

PLANT ID: cock's-foot grass

Dactylis glomerata L.

Growth habit

(grows in clumps called tufts)

Bluey-green
leaves

Leaves are
called leaf
blades

Leaf blades are wide and robust

Leaf features

Flowering
stem
called a
Culm

Green-blue
leaf blade

Leaf
sheath
wraps
around
the stem

All grasses have
parallel leaf veins

Leaf tapers
to fine point

Leaf features

Spring - summer

Instantly recognizable by its flower panicle, which is thought to represent the shape of a cockerel's foot.

Leaf mid-rib

Boat-shaped
tipped leaves

Leaf veins
are parallel

Leaf features

Flowers

spring

Yellow Stamen
on show ready
to shed pollen

2 to 5 flowers
called florets
in each

Ligule
acts
like a
shirt
collar

Leaf
blade

Leaf features

Children used to
use the nuts as
ammunition for
their catapults

Flower features

Flower
branches
(panicles)
remaining
closed

Green
to
purple
tinged

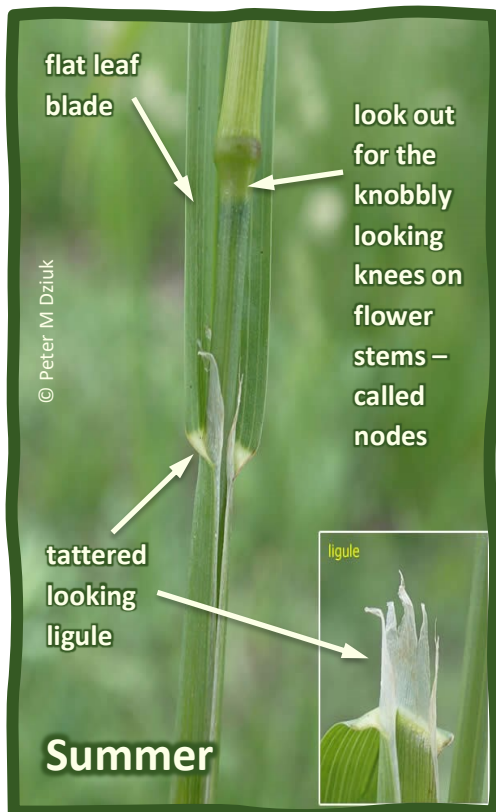
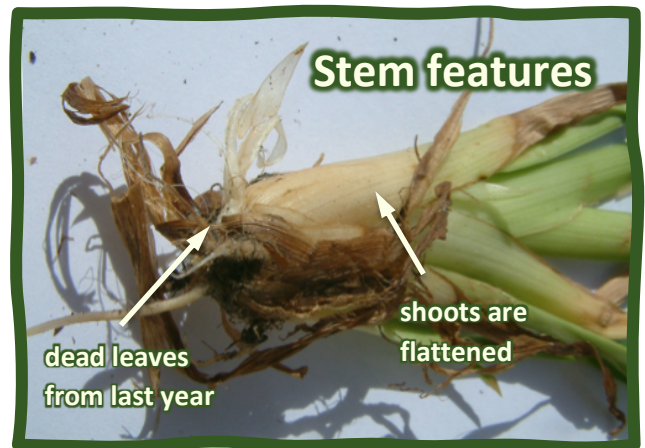
early summer

© Roger Darlington

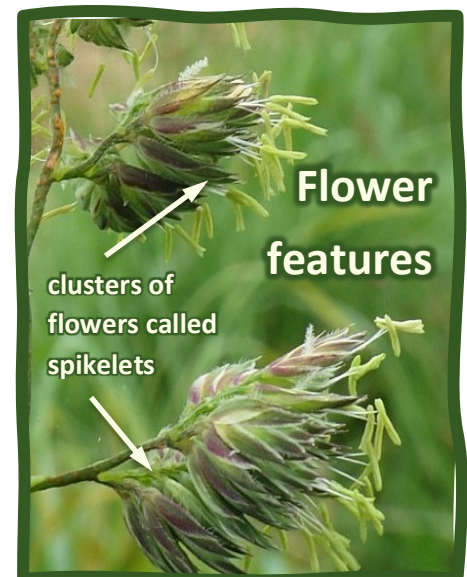
PLANT ID: cock's-foot grass *Dactylis glomerata* L.

Did you know?

The Grass family (*Poaceae*) are the most widespread, and probably the most important of the top five largest families of the Earth's flora. They grow on all continents and dominate most of the Earth's open countryside.



Allergy alert:
grass has a high pollen count !



Helpful ID tips

A hand-lens (x10), forceps and a needle will help to see and tease out the tiny individual flowers that are entombed within **florets**.

In all grasses the leaf **sheath** that wraps itself around the stem as either a sealed or open sided cylinder helps give structural/mechanical strength to the growing flower stem which is called a **culm**.



Reproduction strategies:

- **Pollination:** pollinated by the wind
- **Vivipary:** Germination of seeds that didn't flower
- **Seed dispersal:** spread by mammals, birds

PLANT ID: cock's-foot grass

Dactylis glomerata L.

Fact File:

CURRENT STATUS: Very common.

LOCATION: Widespread across Europe and U.K.

ALIASES

Also known as
orchard grass,
barnyard grass,
cockspur and cat
grass

Plant Description (aka Taxonomy)

A member of the 10,000 species strong grass family (*Poaceae*). All grasses have leaf veins that are parallel and have swellings (nodes) that look like 'knobbly knees' along the flowering stem. Leaves grow from the nodes.



Flowers from May to September

Flower Structure

At the top of the **culm**, the **panicle** has at the ends of its stiff and erect branches, densely packed clusters of almost stalkless – green to purple-tinged **spikelets**. Each containing 2 to 5 **florets**, which house an individual flower in each. When the reproductive parts inside the flower are ready, two miniscule scales inside each floret begin to swell, acting like a hydraulic system that prises apart the plant, allowing the **stamen** and **stigma** to hang outwards. The plant is now ready to be fertilized.



Fruits

Fruits called grains are produced from May to October. Each grass floret produces a single grain.



Leaf

Leaf blades are green, usually hairless; up to 45cm long and sharply pointed. A jagged looking **ligule** (up to 10 mm) is found at the **leaf sheath** to leaf blade junction.



Habitat

Found in pastures and meadows, roadside verges, coastal cliffs, waste ground and open woodlands. It can form very large **tufts** in abandoned grassy sites. It tolerates any type of soil.

What to look for



An instantly recognizable species of grass on the basis of its flower **panicle**, which at maturity, opens outwards to fancifully imitate the 'clubbed' claw of a cockerel's foot – hence its common name. When not in flower, it can easily be spotted amongst other grasses by its dense tufts of stout bluey green 'boat-shape tipped' flat leaves.

Best time to see it and use it

In summer, the flowering stems (culm) are one of the best grasses around for sucking, while the leaves are broad and strong enough to blow a tune through.

Stem

The leaf shoots are tightly packed together into a tuft. Each shoot is flattened and keeled and will also often still have old brown leaves that are degrading to leave behind thicker fibres in amongst the tufts. The flower stems can reach 140 cm high.

FOOD WEB

Seeds eaten by birds. Leaves eaten by cows, sheep and voles.

Dead leaves will decompose back into the soil.

Owls prey upon small mammals that nest within its large tufts.

IMPERSONATORS:

You will find other grasses with large leaves that grow alongside it, but don't worry - no other grass can be confused with cock's-foot because of its cockerel foot shaped flower and its flattened shoots that are held tightly together in a tuft.

The following are also wind pollinated 'grasses': wheat, barley, oats, sweetcorn, rice, bamboo.



PLANT ID: cock's-foot grass *Dactylis glomerata* L.

What's in a name? Cock's-foot grass's latin name, *glomerata* refers to its flowers being in a tight grouping at the top of its flowering stem (the culm).

Botany glossary (part 1)

Culm The rigid flowering stem of a grass

Floret A tiny flower that exists as part of a group of many other flowers collected together like the Daisy and Grass family

Leaf blade Describes the leaf of a grass

Ligule Resembles a collar that is wrapped around the stem of a grass at the point where the leaf-blade is joined

Spikelet One or more individual flowers grouped together

Stigma A stigma is a part of a flower that gets pollen from pollinators such as bees. The stigma is part of the female reproductive part of a flower

Get up close to the cock's-foot grass by taking a virtual tour using the Pappus film library.



Botany glossary (part 2)

Panicle Refers to the part of the plant in which there is a distinct grouping of much branched flowers

Node A point of growth on a plant in which a leaf or bud is attached to a stem

Tuft A compact or loose cluster of grass sheath

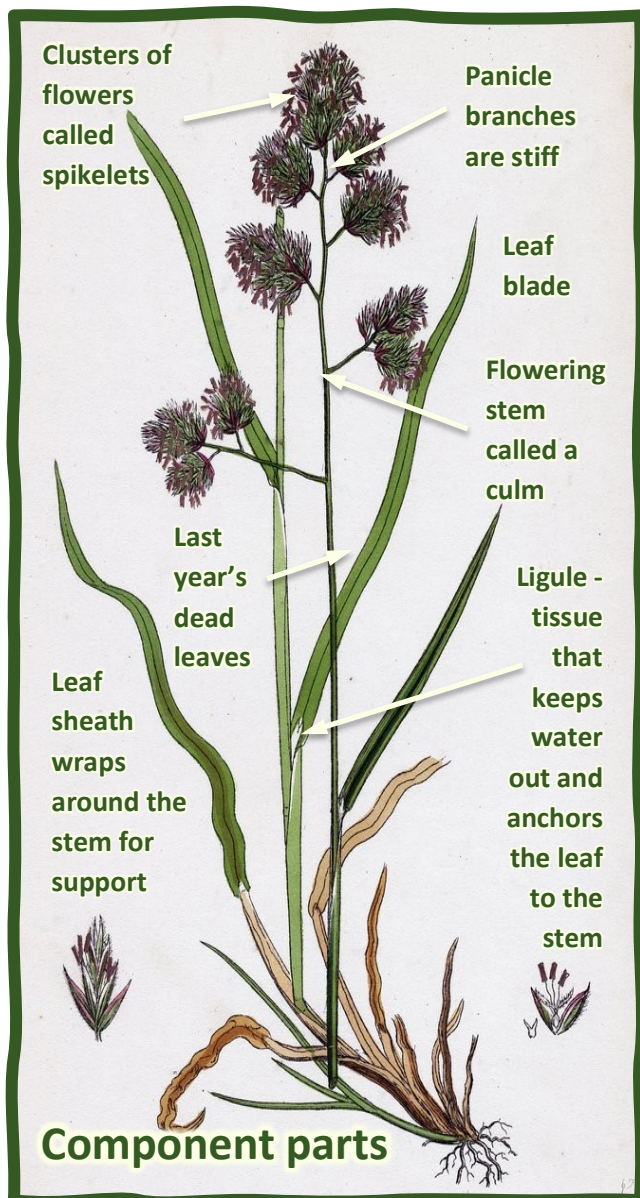
Sheath The lower part of the leaf section that wraps itself around the grass stem.

Vein The part of the leaf that transports nutrients

Stamen male part of the flower

Pollen Fine powdery grains that the plant uses to make seeds

Grain A naked grass seed



Special identification fact

The stems of all grasses are hollow. At intervals along the stem you will see a swelling called a node. It is from these nodes that the leaf sheath begins, then extends upwards as a wrapping around the culm before putting out a leaf blade to one side. At the leaf junction look out for a membranous ligule which functions like a wet suit collar to keep water out and help tension the leaf-sheath branching point

Oldest

Merchants operating along ancient trading routes, such as the 'old silk road' between Europe and the Far-East have swapped seeds and plants for 100s of years.

Global distribution

Found almost everywhere in the British Isles and across Europe.



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Global species risk of extinction (IUCN – Red Data List).

This is a very common and widespread species that has not been evaluated for any global threats to its existence.

PLANT ID: ash

Fraxinus excelsior L.



Commercial uses

Before steel, ash was used extensively for boat and car chassis frames and tool handles.

Other uses include: snooker cues, pre-1990's tennis rackets. These days it is used for wood veneers and flooring.

The *Olivaceae* family includes another well-known species that produces a fleshy berry instead of a winged **achene** (seed) that is used in cooking – the olive!

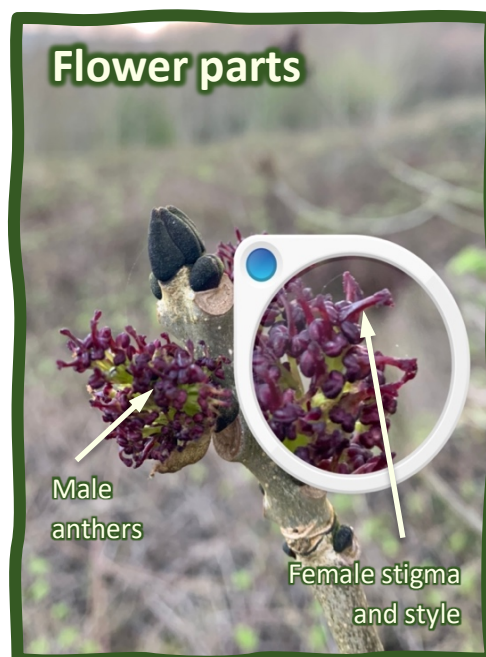
Flowers and buds



Look out for Ash trees with just male or female flowers.

The very young fruits are edible when cooked

Flower parts



PLANT ID: common ash *Fraxinus excelsior* L.

Practical Uses:

As a wood fuel, ash is thought to be the best while still green but of little use when dry:

*"Burn ash-wood green, 'Tis fire for a queen;
burn ash-wood sear, 'twill make a man swear".*

Weather Forecasting:

The emergence of ash and oak leaves is thought to be a predictor of the summer weather:

'Ash before Oak you're in for a Soak' (a summer of mixed weather)

'Oak before Ash you're in for a Splash' (drought)

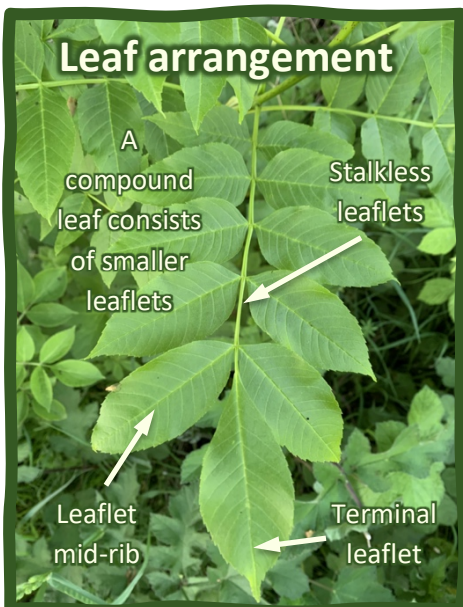
Reproduction strategies:

A wind-pollinated tree that flowers before the leaves emerge so the pollen can be blown through its bare branches, thus like some plants, they don't need eye-catching flowers to attract the wind.

Magic Status:

Witches were reputed to use Ash branches to help them fly. An evenly shaped Ash leaf was thought to bring luck – 'The even ash-leaf in my hand, the first I meet shall be my man'.

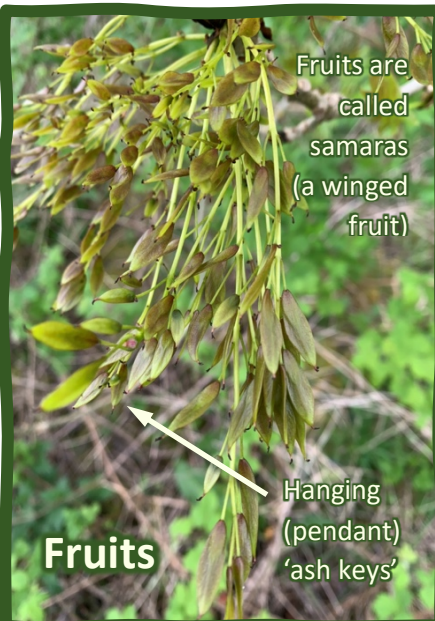
Leaf arrangement



Emerging new leaves



Turning from green to lemon yellow colour



PLANT ID: ash

Fraxinus excelsior L.

Fact File:

CURRENT STATUS: Near Threatened

LOCATION: Found everywhere across U.K and Europe

Plant Description (aka Taxonomy)

The Ash genus (*Fraxinus*) is a member of the Olive family (*Oleaceae*). The Ash genus are woody in nature, have opposite **pinnate** leaves, flowers that lack petals and a fruit that is referred to as a winged **achene**.



Flowers in April to May, before leaves emerge.

Flower Structure

Purplish/red before opening into yellow/green flowers with no petals. Appearing well before leaves begin to emerge.



Fruits

Visible in May and remain obvious on the tree thereafter. Like a bunch of hanging 'keys' they are often referred to as 'ash keys'. They can occur as dense clusters of bright shiny-green single winged fruits called a 'samara'.



Leaf

Dull light to mid-green. Usually pubescent beside each leaflet mid-rib. Compound leaf of shallow serrated leaflets displayed pinnately with 7-13 pairs of stalkless side **leaflets** and one terminal leaflet.



Habitat

Typically grows naturally in lowland forests on fertile damp clay soils but can be found in higher elevations too (up to 1800m in the Alps); especially further south in Europe and beyond. Often planted in urban streets across Europe.



Buds

Black, large and hard to the touch; often referred to as looking like the 'hoof of the devil' or the immature new growth of an emerging Deer antler from its forehead.

ALIASES

Also known as:
European Ash,
Esh, Hampshire
weed and the
Widow-maker.

What to look for



Best time to see it and use it

- April – May: spot the strange purple-red coral-like flowers which emerge before the leaves.
- The rising sap in the branches in early spring allows the young stems to be used for ash whistles in a similar way to willow – see the Ash Play Springboards.
- All year round, ash's forked branches are good for making catapults.

Stem and trunk

Common ash is a medium sized deciduous tree with a domed canopy and ascending branches, that can reach 25m with a trunk girth of up to 5m.

Young shoots are green to grey with white lenticels, stout becoming flattened at the leaf nodes. In young trees, bark is smooth light grey becoming fissured with age.

Often host to lichens and moss.

Mature trees need lots of light for it to flourish, which explains why young trees with very slender trunks have raced their way up to the canopy in their early years.

FOOD WEB

Nectar gathered by insects.

Wood boring beetles lay eggs beneath the bark.

Woodpeckers feed on insects.

IMPERSONATORS:

Rowan (*Sorbus aucuparia*), is commonly mistaken for ash. A key difference is that rowan has alternately arranged buds, whereas ash buds are all opposite. Also, rowan has distinct coloured umbel like white flowers followed by bright orange berries. Other similar native trees in central to southern Europe to look out for: Narrow-leaved ash (*Fraxinus angustifolia*) has brown-purple buds in winter; leaf edges are more jaggedy; leaf top surface shiny-green, but **glabrous** beneath.



PLANT ID: common ash *Fraxinus excelsior* L.

What's in a name? Both its common name and its generic Latin name are derived from ancient languages that describe ash timber as being good for the shafts of spears.

Botany glossary (part 1)

Achene refers to a single fruit that is small and dry, e.g. dandelion, buttercups

Bark the thick outer protective layer of a tree trunk

Trunk the main stem or axis of the tree from which all the branches and canopy spread from

Fissure long narrow cracks or openings as seen on some tree trunks

Bud a small swelling along a branch or at its end from which new leaves, flowers grow

Shoot refers to recent plant growth that may be either a stem, a flower or a leaf. Often also refers to a new plant that emerges from the ground

Lenticels an elliptical raised marking on a shoot that is a breathable pore

Pinnate a compound leaf with more than 3 leaflets arranged in opposite pairs along the main leaf stalk ending in a terminal leaflet

Botany glossary (part 2)

Flower contains the plants reproductive parts at the end of a stalk. It is recognised by the presence of stamen, stigma and ovary usually surrounded by whorls of coloured petals and green sepals.

