the leaves are often blackened and damaged (MW)
6. Silvery 'frosting' on the upper surface of the leaves (MW)
7. The buds are large, whitish and few in number like all members of the *Ophrys* genus (MW)



The leaves are prominently veined and ovate in shape making them reminiscent of Ribwort Plantain (*Plantago lanceolata*). They also look similar to Bee orchid but the rosette is more compact and stubby, often with more leaves. Unusually, the rosette sometimes overwinters but (unlike other members of the genus) most plants appear above ground in spring.

Leaves

Length: 3-10cm

Width: 0.5-3cm

Shape: Ovate to elliptical with tiny delicate pointed tips. Narrower leaves sheath the flowering spike.

Arrangement: A compact spiral rosette held very flat to the ground with only the central leaf held erect.

Number: 2-5 (rosette). 2 or 3 extra leaves sheath the flowering spike.

Colour: Greyish green with distinctive silver frosting on the upper surface. Unlike Bee orchid, there is no central pale line on the leaves.

Texture: Dull glossy. The silvery markings can make the leaves appear to shimmer.

Habitat

Confined to species rich chalk and limestone grassland, especially on cliff-tops on the south coast of of England although there are a handful of sites further inland. It can also be found in quarries and on spoil heaps and shingle.

Range

A strictly southern species with strongholds in Kent, East Sussex and Dorset. There is one site each in Wiltshire, Gloucestershire, Surrey (the first record for 73 years was made in 2015) and Suffolk.

Early Spider orchid has been lost from 73% of its historical range in Britain.

Images

1. The rosette is flat and greyish green with several short broad leaves (BL)
2. (MW)
3. (BL)
4. The upper surface of the leaves with fine silver 'frosting' (BL)
5. The rosette is very similar to the Bee orchid but Early Spider orchid is smaller with more leaves (OL)



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www.nhm.ac.uk/idtrainers