Anther pollen-bearing part of the Stamen (male) found at its tip.

Leaf scar the mark left on a twig after a leaf as fallen away from it in autumn.

Compound leaf a leaf that is divided into a number of separate smaller leaflets.

Leaflet smaller sub-component of a compound leaf; a smaller leaf.

Style related to the female parts of the flower. A stalk like feature that connects the stigma and ovary, allowing a pollen grain to travel downwards into the ovary at its base.

Glabrous without any hairs

Get up close to the ash by taking a virtual tour using the Pappus film library.



Oldest and largest known tree

Give or take 100 years, the oldest known tree is over 860 years old.

The largest measured tree has a girth of 13m around its trunk.

Note: the largest tree isn't always the oldest!

Global distribution

Found across the UK and west and eastern Europe in abundance, but less so in extreme north and south of Europe.



www.GBIF.org

Spreading domed canopy



Fully Grown Tree

Threats to the ash

First identified in 1992, a fungal disease referred to as 'Chalara ash Dieback' (*Hymenoscyphus fraxineus*) has the potential to wipe out ash trees across the globe.

In 2018 its status was down-graded to 'Near Threatened'.

You can help by spotting the disease and reporting it to Forest Research.

Global species risk of extinction

(IUCN – Red Data List)

In 2018 its existence was downgraded to 'Near Threatened'

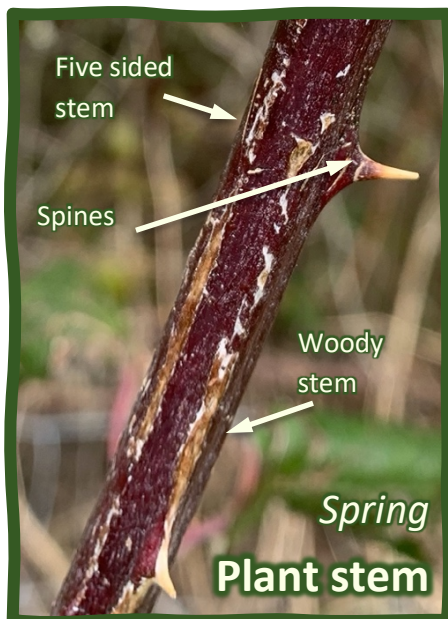


Ash dieback
Forest Research

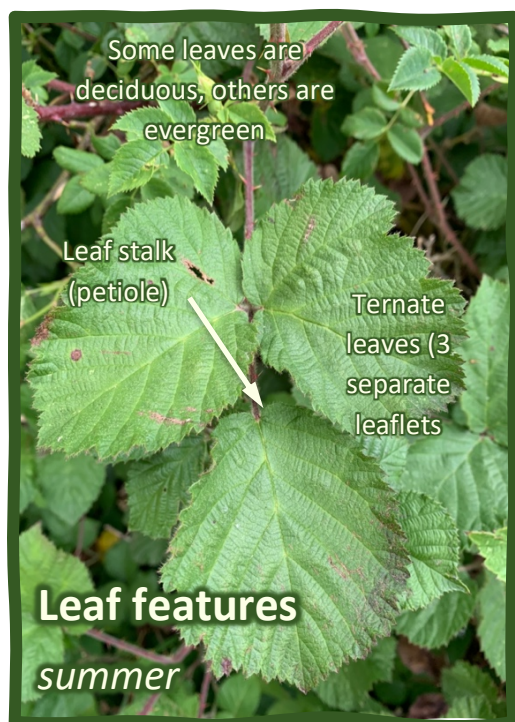


PLANT ID: blackberry

Rubus fruticosus L. (agg.)



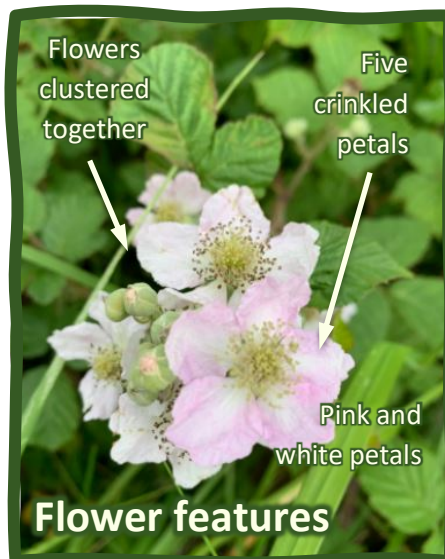
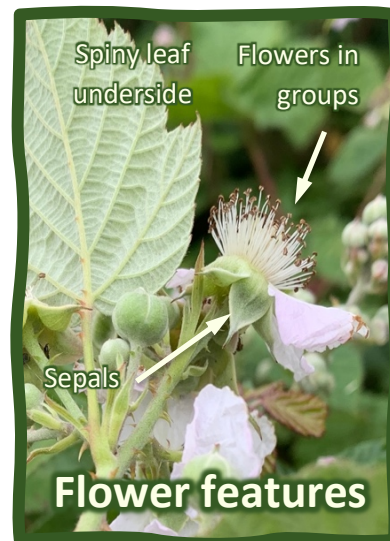
Brambles, like dandelions, are not a single species, but a grouping (aggregation) of many similar micro-species that differ in a variety of ways such as leaf shape, fruit shape, colour and taste.



PLANT ID: blackberry *Rubus fruticosus* L. (agg.)



Avoid picking berries beside roads for presence of heavy metals from car exhausts. **!**



Reproduction strategies:

- Pollinated by insects
- Stem tips tend to root when touching the ground, creating new plants



PLANT ID: blackberry

Rubus fruticosus L. (agg.)

Fact File:

CURRENT STATUS: Least Concern of becoming extinct
LOCATION: Found everywhere across U.K and Europe

Plant Description (aka Taxonomy)

Member of the *Rubus* genus, a part of the rose family (*Rosaceae*).

A very thorny low growing shrub that is capable of forming impenetrable thickets of tangled arching stems, which can extend up to 4 metres.

It is highly invasive; if not managed regularly, the diversity of other species around it.

Rubus is true competitor species.

ALIASES

Also known as:
Bramble, English
Blackberry,
Scaldhead and
Bumble-kites.



Flowers from May to September

Flower Structure

5 crinkled, petalled flowers, white or pink in colour with leafy sepals beneath; being either solitary or in panicles on previous year's growth. Numerous stamens seated on a raised conical receptacle; sepals joined together in a cup below the petals reflexed when in fruit.



Fruits

August to November. Numerous separate globular drupes (segments) each with a hard seed case within. Red in colour at first then ripening a **shiny black**. The gritty texture in a blackberry crumble pudding are the hard seed cases.



Leaf

Variable with either ternate, pinnate or palmately arranged toothed leaflets in set of 3, 5 or 7. Can be either deciduous or semi-evergreen. The stipules are fused to leaf stalk.



Habitat

Found in woods, scrubby waste land, hedges, coast and lowland/upland heathland.



Magic Status

Scientists have found the leaves to be full of flavonoids, some of which can heal sore-throats, mouth sores and reduce aging.

What to look for



Best time to see it and use it

- Late August to the end of September are the best times for picking the delicious fruits.
- By the end of October some berries will have picked up mildews, bacteria or turned too sour to eat.
- An aphorism, or 'old saw', that discourages picking late and therefore inferior berries after Michaelmas (29th September) night: 'Devil pisses, or spits, on the blackberries'!
- Use a long-handled litter picker to pull down the higher up branches, which often have the juiciest berries.

Stems

The stems are woody and roughly 5-sided (usually) with hooked spines, prickles and hairs (sometimes gland tipped and sticky) The stems tangle and sprawl together and amongst other hedgerow shrubs.

FOOD WEB

Nectar gathered by insects.

Berries eaten by birds, mammals and us. The leaves are eaten by caterpillars and deer.

IMPERSONATORS:

	blackberry <i>R. fruticosus</i>	raspberry <i>R. idaeus</i>	stone bramble <i>R. saxatilis</i>	dewberry <i>R. caesius</i>
Ripe fruit	Shiny black	Red and downy	Red	Frosted
Leaf	Separate leaflets - palmate	Pinnate, white-woolly below	Trefoil	Ternate, overlapping
Plus cloudberry (<i>R. chamaemorus</i>) with its orange fruit and palmate leaves.				



PLANT ID: blackberry *Rubus fruticosus* L. (agg.)

What's in a name? Blackberry's Latin name describes a bushy shrub with red fruits. Bramble, its common name, comes from old English: bremel or braemel. It was also used as a nickname for someone who was a 'prickly person'.

Botany glossary (part 1)

Anther pollen-bearing part of the Stamen (male) found at its tip.

Drupe fleshy fruit with one or more seeds, each surrounded by a stony case, e.g. Cherry.

Globular sphere or spherical in shape.

Leaflet smaller sub-component of a compound leaf; a smaller leaf

Get up close to the blackberry by taking a virtual tour using the Pappus film library.



Botany glossary (part 2)

Palmate a compound leaf in nature that has three or more distinct leaflets that arise from a central point rather like the fingers of a hand, e.g. Horse chestnut.

Petiole a stalk of a leaf.

Pollen fine powdery grains produced by the anthers of stamen that contain the male gametes.

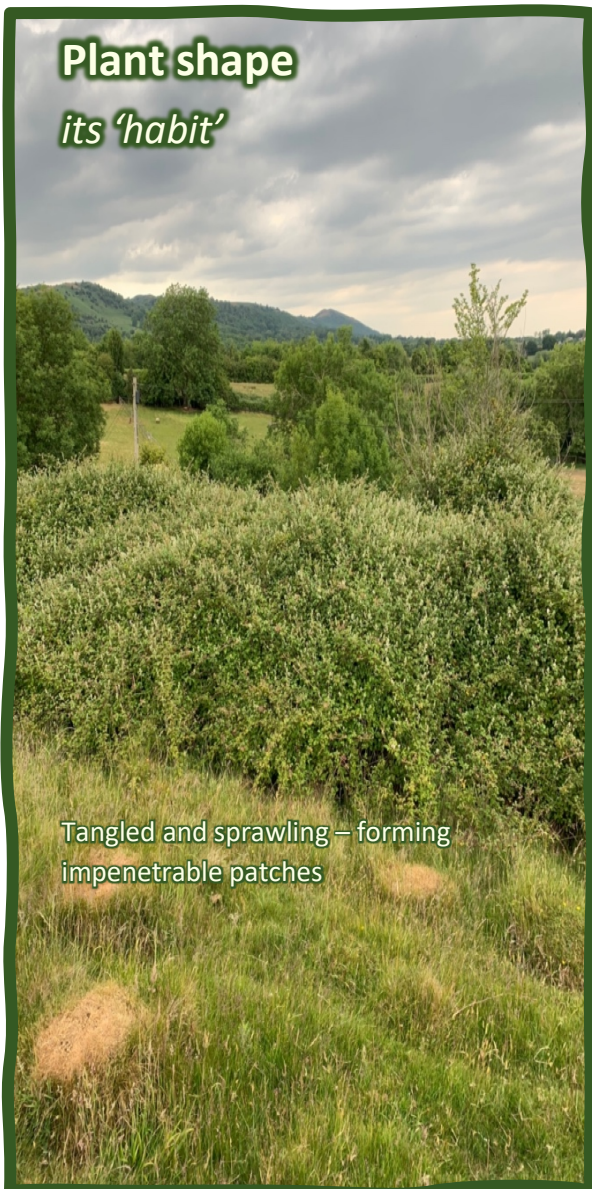
Serrated teeth a saw-like edge to a leaf of varying sharpness and bluntness.

Stigma female part of the flower that transfers pollen collected from pollinators (e.g. bees) to the ovary.

Stamen male part of the flower, each comprising a filament and anther.

Plant shape

its 'habit'



Tangled and sprawling – forming impenetrable patches

Oldest known examples

Blackberry seeds have been found in the latrines, ancient peat profiles and stomachs of recovered bog bodies from pre-historic times, e.g. Tollund Man in Denmark.

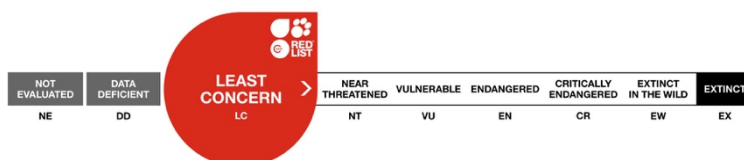
Blackberries, like dandelions, are not a single species, but a grouping of many similar micro-species that differ in a variety of ways such as leaf shape, fruit shape, colour and taste.



Global species risk of extinction

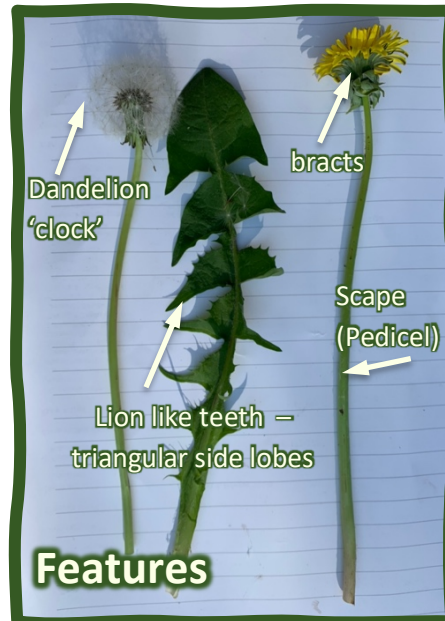
(IUCN – Red Data List)

Blackberry's existence is classed as of 'Least Concern'



PLANT ID: dandelion

Taraxacum officinale (agg.)



Springtime

Dandelions flower profusely in April to May. However, it is not unusual to see them flowering during sunny periods in the winter... they will take any opportunity for a spot of sun-bathing!

The leaves can be found virtually all year round except in very cold months.

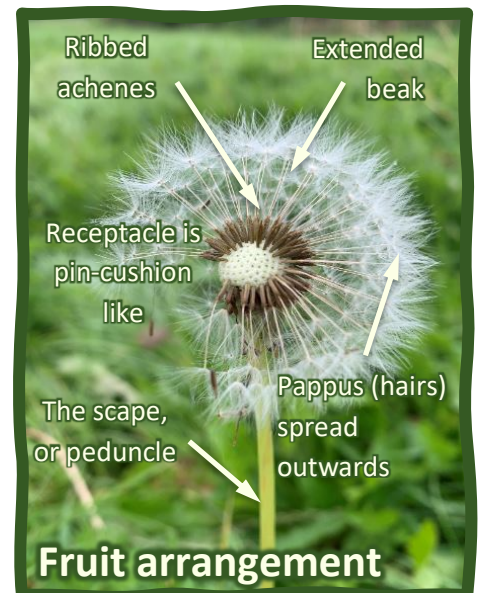
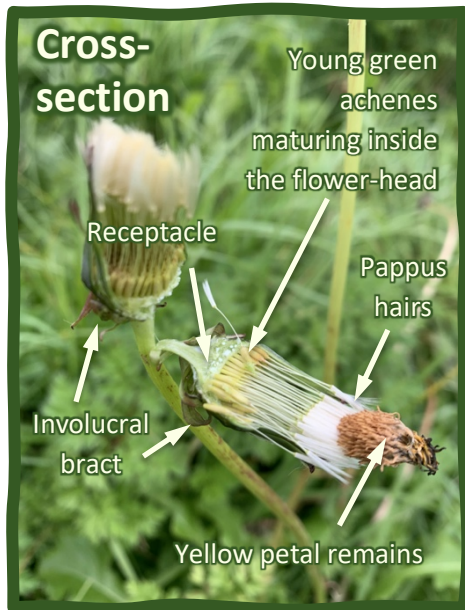


PLANT ID: dandelion *Taraxacum officinale* (agg.)

Spring into summer

Dandelion is usually a hairless perennial herb with a coffee coloured 'tap-root' that is difficult to pull-up without snapping to reveal its crisp white insides. All parts of the plant, when broken, yield a white milky latex liquid which later dries black.

Eaten to excess, dandelion can damage the liver



As each fruit matures, the beak begins to extend, while the hairs of the pappus begin to spread outwards to form the well-known dandelion 'clock'.



Clever flowers

When the flower is ready to bloom, the new flower stem (**scape**) elongates, then bends down close to the ground to allow the seeds to mature, whilst also enabling it to escape lawnmowers or grazers like sheep. When the seeds are mature, the bracts that surround the flower head open to reveal the seeds, while at the same time the flowering stem (scape) extends again, to maximise its height for effective dispersal of its wind-blown seeds.

PLANT ID: dandelion

Taraxacum officinale (agg.)

Fact File:

CURRENT STATUS: Least Concern from extinction
LOCATION: Found everywhere across U.K and Europe

Plant Description (aka Taxonomy)

They are members of the *Taraxacum* genus – a part of the daisy family – *Asteraceae*. *Taraxacum* are known for being very variable and are hence referred to as an 'aggregate' for simplicity. There are around 2000 species in Europe.



Flowers March – October, peaking in April -May
Flower Structure

About 250 rich-yellow ligulate florets tightly packed into one solitary flower head (20 – 60mm across) called a capitulum. The outer florets often have red flushing on their back. The overall flower head is then surrounded by 'palisade like' leafy involucre bracts that may be arched backwards.



Fruits from March to October.

Each achene is ribbed, beaked and topped with white hairs called Pappus. Achenes appear to be fixed (in rows) at their base to a spherical looking 'pin cushion' called a receptacle.



Leaf

Usually hairless, often shiny green above with a reddish mid-rib always growing as a basal rosette only. Leaves are very variable in size and shape, often with triangular lateral lobes.



Habitat

It has a diverse climatic and soil-type range, tending to grow in disturbed bare ground within pastures, gardens, meadows, roadsides and upon waste ground and coastal areas.



Edible:

Parts of the dandelion are edible – see the Pappus Dandelion *Playful Springboard* for recipe ideas!

ALIASES

Also known as: Wet the bed, Monk's head, Priest's crown, Blowball, Old man's clock, while the seeds are referred to as Parachutes, Sugar-eaters and Fairies.

What to look for



Best time to see it and use it

- April for a carpet of bright yellow flowers. Pick the young fresh leaves from the heart of the plant in spring for salads or cook it like spinach.
- Harvest the flowers on a sunny day for the making of wine and syrups.
- Lift the stubborn tap-root between September and March for making Dandelion beer or a coffee substitute.

Stem

The flowering stem is hollow, unbranched and leafless emerging from amongst the basal rosette of leaves.

It has a coffee coloured 'tap-root' that is difficult to pull-up without snapping to reveal its crisp white insides.

All parts of the plant, when broken yield a white milky latex liquid which later dries black.

FOOD WEB

Nectar gathered by bees
Small mammals eat the leaves and seeds.
Grazing animals eat everything.

IMPERSONATORS:

There are many similar species in this family that have yellow flowers and stems with a milky juice that might confuse you. Dandelion's basal rosette of leaves; its hairless nature and its leafless unbranched stem with a solitary flower help separate it from others in the *Asteraceae*, which are either branched, hairy or with much more robust, pimply or grass-like looking leaves. Examples include: Hawk's-beard's (*Crepis* spp.) and Hawkbit's (*Leontodon* spp.).



PLANT ID: dandelion *Taraxacum officinale* (agg.)

What's in a name? Dandelion's Latin name is from the Greek – 'disease remedy'. Its common name - 'dent de leon' - meaning 'the lion's tooth', has possibly evolved from the nature of the shape of either its immature seeds; the jagged shape of the leaves, or perhaps because the pulling of its tap-root from any lawn would be like trying to extract a lion's tooth.

Botany glossary (part 1)

Beak as each fruit matures the beak begins to extend, while the hairs of the pappus begin to spread outwards to form the well-known dandelion 'clock'.

Capitulum a name specific to *Asteraceae* to describe its inflorescence.

Achene refers to a single fruit that is small and dry

Brach leaf like feature (usually green) immediately below a flower at a point where it joins the plant stem.

Involucral bracts a collar like ruff of green leaf like features around the base of a tight head of individual flowers.

Botany glossary (part 2)

Floret a tiny flower that exists as part of a group of many other flowers collected together.

Latex milky sap produced by stems or leaves in some plants when cut.

Ligulate a feature of Daisy family flowers which are often described as strap shaped and spreading.

Pappus a ring of white hairs, sometimes feather like, that are attached to a tiny hard fruit that help with seed dispersal.

Receptacle the enlarged end of a plant stem that the flower parts are connected into.

Scape the hollow flowering stalk of a Dandelion.



Get up close to the dandelion by taking a virtual tour using the Pappus film library.

Oldest

Blackberry's fruits (achenes) have been found in old sedimentary rocks from the Pleiocene epoch (5 – 2.5 million years ago).

Full Plant



Global distribution

Native to the UK and Europe. Introduced and cultivated in some parts of the world.

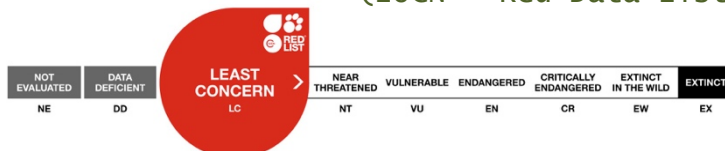


www.GBIF.org

Kew taraxacum

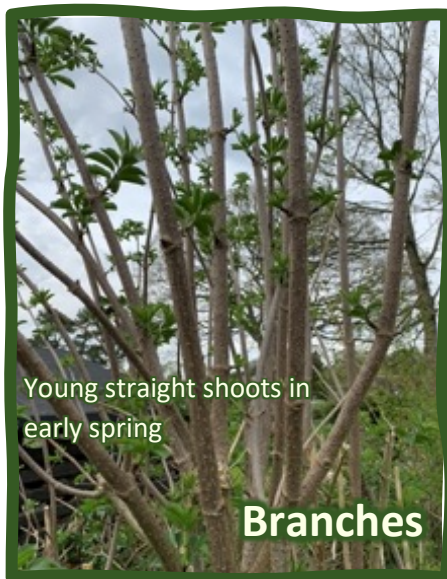


Global species risk of extinction (IUCN – Red Data List)



PLANT ID: elder

Sambucus nigra L.



Spring – early summer

Elder leaves are very distinctive, and the plant's diesel-like smell is unmistakable – some people find it pleasant – what do you think?

The bark of the bigger branches is deeply furrowed and corky, while the new **shoots** tend to be very straight, upright with dimpled **striation** markings (**lenticels**) along its length.

Hundreds of clusters or **umbels** of tiny green buds appear in early spring, turning into aromatic flowers.



Botany glossary (part 1)

Berry: A fleshy fruit, normally with many seeds inside

Compound leaf: a leaf that consists of more than one leaflet

Dicot.: (dichotyledon) Plants with branching veins, resembling a net

Leaflet: a single small leaf that form part of a grouping of other leaflets

Lenticels: A raised marking that is a breathable pore

Shoots: new stem or leaf growth

Striation: A fine ridge, line, groove or streaks of colour



PLANT ID: elder *Sambucus nigra*

Late summer - early autumn

The prolific clusters of white flowers become small, shiny black berries. Each berry is approximately 3-5mm in diameter and each cluster can contain up to 100 berries.

Late autumn - winter

Early autumn leaf buds always look crimson red and tattered with emerging leaves. Elder is deciduous so loses that year's leaves in late autumn. Green algae sometimes shows up on the bark in winter.



Uncooked elderberries are toxic !



The Wood Ear fungus grows on older branches and can be seen all year round either dried and shrivelled in dry weather or full-blown jellied after rainfall.

If you cut into a young shoot - you will see at its centre a soft spongy **pith** which can be gouged out easily using a tent peg or bamboo kebab stick.

PLANT ID: elder

Sambucus nigra L.

Fact File:

CURRENT STATUS: Common

LOCATION: Found almost everywhere across Europe

Plant Description (aka Taxonomy)

Member of the Moschatel family (*Adoxaceae*). A **dicot**. A **deciduous** woody, flowering shrub or small tree growing up to 10m tall.



Flowers from May to July

Flower Structure: Creamy white flat-topped **umbel** (10-20cm across) resembling an open umbrella.



Fruits from August – September.

Known as a **Berry** – hence its name. Green at first turning crimson then black when ripe.



Leaf

Pinnate toothed leaves in opposite pairs.



Habitat

Found in Woodlands, hedgerows and scrubby waste ground. Likes fertile soils and will quickly colonise disturbed ground. Often alongside Nettles which also like nutrient rich ground. Elder plays host to the parasitic Wood-ear fungus (*Auricularia auricula-judae*)



Edible The flowers and berries are edible when cooked, but the leaves and twigs contain toxic levels of cyanogenic glycosides.

The leaves and twigs are safe to handle and play with, but as with all plants you must always wash your hands afterwards and before eating.



Magic Status A highly magical powerful plant. If burned you will see the Devil or if grown by your house will keep the Devil away and ward off evil.

ALIASES

Also known as the Boortree, Boontree, Borewood, Battery, Dog tree, Ellern and the Fairy tree

What to look for



Best time to see it and use it

This depends on what you want to do with it!

- In spring, collect the plentiful elder flowers to make elderflower cordial, tea or fritters – but beware – uncooked flowers are berries are poisonous!
- In spring, when the rising sap makes removing its bark easy, make elder whistles (sometimes known as May Whistles), pea shooters and pencils.
- Collect the berries in autumn, to make plant dyes, berry cordial and... wine!
- Use older autumn stems to whittle your own Elder Wand.

Stem and trunk

Look out for the deeply furrowed and corky textured older bark and young straight shoots with dimpled striation markings.

The Judas-ear fungus can be seen all year round either dried and shrivelled in dry weather or full-blown 'jellied' after rainfall.

FOOD WEB

Nectar gathered by bees

Berries eaten by birds

Moths lay their eggs and their larvae eat the leaves

IMPERSONATORS:

Similar plants confused with it include: Wayfaring tree (*Viburnum lantana*) and rowan (*Sorbus aucuparia*) which both have white or cream flowers in an **umbel** like shape. Like the rowan it has fewer **opposite** paired pinnate toothed leaves and they are not as neatly cut and presented on their leaf stems. When not in flower the leaves, the deeply furrowed bark and the 'petrol' smell are key to identification.



PLANT ID: elder *Sambucus nigra*

Botany glossary (part 2)

Opposite (leaves) Leaves that are opposite on the stem

Pinnate A compound leaf with more than 3 leaflets arranged in opposite pairs

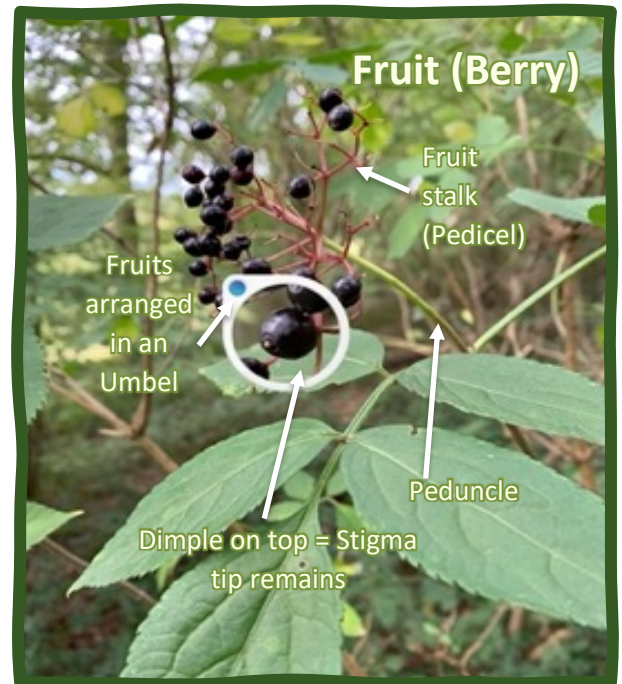
Pith Soft spongy material in the centre of young plant stems

Taxonomy The scientific practice of identifying, describing, naming and classifying Earth's organisms

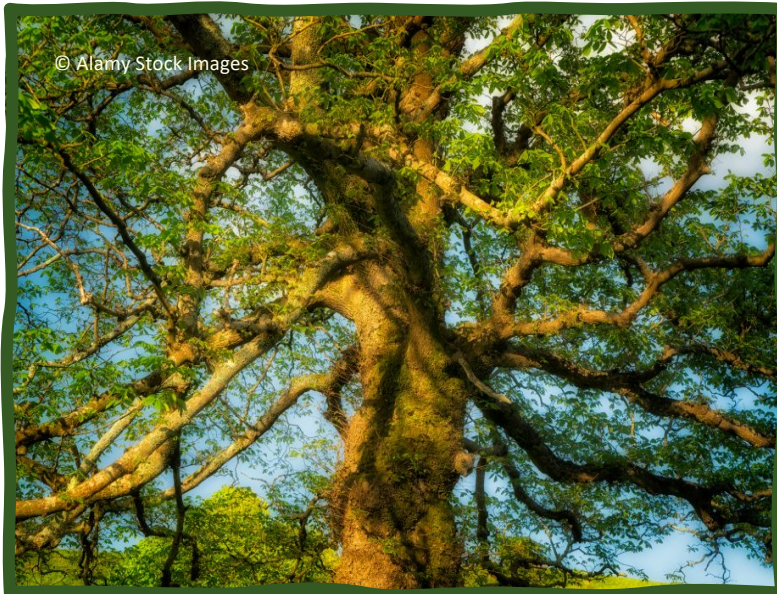
Umbels A group of flower stalks radiating out like the spokes of an umbrella

Vein The part of the leaf that transports nutrients

Petiole A stalk of a leaf



Get up close to the elder by taking a virtual tour using the Pappus film library.



© Alamy Stock Images

Biggest and oldest

Elders is not usually known for reaching any great size or age. However, in Haute-savoie, France, there is an elder tree with a girth of 2m; a remarkable size for this tree - the lifestyle in France must be very good! Typical maximum height is 15m.

More elder ideas

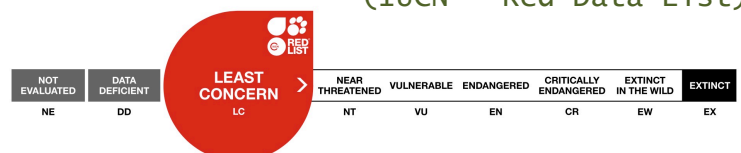
Several of the Pappus Learning Springboards and the Elder Playful Springboards sheets include activities related to elders – check then out at www.pappusproject.eu

Fertile Soils - a soil that contains all the major nutrients for plant growth (e.g. Nitrogen, Phosphorous, Potassium).

Elder is often found near rabbit warrens and badger setts, where the seeds are distributed via the badger's droppings.

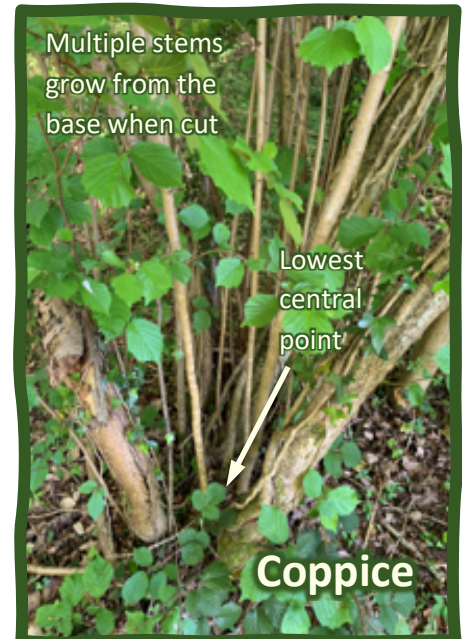


Global species risk of extinction (IUCN – Red Data List)



PLANT ID: common hazel

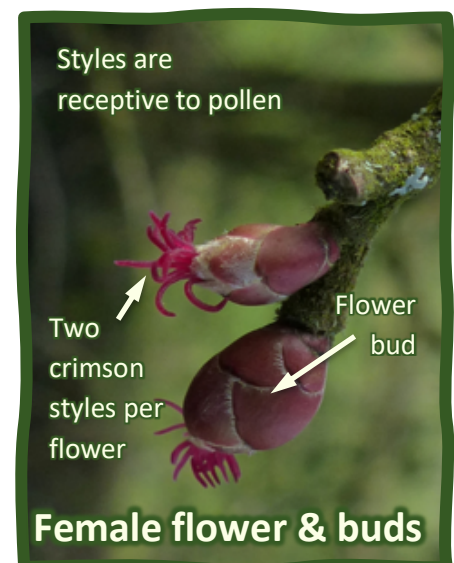
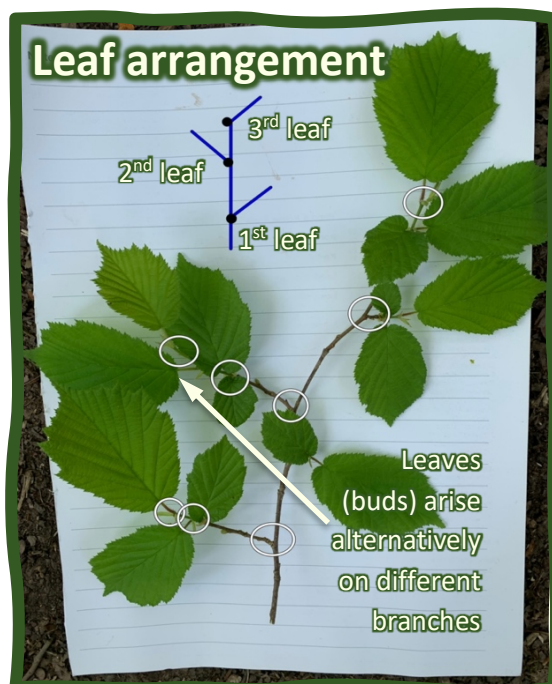
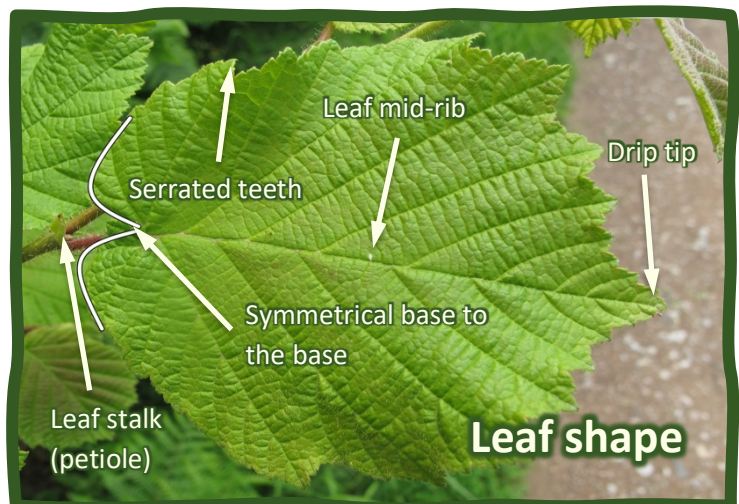
Corylus avellana L.



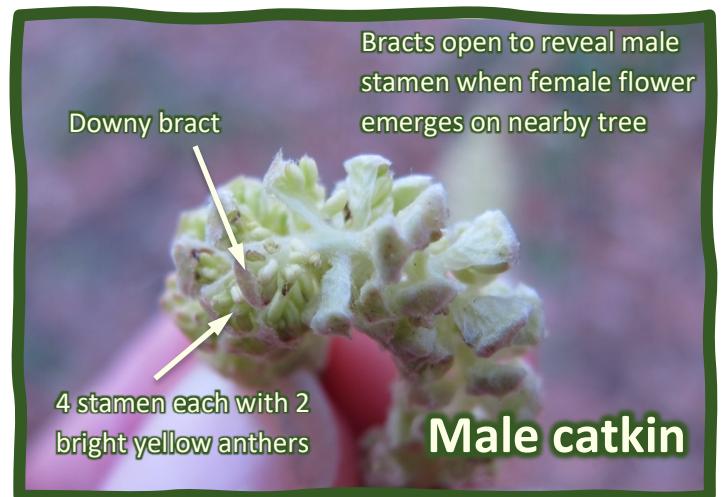
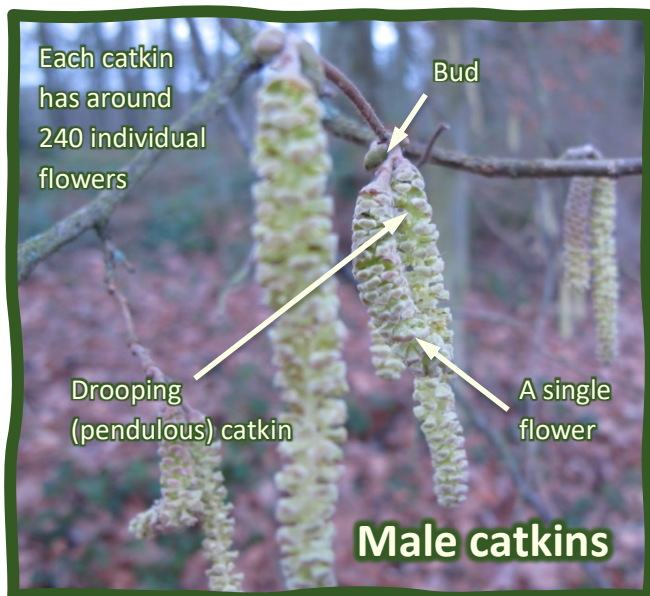
Practical uses

In the past, coppicing a hazel helped produce charcoal for fuel and laths for the internal plastered panels within black and white timber framed houses.

Collect the nuts from late August, to use as ammunition in homemade catapults.



PLANT ID: common hazel *Corylus avellana* L.



Hazelnuts can trigger tree nut allergies !



Did you know?

When found in a woodland, hazels will always have many woody stems that emerge from their lowest central point, giving them the appearance of very large badminton shuttlecocks. This is because the tree reacts to cutting at the base of the tree (referred to as coppicing) and regrows new stems.



Helpful ID Tips

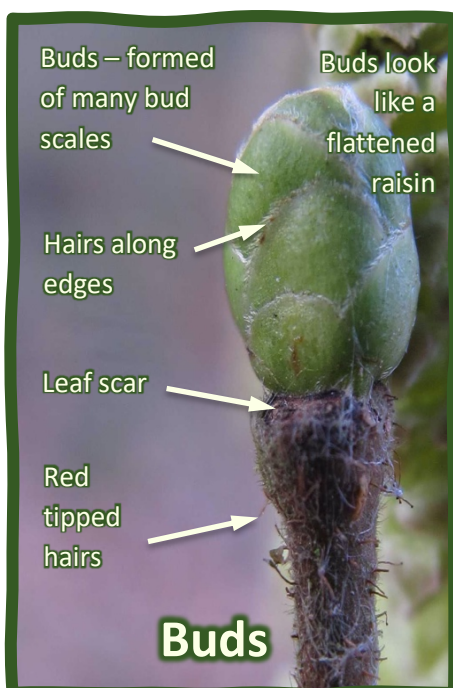
The stems of the hazel tree will almost be straight and will have **scars** across them and be grey to coppery brown.

If found in a hedgerow, the subtle 'zig zag' twigs, the symmetrical dull, downy leaves with drip-tips and red tipped hairs on young twigs will also help.

Reproduction strategies:

Pollination: pollinated by insects and the wind.

Seed dispersal: spread by mammals.



PLANT ID: common hazel

Corylus avellana L.

Fact File:

CURRENT STATUS: Least Concern of becoming extinct
LOCATION: Widespread across Europe

Plant Description (aka Taxonomy)

Hazel is a wild native of Europe. It is a tall, deciduous shrub – up to 8 metres tall – that can be considered a small tree. It is a member of the birch family (*Betulaceae*), which includes some other familiar trees you might have heard of such as birch and alder. Members of this family all have separate male (**catkin**) and female flowers.



Flowers: January to March, though male **catkins** will begin to appear from the October before.

Flower Structure:

They both appear before the leaves emerge. The drooping, pendulous male flowers (catkins) are 2-8cm long. The female flower is much less obvious to see. Their vivid red **styles** are 5mm long and emerge from the tip of what resembles a small green bud.



Fruits from September to October.

Fruits are known as hazelnuts. When ripe they are oval, brown and woody and up to 2cm long. In late summer they begin to appear in clusters as a light green globule, wrapped into a leafy green package.



Leaf

Rough, double-toothed leaf, downy to the touch and dull in appearance, 5-12cm long. Rounded to oval in shape with a variable drawn-out 'drip-tip' at one end and a cordate bottom at the other. Almost symmetrical along the leaf mid-rib.



Habitat:

It is a very common large shrub that is mainly associated with the understorey of deciduous woodlands; planted in hedgerows and can appear randomly in other scrubby places.



Bud:

Green and flattened, appearing like a raisin.

ALIASES

Also known as European hazel and lamb's-tails because of its drooping, bushy, tail-like catkins.

What to look for



Look for the many straight upright woody stems that grow from the shrubs most-lowest central point.

Best time to see it and use it

August – October: Look out for the grey squirrels harvesting the nuts.

Late winter: The male catkins are more conspicuous now as they are electric yellow in colour and will billow out puffs of pollen when shaken.

Winter and very early spring: **The young twigs** have a distinct mix of hairs. If you have good eyesight, look out for the **longer red tipped hairs** that stand head and shoulders above the surrounding shorter translucent hairs.

Stem and trunk

It's twigs subtly 'zig zag', a feature that is much more obvious in winter; especially when its alternate green buds and catkins are visible. The young bark is coppery brown with short raised horizontal scars. The bark tends to peel with age.

FOOD WEB

Nectar gathered by insects.
Nuts eaten by mammals, especially dormice and squirrel.

IMPERSONATORS

The multi-stemmed Kentish cob-nut (*Corylus maxima*) which are grown in orchards. The single stemmed Turkish hazel (*Corylus colurna*) which is planted as a street tree. Other trees with similar leaves growing close-by are: the elms (*Ulmus spp.*) and the limes (*Tilia spp.*). Lime leaves are shiny and are strongly heart shaped. Elms have an asymmetrical leaf, while hazel is symmetrical. Fold its leaf in half along its mid-rib. If it's hazel the underside will be almost concealed, while if it's elm the leaf bottom will be visible.



PLANT ID: common hazel *Corylus avellana* L.

What's in a name? Hazel's common name comes from the Anglo-Saxon word 'haesel knut', meaning hat and probably refers to the leaves that wrap the top of the nut itself resembling a cap.

Botany glossary (part 1)

Lenticels raised marking on a shoot that is a pore.

Bark the thick outer protective layer of a tree trunk.

Stem vertical shoot that connects the roots, leaves and flowers together.

Leaf mid rib the centre of a leaf from which side veins run out from.

Petiole a stalk of a leaf.

Style related to the female parts of the flower. A stalk like feature that connects the stigma and ovary, allowing a pollen grain to travel downwards into the ovary at its base.



Botany glossary (part 2)

Bud scale protect the developing leaves and branch growth for the following year.

Leaf scar the mark left on a twig after a leaf as fallen away from it in autumn.

Catkin consisting of a spike of tiny flowers, usually all one sex - e.g. Hazel.

Bract a small swelling along a branch or at its end from which new leaves, flowers grow.

Nut a dry hard fruit, e.g. Hazel nut.

Stamen male part of the flower

Anther pollen-bearing part of the Stamen (male) found at the tip.

Get up close to the hazel by taking a virtual tour using the Pappus film library.



Toothwort *Lathraea squamaria*



Toothwort is parasitic on hazel roots

Toothwort *Lathraea squamaria*

Mythical plant of legends ...
... a 'vampire' plant that needs close contact with hazel to reproduce its next generation successfully. All helped by kindly Ants that carry the seed down into their nests beside the roots.

Global distribution

Found almost everywhere in the British Isles and across Europe except a few places where the soils are more acidic.

Oldest Largest Tallest

Germany holds the record for the oldest tree at 200 years of age.

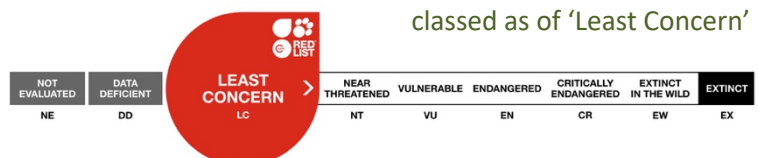
Sweden has the tallest tree at 16.3 metres.

Spain has a tree with the largest girth at 3 metres.

Global species risk of extinction

(IUCN – Red Data List)

Hazel's existence is classed as of 'Least Concern'



PLANT ID: horse chestnut

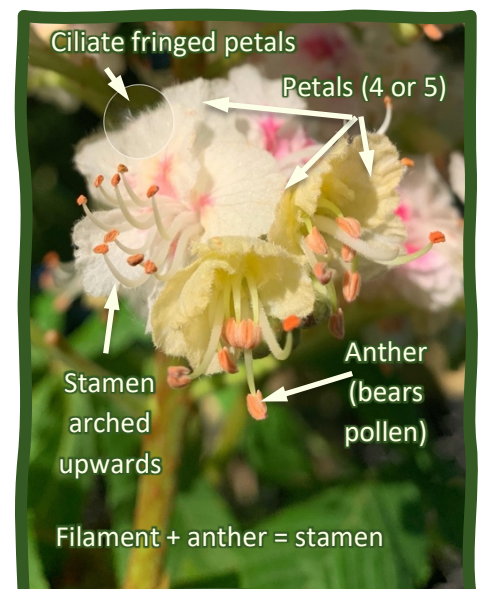
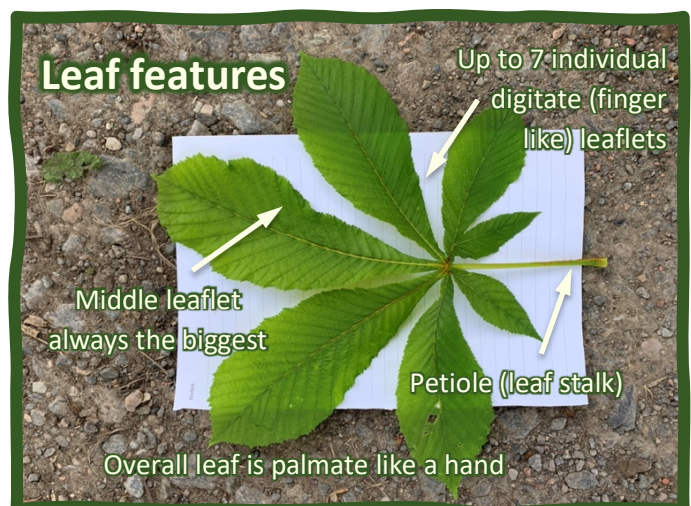
Aesculus hippocastanum L.



Late winter – early spring

Look out for a tree with very stout twigs that curve up at their ends giving it the look of a majestic middle eastern dancer balancing on one leg, arms extended out with up-turned cupped hands.

Feel the large sticky terminal leaf buds on twigs and shoots. Seek out the presence of horse-shoe shaped leaf scars near to the end of twigs.



PLANT ID: horse chestnut *Aesculus hippocastanum* L.

Spring into summer

Large palmate leaves with clusters of individual flowers, arranged together resembling an upright conical candle. Petals with fringed **ciliate edges**.

Autumn

Large glossy brown seeds called 'conkers' drop from the tree to the ground below.

Winter

As in very early spring but with no leaves. Leaf and flower buds are large, dark red-brown and very 'sticky' to touch in late winter - early spring.

**Raw,
uncooked
horse
chestnuts –
conkers – are
poisonous to
humans**

Clean white
lining when
freshly opened

Glossy mahogany
brown seed
known as a
'conker'

When ripe
the capsule
splits into
segments

Capsule

Fruit - conkers

Leaves turn yellow
gold, then brown

Autumn

Stumpy spines
radiate outwards
from the capsule

Pedicel
(fruit stalk)

Often more
than one
seed inside

Fruit

Large, sticky,
glossy buds

Leaf stalk
still intact

Visible
leaf
scar

Very
stout
twigs

Autumn buds

Dimples
(lenticels)

Horse-shoe
shaped leaf scar
from previous
year's leaves

Twig

Bud scales are in
opposite pairs

Dark line
indicates
perimeter of
bud scale

Bud scale

Bud

Pests and diseases

Horse Chestnuts suffer from Bleeding Canker (*Pseudomonas syringae* pv *aesculi*), a specialist leaf miner (*Cameraria ohridella*) and the leaf blotch fungus (*Guignardia aesculin*).

Reproduction Strategies

Pollination - Clever flowers! Pollinated by both wind and insects. The individual flowers act as a 'traffic light' system to visiting insects in two ways: **1.** A colour change from its yellow markings to a pink-red, indicates that there is no nectar reward available as it has already been pollinated. **2.** Individual flowers open and close their petals at specific times and emit a specific scent in order to exactly control when insects can enter or leave.

Seed dispersal: Water and animals help spread the seed.

PLANT ID: horse chestnut

Aesculus hippocastanum L.

Fact File:

CURRENT STATUS: Vulnerable to extinction

LOCATION: Found almost everywhere across Europe

Plant Description (aka Taxonomy)

Member of the Soap tree family (*Sapindaceae*) and of the Genus – *Aesculus*. A tall - up to 35m - deciduous tree of stocky appearance.



Flowers from late April – early June

Flower Structure

Flowers comprise 4-5 individual white petals with a yellow or pink red spot at their base. **Stamen** arch strongly upwards.



Fruits from September - October.

Green - ripening to chestnut brown, globular in shape with few short flexible stumpy spines that radiate outwards. Splitting when ripe to reveal a white lining that holds conkers - large mahogany-brown seeds.



Leaf

Palmate leaves comprising 5-7 individual **digitate leaflets** all of different size with the middle one always being the largest.



Habitat

Native in the Balkans and Greece. Elsewhere it is widely planted for its attractiveness in urban streets, parks and the countryside across Europe. They grow best in moist well-drained soils.



Bud

Large dark red-brown coloured buds, with a sharply pointed tip. 'Sticky' to the touch in late winter and early spring.



Edible: The uncooked raw horse chestnut fruit is poisonous to humans. If tempted to eat one, you'll soon spit it out before any harm is done. Various parts of the tree contain high levels of aesculin which has a medical use.

FOOD WEB

Nectar gathered by bees

Leaves eaten by leaf miner

IMPERSONATORS:

This tree is only confused with other horse-chestnuts - such as red horse-chestnut (*Aesculus x carnea*) - which has **red flowers**, **smaller conkers** and **scarcely any spines**, if any. The buds are **virtually non-sticky**. The sweet chestnut (*Castanea sativa*), although different looking tree, does have very similar 'conker-like' fruits. Their outer case is yellow-green and is covered in very sharp spines. Inside, the red-brown chestnut tapers to a point.

ALIASES

Also known by its distinctive and playful fruits as Conker Tree, Cheggies and Obblyonkers.

What to look for



Best time to see it and use it

This depends on what you want to do with it!

- In the UK May 11th is known as Chestnut Sunday. The trees become illuminated by hundreds of candle-like white flowers. The flowers, which are 20 – 30 cm high, resemble an elaborate 'wedding dress' flecked with pink/red or yellow spots.
- From September its conkers are ready to be harvested, collected – and played with!
- In Autumn the leaves turn yellow-gold to orange and fall earlier than surrounding trees to reveal horse-shoe shaped leaf-scars, complete with – if you look closely enough – what appear to be 'nail-holes'.

Stem and trunk

Bark is smooth when young but then reddish-brown or dark grey-brown breaking up into long rectangular flakes with their edges beginning to curl away from the trunk.

Young shoots are very stout being pale pink-brown or reddish-purple in colour with pale **lenticels**.



PLANT ID: horse chestnut *Aesculus hippocastanum* L.

What's in a name? Its Latin name, *hippocastanum* means horse chestnut. There are two camps of thought about the origin of the name; one being the healer of horse respiratory problems and the other - the small horseshoe-like markings that are present on its twigs, when leaf petioles fall in the autumn.

Botany glossary (part 1)

Anther pollen-bearing part of the Stamen (male) found at its tip.

Digitate lobes that radiate out from a single point, like spreading fingers.

Filament stem supporting the Anthers

Inflorescence how a group of flowers are arranged on the plant.

Leaflet smaller sub-component of a compound leaf; a smaller leaf.

Ciliate an edge fringed with hair like projections, linked (usually) to leaf and flower margins.

Lenticel a raised marking on a shoot that is a breathable pore.

Botany glossary (part 2)

Leaf scars the mark left on a twig after a leaf as fallen away from it in autumn.

Palmate three or more distinct leaflets that arise from a central point rather like the fingers of a hand.

Petals the inner most colourful two whorls (the other being the green sepals) that surround the reproductive parts of a flower.

Petiole a stalk of a leaf.

Stamen male part of the flower, each comprising a filament and anther.

Pedice the stalk of a single plant flower.

Get up close to the horse chestnut by taking a virtual tour using the Pappus film library.



Tree in early autumn

Biggest and oldest

The oldest tree is thought to be over 400 yrs old and is growing in a churchyard in Zetting, France.

A tree at Hughenden Manor, High Wycombe (UK) has the largest trunk girth of 7.33m.

Note: the largest tree doesn't always mean it's the oldest.

Global species risk of extinction (IUCN – Red Data List)



PLANT ID: Common ivy

Hedera helix L.



Shape



Stems



Bark

Spring

For making useful items such as rolling pins when the sap makes it easy to remove the bark.

If you're interested in getting up close to the daily lives of Birds and Insects, then a sunny day in spring can't be beaten for observing Birds setting up a nest site or feeding on its ripe black berries.



Leaf shape



Leaf features



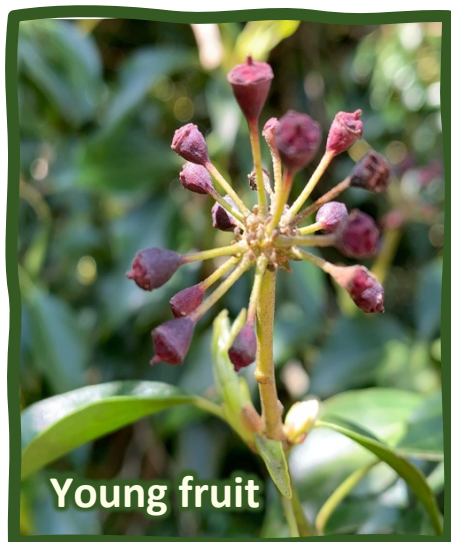
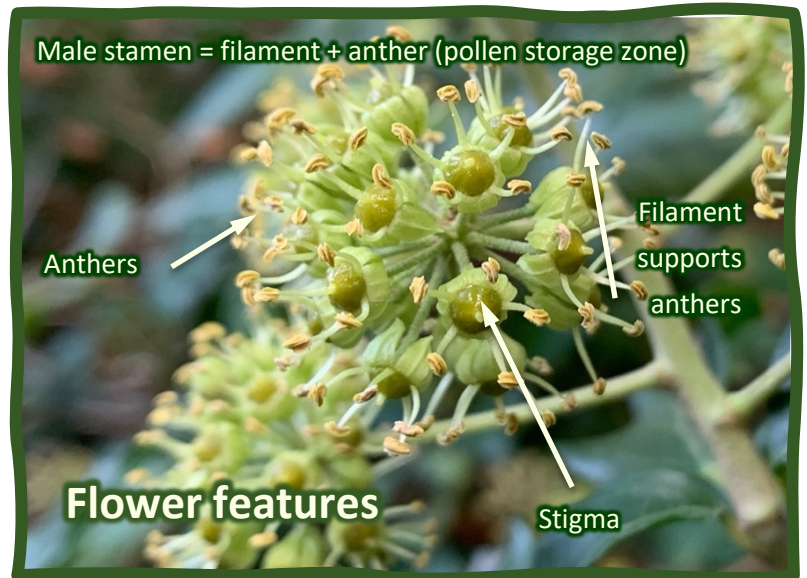
Leaf features

Key feature
Sucker-like adhesive roots that resemble the legs of a millipede.



Leaf arrangement

PLANT ID: Common Ivy *Hedera helix* L.



Poisonous
If eaten!

Practical uses:

Ivy used to be used for pastry rolling pins because the pastry would not stick to it like other woods.

In the 1940s and earlier, the darkest green leaves were sometimes used at home to clean or restore the colour of clothing. By first steeping leaves in boiling rainwater and leaving for 12hrs, the liquid was ready to sponge down clothing with soiled marks. It worked a treat - apparently!

PLANT ID: Common ivy

Hedera helix L.

Fact File:

CURRENT STATUS: Common

LOCATION: Found almost everywhere across Europe

ALIASES

Also known as
common ivy and
English ivy

Plant Description (aka Taxonomy)

Member of the *Araliaceae* family (*Caprifoliaceae*). A vigorous evergreen woody climbing shrub, that can spread up to 30m in any direction! It forms carpets on woodland floors; smothers trees, derelict buildings and even tomb stones.



Flowers from September - November

Flower Structure

Individual small flowers group together to form a short stalked yellow - green **umbel** (10-20cm across) shape that resembles a small open umbrella.



Fruits from November – March

The **berries** in spring look like milk chocolate lollipops that blacken with age. Poisonous to eat.



Leaf

Evergreen. Range of leaf shapes and sizes (4 – 10cm long), from triangular, through to oval, elliptic and 3 to 5 lobed. The shape of leaf relates to the existence of flowers and fruits on the plant.



Habitat

Found in many locations, but mainly associated with dry woodlands, hedgerows, old walls, derelict old buildings and scrubby waste ground. They rely on a host like a tree or wall as a prop to climb upwards or along.



Magical properties

Used as a wart and verruca charmer. There are accounts of children placing a couple of leaves in their socks over a two-week period and reporting that it worked.

What to look for



Its mix of dull and glossy rubbery leaves have pale leaf veins and often a marbled surface effect. There are tiny white hairs on the underside of the leaves.

Best time to see it and use it

Its evergreen leaves can be collected all year round for decoration, especially at Christmas for wreath making. Rolling pins can be made in springtime when the sap makes it easy to remove the bark.

Stem and trunk

Sandy coloured rough bark. The larger trunks of ivy when stripped back to their bare wood look-like ivory. Look out for the thousands of sucker-like adhesive roots that cloak its branches and trunk. These help it cling to its host as it ascends skyward.

FOOD WEB

Nectar gathered by bees
Berries eaten by birds and mammals.
Butterflies lay their eggs and their caterpillars eat the leaves

IMPERSONATORS: Key similar species are:

Five other woody climbing shrubs such as honeysuckle, clematis, dog-rose and bittersweet can be confused with common ivy. However, these are all deciduous so won't be confused with ivy, especially in the winter. Also, none of them have the sucker-like adhesive roots that ivy has. Honeysuckle has oval leaves that are not glossy; dog-rose has spines along its stem; honeysuckle and clematis leaves are arranged in opposites.



PLANT ID: Common Ivy *Hedera helix* L.

What's in a name? Its Latin name *Hedera helix* describes it as a plant that clings and grasps objects tightly while coiling and spiralling its way around its host.

Botany glossary (part 1)

Anthers- Pollen-bearing part of the Stamen (male) found at its tip.

Stamen -Male part of the flower

Filament -The stamen of a flower — the part that produces pollen — consists of a slender stalk, called a filament and an anther.

Stigma -A stigma is a part of a flower that gets pollen from pollinators such as bees.

Umbel- A group of flower stalks radiating out like the spokes of an umbrella.

Get up close to ivy by taking a virtual tour using the Pappus film library.



Botany glossary (part 2)

Perennial – A plant that lives for more than two years and typically flowers and fruits each year thereafter.

Parasite- A mutually beneficial relationship (synergy) between species, where one parasitic organism lives on or in another organism, the host.

Photosynthesis -The process used by green plants to use sunlight to synthesize nutrients from carbon dioxide and water.

Umbel A group of flower stalks radiating out like the spokes of an umbrella.



Coiling stems

Is Common ivy a threat to a living tree?

No! Their sucker-like adhesive roots do not penetrate inside the tree and so are not a threat to them.

Yes! Total coverage of a tree prevents it from **photosynthesising** sunlight into energy. It also increases the chance of the tree from being blown over in a storm, because large quantities of thick-growing ivy act almost like a ship's sail in high winds.

Oldest – Largest – Tallest:

Belgium holds the record for the oldest tree at over 170 years old.

Poland has the tallest ivy bush at 25.2 metres.

Italy hosts the largest girth at 2.4 metres.

Global distribution

Found almost everywhere in the British Isles and across Europe.

Medicinal uses

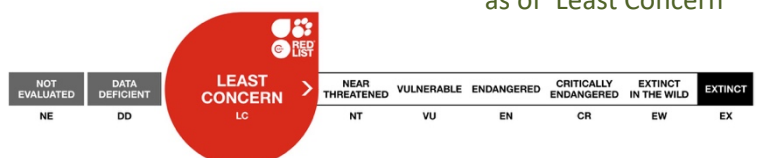
In ancient Greece, Hippocrates used ivy to reduce swelling and as an anaesthetic.

Herbalists use it to treat respiratory conditions, such as asthma, bronchitis, inflammation and arthritis.

Global species risk of extinction

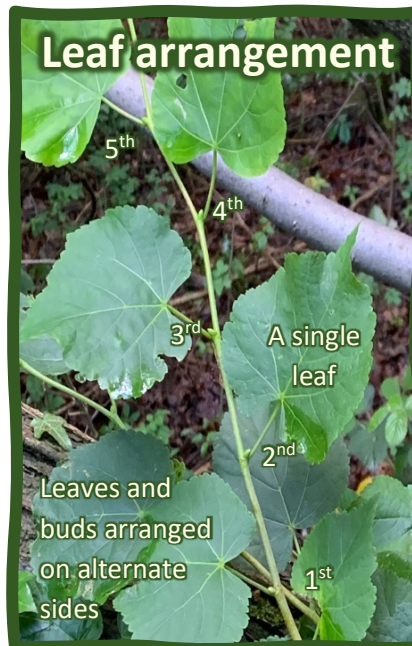
(IUCN – Red Data List)

Ivy's existence is classed as of 'Least Concern'



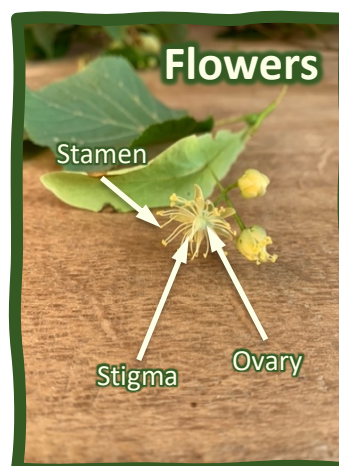
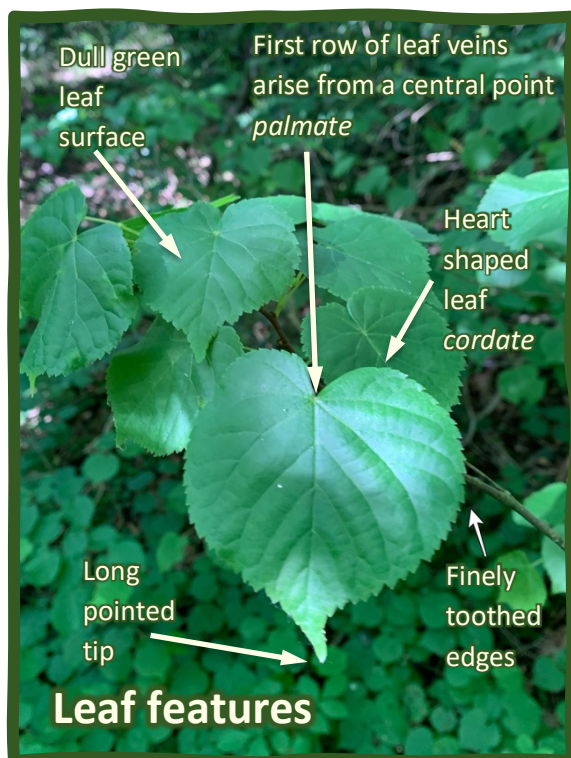
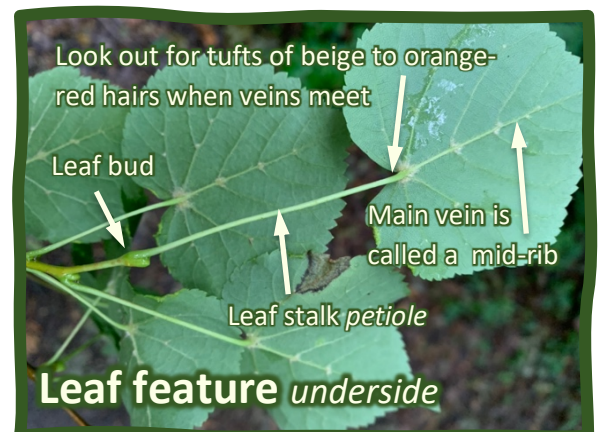
PLANT ID: small-leaved lime

Tilia cordata L.

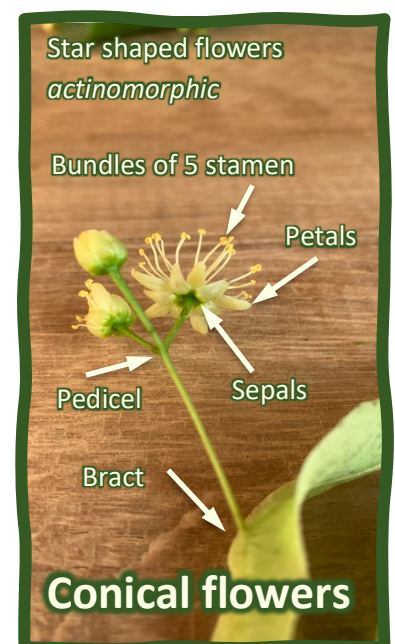


Practical uses

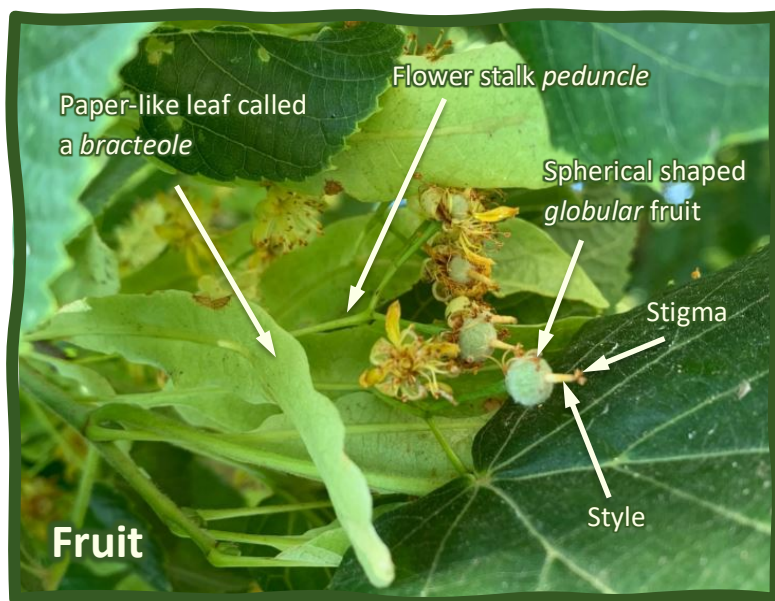
Fibres from its inner bark are used to make shoes, baskets, ropes and mats, while its soft, white and easily carved wood is used in making piano keys because it does not warp.



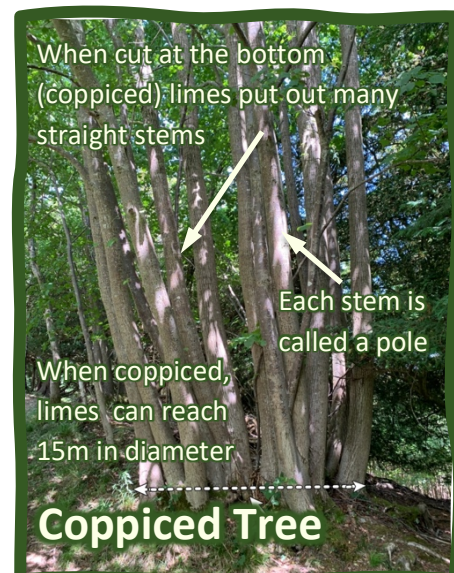
Lime hawk moths (*Mima tiliae*) crawl along its branches in May/June



PLANT ID: small-leaved lime *Tilia cordata* L.



Lime is not a toxic or poisonous plant, but it is very sticky!



Helpful ID Tips

Look at the location of, their colour and spread of leaf hairs on the leaf underside.

If there is a fruit, decide on its shape and whether it has or does not have distinct ribbing on its surface, and is it hairy or not.

Are there **leaf galls** and **honeydew**?

Do the flowers point upwards or hang downwards?

Where is the tree growing?

Edible

Lime flowers can be used to make a tea that will ease stiff muscles and help you sleep easier at night.

Collect the flowers and bracts when they are in full bloom (June – July) and dry them for a couple of weeks. Add a couple of flowers to a cup of hot water.

Reproduction strategies

Pollination: pollinated by insects.

Seed dispersal: spread by mammals, birds, wind.

PLANT ID: small-leaved lime

Tilia cordata L.

Fact File:

CURRENT STATUS: Least concern of becoming extinct
LOCATION: Widespread across Europe and U.K.

ALIASES

Also known as the linden, baste tree, basswood, little-leaf linden or pry.

Plant Description (aka Taxonomy)

A member of the lime family (*Tiliaceae*), though recently molecularly re-classified as a part of the *Malvaceae* family. All members have long-stalked, simple **cordate** leaves and clusters of fragrant **actinomorphic** flowers each having a common stalk that has a fused, oblong, papery looking leaf called a **bracteole**. A **deciduous** tree, that when left to grow naturally can reach 38m. If they have been coppiced, they regrow quickly by putting out new straight poles from the base of the tree and have been known to be as large as 15m in diameter.



Flowers: Early June - July.

Flower Structure: Clusters of 5 to 10 yellowy green flowers and **bracteoles** that stick upwards through the leaves to be seen from afar.



Fruits: August - September.

Spherical (globose) in shape, sometimes with faint ribbing on its surface and usually hairless.



Leaf: Dull green heart shaped, finely toothed edges with a longish pointed tip that draws out the heart-shaped nature of the leaf. Underside of the leaf you will see that the first row of leaf veins is all palmate. In the armpit of the main veins you will see tufts of buff coloured hairs that become more orangey-red with summer age.



Habitat: A native tree of warmer lower slopes, lowland areas, especially upon limestone. It has been present in woodlands across Europe for more than 10,000 years. It is shade and drought tolerant.

Bud: Less than 4mm long. Look out for the colour of the young twigs, shoots and buds which are brownish red above and olive below.

What to look for



The toothed, heart shaped leaf is very distinctive of all species of lime (*Tilia spp.*) tree.

Best time to see it and use it

In summer, lime trees can be identified from afar by the presence of their fresh, electric green / yellow inflorescence that contrast against their darker strongly heart-shaped (cordate) green leaves.

Collect fresh summer flowers, then dry in the sun to make relaxing herbal teas that can help you sleep at night. Sit beneath a lime tree and be entertained by its buzzy insect orchestra.

Stem and trunk

Look out for smooth grey bark of young trees with developing brown cracks that slowly begin to fissure up and down the trunk as they get older. Older trees are more cracked and darker grey or brown. Fresh young shoots will be green but with summer, autumn and winter ageing, they become more olive-brown on the underside and mahogany red on the top side.

FOOD WEB

Nectar gathered by insects.

Fruits eaten by

lime **aphids** (*Eucallipetrus tiliae*), who feed on sugars and amino acids it extracts from its leaf veins. Honeybees gather the honeydew produced by the aphids.

IMPERSONATORS: Key similar species are:

Generally, only other limes with cordate leaves will be confused with it.

Common lime (*Tilia x europaea*) has white/buff tufts of hair in the join between leaf veins on the leaf underside. The flowers hang downwards, and the trunks often have large bosses. Look out for its very shiny leaves caused by infestations of aphids. Silver lime (*Tilia tomentosa*) has dense covering of pale grey hairs on the underside of its leaves that give it a silver appearance when you look up into the tree.



PLANT ID: small-leaved lime *Tilia cordata* L.

What's in a name? – Lime's common name lime has evolved from the medieval name, lind, while its Latin name *cordata* indicates that its leaves are of a heart-shape.

Botany glossary (part 1)

Aphid a small bug that feeds by sucking plant sap.

Deciduous trees that lose their leaves in winter time

Honeydew sticky and sweet residue secreted by aphids onto a plants stem and leaves.

Pedice the stalk of a single plant flower.

Bract leaf like feature (usually green) immediatley below a flower at a point where it joins the plant stem.

Stamen male part of the flower, each comprising a filament and anther.

Style related to the female parts of the flower. A stalk like feature that connects the stigma and ovary.

Botany glossary (part 2)

Stigma part of a flower that gets pollen from pollinators such as bees

Ovary a fused case. After fertilization the ovary develops into a fruit and the ovules develop into the seeds within.

Sepals the outermost of the two whorls (the inner ones being the petals) that surround the reproductive parts of the flower. Usually green in colour.

Bracteole tiny leaf like feature that sits at the base of the stem of an individual flower within a cluster of many others.

Leaf gall swelling of plant caused by parasites.



Get up close to the small-leaved lime by taking a virtual tour using the Pappus film library.

Oldest – Largest – Tallest

Czech Republic holds the record for the oldest tree – over 800 old.

The UK has the tallest at 40.5m metres.

Austria has a lime with the largest girth of 12.81 metres.

In the UK and across Europe you are more likely to come across common lime (*Tilia x europaea*) and the native large-leaved lime (*Tilia platyphyllos*), both of which are planted in parks and urban streets.

Their existence in a woodland suggests that it could have been part of an ancient woodland network connected to prehistoric times.

In the UK, look out for place names with the prefix 'Lynd' or 'Lin' which indicate a link to the presence of lime trees from the old wild woods of pre-historic times which may no longer survive there.

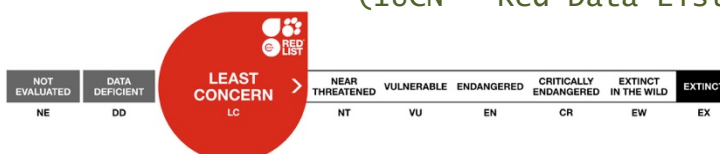
Global distribution

Small-leaved lime is associated with old woodlands. It is found across Europe with a core region in central and eastern Europe.



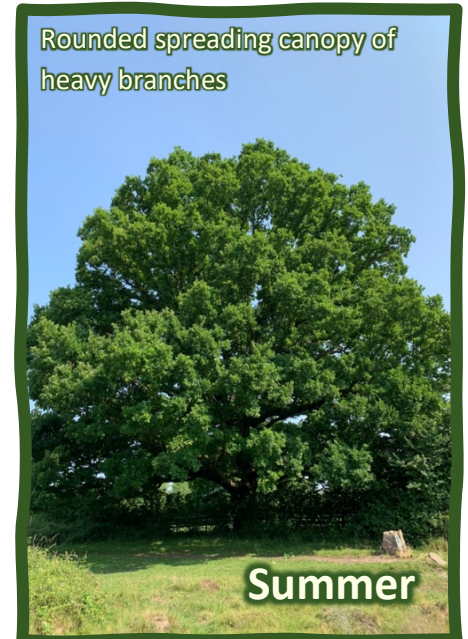
www.GBIF.org

Global species risk of extinction (IUCN – Red Data List)



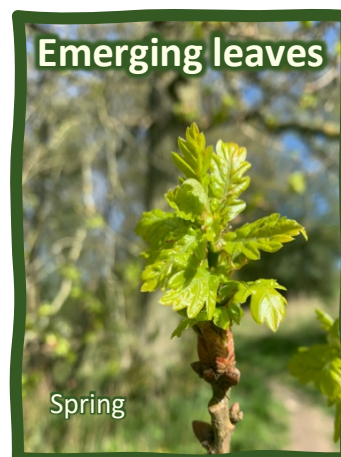
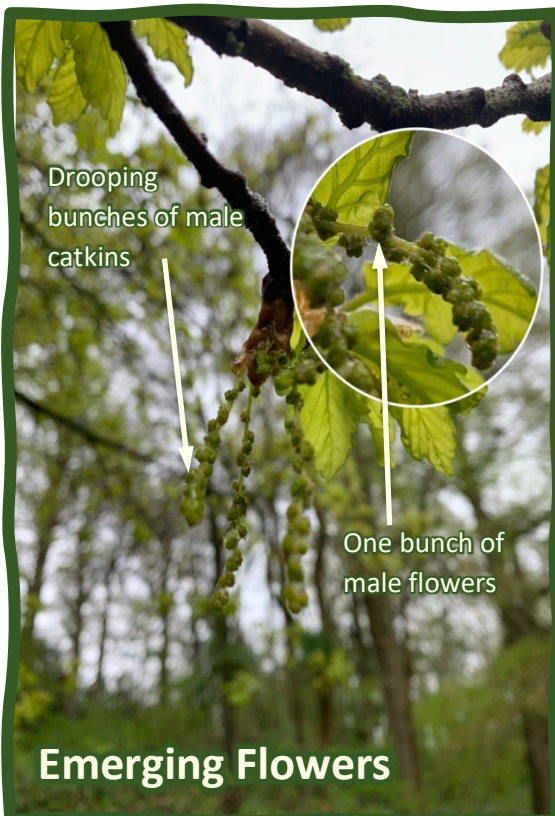
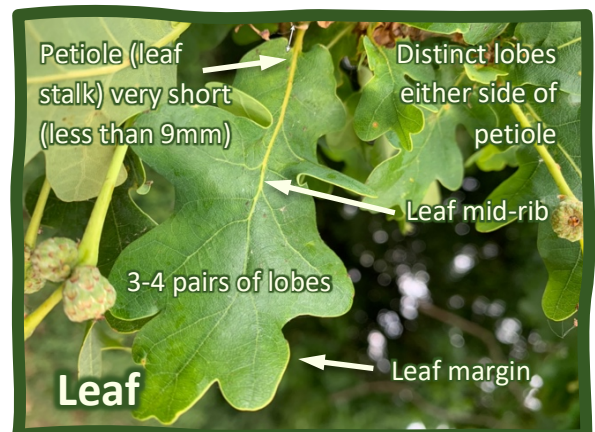
PLANT ID: common oak

Quercus robur L.

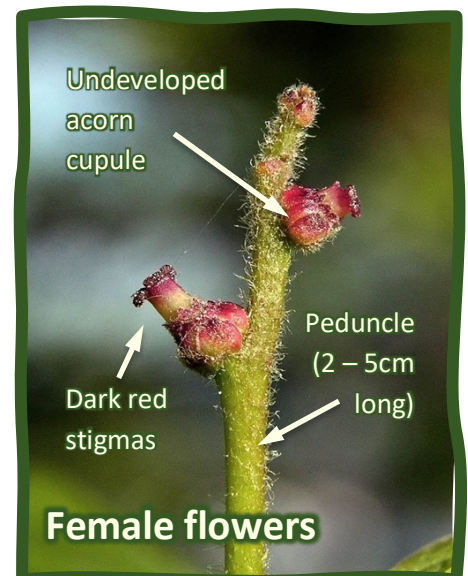


Wildlife friendly

Oaks host some 400+ species that live and feed within it and include insects such as wood-boring beetles and moths; and mammals and birds such as jays, mice, squirrel, wild boar, badger and bat.



Children used to use the acorns as ammunition for their catapults



PLANT ID: common oak *Quercus robur* L.

Did you know?

Trees can survive for up to 1000yrs of age. They are considered to have three distinct life stages each lasting 300yrs - growing, living and dying. With age the trunk of the tree becomes hollow and forms a stout cylinder that helps the tree to withstand extreme storms.

Silk button gall wasp

Neuroterus numismalis

Oaks contain tannins which are toxic to humans in their raw state.

Leaves become a dull darker green

Leathery to the touch

Peduncle (acorn stalk)

Summer

Leaf features

Top side of the leaf

Leaf margin

Leaf mid-rib (main vein)

Leaf underside

Galls are caused by parasitic wasps *Cynipidae* injecting chemicals into oak twigs

Oak apple gall

Oak gall

Oak bud

Twig

Fruit

Acorns usually grow in pairs or 3s

Acorn shapes can be variable

Helpful ID Tips

Sometimes difficult to get a confident identification of, as it hybridizes easily with sessile oak and so there are lots of trees that exhibit features of the two species in one tree.

To separate them you should sample a range of leaves from around the tree and study their petiole length, presence of auricles, depth of leaf edge lobing and the length of peduncle of the acorn.

Long pendulous peduncle (acorn stalk)

Cupules look like thick woolly hats

Immature acorns still with green stripes

Fruit acorn

Reproduction strategies:

Pollination: pollinated by insects and the wind.

Seed dispersal: spread by mammals and birds, especially the European jay (*Garrulus glandarius*).

PLANT ID: common oak

Quercus robur L.

Fact File:

CURRENT STATUS: Least Concern of becoming extinct
LOCATION: Widespread across Europe and U.K.

Plant Description (aka Taxonomy)

A member of the Beech family – *Fagaceae*. A tall (up to 40m) deciduous tree with a stout trunk and a rounded spreading canopy of heavy branches that appear to spiral towards the branch end. All oak trees are easily recognized by their distinctive 'acorns' which are a major common feature to them all.

ALIASES

Also known as
English oak,
European oak,
pedunculate oak or
the Truffle oak.



Flowers: April – May

Flower Structure

Often inconspicuous and overlooked early in spring the yellowish male drooping bunches of **catkins** exist close to the very small female globular flowers at the end of new shoots.



Fruits in September – October.

Oak's fruits are called acorns and are often found in pairs together on a long common stalk (peduncle) up to 8cm long. Each one sits in a scaly looking cup that looks like a woolly hat called a **cupule**. Often variable in shape and roundness. Olive-green stripes visible when young before turning dark brown.



Leaf

Oaks are often the last trees to gain their leaves in spring. Very short or absent petiole (occasionally up to 9mm long), base of leaf having distinct lobes (auricles) either side of the leaf stalk. Dull dark green leaf with 3-4 pairs of unequal lobes often more than 50% from mid-rib to leaf edge. Autumn leaves are an orange-brown.



Habitat

It grows naturally in woodland and within hedgerows; but has also been extensively planted in both woodlands and parks. Grows in a variety of lowland places below c. 1300m altitude (in the Alps).

What to look for



Each season has something to offer. Winter for its silhouetted structural splendour; spring for the freshness of the yellowy-green leaves; summer for its deep green leaves and shade and September to October for its Acorns.

Best time to see it and use it

- **Winter - early Spring:** Look for the large branches that spiral toward their tips and the clusters of golden-brown leaf buds.
- **Spring - Summer:** The short or absent petiole and distinct auricles.
- **Autumn:** Acorns on long stalks with distinctive green stripes.

Stem and trunk

Pale grey, rugged in older trees with the trunk tending to disappear in the crown and having heavy branches that spiral on their way to their tips. Often with clusters of young shoots growing (epicormic growth) outwards from the trunk of the tree.

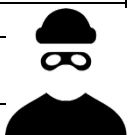
FOOD WEB

Nectar gathered by insects. Acorns eaten and dispersed by mammals, and birds, especially the European jay.

IMPERSONATORS: Key similar species are:

Sessile oak (*Q. petraea*) is very similar. Look at the features in the table to help.

Key Feature	<i>Q. robur</i>	<i>Q. petraea</i>
Petiole length	Absent or between 2mm - 9mm	Over 10mm
Presence of auricles	Yes	No
Acorns	In groups of 1, 2 or sometimes 3.	In groups of up to 6



PLANT ID: common oak *Quercus robur* L.

What's in a name? Oak's Latin name - *robur* - means robust, hard or strong and common oak certainly fits this description well.

Botany glossary (part 1)

Bark the thick outer protective layer of a tree trunk.

Petiole a stalk of a leaf.

Leaf mid rib the centre of a leaf from which side veins run out from.

Catkins found mostly on trees and shrubs, consisting of a hanging spike of tiny flowers.

Lobe rounded area of the edge of the leaf.

Peduncle the stalk of a group of flowers.

Botany glossary (part 2)

Gall abnormal swellings of plant tissue (e.g. as seen on leaves of trees) caused by various parasites.

Acorn the nut (fruit) of an Oak tree.

Auricle a small lobe or ear-shaped feature that extends (usually) from the base of a leaf.

Cupule the cup (woolly hat-like) that an Oak acorn is seated within, which is technically a ring of fused and hardened bracts.

Get up close to the oak by taking a virtual tour using the Pappus film library.



Edible

Sometimes known as the **truffle oak** on account of its partnership with all three species of European truffle fungi. Special truffle dogs and pigs are used to sniff out the fancy truffles that are attached to the roots of the oak tree.

Branches spiral outwards towards the canopy edge



Monumental trees

Oldest - Largest - Tallest

The oldest known tree is the 'Carballo de Cartellos' in Galicia, Spain which is estimated at 2080 years old.

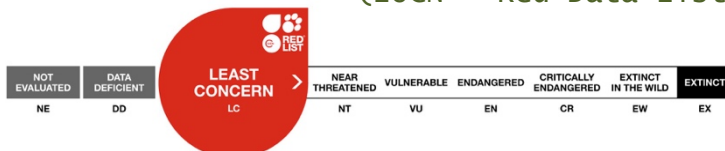
A tree at Kvilleken in Norra Kvill, Sweden has the largest trunk girth of 15m.

Global distribution

Native to the UK and most of Europe where it is found almost everywhere below 1300m altitude.

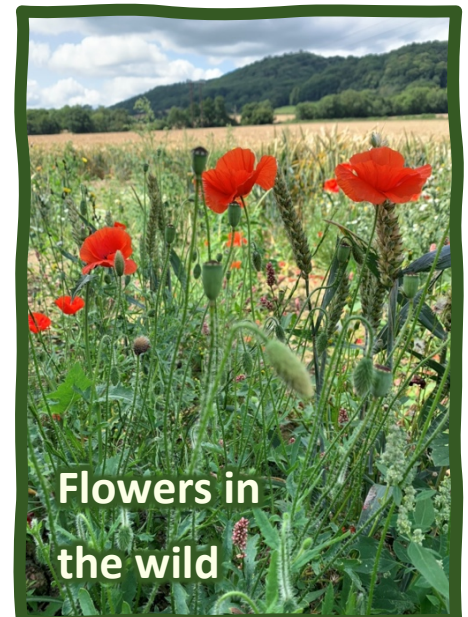
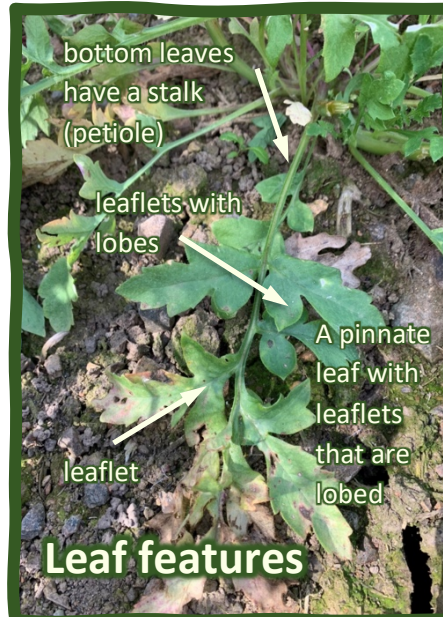
Branches

Global species risk of extinction (IUCN - Red Data List)



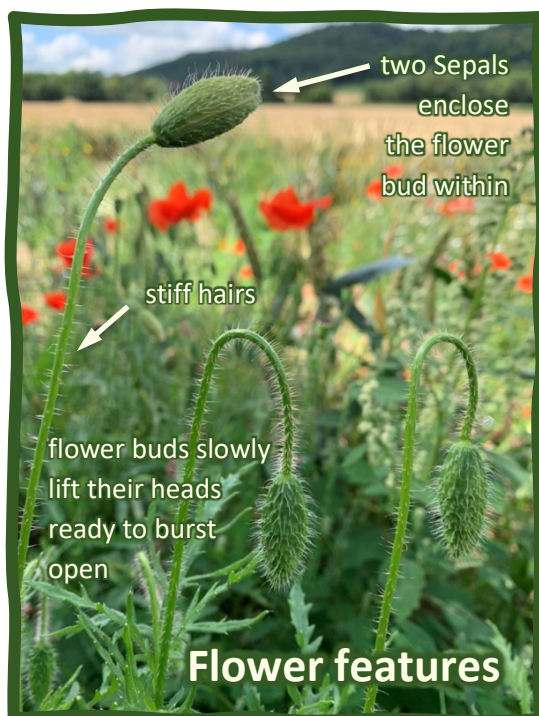
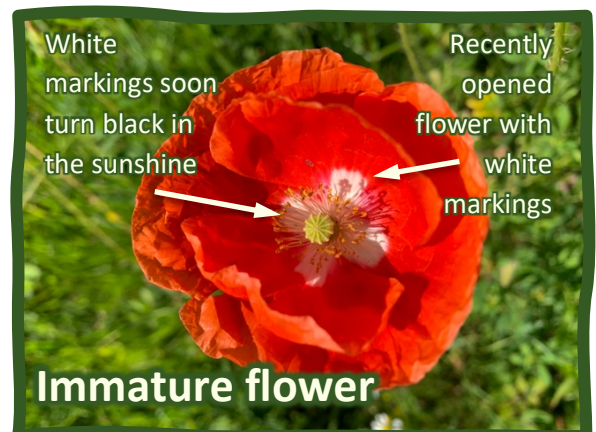
PLANT ID: common poppy

Papaver rhoeas L.



Practical uses

Its flowers have been used as painkillers for soothing mild aches and pains like toothache and a sore throat; while its fresh petals have been used in preparing a syrup for use in red dyes, lipstick and for reducing facial wrinkles. Recently, science is beginning to think that chemicals within the petals may prevent skin cancer.



Recognised as a symbol of fertility, death and renewal.



PLANT ID: common poppy *Papaver rhoeas* L.

Early ancient names referred to poppy as 'thunder-cup', thunder-flower, or 'lightnings'. This reflected a belief that if poppies were picked, a thunderstorm would soon arrive bringing summer downpours to damage the crops within which it grew.

It is an international symbol of remembrance, evoked by the human loss on the battle fields of WW1. The incendiary battle-scarred lands were perfect conditions for the awakening of the poppy seeds, which then conjured images of a 'sea of blood' - evoking sorrow and hope in all of us.

Four scarlet red petals that overlap

Often with a black blotch at the base of each petal

Stigma

Stamen

Flower parts

As the fruit matures, small apertures will appear beneath the lip of the cap

Stigma
rayed liked spokes of a wheel

Conical cap

Petals formerly affixed to the receptacle

Immature fruit

Seed capsule

Poppies are poisonous!

Obovoid shaped capsule contains seeds

Hairless capsule

Erect stem with long stiff hairs at a right angle to the stem

Holes (apertures) allow seeds to fall out when shaken

conical cap with spoke-like radiating ribs

Fruit

Stigma – radiates out like spokes of a wheel

Remains of flowering bud

Anther (pollen bearing)

Flower parts

Helpful ID tips:

The best way to identify the five main red coloured poppies from one another is to:

- Look at the colour of the milky latex;
- The shape of the seed capsule that is visible soon after the petals fall.

Bread-seed poppy (*P. somniferum*).

Though a different species, this is the poppy that is specially cultivated for its edible seeds which can be used in cakes, breads and seed oil.

Reproduction strategies:

Pollination: pollinated by insects.

Seed dispersal: spread by the wind, birds and mammals.

PLANT ID: common poppy

Papaver rhoeas L.

Fact File:

CURRENT STATUS: Least Concern of becoming extinct

LOCATION: Exists across Europe, Nth. Africa Asia.

Plant Description (aka Taxonomy)

It is one of about 70 species (globally) that make up the genus, *Papaver*, which is in the poppy family (*Papaveraceae*). Except from the seed capsule, the whole plant is rough and bristly-hairy. Leaves are deeply lobed. A branched annual herb that grows up to 60cm in height.



Flowers: June, July, August, September and sometimes October.

Flower Structure

Mostly 7 – 10cm across. Consisting of four showy bright scarlet red petals (sometimes mauve, white or pink – especially close to gardens) often with a black blotch at the base of each petal. Anthers are distinctly bluish black. The petals often fall by the end of the day. Stigma rayed like the spokes of a wheel from its centre.



Fruits from July – September.

Mature seeds are contained within an **obovoid** hairless **seed capsule** which has a conical top with spoke-like **ribs** radiating out from its centre beneath which you can find small **apertures** that allow the seeds to fall out when mature.



Leaf

Once or twice **pinnately lobed**, cut or toothed and stiffly hairy. The basal leaves are stalked, but the upper leaves are sessile (attached to the stem without a stalk).



Habitat

They exist in arable fields, upon waste ground and roadsides often preferring calcareous soils.

ALIASES

Also known as the corn poppy, corn rose, field poppy, flanders poppy, thundercup, thunder-flower, lightnings and red poppy.



What to look for

Recognisable by both its delicate scarlet red (tissue-paper like) petals in the shape of a saucer, and by the **obovoid capsule** with spoke-like **ribs** radiating out from its centre.

Best time to see it and use it

- Poppies are ripe for picking when they turn grey-brown and you can see a number of small holes below the rim of the flat top. If you shake the **capsule** the seeds should then fall out easily.
- June, July, August before the corn fields are cut. Being in an arable field with thousands of brightly coloured red poppies is a magical feeling and will inspire you to write poetry and put a smile on your face for the whole day.

Stem and trunk

Erect stem up to 60cm in height with patent bristles and milky white (sometimes yellow) liquid latex that oozes out when split in two.

FOOD WEB

Nectar gathered by insects. Oil rich seeds eaten by birds, mammals and humans.

IMPERSONATORS: Key similar species are:

There are five other red petalled poppies (*Papaver*) that you may encounter:

Long-headed poppy *P. dubium* has a 2.5cm hairless seed capsule that is twice as long as wide; while its sub-species **yellow-juiced poppy** *P. dubium ssp lecoqii* is recognised by its yellow anthers and yellow milky latex when its stem is split.

Prickly poppy *P. argemone* has separated petals and blue anthers, its seed capsule has long **erect bristles**.

Rough poppy *P. hybridum* has a globular seed capsule that is covered in erect stiff bristles.



PLANT ID: common poppy *Papaver rhoeas* L.

What's in a name? *Papaver* is Latin for milk which describes the milky white/yellow latex that ooze from the stem when broken, and *rhoeas*, is ancient Greek for the colour red.

Botany glossary (part 1)

Annual - a plant that completes its full life cycle within one year (germination - flowering/fruitletting - death)

Bud a small swelling along a branch or at its end from which new leaves, flowers grow.

Leaflet smaller sub-component of a compound leaf.

Petiole a stalk of a leaf.

Pinnate a compound leaf with more than 3 leaflets arranged in opposite pairs along the main leaf stalk ending in a terminal leaflet.

Basal Leaves leaves at the bottom of the plant.

Botany glossary (part 2)

Seed Capsule a dry fruit that opens into more than one part (called a valve), or via holes or a lid that releases the plants seeds.

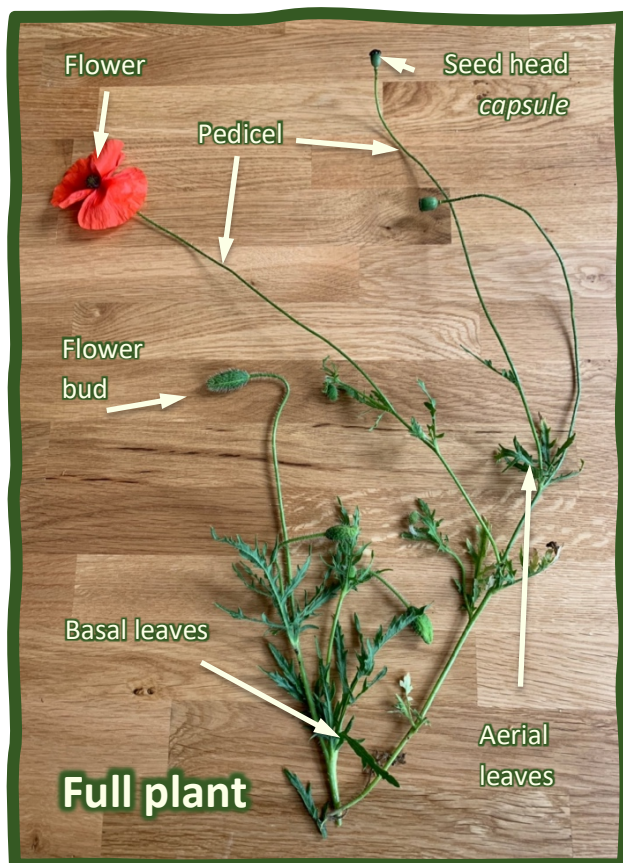
Anther- Pollen-bearing part of the Stamen (male) found at its tip.

Stigma part of a flower that gets pollen from pollinators such as bees

Stamen male part of the flower, each comprising a filament and anther.

Sepals the outermost of the two whorls (the inner ones being the petals) that surround the reproductive parts of the flower.

Get up close to the poppy by taking a virtual tour using the Pappus film library.



The five species of red poppy that occur in Britain and Europe arrived into the U.K and Europe as a contaminant of cereal grain carried by the first colonising Neolithic farmers around 7,000 years ago.

Most Poppies are annuals, and typically depend on disturbed soils in order to germinate, which is probably why they once used to flourish in great abundance across arable fields and the battle sites of WW1.

Though they are sensitive to agricultural herbicides their seeds are very long-lived (80yrs) and when herbicide applications have stopped, they soon return in abundance.

www.GBIF.org



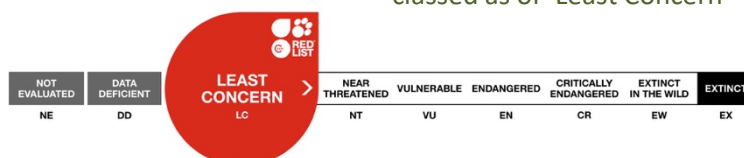
Global distribution

Exists across Europe, North Africa and temperate Asia

Global species risk of extinction

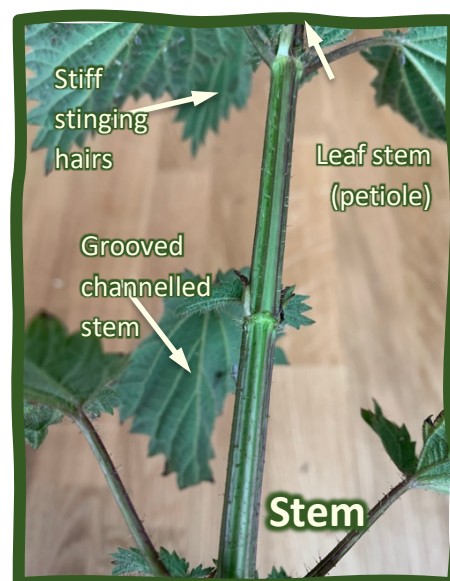
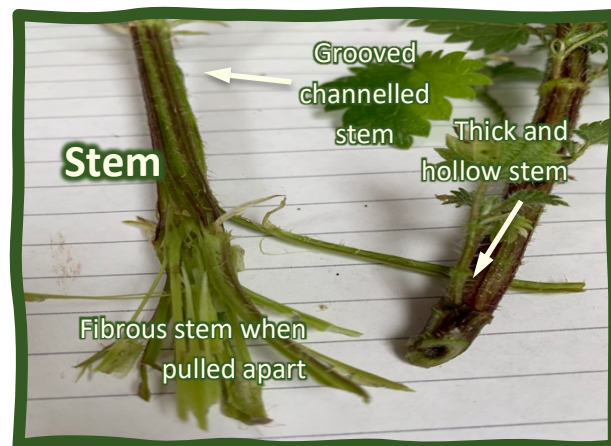
(IUCN – Red Data List)

Poppy's existence is classed as of 'Least Concern'



PLANT ID: nettle

Urtica dioica



PLANT ID: nettle *Urtica dioica*

Magic

For millennia nettle has been used to restore blood circulation under the skin, ward off arthritis in the joints and keep you warm through its irritation of the skin. Its uncomfortable for the first 30 minutes but for hours afterwards there is a tingling feeling. It is used in the treatment of gout even today. However, some people may have an allergic reaction to nettle stings.

Showoff status

Alarm your friends by picking and eating a raw leaf!. To do it, you must be brave and confident in gently brushing down the hairs with your thumb and then rolling the leaf tightly into a tube and then folding it. Then take it and place it in a well salivated mouth and chew with a smile!

Leaves become toxic during and after flowering.



Full plant in habitat



Often growing with cleavers (*Galium aparine*)



An individual plant



Dead nettle family

Nettle

Plant stem comparison



Dead nettle family distinct square stem in cross section

Nettle circular with grooves along stem

Plant stem cross-section comparison

Flower



Pendulous mature flowers

Helpful ID tips:

Spring/Summer/Autumn: The leaves are very distinctive in that if touched they'll sting you – it will make it the plant you will always remember with 'fondness'!

In late spring and through summer the pale green flowers droop down from the leaf to stem junction – looking like a length of green knotted string.

Autumn/Winter: Generally the plant dies back, but new shoots and leaves emerge at ground level only.

Special Feature

Once the leaves have been cooked or crushed the sting will be disarmed enabling you to eat it. Despite their aggressive looking appearance and intent to harm you through their sting, new emerging leaves are in fact delicious and loaded with proteins, vitamin C, beta-carotene, calcium and other minerals.

PLANT ID: nettle

Urtica dioica

Fact File:

CURRENT STATUS: Least Concern of becoming extinct
LOCATION: Exists across Europe

Plant Description (aka Taxonomy)

Member of the Nettle family (*Urticaceae*).

ALIASES

Also known as the Stinging nettle, Devil's play-thing, Hokey-pokey and Jinny nettle.



Flowers April Through September

Flower Structure: Small pale green pendulous flowers that droop down from the leaf main stem junction.



Fruits: Not noteworthy



Leaf:

Can be very variable. In general they are deep green to mid green depending on surrounding shade. The simple leaves have large teeth along edge and cordate bottoms where they join the leaf stem. Leaves in opposite and decussate pairs along stem. Abundant longer stiff stinging hairs and smaller non-stinging hairs on all leaf surfaces.

Stem (trunk, branch if relevant). Stiffly hairy throughout. Look out for the thick multi-channelled rounded stem that is very fibrous.



Habitat:

Found in big clumps where-ever you find very fertile soils with lots of phosphate enrichment caused by human activity (e.g. bonfire sites, refuse dumps etc..) A perennial that can grow up to 2m tall with distinct underground golden yellow rhizomes help it to spread.

What to look for



Best time to see it and use it

Depends on what you want to do with it?
CAUTION: If you want to eat it then Springtime and again in the Autumn is best for collecting the fresh young leaves from the top 8cm before the flowers appear otherwise the leaves are toxic.

It's stinging hairs are like glass hyper-dermic needles that inject chemicals into the skin leaving an itchy rash. Lots of different habitats but typically found in woodlands, hedgerow bottoms, scrubby waste ground, disturbed ground, garden compost heaps, grassland pastures and orchards that have regular visits from farm animals.

FOOD WEB

The caterpillars of the small tortoiseshell butterfly and peacock butterfly feed on the leaves. Aphids that live there are eaten by ladybirds and birds eat fruits.

IMPERSONATORS: Key similar species are:

Similar plants that will grow close-by and may be confused with it include some members of the Dead-nettle family (*Lamiaceae*), such as White Dead-nettle (*Lamium album*), Red Hemp-nettle (*Galeopsis angustifolia*), Gypsywort (*Lycopus europaeus*) and Hedgewound Wort (*Stachys sylvatica*).



Botany glossary part 1

Aphids small bugs that feeds by sucking plant sap.

Cordate heart-shaped, possessing two distinct lobes together at the base

Fibrous characterised by fibres

Opposite, Decussate leaves arranged along the stem in pairs, each pair at right angles to the pair next above or below

Petiole a stalk of a leaf

Pendulous features of plants such as leaves, fruits, flowers that droop

Uses: thread for textile and rope, tea, soil cleansing, hair products, dyes, manure, fly repellent, vegetable rennet, arthritis relief and food.

Botany glossary part 2

Phosphate a chemical and phosphorus buildup is caused by excessive use of inorganic fertilizer or the use of composts and manures high in phosphorus.

Rhizome a root like stem that grows beneath the ground from which new plant shoots will emerge.

Perennial a plant that lives for more than two years and typically flowers and fruits each year thereafter.

Shoot refers to recent plant growth that may be either a stem, a flower or a leaf. Often also refers to a new plant that emerges from the ground.

Get up close to the nettle by taking a virtual tour using the Pappus film library.



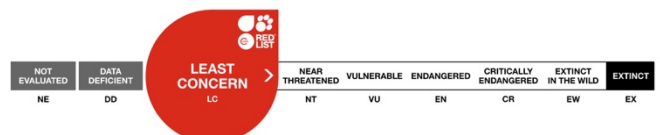
Full plant in habitat

Cultural links: folklore, myths, legends...

At least six British villages owe their names to the nettle, including Nettlecombe (Somerset) and Nettlesteads (Kent). The phosphates that nettle thrives upon endure for a long time and so ancient nettle clumps will indicate abandoned villages even as far back as the Roman occupation of Britain.

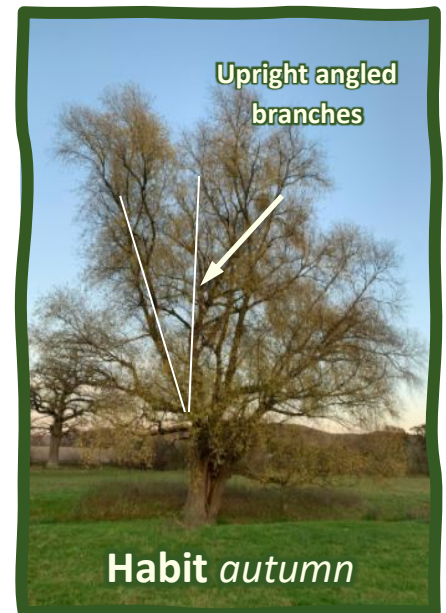
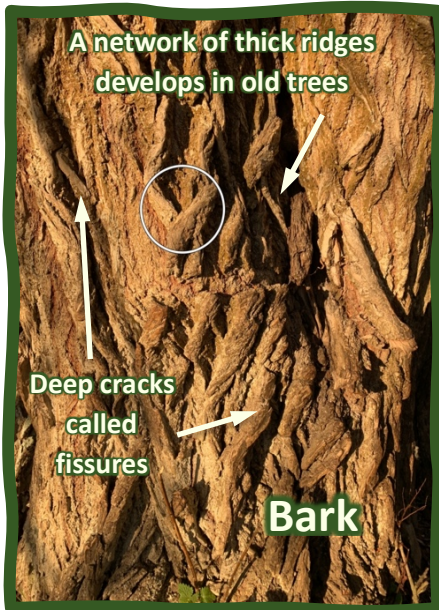
Grasp the Nettle: if you dare, grab the stem and leaves quickly and hold them tightly – it will disarm the stings by crushing them.

Global species risk of extinction (IUCN – Red Data List)



PLANT ID: white willow

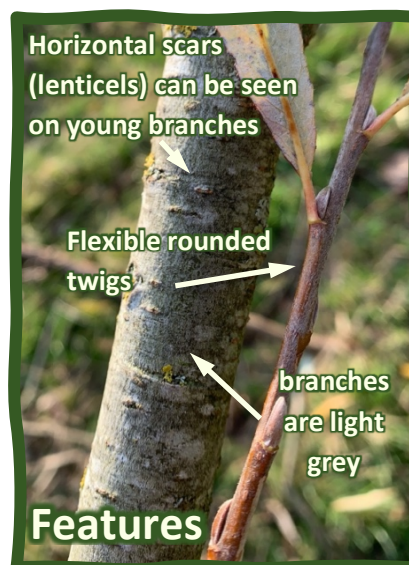
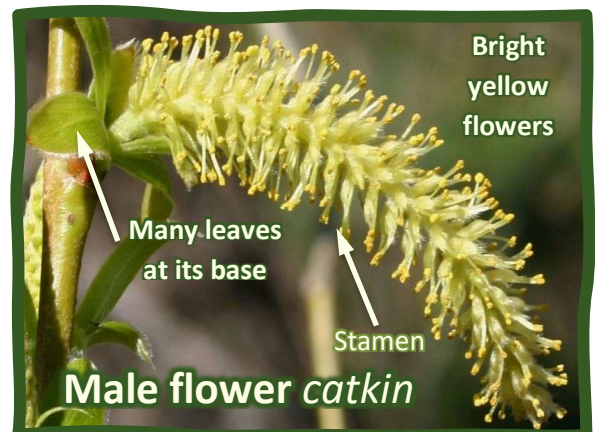
Salix alba L.



Practical uses

Its close relative - *Salix alba* var. *caerulea* is used for making cricket bats.

Its bark, like all other willows, contains *salicin*, which when converted by the human body into salicylic acid, is able to relieve pain, inflammation and fever, and so has been used to create the painkilling medicine aspirin.



Male and female flowers are found on separate trees.

PLANT ID: white willow *Salix alba* L.

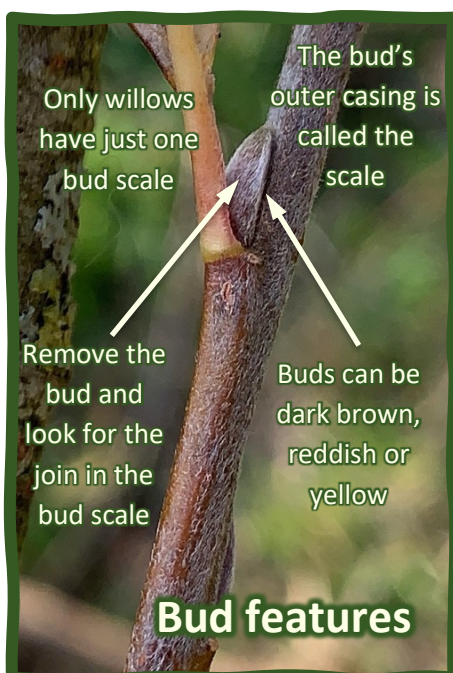
Did you know?

Look for the presence of silk in the folds, rolls or bundles of leaves which is diagnostic of moths like the eyed hawkmoth. Leaf folding activity is a tactic that some caterpillars use to avoid predation and parasitism, which would ultimately kill them.

Willows are more susceptible than most trees to specific Gall inducing insects or fungi; which force the tree to locally re-organise its cell tissue into the abnormal looking bumps and lumps that you might see on its leaves. Cecidology is the name given to the study of Galls.



**Not palatable
to eat!**



Helpful ID Tips:

Always inspect more than one characteristic feature:

Leaves: shape and size; colour and hairiness of upper and lower surfaces

Shoots: colour and hairiness; presence or absence of stipules

Flowers: shape and size and nature of catkins

All willows have alternate leaves and buds. Willows have only one visible bud scale, which are actually two scales fused into one. Look out for the 'join' (suture line).

Beware:

Willows are taxonomically a difficult group to identify because they easily hybridize with each other, creating offspring that have a mix of characteristics of more than one species.

Reproduction strategies:

Pollination: pollinated by insects and the wind.

Seed dispersal: spread by wind, water, birds and mammals.

Other: willow can easily reproduce from broken twigs and fallen branches which take root to create a new tree (a clone).

PLANT ID: white willow

Salix alba L.

Fact File:

CURRENT STATUS: No likelihood of becoming extinct
LOCATION: Widespread across Europe and U.K.

Plant Description (aka Taxonomy)

A deciduous tree that is a member of the *Salix* genus - a part of the *Salicaceae* family. One of the largest and most well-known willows on account of its distinctive pale silvery white leaves. The bark of older trees is deeply fissured. When not pollarded, it has distinct upright angled branches and a narrow crown that can reach up to 30m in height and 1m in diameter.



Flowers: April into May
Flower Structure

Catkins are on short leafy stalks and appear almost together with the bursting new leaves. Yellow male catkins are up to 5cm long; while the females are greenish-yellow.



Fruits

In late May. Unstalked capsules of the elongated mature female catkins are green-yellow and hairless becoming fluffy white with capsules of seeds within.



Leaf

Long and slender (lanceolate) silver-grey leaves, up to 12cm and 2cm wide with finely rounded toothed edges (up to 50 per side). With leaf growth, the silky grey hairs of the upper surface wear off, while the underside retains its silky white hairs giving it, its pale colour.



Habitat

It can be found at sea-level and to an altitude of 2400 m. A fast-growing tree of temperate climates that grows near water on the banks of rivers, lakes or by ponds, streams and marshes.



Buds

Covered in greyish white hairs. Buds can be dark brown, reddish or yellow - tending to lie flat (adpressed) on the twig. Their buds are usually closely held (adpressed) against the twig.

ALIASES

Also known as the swallow-tailed willow and Huntingdon willow by U.K horticulturalists.

What to look for



Unmistakeable with its pale silvery white long slender leaves.

If left to grow naturally, the trunk tends to split in stormy weather often leaving parts of the tree as an obstruction in a river.

Best time to see it and use it

Spring: When the leaves are felty white in appearance. In northern parts of Europe when most trees have not yet begun to show their leaves willow branches are often used instead of palm branches to celebrate Palm Sunday.

Mid-summer: look out for the drifting clouds of silky white seed-bearing fluff that carry off the seeds to new locations.

Stem and trunk

Bole is dark grey with inter-locking thick ridges closely networked together. Twigs rounded, silky hairy when young - later becoming hairless and glossy olive brown in the winter. Twigs are flexible and don't make a distinctive dry snapping sound when broken off like those of crack willow (*S. fragilis*).

FOOD WEB

Willows are the basis of many food webs. Nectar is gathered by insects. Seeds are eaten by birds and mammals. They host communities of predators and parasites, which all come to feed.

IMPERSONATORS:

Crack willow, *Salix fragilis*, is a close relative of white willow, and is very similar. Watch out though, as *S. alba* often hybridizes with *S. fragilis* to create offspring that exhibit features from both parents.

S. alba's characteristic pale silvery white long slender leaves, its hairy buds and young shoots set it easily apart from crack willow, and when crack willow's twigs are snapped, their dry cracking sound is very distinctive and usually enough to help distinguish between the two trees.



PLANT ID: white willow *Salix alba* L.

What's in a name? Willow's scientific name – *alba* - is taken from the Latin for the colour white, on account of its pale coloured leaves.

Botany glossary (part 1)

Ad pressed pressed close to or lying against something

Bole another word for a tree trunk

Bud scale-protects the developing leaves for the following year

Fissured cracks on the tree trunk

Fungi refers to organisms including mushrooms, yeast and mould

Gall swelling of the plant tissue

Botany glossary (part 2)

Suture line a seam like joint or line that marks the junction between two bud scales

Catkins a spike of tiny flowers

Stamen Male part of the flower, each comprising a filament and anther.

Stigma Part of a flower that gets pollen from pollinators such as bees

Lenticels A raised marking on a shoot that is a breathable pore

Leaf mid rib The centre of a leaf from which side veins run out from.

Get up close to the willow by taking a virtual tour using the Pappus film library.



Climate indicators

All willows have fast growth rates and can respond very quickly to environmental change, which makes them important for measuring reactions to our changing climates.

Oldest – Largest – Tallest

The Netherlands holds the record for the oldest willow tree - it is over 260 years old.

The willow with the second largest girth of 9.08m is found along the River Danube in Dunasziget, Hungary.

Willow is one of the fastest growing trees and can grow up to 3m in height in a year, making it perfect for coppicing.

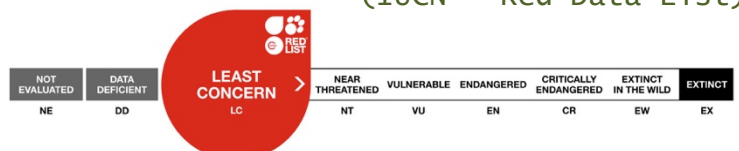
Global distribution

Willow is native to and widespread across Europe and the eastern part of the UK. Elsewhere in the UK, it is regarded as non-native in origin, introduced in ancient times.

Magical willow

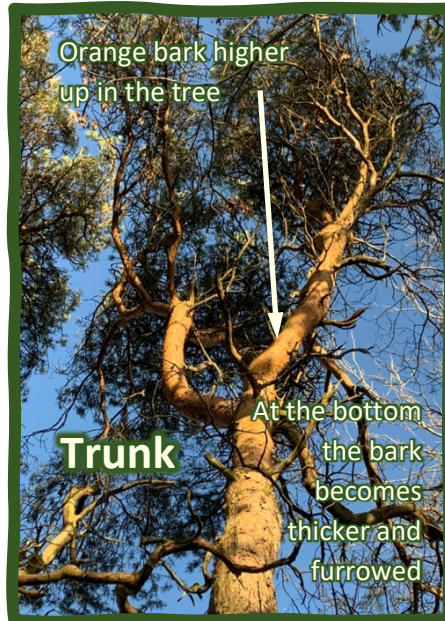
Willows have many magical and mythical connections, and the wood has a multitude of uses: musical instruments, clogs, cricket bats, pegs and basket weaving.

Global species risk of extinction (IUCN – Red Data List)

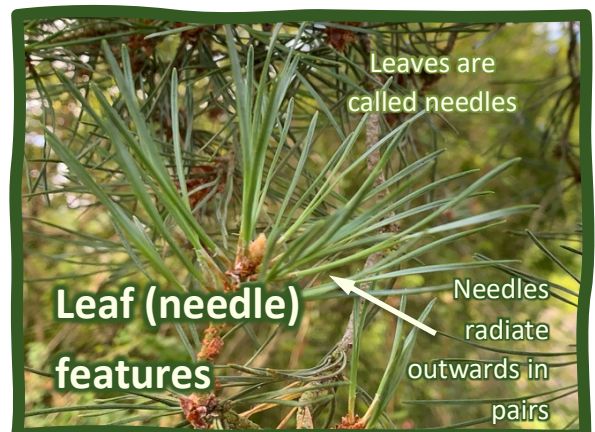


PLANT ID: Scots pine

Pinus sylvestris L.



Conifers are a group of plants classed as a Gymnosperm.



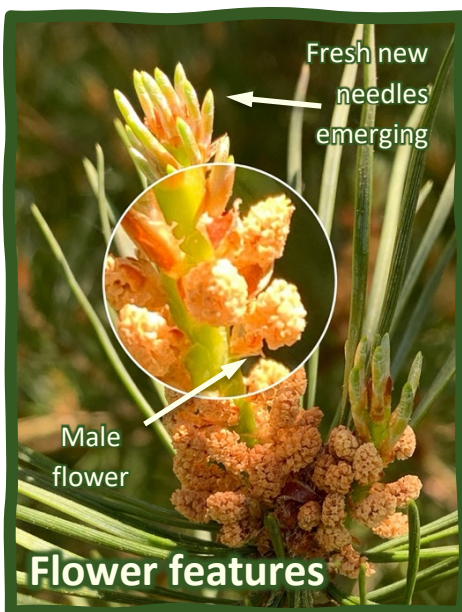
PLANT ID: Scots pine *Pinus sylvestris* L.

Magic

Before Christianity was established in northern Europe, pagans believed that the evergreen nature of conifer trees - like scots pine, represented immortality in the wake of the autumn leaf drop from broad-leaved trees.

Superstitions around felling scots pine for shipbuilding during a waning moon, was thought to affect the woods resin content because of the tidal influence of the moon. Today, we now know that sap-flow in plants is to a partial extent affected by the moon.

Scots pine is not a toxic poisonous plant.



Special Feature

Pine needles are adapted to cope with frosts and drought. They have embedded stomata and a waxy layer to protect from water loss, hence they can grow in areas of both low rainfall and low temperature.

Helpful ID tips

Pine trees are easily recognizable by their bundles of leaves, called needles in either 2s, 3s or 5s.

The shape of their cones also reflects the bunches of needles:

- cones of two needled pines are small with scales opening widely.
- cones of three needled pines are huge; both are oval and conic in shape and stay on the tree for many years.
- cones of five needled pines have thin-pliable scales and fall off the tree quickly.

Reproduction strategies

Pollination: pollinated by insects.

Seed dispersal: spread by wind, birds and mammals.

PLANT ID: Scots pine

Pinus sylvestris L.

Fact File:

CURRENT STATUS: Least Concern of becoming extinct
LOCATION: Exists across Europe into east Russia.

Plant Description (aka Taxonomy)

Pinaceae is the largest and most widespread family within the Conifers (*Coniferophyta*). It contains the genus – *Pinus*, to which scots pine belongs. An evergreen tree. A mature scots pine is an elegantly poised tree that supports a mushroom topped canopy of spreading gnarly boughs with evergreen needles.

ALIASES

In the past has been known as: scotch fir, scots fir, Baltic pine, Riga pine, Norway pine and European redwood.



Flowers from May - June.

Flower Structure

In spring, male flowers are a dazzling yellow (occasionally crimson) existing in dense clusters, while on the tips of shoots the female flowers are pink becoming purple.



Fruits

Oval to conic cones – up to 7.5cm long, green in first year becoming woody grey-brown in second year, then remaining on the tree with their scales open wide thereafter. Cones require alternating years of wet and dry weather to open and then shed their winged seeds.



Leaf

Stiff needles in two's, bluish green with fine white fibres when broken, less than 8cm long (in mature trees) and up to 14cm (in saplings) and often distinctly twisted. Leaf buds resinous, pointed and dark red brown – some with white resin.



Habitat

Though a naturally occurring native tree to Scotland and Europe, it does occur in the wider countryside as either a commercially planted tree within vast forests or as planted specimens in urban parks, gardens and along highways. Scots pine is a pioneer species of nutrient poor disturbed ground and can exist at sea-level or as high as 2,600 metres.

What to look for



It is recognised from afar by its fiery red-orange trunk and its dark green-blue needle leaves that occur in clusters of two on a very short shoot. Needles are less than 8cm long in mature trees, but longer in juvenile saplings. Needle colouration and length often varies between sapling and mature trees

It has a semi-circular needle profile.

Best time to see it and use it

- The scent of a pine tree on a warm day will never fail to uplift your spirits, as does the murmuring swish of the needles as the wind passes on by. Always a good place to picnic or camp - is in amongst the pines!

Stem and trunk

Furrowed grey-brown lower down, while high up in the canopy, the trunk becomes more obviously orange brown in colour and flaky in nature.

FOOD WEB

Nectar gathered by insects. Winged seeds eaten by birds, and mammals.

IMPERSONATORS:

There are two other common pines that you may encounter in the countryside. Also, with needles in two's - Austrian pine (*P. nigra ssp. nigra*) is very similar; but it lacks the orange-red trunk colour and has **very dark green long needles** (not green-blue) that are **longer than 8cm**.

The Eurasian stone pine (*P. cembra* L.) which exists up in the Alps and the Carpathian Mountains has similar length needles, but these are in **clusters of five**, not two as in scots pine.



PLANT ID: Scots pine *Pinus sylvestris* L.

What's in a name? – Scots Pine's Latin name - *sylvestris*, is taken from Greek to indicate that it grows wild in woods and forests.

Botany glossary (part 1)

Bark thick outer protective layer of the tree trunk.

Cone woody and conical in shape containing the female reproductive parts – seeds.

Filament the stalk that supports the anther at its tip.

Furrowed grooves or channels on the tree trunk.

Stomata a pore found on plant leaves and stems that helps control the rate of gas exchange.

Gymnosperm plants that have seeds which are unprotected by an ovary or fruit.

Get up close to the Scots pine by taking a virtual tour using the Pappus film library.



Botany glossary (part 2)

Needles leaves of conifers that have evolved to retain more water by reducing their surface area to reduce evapotranspiration.

Ovule an unfertilized egg.

Pollen fine powdery like grains found on the anthers of male stamen.

Scale a feature in which the ovule attaches itself at the bottom.

Stamen male part of the flower, each comprising a filament and anther.

Seed a fertilized ovule that contains the plant embryo.

Psithurism – the study of arboriculture symphonic acoustics. Pines have a special uplifting restorative and calming sound to them

“Among plants and trees, those with large leaves have a muffled sound; those with dry leaves have a sorrowful sound; those with frail leaves have a weak and unmelodic sound. For this reason, nothing is better suited to wind than the pine.”

Liu Chi (14th C. - China).

Oldest – Largest – Tallest

The oldest scots pine on record is a 589-year-old tree in Pchelarovo, Bulgaria.

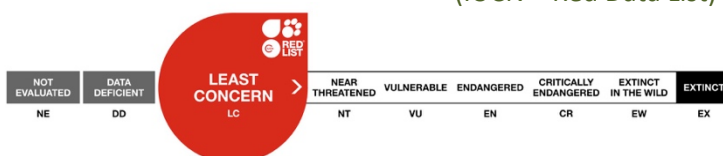
The tallest known tree stands at 46.6 metres and is from Estonia

The tree with the thickest trunk-girth is found in Scotland and has a girth of 5.97 metres.

Global distribution

Scots Pine occupies a range from Spain in the west to the far east of Russia, while its latitude extends northwards into Scandinavia (70 degrees) and south to the mountains of the Spanish Sierra Nevada (37 degrees).

Global species risk of extinction (IUCN – Red Data List)



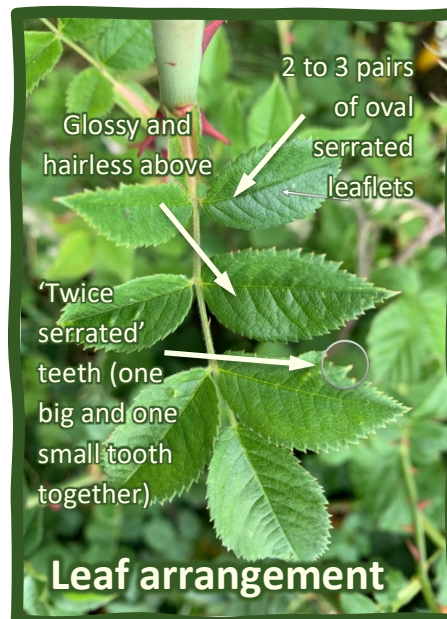
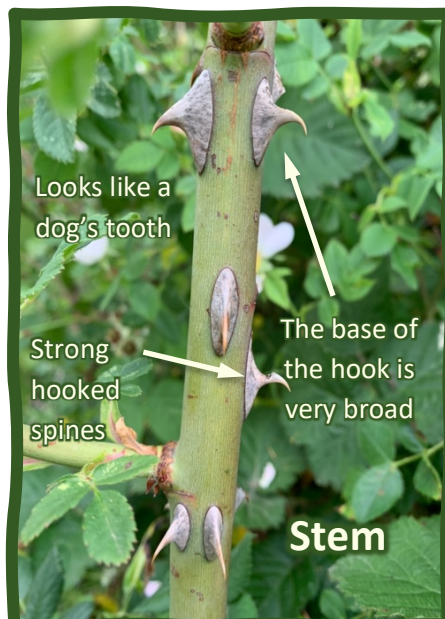
Bark tends to be thicker and more deeply fissured at trunk bottom

Young trees tend to be tall and slender

Plant shape (habit)

PLANT ID: dog rose

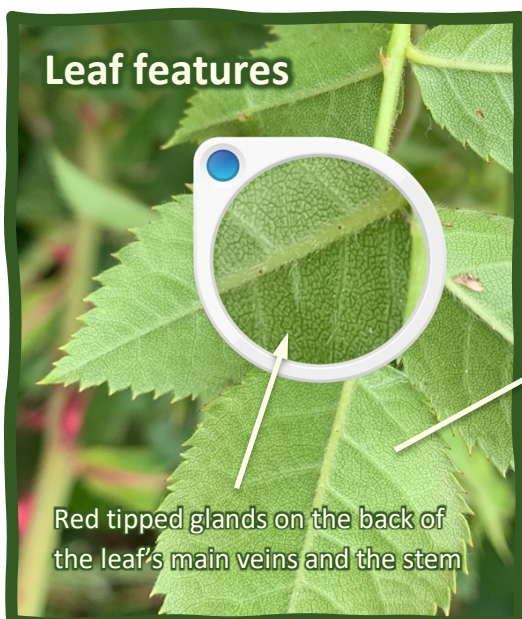
Rosa canina L. (agg.)



Fruit

The fruits of the dog rose are known as 'hips' or 'rosehips' and come in a variety of sizes and shapes. If they aren't eaten by birds, they can be seen throughout autumn and into early winter.

Cooks prize the hips, and use them for jams, jellies and infusing syrups and alcohols such as gin!



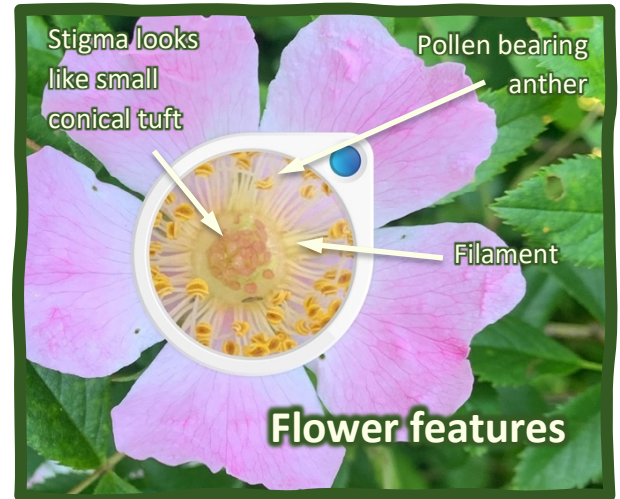
England's national flower – the rose – is sadly *not* one of its native wild roses.

PLANT ID: dog rose *Rosa canina* L. (agg.)

Helpful ID tips:

- ✓ Are the leaves hairy or not?
- ✓ What's the arrangement of the styles/stigmas on the hips?
- ✓ Are there any glands on leaves or fruit stalks?
- ✓ What does the plants habit look like? Describe the nature of the stem prickles and sepal lobes.

Scratches from the sharp thorns are a plant forager's 'rite of passage'!



Flower features

Look for 'whiskers' on each sepal

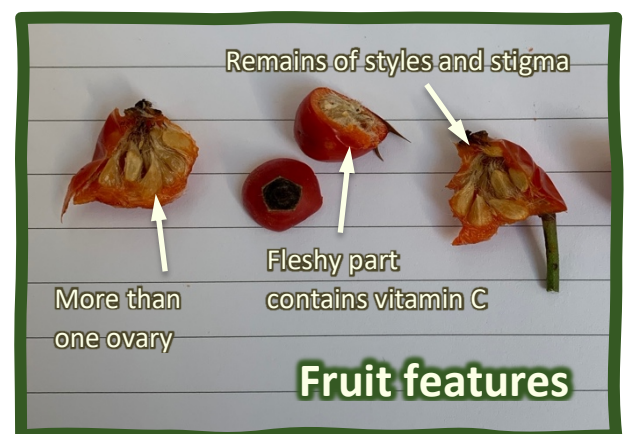


Robin's pin-cushion

Caused by gall wasps chemically distorting a leaf bud

Rose galls – known as Robin's Pin-cushion (*Diplolepis rosae*) were used in the distant past as amulets, believed to ward off whooping-cough.

Fruit features



Reproduction strategies:

Pollination: the plant is pollinated by insects. Dog roses are not choosy about the source of their pollen and so are known to hybridize with each other, which is why they always appear to have so much variability and create so much confusion when trying to identify them accurately.

Seed dispersal: the seeds are spread by birds and mammals.

PLANT ID: dog rose

Rosa canina L. (agg.)

Fact File:

CURRENT STATUS: Least Concern of becoming extinct

LOCATION: Found across the U.K, Europe and beyond

Plant Description (aka Taxonomy)

It is a member of the Genus – *Rosa*, which forms part of the rose family (*Rosaceae*). It grows as either a ground scrambling plant up to 3 – 4 metres, or as a climber reaching high up into the canopy (9m high) - resembling a rainforest vine. Known for its delicate pink to white flowers followed by bright red fruits (hips).



Flowers: June - July.

Flower Structure:

Flower colour is variable between white to pale pink and typically 4-6cm across, existing in groups of up to 6 individuals. Immediately beneath, are five pinnately lobed sepals that spread outwards (initially) before reflexing downwards against the fruit (hip) then falling away before the hip ripens. The stigma is likened to a small conical tuft.



Fruits:

September, October, November.

Fruits are called Hips and are 1.5 to 2cm long. Their size and shape range between round to elongated egg shape. Their surface is smooth and red when ripe.



Leaf:

A pinnate toothed leaf comprising 2-3 pairs of ovate leaflets that are glossy and hairless above, but sparsely hairy or glandular on the main veins of the underside of each leaflet. Leaf teeth are usually **twice serrate**. An elongated stipule extending from stem along a spiny and usually reddened petiole.



Habitat:

It is found growing in hedgerows, scrubby areas, woodland edge, waste ground, cliffs and railway embankments.

ALIASES

Also known as the cock bramble, wild rose, hip rose, dog rose and referred to as 'eglantine' by Shakespeare

What to look for



The leaves and the ripe fruits (hips) provide the most reliable way of identifying them.

Best time to see it and use it

- Fruits or 'hips' as they are commonly named, are ripe for picking from September onwards, especially after frosts or a night in the freezer.
- If the birds don't get to the hips too early, then they can be seen throughout autumn and into winter.
- June to July: summer walks to smell its blossom and see its interstellar like flowers glow brightly from the deepest and darkest of hedges.

Stem and trunk

A climber which often has thick and reddened (in places) arching stems that usually have robust curved/hooked spines (5mm wide at base) appearing like an old-dog's tooth.

FOOD WEB

Nectar gathered by insects. Rosehips are eaten by birds, mammals and humans. The leaves are eaten by caterpillars of moths and leaf mining

IMPERSONATORS:

There are three other common wild roses that you will encounter ...

Field-rose (*R. arvensis*) also a scrambler, but only growing to 1m and has narrow-based arching prickles and weak green stems.

Sweet-briar (*R. rubiginosa*) leaflets and flower pedicels covered in brownish sticky glandular hairs that are apple scented when rubbed.

Burnet rose (*R. spinosissima*) stems with many long straight narrow bristles of different lengths and a black globose fruit. Typically found on the coast.



PLANT ID: dog rose *Rosa canina* L. (agg.)

What's in a name? Dog rose's Latin name, *canina* is derived from the ancient Greek belief that a tincture from the root was a cure for the bite from a rabid dog! The physical characteristic of the plant's sharp spines that in fact resemble an old dog's canine tooth and have the potential to inflict as much damage to the skin is probably more plausible.

Botany glossary (part 1)

Anther pollen-bearing part of the Stamen (male) found at its tip.

Filament a slender stalk that is part of the stamen.

Gall abnormal swellings of plant tissue

Hips name given to the fruits of Roses.

Leaflet smaller sub-component of a compound leaf; a smaller leaf.

Botany glossary (part 2)

Ovary a fused case in which there are one or more chambers in which the ovules are attached.

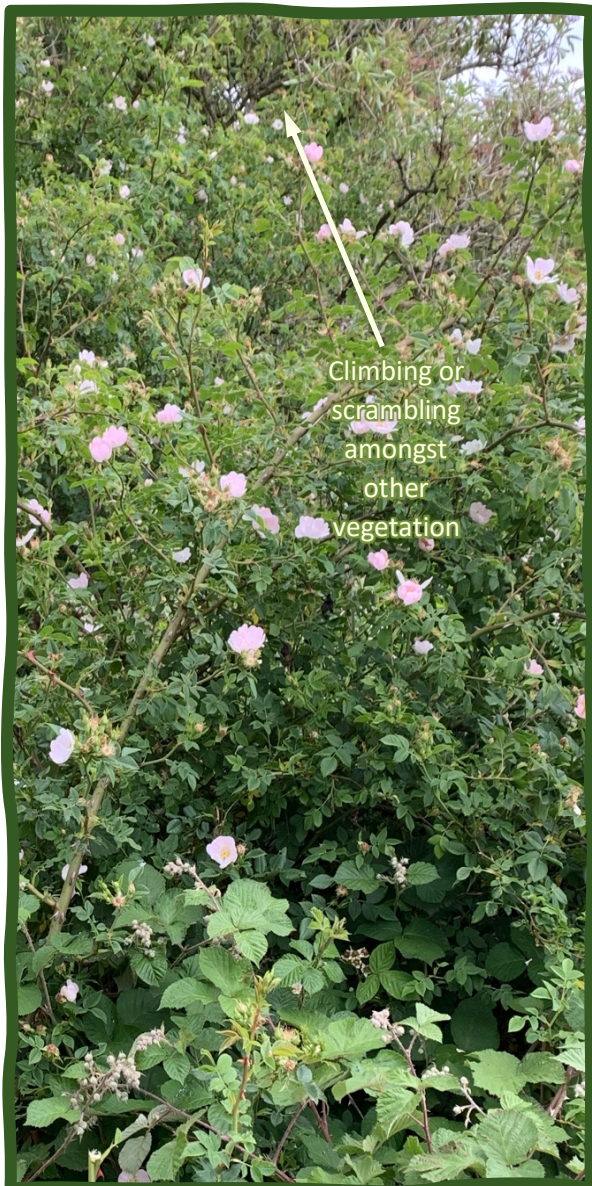
Pedicel the stalk of a single plant flower.

Petiole a stalk of a leaf.

Stamen male part of the flower, each comprising a filament and anther.

Stigma female part of the flower that transfers pollen collected from pollinators (e.g. bees) to the ovary.

Get up close to the Dog rose by taking a virtual tour using the Pappus film library.



The Dog Rose folk riddle:

The Five Brethren of the Rose is still today useful in helping identify the roses of the very variable '*canina*' group:

*"On a summer's day, in sultry weather,
Five brethren were born together.
Two had beards and two had none
And the other had but half of one."*

What does the riddle mean?

The Brethren refers to the five sepals of the dog rose, of which two have whiskers on both sides, while two are quite smooth and the fifth one is whiskered on one side only.

Global distribution

A native species that exists throughout almost all the UK and extends across Europe.



www.GBIF.org
bsbi.org

Global species risk of extinction

(IUCN – Red Data List)

Dog rose's existence is classed as of 'Least Concern'

